
Innovation and Organisation: Towards an Art of Social System Design

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Abstract

A new field of design activity is emerging, where the focus of designers is being directed towards seeking innovative resolutions to organisational problems that are beyond the reach of traditional fields of design. The objects of design are immaterial; they are the concepts and structures that shape and direct the complex social systems that we all inhabit. Design thinking, design in thought and language, is central to this new field, however there is yet to emerge a substantial and coherent body of research into the theoretical foundations and effective methodological frameworks as a basis for the ongoing development of this field of design practice.

This thesis makes an argument for this new design, named here as ***social system design***, the primary characteristic of which concerns relational invention of, and in, thought and language. Firstly, a perspective is developed on design that is sufficiently broad as to encompass immaterial invention and production. This perspective is brought together with a description of the distinctive and special characteristics of human, or social, systems in order to enable the key criteria for *social system design* to be outlined, if it is to be relevant to innovation, in and of, complex relational settings.

The fundamental premise that this thesis examines is furnished by Richard Buchanan, who, in positioning design as a new '*liberal art of technological culture*', argues that the discipline is a modern incarnation of rhetoric. This could be easily dismissed if Buchanan had in mind the degraded and fractured rhetoric received into modernity. However his argument gains solid footing as he looks to rhetoric in its ancient forms, when it was constituted as a dynamic art of relational inversion and judgement in idea and word concerning the best courses of social and civic action.

Rhetoric plays a central part in developing the arguments for both theory and method for *social system design* in this thesis, therefore making a contribution towards consolidating this as a recognised and viable field of design research and practice.

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For my dad, Terry Graham

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Introduction

i. Outline

There is significant evidence in both academic and professional literature that forms of design are being applied to diverse business and organisational problems, beyond the traditional realms of design, such as the design of visual communication, tangible products and the built environment. The complex, immaterial and social systems and structures characteristic of any collective human enterprise have themselves become *objects of design*. This is taking place across business, public sector organisations and third sector enterprises.

In his abstract from a presentation given at the 32nd International Design Management Conference held in Virginia in 2007, Gianfranco Zaccai, CEO of Continuum, succinctly describes this trend:

*'Design is being embraced by business as never before and past projections of a brave new business world based on design consciousness are beginning to be manifest ... our experience has been that design in business is more than the discovery process and the physical result. As such, our focus is morphing from product design to system innovation, from communication design to experience design, and from design research to sustainable business innovation for a global, multicultural, fluid constituency.'*¹

The implication of the shift described by Zaccai is that emphasis moves from the particular skills of crafting the tangible and visible products of mainstream design disciplines by individual designers, towards innovation in social systems, organisations and civic institutions pursued by collaborative, multi-disciplinary communities applying a general capacity for design and design thinking.

The practices signposted by Zaccai have been emerging in a fragmented way, with individual practitioners often employing proprietary approaches guided by intuition. What is yet to emerge is a substantial body of research and thought that seeks to establish a coherent basis for these emerging applications, to explore propositions for appropriate methodological frames and to provide guidance for future practical applications.

¹ Gianfranco Zaccai, "The Future of Design Is Not What It Used to Be," in *The 32nd International Design Management Conference* (Kingsmill Resort & Spa, Williamsburg, Virginia, USA: Design Management Institute, 2007). *My emphasis*.

This thesis aims to contribute to the beginnings of such a conversation, and with a view to contributing to an understanding of these new practices, and marking the emergence of a new field of design activity, named in this thesis as *social system design*.²

ii. Structure of Argument

The overall argument for *social system design* developed in this thesis is structured on **five** primary tasks, which are reflected in the chapter structure outlined in the last section of the Introduction.

The **first task** is to build support for understanding design as being sufficiently broad in scope as to enable new kinds of practice to emerge and be included within design. Richard Buchanan stands with Herbert Simon and his perspective that locates design as a broad civic discipline, concerned with an *'intellectual free trade'* in ideas on making and acting in situations of *'great complexity'*. The ambitious nature of Simon's perspective is revealed as he states: *'the proper study of [humankind] is the science of design, not only as the professional component of a technical education but as a core discipline for every liberally educated [person].'*³ As will be developed in Chapter 2, Buchanan, along with the design theorists Victor Margolin and Clive Dilnot, has based his arguments for considering design as a broad civic art on Simon's conceptualisation of design.

Placing to one side Simon's positivist orientation, his expansive vision provides a basis for understanding design as a humanistic enterprise that covers territory far beyond traditional boundaries and argues for design as a discipline in which everyone can, and perhaps should, participate. As Simon noted *'everyone designs who devises courses of action aimed at changing existing situations into preferred ones.'*⁴ This focus on **situation**, rather than medium, enables design to be extended beyond material production into the realm of innovation and production in immaterial forms.

Taking these cues, Buchanan builds a case for design as a new *'liberal art'*, meaning: *'a discipline of thinking that may be shared to some degree by all men and women in their daily lives and is, in turn,*

² This naming is not intended to serve as a formal title; it is adopted in this thesis as a convenient descriptive placeholder for the purpose of providing a focus for developing an argument. It should be noted that Bela Banathy used the phrase *'Designing Social Systems'* as a title for his 1996 book: Bela H. Banathy, *Designing Social Systems in a Changing World* (New York: Plenum Press, 1996).

³ Herbert A. Simon, *The Sciences of the Artificial* (Cambridge, Mass.: MIT Press, 1981). p. 83.

⁴ Ibid. p. 111.

*mastered by a few people who practice the discipline with distinctive insight.*⁵ In other words, an art that is accessible to many but mastered by few.

Within the broad outline for design developed in the first task, the **second task** is to investigate the significant characteristics of complex social systems as a precursor for developing a workable description of *social system design*. To accomplish this task, the emergence of a systems orientation in modern consciousness and the scientific basis of mainstream system studies is examined. The convergence of systems and science is then challenged through a series of critiques for the purpose of identifying the characteristics of complex social systems that mark them as distinct from systems in general.

Having outlined the characteristics that distinguish complex social systems, the **third task** is to construct an argument furnishing a description of foundational concepts and significant tenets and characteristics of *social system design*. The findings developed in the first two tasks are brought together in order to propose significant aspects of complex social systems. These are used to propose central tenets and the central role for language and knowledge in the practice of *social system design*.

The **fourth task** in this thesis is to interpret and draw upon rhetoric to develop methods for *social system design*. In arguing for the potential civic and social contributions that design can name, Buchanan highlights that the intellectual dispositions and particular ways of thinking designers develop both provide a unifying theme for the diverse expressions of design, and would occupy a central place in becoming a civic art. These observations correspond with Buchanan's second contribution to this thesis: namely the proposition that design can be considered as a contemporary corollary of ancient rhetoric.

There are other precedents for an investigation of design from the perspective of rhetoric,⁶ however Buchanan's comprehensive and sustained theoretical development spanning nearly 20 years, provides the most apt basis on which to develop this proposition further.

⁵ Richard Buchanan, "Wicked Problems in Design Thinking," in *The Idea of Design*, ed. Victor Margolin and Richard Buchanan (Cambridge, Massachusetts: MIT Press, 2000). p. 6.

⁶ See for example: Gui Bonsiepe, "Design - the Blind Spot of Theory or Visuality | Discursivity," *Conference April 21, 1997* (1997). <http://www.guibonsiepe.com/pdf/visudisc.pdf> (accessed 12 July 2011).; Ellen Lupton and Hanno H. J. Ehses, *Rhetorical Handbook: An Illustrated Manual for Graphic Designers* (Halifax, Nova Scotia: Design Division, Nova Scotia College of Art and Design, 1988).; Gesche Joost and Arne Scheuermann, "Design as Rhetoric - Basic Principles for Design Research" www.geschejoost.org/files/design_as_rhetoric.pdf (accessed 20 July 2012)., *translated from*: Gesche Joost and Arne Scheuermann, *Design Als Rhetorik : Grundlagen, Positionen, Fallstudien* (Basel: Birkhäuser, 2008).

Juxtaposing design with a civic inventive art operating in the domain of the **contingent**, such as rhetoric, brings to the fore the characteristics of design that are often obscured by a focus on the material aspects of invention and production; design shares with rhetoric a focus on the intellectual dimensions of invention, on the central role of language in conceiving, constructing and holding ideas, concepts and designs. Further, any design can be considered as an argument, as a series of propositions crystallised for the purpose of being placed before an audience for judgement and, if successfully argued, acceptance.⁷

However, as Buchanan notes, this has not been widely embraced or developed: *'[i]ronically a unifying theory of rhetoric remains surprisingly unexplored and ... most needed in the larger field of design'*.⁸ While Buchanan's arguments with respect to rhetoric encompass design in general, this thesis will focus on the particular form of *social system design*. Given the prominence of design in immaterial forms in the domain of social challenges, the field of rhetoric has significant relevance for a kind of design concerned with invention primarily in thought and language.

Having built an argument for broadening design, defining the scope and nature of *social system design* within a broadened design and constructing an interpretation of rhetoric, the **fifth task** focuses on a series of what are argued to be key elements of method drawn from rhetorical scholarship and connected to examples of social and immaterial design in practice.

iii. Research Question

The five tasks described above are framed by a guiding research question. The core hypothesis informing my work is that methods drawn from classical rhetoric can provide a rich source of innovation for the challenges of focusing design on social or human systems.⁹ Thus my primary question is:

'How can methods of design and design thinking focused on tackling the challenges of complex social systems be developed, influenced by new directions in rhetoric?'

⁷ For a concise precise of this perspective, see: Richard Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice," *Design Issues* 2, no. 1 (1985).

⁸ Ibid. p. 4.

⁹ Peter Checkland has referred to such situations as human activity systems.

This is not being pursued from a purely speculative basis. For more than 10 years, I have worked with a niche management consulting firm, 2nd Road,¹⁰ which has employed a form of design that focuses on social situations and systems, operates in the realms of thought and language, and has been honed via experience in the crucible of commercial consulting practice. Led by Tony and Anne Golsby-Smith and mentored by Richard Buchanan, the firm rejected the analytical and engineering based approaches of mainstream consulting, described as '*Greater Taylorism*'¹¹ by Walter Kiechel, and instead pursued a vision that the meeting of organisational challenges, such as determining strategy, is a creative, humanistic enterprise. To this end, the eclectic mix of qualified designers and other professionals at 2nd Road draw on aspects of rhetoric in order to apply design to a diverse array of organisational challenges.

This thesis draws on these experiences as the basis for directing inquiry towards relevant and useful areas of scholarship. The intent of this research project is not simply to catalogue and describe the practices accumulated in the 2nd Road consulting practice, but to build arguments for theoretically founded organising concepts, methodological frames and elements. These frames and elements are supported by examples and illustrations drawn from experience, in order to build a bridge between theory and potential future development in real-world design practice.

The methodological significance of my industry experience within this research project is addressed in detail below, in 'Approach and Methodology'.

iv. Qualifications

Drawing from interpretations of the arts of rhetoric, this thesis is concerned with proposing foundational and methodological elements for an emergent field of *social system design*. It is important at this juncture to describe the ways in which the elements of this argument proceed in relation to the scholarly background from which they are drawn. To this end, the scope of social systems and design will be defined, and potentially contentious aspects of developing method in design, the use of rhetoric, and the relationship of design to society are qualified and clarified.

¹⁰ See: www.seconddroad.com.au.

¹¹ Walter Kiechel, *The Lords of Strategy : The Secret Intellectual History of the New Corporate World* (Boston, Mass.: Harvard Business Press, 2010). p. 4.

a. Defining the Scope of Key Terms

Particular terms are employed to describe *social system design*. Where the term **art** is used, it is done so to describe *social system design* as a coherent body of theory, method and practice. This particular term has been chosen for two reasons. Firstly, it is an attempt to connote *social system design* as more than a simple process or a superficial approach, but to avoid the pitfalls of referring to it in a way that conveys a formal and bounded quality not consistent with *social system design* as one design art interdependent with others. Secondly it has been chosen in order to highlight the nature of productive knowledge in design, in contrast to scientific knowledge.¹² The term **discipline** is used to refer to entire domains of knowledge and practice, as in the discipline of design, consistent with how it is employed by authors such as Simon and Buchanan.

It is clear that the term **social system** could encompass situations ranging in scale from a small gathering of people to a whole society. However, when it is deployed in this thesis, it should be understood that the term focuses on organisations¹³ and the situations that occur within them.

It should be noted that the emergent design practices described in this thesis are distinct from the well established and understood roles of design within organisations where design is directed towards innovation in product, service, brand or experience. They are further distinct from the concerns of managing such design capabilities; activities that serve as the primary focus for organisations such as the *Design Management Institute*. As will be argued, however, the *products of social system design* are interrelated with the activities and products of these other design domains.

Finally, the title of **social system design** is employed in this thesis to distinguish the kind of design being developed from other kinds of design. It is intended to operate as a functional semantic placeholder, picking up the three intertwined themes of a social dimension, of systems and of design that are developed at length in this investigation. It is not intended to be a formal or permanent title; if this sphere of design activity becomes better established over time, it is very likely that it will do so under a different title. My hope is that arguments such as this provide a focus for engaging a new generation of designers, and to provoke further exploration for future development of *social system design*. Lastly, it is important to note, as discussed below, that this naming does not imply that the total design and control of social systems is a desirable, let alone achievable, end.

¹² *The use of the term art is explored further in Chapter 2.2.1.*

¹³ *The range of organisations includes public, private and Not For Profit. The organisation has become the primary means of achieving collective ends in modern societies. This is developed further in Chapter 3.3 through the work of Geoffrey Vickers, see for example: Geoffrey Vickers, Making Institutions Work (New York: Wiley, 1973).p. 12.*

b. Qualifying Key Themes in the Thesis

While developing *design method* is a significant focus for this thesis, it should not be assumed that this represents a uncritical revisiting of the '*design methods movement*'¹⁴ of the 1960s, aimed as it was to '*scientise design*' and uncover the universal, '*objective*' and analytical procedures by which design would proceed.

This movement, as described by Nigel Cross, emerged from the success of Operations Research and the subsequent extension of the engineering foundations of this discipline into other domains, such as the fields of design and management.¹⁵ In the 1970s, however, Cross notes that there was a rejection of the fundamental premise of this movement, with luminaries such as Christopher Alexander and John Chris Jones dissociating themselves from the field they once championed. The focus on design methods did continue, particularly in the domain of engineering and technology design, however Cross identifies the work of Donald Schön as providing a breakthrough into a new frame; where knowledge and method in design could be sought, not in terms of the pure and applied sciences, but in terms of its native practices and approaches. He advocated for '*an epistemology of practice implicit in the artistic, intuitive processes which some practitioners bring to situations of uncertainty, instability, uniqueness and value conflict.*'¹⁶ It is within the frame of design developed in its own terms that method and knowledge for activities of invention and production concerned with the artificial is to be pursued. The approach taken in this thesis aims to investigate the methodological implications for design while rejecting the ambitions of the Design Methods Movement to construct design as an applied science.

Designing in the domain of the immaterial brings thought and language to the fore as the primary medium of invention and production for *social system design*. The term *design thinking*¹⁷ is employed here to mark a territory concerned with the dispositional and methodological aspects of employing thought in design, and to differentiate from areas of research that focus on the cognitive

¹⁴ Nigel Cross, "Designerly Ways of Knowing: Design Discipline Versus Design Science," *Design Issues* Vol. 17, no. No. 3 (2001). p. 49.

¹⁵ Ibid. p. 49.

¹⁶ Ibid. p. 54.

¹⁷ See for example: Tim Brown, "Design Thinking," *Harvard Business Review* June 2008 (2008).

and behavioural dimensions of designers in action. The term ***design thinking*** has emerged as a useful title, a naming that has served to focus early attempts to characterise and build understanding of these emergent expressions of design across practices and practitioners. As championed by the designer Tim Brown and the journalist Bruce Nussbaum, the emergent expressions gathered under this rubric describe the efforts of many businesses, governmental and third sector organisations, in response to rapidly changing markets and growing demands for continual cycles of innovation, to embrace design, and in particular, design thinking.

However, while the subject of numerous conferences and publications, questions have emerged as to whether there is any substance to this movement, with Nussbaum himself declaring the end of design thinking.¹⁸ The early and tentative efforts to describe and understand the elements that mark out design thinking have gone little further than confining these practices to a loose collection of tricks and techniques, obscuring the broader potential of design understood as a liberal art. The problem lies in attempting to understand design thinking as independent of any broader disciplinary frame. It is necessary and important to differentiate design thinking from specific disciplines of design for the purpose of deliberation and development, however isolating this aspect of design from such a frame constricts focus to narrow technical matters. Anchoring design thinking in a broader methodological frame allows for its development in the context of evolving arguments for foundational theory and fundamental structures. It further enables integration with proposals for method and aspects of practice, supported by examples taken from commercial experiences of applying design and design thinking to a range of organisational challenges.

Qualification is also required for the use of rhetoric in this thesis. Employing ***rhetoric*** for the purpose of developments in design is potentially controversial. The intent of this thesis is to interpret and adopt into practice-oriented frames those approaches, methods and devices of rhetoric relevant for contemporary practice. As Michael Leff¹⁹ observed, rhetoric was originally pursued in practice with regard to action and performance, rather than tidy and logical classification schemas that are often the focus of rhetorical scholarship. Rhetoric is developed in this thesis as a

¹⁸ Bruce Nussbaum, "Design Thinking Is a Failed Experiment. So What's Next? " <http://www.fastcodesign.com/1663558/design-thinking-is-a-failed-experiment-so-whats-next> (accessed 7 November 2011).

¹⁹ See: Michael Leff, "Up from Theory: Or I Fought the Topoi and the Topoi Won," *RSQ: Rhetoric Society Quarterly* 36, no. 2 (2006).

practical art, not the subject of historical analysis. In this spirit, rhetoric is approached in this thesis as a pragmatic discipline with less concern for historical accuracy than for situational effectiveness.

The intent in this thesis is not to attempt to uncritically revive any particular past form or school of rhetoric, however there is a strong focus on ancient sources, and the works of Aristotle in particular. It is important to outline the relevance that engaging with the work of Aristotle has for this thesis.

It is Richard Buchanan's development of design in terms of ancient rhetoric that brings the works of Aristotle into direct relevance for this work. Buchanan was a student of, and influenced by Richard McKeon, who, in developing his *New Rhetoric*, looked to ancient sources and the works of Aristotle and Cicero in particular. The primary sources of rhetoric have therefore been approached via the perspectives of 20th Century scholars such as Richard McKeon and Kenneth Burke, whose works on interpreting and adopting rhetoric for a modern context are widely and well regarded. With such authors, rhetoric is not an ossified and arcane curiosity relevant only to the *ekklêsia* of ancient Athens, but a dynamic art capable of playing a significant role in modern civic and intellectual affairs.

It is also instructive to reflect on what would encompass an art concerned with **design** in and of **social systems**. It may be tempting to assume that such an art would be premised on reviving the 'total design'²⁰ ideologies of Walter Gropius and the Bauhaus, and its trajectory into modern areas of design, as charted by Mark Wigley. In exploring the 'totalizing ambition' of the architect as designer, and total design as 'a fantasy about control', Wigley traced expressions of this instinct from their inceptions in the early 20th Century arguing that despite many efforts to dilute this instinct it has a firm hold in architectural discourse. What Wigley proposes is that, rather than total design being an egoistic aberration, design itself is totalising: 'all design is total design.'

What is important is therefore not to deny the totalising impulse in design, but to ensure that it does not fall into hubris, or the apparent totalitarian impulses evident in the early modernist discourse. Wigley claims that such impulses will be defeated by the self-stabilising capacity of dynamic social systems, that the more the designer strives for control, the more marginal a position they will occupy in a broader context: 'a kind of inverse relationship exists between the huge scale of architects' fantasies and the smallness of the responsibility that are given.'²¹

²⁰ Mark Wigley, "Whatever Happened to Total Design," *Harvard Design Magazine* 1998. p. 18.

²¹ Ibid. p. 25.

It is nonetheless worth giving consideration to such a problem for an art of design striving to impact social systems. Keeping such ambitions in check can be firstly accounted for by marking a clear distinction between developing an architectonic influence, and the desire for total control. The second is to ensure design is developed in terms of, and as far as possible, by the constituents of a social system-in-focus. What this perspective brings to the fore is the relationship between design and the political.

The connection between design and the political is made explicit by Carl DiSalvo,²² who argues for forms of design he names *adversarial design* that are intended to create '*spaces of confrontation*' and contestation; the discursive arenas that serve as a crucible for healthy democratic interaction. He identifies a precursor and exemplar of qualities of adversarial design in *Critical Design*, a name coined by Anthony Dunne and Fiona Raby, to describe '*a mode of cultural production*' that does the work of posing questions that open up engagement with issues in society and culture; '*design that asks carefully crafted questions and makes us think*'.²³

DiSalvo names this work *agonism*, a term drawn from the political theories of *agonism* and *agonistic pluralism* developed by Chantal Mouffe.²⁴ DiSalvo argues for design as capable of instigating and sustaining civic and political development. He evokes Buchanan's juxtaposition of rhetoric and design, and the centrality of the notion of invention in argument to *political* design and demonstrates through examples that design is, in particular configurations, a civic, or political, art.²⁵ This is a significant theme for *social system design* and will be developed further in the closing section of Chapter 7.

v. Approach and Methodology

This section outlines matters of methodology and the approach employed in this thesis. An articulation of methodological considerations and their implications upon this research allows the different and diverse streams developed within the thesis to be viewed from a systematic perspective.

²² Carl DiSalvo, *Adversarial Design* (Cambridge, Mass.: MIT Press, 2012).

²³ Anthony Dunne and Fiona Raby, "Designer as Author," in *Design Act : Socially and Politically Engaged Design Today - Critical Roles and Emerging Tactics*, ed. Magnus Ericson, Ramia Mazé, and Iaspis (Stockholm: Iaspis, 2011). p. 58.

²⁴ See for example: Chantal Mouffe, *On the Political* (London; New York: Routledge, 2005).

²⁵ See the description of the *Million Dollar Blocks* projects: DiSalvo. p. 9.

a. Overall Approach of Thesis

As this thesis seeks to construct a series of propositions for the theoretical foundations and methodological frameworks of a new type of design activity, the approach taken is not one of analysis and explanation, but the drawing together of observable practices and established theory toward the construction of an argument. To this end, new empirical research is not included in this dissertation. As will be discussed in this section, the assumption that, within indeterminacy, general conclusions can be drawn from a concentrated focus on one or few particular situations is problematic. Instead, general propositions are founded on a diverse array of examples and experience.

The structure of the argument developed in this thesis is framed around a sustained engagement with literature, which serves as the basis for a series of investigations of key elements of design as it pertains to complex social systems. The first task undertaken is to draw from relevant experience and to survey diverse literature in order to provide sufficient evidence of the emergence of a kind of design that engages with the immaterial challenges of organisations and other forms of social system.

This survey is then followed by an investigation into established theory within the field of design that affirms the possibility of *social system design* as a legitimate type of design practice. Having established this foundation, propositions as to the significant characteristics of complex social systems and the attendant form of design are developed. This sets the scene for interpreting and drawing upon rhetoric in order to develop methodological frames and elements of practice for *social system design*. These propositions are supported by relevant cases drawn from commercial consulting experience, these serving as illustrative examples for how proposed methods might be employed by real communities tackling real problems. A more detailed overview of the structure of this thesis is presented below in 'Structure of this Thesis'.

The primary orientating perspective informing this thesis concerns the ontological distinction between the *universal* and the *particular*. This critical distinction is the basis for Herb Simon's marking out of those disciplines '*which are concerned not with the necessary but with the contingent – not with how things are but with how they might be – in short, with design. The possibility of*

*creating any science or sciences of design is exactly as great as the possibility of creating any science of the artificial. The two possibilities stand and fall together.*²⁶

This work consciously stands in the place of the contingent. This orientation plays a significant role in the development of argument in this thesis; the very possibility of design rests entirely on the mutable and variable nature of the domain of the contingent. Simon proposes that design is '*a 'common core' of knowledge, and not just of professional knowledge – though that too of course – but knowledge per se, knowledge in the wide sense.*'²⁷ This is crucial in arguing for an expanded role for design in tackling the challenges of the contingent, as the defining characteristic of the *human* and the *human-made* world.²⁸

The indeterminacy and intractable ambiguity intrinsic to the contingent holds significant implications for the epistemological orientations that structure inquiry in this thesis, as it does for both the form of research method and the topic of *social system design*. This turns on the conditions for knowledge between the universal and the particular. With inquiry into natural phenomena, the presupposition operates that a particular phenomenon or thing can adequately stand for the general; that observations and hypotheses formed on a particular can be reliably and reproducibly generalised. Meaningfully applying the methods of science to social situations requires that the scope of inquiry is sufficiently narrow as to allow for the control of conditions, accounting for variables and relevance of measurement. For any broad inquiry, this approach is problematic.

Within contingency, the question of what can be usefully generalised from any particular observation becomes significant – as Buchanan observes, '*there is no science of the particular.*'²⁹ It is not that any general can be drawn from a number of particulars, or interpretation or intervention in a particular cannot be guided by a general proposition. It is that, within indeterminacy, observations, however rigorously quantified and analysed, hold no intrinsic explanatory force towards the general social whole. It is only through incorporation into **argumentation** that any power to explain and persuade comes to the fore.

²⁶ Simon. p. xii.

²⁷ Clive Dilnot, "The Promise and Actuality of Design Research," in *Futureground - Design Research Society International Conference 2004*, ed. John Redmond, David Durling, and Arthur de Bono (Monash University, Melbourne Monash University Faculty of Art & Design, 2004). p. 20.

²⁸ *This will be explored at length in Chapter 2.*

²⁹ Buchanan, "Wicked Problems in Design Thinking." p. 17.

b. Locating this Thesis within a Research Tradition

Having established the broad approach to this research, and having described how this work is positioned against a background of ontological and epistemological considerations, focus can now turn to locating this study within the literature dealing with the methodologies of social inquiry.

As a precursor to this positioning, it is worth noting C. Wright Mills' argument for the importance of cultivating imagination in social inquiry: *'there is an unexpected quality about it, perhaps because its essence is the combination of ideas that no one expected were combinable say, a mess of ideas from German philosophy and British economics. There is a playfulness of mind back of such combining as well as a truly fierce drive to make sense of the world, which the technician as such usually lacks.'*³⁰

This description evokes for social inquiry a design quality, where the capacity for innovation is regarded as an essential counterpoint to the incapacity for the new that adherence to empirical technical procedure can induce.

In differentiating across broad research traditions, Gay and Weaver describe three pervasive traditions: *hypothetico-deduction* (empirical-analytical), *inductive-synthesis* (grounded theory, constructivism) and *critical theory*.³¹ This research project clearly does not conform to the tenets of the *hypothetico-deductive* category of method.

One could look to an approach such as grounded theory, an example of inductive—synthetic method, as a tradition in which to ground this research project. Grounded theory is described by its originators, Corbin and Strauss, as a *'qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon'*,³² positioning this approach as *'scientific'* to *'develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data'*.³³

The first problem is with respect to reproducibility. Corbin and Strauss themselves state that *'no theory that deals with a social ... phenomenon is actually reproducible insofar as finding new situations or other situations whose conditions exactly match those of the original study, though*

³⁰ C. Wright Mills, *The Sociological Imagination* (New York: Oxford University Press, 1959). p. 211.

³¹ Bruce Gay and Sue Weaver, "Theory Building and Paradigms: A Primer on the Nuances of Theory Construction," *American International Journal of Contemporary Research* 1, no. 2 (2011). p. 26.

³² Juliet M. Corbin and Anselm L. Strauss, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (Los Angeles, Calif.: Sage Publications, 1990). p. 24.

³³ Patricia Yancey Martin and Barry A. Turner, "Grounded Theory and Organizational Research," *Journal of Applied Behavioral Science* 22, no. 2 (1986). p. 141.

*many major conditions may be similar.*³⁴ This should give pause to any contemplation of empirical theory building with respect to broad inquiry into the social domain. The second problem lies with the assumption that it is possible to any degree to objectively assess empirical data within the indeterminacy and ambiguity of social complexity, to *'get through and beyond conjecture and preconception to exactly the underlying processes of what is going on'*.³⁵

A perspective more closely aligned with the themes of this research that redresses the problems grounded theory present to this work brings into frame Gay and Weaver's third category of method, **critical theory**. Max Horkheimer initially outlined the foundations for critical theory and observes that: *'[t]he facts which our senses present to us are **socially performed** ... they are shaped by human activity, and yet the individual perceives himself as receptive and passive in the act of perception'*,³⁶ where even though we may not appreciate it, we are bound to the historical and relational context of any social situation in which we are engaged.

Framing the chosen approach and method for this thesis in the broader context of scholarly endeavour can be achieved through an appeal to the declared intent of **critical theory**. This can be approached via Horkheimer's distinction between traditional approaches to theory that seek to analyse and explain, and *critical theory* with an end in social application in order to *'liberate human beings from the circumstances that enslave them.'*³⁷ The intent in this research is to focus on the methodological implications of critical theory, leaving aside the arguments relating to Horkheimer's adherence to Marxist ideology.

From this perspective, the approach taken in this thesis to construct a theoretical foundation for the purpose of practical application in pursuit of improving conditions for inhabitants of social situations is consistent with the aims of *critical theory*. Further, that this thesis seeks to draw from and provide a synthesis from across different disciplines is consistent with the emphasis within *critical theory*.

Reinforcing the connection between a kind of design concerned with social systems and an approach to theory founded on a commitment to critique and change strengthens the relevance of critical theory to design. Nikolas Kompridis furnishes this connection through his argument that *critical*

³⁴ Corbin and Strauss. p. 424.

³⁵ Barney G. Glaser, *Doing Grounded Theory : Issues and Discussions* (Mill Valley, CA: Sociology Press, 1998). p. 5.

³⁶ Max Horkheimer, "Traditional and Critical Theory," in *Critical Sociology: Selected Readings*, ed. P. Connerton (Harmondsworth: Penguin, 1976). p. 213.

³⁷ Cited in: Stephen P. Turner and Paul Andrew Roth, *The Blackwell Guide to the Philosophy of the Social Sciences* (Malden, MA: Blackwell Pub., 2003). p. 91.

theory has 'entered a post-Habermasian phase' where 'the predominantly confident defence of the universalistic content of reason typical of *The Theory of Communicative Action* is strikingly out of tune with post-1989 and post-9/11 modernity'.³⁸ Kompridis³⁹ goes to some length to outline a primary characteristic of modernity, the 'deep connection between crisis and critique' and 'how complexly enmeshed in the self-understanding of modernity are critique, crisis, and the need to begin anew'⁴⁰ and in doing so, 'reflectively renewing our traditions and self critically transforming our social practices and political institutions'.

The relevance to design of Kompridis' perspective of critical theory is evident in his observation that the imperative to begin anew requires a 'stance of anticipatory openness towards the future, to how things might otherwise be'⁴¹ coupled with an 'attentive stance towards the present' where we are concerned with working through, as Habermas described, the greater responsibility we hold for the 'proportion of continuity and discontinuity in the forms of life we pass on'. In calling for the need to foster 'the bundled set of reflective, critical, and innovative capacities through which human beings self-critically transform the social practices, cultural traditions, and political institutions which they inherit and pass on',⁴² Kompridis provides a description that could stand for a socially oriented kind of design.

Kompridis highlights 'the peculiarly modern experience of time'⁴³ and invokes Habermas' term 'time consciousness' to capture modernity's relation to time, and notes that the 'openness to the "novelty of the future" is what makes modernity historically distinctive.' Clive Dilnot develops the relation between *time consciousness* and design: 'in design, as in artefacture as a whole, there is no realm of being outside of time'⁴⁴ and noting that the problems that we most urgently need to understand and tackle are those of artifice, and names design as a space where we can reflectively and self-critically transform the human-made world, where it is 'possible to explore (experimentally, propositionally, as anticipation) the emancipatory consequences of the enmeshing of artifice and human interests.'⁴⁵

³⁸ Nikolas Kompridis, "Rethinking Critical Theory," *International Journal of Philosophical Studies* 13, no. 3 (2005). p. 299.

³⁹ Nikolas Kompridis, *Critique and Disclosure : Critical Theory between Past and Future* (Cambridge, Mass.: MIT Press, 2006).

⁴⁰ Ibid. p. 3.

⁴¹ Ibid. p. 5.

⁴² Ibid. p. 30.

⁴³ Ibid. p. 9.

⁴⁴ Clive Dilnot, "Design, Knowledge and Human Interest," in *WonderGround - 2006 Design Research Society International Conference in Lisbon*, ed. David Durling et al. (Lisbon, Portugal: IADE - Instituto de Artes Visuais, 2006). p. 4. *This significance of design for theory will developed at length in chapter 2.*

⁴⁵ Ibid. p. 8.

The renewal of *critical theory*, such as this perspective proposed by Kompridis, creates a strong connection and a deep philosophical wellspring for advancing the exploration of design, particularly where it is focused on the attainment of human good in social and civic settings. It creates a methodological context for this and future developments of *social system design*.

Design is a young discipline with much work to define the places and methods of design research and the relationship of this research to practice.⁴⁶ The dynamism of the field is exuberated by design to redesign itself, which echoes critical theory's '*self-referentiality*', and its vulnerability to '*epistemological crises*'⁴⁷ requiring ongoing reinvention and renewal. Cross sets the challenge for design in a frame similar to that being faced by critical theory. He describes a tension between '*Design-oriented Research*' and '*Research-oriented design*', where the former seeks out the '*true*', *based on logic and analysis and usually involving our academic peers*' and the latter focuses on the '*real*' *based on judgment and intuition and normally involving a client*.⁴⁸

In tackling the challenge of self-renewal, critical theory is exploring methodological pluralism and interdisciplinary modes of practice, and emergent theories of design, or the theorisation of emergent types of design practice, might garner much from this research tradition.

c. Locating this Thesis within Methodology Literature

Having located precedents for this research amongst critical theoretical approaches to social inquiry, attention turns to validating the particular research methods adopted in this thesis. The propositional nature of this thesis and its emphasis on developing argument for the future of an emergent form of design practice means that it does not sit easily within qualitative research orthodoxy, even that which has critique and change as a stated aim. A reliance on empirical methods co-opted from the sciences or the uncritical application of methods derived from social inquiry are necessarily avoided in this research project. There is, however, a prominent theme of reflection within the literature on method that provides for the possibility for alternative methodologies, as pursued under the banner of critical theory.

⁴⁶ See: Nigel Cross, "From a Design Science to a Design Discipline: Understanding Designerly Ways of Knowing and Thinking," in *Design Research Now*, ed. Michel Ralf (Basel · Boston · Berlin: Birkhäuser Verlag AG, 2007). p. 114.

⁴⁷ Kompridis, *Critique and Disclosure : Critical Theory between Past and Future*. p. 21.

⁴⁸ Cross, "From a Design Science to a Design Discipline: Understanding Designerly Ways of Knowing and Thinking." p. 115.

In order to argue for the non-orthodox approach adopted in this thesis, it is necessary to outline a number of precedents that challenge norms of qualitative methodology. In particular, focus is given to arguments that call for methodological pluralism, and to arguments that point to significant problems in understanding qualitative research only in terms of empirical procedure.

The problem of infiltration of positivist assumptions in social inquiry is highlighted by Ben Agger: *'Although the Vienna Circle's unreconstructed logical positivism has been defunct for decades, many working methodologists in the social sciences, especially sociology, are practicing positivists'*.⁴⁹ He notes that Habermas opposed *'the positivist dichotomy of knowledge and interest'* and the Frankfurt theorists' insights help to *'deconstruct methodology, showing that method, like the philosophy of science, is not simply a technical apparatus but a rhetorical means for concealing metaphysically and politically freighted arguments in the densely technical discourse/practice of quantitative analysis and figural gesture'*.⁵⁰ Agger argues against the unthinking use of quantification in social inquiry and instead advocates for method as argument, to *'be read and hence rewritten as a passionate, perspectival, and political text in its own right'*.⁵¹

Turning to the implications of indeterminacy for inquiry into social situations, James Bohman develops an extended argument for reconstructing critical theory: *'the indeterminacy of social action limits the scope of explanations in the social sciences ... and ... this indeterminacy justifies methodological pluralism as the best starting point for normative reconstruction'*.⁵² Bohman states that it has long been the aim within critical theory for objectivity in practice and that it attempts to seek out *'comprehensive social theory'* and universal explanation that *'must be correct regardless of ... political effects on a specific audience'*.⁵³ A consequence of indeterminacy, Bohman recognises that *'comprehensiveness does not ensure explanatory power'*, nor can there be a single aim of social criticism or a standard model of the social world.

⁴⁹ Ben Agger, "Critical Theory, Poststructuralism, Postmodernism: Their Sociological Relevance," *Annual Review of Sociology* 17, no. (1991). p. 119.

⁵⁰ *Ibid.* p. 119. *My emphasis.*

⁵¹ *In a similar vein, Kathy Chamaz outlines that a negative consequence of having available explicit method in social research can result in researchers treating 'method as a recipe for stamping out qualitative studies' resulting narrow and rigid application of method that 'fosters the production of superficial studies', in: Kathy Chamaz, "Constructionism and the Grounded Theory Method," in Handbook of Constructionist Research, ed. James A. Holstein and Jaber F. Gubrium (New York: Guilford Press, 2008). p. 398.*

⁵² James Bohman, "Pluralism, Indeterminacy and the Social Sciences: Reply to Ingram and Meehan," *Human Studies* 20, no. 4 (1997). p. 441. *My emphasis. It can be argued that there is an inverse relationship between the scope of inquiry and the scope of (scientific) explanation.*

⁵³ James Bohman, "Critical Theory as Practical Knowledge: Participants, Observers, and Critics," in *The Blackwell Guide to the Philosophy of the Social Sciences*, ed. S.P. Turner and P.A. Roth (Wiley, 2003). p. 93.

Against the universalising tendency, Bohman argues for a commitment to both theoretical and methodological pluralism, where grand theory gives way to practical social inquiry that grapples with the *'pretheoretical knowledge'* and self understanding present in the social situation and the need to *'move among different irreducible perspectives.'*⁵⁴ His review of the paradigmatic works of critical theory *'reveals neither some distinctive form of explanation nor a special methodology that provides the necessary and sufficient conditions for such inquiry. Rather, the best such works employ a variety of methods and styles of explanation and are often interdisciplinary in their mode of research.'*

Developing this, Bohman's path is to evoke what he calls a pragmatic *'Kantian'* approach, where proceeding via a **case by case** immersion in a particular situation provides insight into the limits of working theory and directions for new theory construction, it is social inquiry with a *'practical intent'*.⁵⁵ He rejects the *'engineering model'* of objectivist, remote inquiry and proposes an alternative interpretative form; one where participants are engaged in dialogue in order to reveal their own interest, knowledge and intent, but, significantly, he recognises that *'interpretation is not merely describing something'* and that, by engaging in this dialogue, *'commitments and entitlements'* are established, and the researcher absorbs the *'normative attitudes ... of the interpreted'*.⁵⁶

Although traditionally regarded as *'nonepistemic'*, Bohman resolves this challenge to the epistemic status of interpretative approaches to theory via a *'reflexive emphasis on the social context of inquiry and the practical character of social knowledge it employs ... as agents in the social world themselves ... participate in the creation of the contexts in which their theories are publicly verified.'*⁵⁷ This is a claim for **relational knowing**,⁵⁸ for the social construction of knowledge via publically judged and verified argument. The development of reflective practice, where the relationship between theory and practice is not employed for clarification, but is directed towards normative insights into social situations and institutions, has striking parallels to design considered as a civic art. Indeed, Bohman claims that such theory serves as a *'distinctive form of practical knowledge in modern society'*,⁵⁹ echoing Buchanan's description of design as a liberal art of technological society.

Qualitative methodological pluralism can be seen to encompass research that builds on cases drawn from experience. The management theorist and practitioner Henry Mintzberg distils the relationship

⁵⁴ *The Stanford Encyclopedia of Philosophy* Spring 2012 ed. (2012), s.v. "Critical Theory."

⁵⁵ Bohman, "Critical Theory as Practical Knowledge: Participants, Observers, and Critics." p. 94.

⁵⁶ *Ibid.* p. 97.

⁵⁷ *Ibid.* p. 100. *My emphasis.*

⁵⁸ *This will be developed at length in Chapter 4.*

⁵⁹ Bohman, "Critical Theory as Practical Knowledge: Participants, Observers, and Critics." p. 107.

between evidence and interpretation within indeterminacy: *'data don't generate theory – only researchers do that'*.⁶⁰ While not dispensing with data, he understands that building theory in these situations requires the rich information of experience: *'[t]heory building seems to require rich description, the richness that comes from anecdote.'* He notes that while empirical data can uncover connections, *'it is only through the use of this 'soft' data that we are able to 'explain' them, and explanation is, of course, the purpose of research'*.⁶¹

Parallels can also be drawn between the approach adopted for this thesis and Clark Moustakas' *heuristic research* method in the use of personal experience to guide research. Describing heuristic research as *'a way of being informed, a way of knowing'*,⁶² this approach requires that *'the investigator must have a direct, personal encounter with the phenomenon being investigated.'*⁶³

The focus of research begins with the *'data within'* and the challenge of research to undergo a process of self-inquiry and dialogue in order to *'discover and explicate its nature'* in a way that can lift out the *'essential meaning of an experience'* in order to bring to light insights of a *'social - and perhaps universal - significance'*.

As Agger noted,⁶⁴ even with such a method – one that rests on immersion in experience giving rise to acts of reflection and self-dialogue, with the noble aims of self-understanding and self-growth – the author seeks claim to scientific legitimacy. Such is the sway of positivism that despite building his method on solid philosophical ground, for example in his evocation of Michael Polanyi's concept of indwelling and Martin Buber's explorations on mutuality, he cannot see that rigour is possible outside of science.

Finally, Dilnot questions the viability of seeing design research in terms of *'causal explanation'*,⁶⁵ an approach that is appropriate to natural phenomena. He notes that design is *'emphatically a social and well as artificial phenomena'*, and so requires not determination but *'understanding which in this case means clarification and elucidation.'* This is a challenge to the simple assumptions that empirical modes of research are the only appropriate approach in design.

⁶⁰ Henry Mintzberg, "An Emerging Strategy Of "Direct" Research," *Administrative Science Quarterly* 24, no. 4 (1979). p. 584.

⁶¹ Ibid. p. 587.

⁶² Clark E. Moustakas, *Heuristic Research : Design, Methodology, and Applications* (Newbury Park: Sage Publications, 1990). p. 10.

⁶³ Ibid. p. 13.

⁶⁴ Ibid. p. 9.

⁶⁵ Dilnot, "The Promise and Actuality of Design Research." p. 29.

In looking to critical theory to provide context for the methodology employed in this research, the development towards concepts such as *reflective disclosure* distances the appropriate methods for social inquiry from empirical and analytical procedure. The engaged reflection advocated by Kompridis suggests a rhetorical approach and the employment of argumentation – my use of the term *argument* here is a deliberate one, drawn from rhetoric, and it is intended to highlight the propositional nature of this thesis: ‘... *all intellectual activity which is placed between the necessary and the arbitrary is reasonable to the degree that it is maintained by arguments and eventually clarified by controversies which normally do not lead to unanimity.*’⁶⁶ Thus it may be understood that rhetoric both contributes to content of this thesis and informs and guides the particular methods employed.

vi. Structure of the Thesis

Following the high level overview of the structure of the argument developed in this thesis, a more detailed account is discussed below.

Chapter 1 provides a survey of the evidence for the emergence of a new kind of design practice, and builds a perspective on its significant themes and characteristics. Expressions of design focused on immaterial and social systems can be found in a wide variety of sources. They are prominent in management and business literature, as well as mainstream publications dealing with organisational and business topics. It is argued that, while there are many examples of practice, there is yet to emerge a clear picture of a coherent theoretical and methodological frame for applying design to organisational systems.

Chapter 2 seeks to locate and describe within design literature a philosophical and theoretical foundation on which a social and immaterial form of design can be built, and this is found, primarily, in the work of Victor Margolin, Clive Dilnot and Richard Buchanan. Woven together, these authors paint a general picture of design as a broad civic art concerned with humanity’s relationship to the artificial world it constructs. The combined force of their arguments provides considerable scope for radically different forms of design practice to operate under the rubric of design, and this is the rationale for Buchanan’s identification of historical forms of the civic art of rhetoric as a corollary to modern forms of design.

⁶⁶ Chaim Perelman, *The Realm of Rhetoric* (Notre Dame, Indiana: University of Notre Dame Press, 1982). p. 159.

From this foundational positioning, **Chapter 3** examines the ground of *social system design*, and seeks to construct an adequate theoretical perspective on human, or social, systems. This is approached by first exploring the emergence of the systems orientation in twentieth-century scientific consciousness, and then by examining the important critiques of Rittel, Webber and Vickers that enabled human or social systems to be considered apart from the broader backdrop of the reductive and rationalistic approach as applied to system studies in general.

Chapter 4 builds an argument for the principles and critical characteristics that *social system design* should possess. In particular, an argument is developed for understanding *social system design* as more than a technical craft, but as a pragmatic form of a relational epistemology.

Having outlined the fundamentals of *social system design* in the preceding chapters, I focus in **Chapter 5** on critically surveying the field of rhetoric to identify within accepted scholarship a rhetoric that is dynamic, inventive and pragmatic, in order to strengthen and sharpen the argument that rhetoric is indeed an appropriate corollary to contemporary design. This is done primarily through the work of Richard McKeon, whose *New Rhetoric* did much to revive and reconstitute rhetoric as an art essential to civic life. This perspective underpins the move to access historical rhetoric, primarily through the lens of Aristotle's writing on this topic, although a wider net of modern and historical sources are used.

Chapters 6 and 7 then focus on the primary dispositional and methodological elements that would underpin *social system design*. Relevant concepts are drawn from rhetorical scholarship, in order to identify and structure key elements. These are then illustrated through reference to examples drawn principally from 2nd Road consulting projects. Chapter 7 concludes with the argument that *social system design* can contribute to pluralistic and democratic civic deliberation and action.

The thesis concludes in **Chapter 8** with a discussion of directions in which *social system design* may, in the future, proceed.

The argument presented in this thesis sketches out and contributes to establishing *social system design* as a distinctly **new type of design activity**. In doing so, the thesis aims to provide an avenue for the extension of design into the domain of social and civic concerns.

Chapter 1

A New Field for Design

1.1. Overview

Design has proven to be adaptive and remarkably supple. It has found expressions in many facets of modern business and wider life, with each particular domain of practice becoming institutionalised following evolutions in methodology and conceptual frameworks, and broader cultural trends.

The aim of this chapter is to lay the groundwork for a broad understanding of design, in terms of its scope and reach in modern culture, and, in so doing, to mark out the possible application of design and design thinking to a class of large-scale social or organisational problems and challenges. This will establish the validity of pursuing research in this emergent sphere of design.

John Heskett,¹ in *Toothpicks and Logos, Design in Everyday Life*, surveys the broad territory that design occupies: *'design is one of the basic characteristics of what it is to be human, and an essential determinant of the quality of human life.'*² He laments that very often design can be regarded as *'something banal and inconsequential'* and seeks to build an argument for design as the *'crucial anvil on which the human environment ... is shaped and constructed for the betterment and delight of all.'*

Heskett describes the diverse and often confusing array of design practices and terminologies, many of which have emerged in the last 100 years, and provides an explanatory theme that sees this historical development not as a *'neat chronological succession'* but as a *'process of layering'*, where *'the new evolution of a new stage of design does not ... replace what has gone before, but, instead, is layered over the old.'*³

Heskett's argument provides a succinct backdrop for this thesis, namely the idea that there is the possibility for the emergence of new kinds of design, layered over those that have emerged previously. He holds in view the primary question of whether design should broaden its focus to include social and environmental dimensions, working for *'technology to be humanised'*, and ensuring the benefits of such advances be made available to *'increasing numbers of people around the planet'*.⁴

¹ John Heskett is Chair Professor of Design at the School of Design, Hong Kong Polytechnic University, a post he took up after fifteen years as Professor of Design at the Institute of Design, Illinois Institute of Technology in Chicago (from www.johnheskett.net, accessed 7 November 2011).

² John Heskett, *Toothpicks and Logos: Design in Everyday Life* (Oxford: Oxford University Press, 2003). p. 4.

³ *Ibid.* p. 34.

⁴ *Ibid.* p. 200.

1.1.1. The Broadening of Design

Researchers, practices and organisations are grappling with the emergence of design applied in unconventional ways. In a study of a FedEx project undertaken by the design firm ZIBA, Breslin has observed that many new kinds of design are emerging and has succinctly summarised the question facing design:

*'[t]he nature of design is changing. We sense the shift in the products, people, and companies that surround us. We see traces in our language and processes. We feel that design is different, and yet the forces of change remain largely hidden and out of reach. How exactly are we designing differently, and why?'*⁵

Breslin posits that the connection between emerging practice and sound theoretical foundations is underexplored in the design community but is vital in building understanding in 'how design works' when it moves from traditional domains into different challenges, those of human systems and 'organisational change'.

Tim Brown, CEO of IDEO, provides another, aspirational perspective on this emerging consciousness within sections of the design community:

*'But now the stakes are higher. Urbanisation, global warming, crashing healthcare systems – four billion people living on less than a dollar a day – these are all changing the stakes of what we do as designers today. We can continue to be defined by the design briefs that naturally come to us, the next product, the next advertising campaign, the next range of clothing; or we can figure out how design can be more strategic, and play a part in tackling some of these issues in a way that actually maybe does create sustainable improvements in people's lives and create businesses that have a net positive impact.'*⁶

Brown has also contributed to an overview of how design is being applied to tackle social challenges.⁷ In a recent foreword to the *Design Theory, Design Thinking* series, Ken Friedman and Erik Stolterman have recognised the broadening of the reach of design and blurring of disciplinary

⁵ Maggie Breslin, "Ziba Design and the Fedex Project," *Design Issues* Volume 24, no. Number 1 Winter 2008 (2008). p. 42.

⁶ Tim Brown, "The Challenges of Design Thinking," *Intersections 07* no. 13 November 2007, Updated 16 November 2007 (2007). <http://www.designcouncil.org.uk/resources-and-events/Films/Intersections07/The-challenges-of-design-thinking/> (accessed 16 November 2011). p. 2.

⁷ See: Tim Brown and Jocelyn Wyatt, "Design Thinking for Social Innovation," *Stanford Social Innovation Review* Winter 2010 (2010).

boundaries: they argue that, driven by '*objective changes in the larger world*',⁸ such as increasing scale, complexity and information content, unifying themes for design are emerging and '*new frameworks of theory and research that address contemporary problem areas*' are required, and that increasingly challenges can only be addressed through engaging communities of design agents with a '*transdisciplinary focus*'.

An example of the broadening perspective on what is being explored in terms of design is Elizabeth Coleman's recent contribution to *Design Issues*,⁹ who, following a radical but successful redesign of a college admissions system, came to understand just how broad the reach of design was, indeed characterising the Articles of Confederation that shaped America as an act of design.

She argues that design, along with rhetoric, might have a central role in revitalising the liberal arts as a crucial dimension of education for robust civic discourse, and placing the ethos of design in its '*very powerful and profound relationship to the possibility of a robust ideal of citizenship*' at the heart of her argument. She marked design and rhetoric off as essential due to the effectiveness of these disciplines to conceive in thought and to effect in action, where multiple and competing options can be invented in an '*intrinsically open-ended, ambiguous, and changing world where subject matters are discovered not handed down ...*'.¹⁰ This moves design beyond products and services to a wholly immaterial domain.

In another field, William McDonough, a prominent practitioner of sustainable design and author of *Cradle to Cradle: Remaking the Way We Make Things*, advocates for design as a vital capability for a '*whole of system*' approach to improving quality of life within the limits of our ecological systems. '*Cities as influential as Chicago, and nations as vast as China, are applying cradle-to-cradle principles to community development and economic planning, showing the world that industry and ecology can indeed flourish together. All this, by design.*'¹¹

Following the heritage of Herb Simon's radical broadening of design – '*natural sciences are concerned with how things are ... design on the other hand is concerned with how things ought to be*' – Nigel Cross traces the development of design through attempts to make design an applied science, the rejection of this approach by prominent theorists such as Alexander and Jones, and on towards

⁸ DiSalvo. p. x.

⁹ Elizabeth Coleman, "Design Matters," *Design Issues* 26, no. 4 (2010). p. 3.

¹⁰ Ibid. p. 7.

¹¹ William McDonough, "Celebrating Human Artifice" http://www.mcdonough.com/writings/celebrating_human.htm (accessed 25 October, 2011). p. 1.

constructing design as a distinct knowledge discipline, arguing that '*design knowledge is of and about the artificial world and how to contribute to the creation and maintenance of that world.*'¹²

This may not appear a controversial statement until one reflects on the fact that the '*artificial*' is not confined to material structures and artefacts; the human-made world must encompass ideas, such as democracy, concepts that shape and govern civic structure and culture, such as are found in law, and the systems of communication and interaction that shape much of our attention and activity in modern life. Extending the scope of artifice leads to design becoming entangled with the social, the civic and the political.

These perspectives give some insight into the significant scope of the challenge and the opportunity that is being recognised and pursued in the name of design. Many of the descriptions of these emerging applications of design are drawn together under the rubric of *design thinking*. This is problematic for a number of reasons. Firstly, there is a fundamental ambiguity, where the term can be used to refer to a range of perspectives, from the kinds of thinking that designers do, to particular forms of design concerned with the immaterial. Brown has attributed the genesis of the term to David Kelley: '*David Kelley... said that every time someone came to ask him about design, he found himself inserting the word thinking to explain what it is that designers do. The term design thinking stuck.*'¹³ In 1987, Peter Rowe published a '*generalised portrait of design thinking*'¹⁴ viewed from the perspective of architecture and urban planning. He was not seeking to propose any particular direction for design and design thinking, instead providing an account of some of the ideas, procedures and practices evident at the time.

Little more than two decades on, the broad, and perhaps overly loose, application of the term to cover a range of phenomena has seen the term begin to lose its impact and efficacy. Bruce Nussbaum, once a prominent advocate of design thinking, has declared it a '*failed experiment*',¹⁵ attributed to the failed assumption that the tacit creative thinking of designers could be made explicit and deployed in organisations using well established linear business processes: those that '*promoted Design Thinking were, in effect, hoping that a process trick would produce significant cultural and organizational change*' and so deliver the benefits of creativity and innovation.

¹² Cross, "Designerly Ways of Knowing: Design Discipline Versus Design Science." p. 54.

¹³ Tim Brown, "The Making of a Design Thinker," *Metropolis* 2009. p. 60.

¹⁴ Peter G. Rowe, *Design Thinking* (Cambridge, Mass.: MIT Press, 1987). p. 1.

¹⁵ Nussbaum.

As an early semantic placeholder for focusing on the qualities of the design act that are distinct from the craft element of fashioning a material product, the term has been invaluable in elevating **thinking**, the cognitive dimension of design, to the fore. The problem is clearly not simply the term, but the conceptual territory that such a term would naturally map. Limiting focus simply to the intuitive, tacit ways that designers think obscures the perspective that what is required is not some 'process trick' for applied creativity, but a distinct art of design of the immaterial, with the necessary development of foundational theory, robust methodology and an explicable body of domain knowledge. The cognitive dimension of *design thinking* is not redundant; it has an important place in shaping the disposition required for *social system design*.

I have adopted the term *social system design*¹⁶ as a placeholder for my arguments for the development of this distinct type of design activity, both to distinguish this territory from the orthodox and recognised disciplines of design, and to hold in view the primary 'object of design' in which social system designers will engage. Banathy notes the 'increasing realization of the massive societal changes and transformations'¹⁷ taking place in the 'post-industrial ... knowledge era', recognizing that the **organisation** is a crucial focal point for reorienting and redesigning social systems for the purpose of dealing with the 'new realities and requirements of our era', stating that '... we are entering the twenty-first century with organizations designed during the nineteenth.' **Innovation** must focus not simply on the products of organisations but on the organisations themselves.

Although there is a significant body of evidence marking the emergence of a new kind of design, there is little evidence to date of any significant and coherent discussion on the possibilities of formalising an approach to the design of social systems. Nor has there been a significant focus on the theoretical and methodological frames that could begin to bring together the observable array of practices and examples into a unified body of scholarship.

My hypothesis is that while there are many experienced practitioners engaging in this work with some success, they are discovering that neither the methods of mainstream design nor the established process frameworks of business are sufficient to effectively tackle the emergence of

¹⁶ In adopting this title it is important to acknowledge the references to designing social systems made by the prominent Hungarian systems scientist Bela Banathy, although he did not use the term Social System Design; see for instance: Banathy.

¹⁷ Bela H. Banathy, "Designing Social Systems," in Systems Science and Cybernetics. Vol. 2, System Approaches : a Technology for Theory Production, ed. Francisco Parra-Luna (Oxford: Eolss Publishers Co Ltd, 2009). www.eolss.net/Sample-Chapters/C02/E6-46-02-04.pdf (accessed 22 Nov. 2011). p. 2.

complex, social and immaterial design challenges. As Tim Brown states; *"I think one place where we need to evolve as design thinkers is around our process. We can't necessarily rely only on the process that we developed before."*¹⁸ Progress towards these methods has been piecemeal, largely developed and applied at the level of tacit practice or through proprietary approaches. There are many prominent exponents of design thinking and design in business, such as Tim Brown, Roger Martin, Janet Liedtka, Richard Boland and Fred Collopy, who are highly articulate about the need for design thinking and can point to case studies and examples of where this practice exists, and where it has been successful. However there remains little evidence of any systematic understanding of the methods of this emergent art. While there are signs of development – for instance, Stanford University's d.school¹⁹ – much ground is yet to be covered.

1.1.2. Directions for *Social System Design*

This dissertation focuses primarily upon the movement of design into the domain of business strategy and organisational management. However, it should be noted that the principles and practices of *social system design* have the potential to be extended into a broader domain of social systems; that is, into the sphere of civic concern. The significant societal challenges, alluded to by Brown, will only be seriously tackled through deep collaboration between many organisations and institutions, drawn from different sectors, along with governments and, critically, communities.

In pursuing this question, there is no suggestion that the existing disciplines of design would be diminished in importance. The need for the products of current design practices will not diminish any time soon, and these will additionally be necessary and integral parts in addressing the challenges of human activity systems. What may change will be the context in which these disciplines are practiced and therefore the relationships between them.

It is intended that the audience for this work will be practitioners that are approaching the challenges of complex social systems through a designerly lens. These practitioners are not necessarily designers by qualification; a recent example of this is the awarding of a design prize by the British Design Museum to Hilary Cottam for work on social design projects with the UK Design

¹⁸ Brown, "The Challenges of Design Thinking." p. 5.

¹⁹ See: "D.School: Institute of Design at Stanford", www.ds.school.stanford.edu/ (accessed 10 September 2012).

Council.²⁰ This is not an exception: increasingly, the patterns of emerging practice accord with Herb Simon's aspiration that design should be a key component of every modern professional's know-how, where non-designers are not just participating in but leading social design ventures in a diverse variety of situations.

1.2. Beginnings: Evidence from Experience

During early 2002, I was engaged by the Australian Taxation Office (ATO) as a consultant delivering 'design facilitation'²¹ services, a role that reflected the relational dimension central to the ATO's design approach. John Body describes this work '*an emerging role brought on by the necessity to facilitate conversations across broad groups to grapple with the questions of desirability, possibility and viability*' where the design solution must be drawn not from a single mind, but from a diverse community of perspectives and knowledge domains: a '*design facilitator takes a group through a collaborative process of design thinking to create a picture of a future state that doesn't yet exist and one which is better from the perspective of multiple stakeholders and points of view.*'²²

In the three years leading up to this engagement, I had moved from my first career in mineral exploration into a role as a management consultant. One of my formative consulting experiences was an extensive involvement with a significant change program for Argyle Diamonds, where proprietary methods of conversation and visual thinking were employed to creatively develop organisational and operational strategies for elements of the business. It was these proprietary methods for using conversation and visual thinking, developed by Golsby-Smith and Associates,²³ which were a primary element in the ATO's approach to the facilitation of design, as referred to by Body.

²⁰ See: "Hillary Cottam", www.designmuseum.org/design/hilary-cottam (accessed 10 September 2012).

²¹ John Body, Nina Terrey, and Leslie Tergas, "Design Facilitation as an Emerging Design Skill: A Practical Approach," in *8th Design Thinking Research Symposium (DTRS8)*, ed. Kees Dorst et al. (Sydney: DAB documents, Faculty of Design, Architecture & Building, University of Technology Sydney, Australia, 2010).

²² Ibid. p. 64.

²³ *Golsby-Smith and Associates, since renamed as 2nd Road (www.secondroad.com.au), is a consulting firm owned and directed by Dr. Tony Golsby-Smith.*

Following the Ralph Review of business taxation in 1998 – 1999, the ATO established a project titled Integrated Tax Design (ITD).²⁴ Professor Richard Buchanan served as the project design mentor and so provided the architecture for this initiative through his evocative definition of design:

'Design is:

- a. The human power*
- b. of conceiving, planning and realising*
- c. products that serve human beings*
- d. in the accomplishment of any individual or collective purpose.'*²⁵

The intent was to take the term *design* to literally mean the application of design philosophies, principles and methods to the development of taxation mechanisms that reflect government policy intent and provide good experiences for taxpayers. The ITD project framed its activities using Richard Buchanan's *'four orders of design'*,²⁶ covering, from first to fourth, visual communication, material products, organised activities and living environments and cultures. ITD understood its focus to lie with the third and fourth orders, in the design of coherent interaction systems and compliance cultures, rather than discrete products or even services.

The senior executives of the ATO were seeking to address the fact that their *'prevailing approach of bureaucratic and rigid administration was 'burying' the organisation in paper'*,²⁷ and to overturn the negative perceptions of the office widely held by the community. The development of a *'taxpayer-centred'*, whole-of-system design approach has been credited with transforming the organisation into *'one of the most user friendly and effective revenue authorities in the world. (D'Ascenzo 2010).'*²⁸

The commitment by ATO management to this pioneering project has sparked similar efforts in other government agencies, with the New Zealand Inland Revenue Service creating an in-house design

²⁴ Alan Preston, "Designing the Australian Tax System," in *Managing as Designing*, ed. Richard Boland and Fred Collopy (Stanford, California: Stanford University Press, 2004). p. 208.

²⁵ Richard Buchanan, "Design Research and the New Learning," *Design Issues* Volume 17, no. 4 (2001).

²⁶ John Body, "Design in the Australian Taxation Office," *Design Issues* Volume 24, no. 1 Winter 2008 (2008). p. 57.

²⁷ Michael York, Otto Wicks-Green, and Tony Golsby-Smith, "Cultural Transformation: 20 Years of 'Design Thinking' at the Australian Taxation Office: Some Reflections on the Journey " in *8th Design Thinking Research Symposium (DTRS8): Interpreting Design Thinking*, ed. Kees Dorst et al. (Sydney: Faculty of Design, Architecture & Building, University of Technology Sydney, Australia, 2010). p. 416.

²⁸ *Ibid.* p. 416.

capability following contact with the ATO,²⁹ and the development of design capabilities in progress in other Australian federal government agencies, such as the Customs and Border Protection Service and the Department of Immigration and Citizenship.

At the outset of my engagement with the ATO, I did not realise the radical nature of what the agency was attempting. It was only as I began to engage more widely in the design community that I saw the extraordinary nature of this initiative, which was pioneering not just in the sense of applying design to the administration of a taxation system, but also, and most significantly, pioneering an expression of design itself. The ITD project was required to develop many of its own approaches, as there was little in mainstream design practice that could be directly adopted.³⁰ Still evolving today, the ATO experiment serves as an exemplar of the emerging trend of seeking to apply design methods to organisational and human system situations and challenges that go beyond the mainstream or traditional focuses of design practice.

1.2.1. 2nd Road: A New Design Practice

Following on from my work with Argyle Diamonds and the ATO, I engaged with 2nd Road,³¹ a commercial consulting firm that specialises in applying design to strategy and organisational systems innovation, and became deeply involved in developing consulting practice and educational models for the introduction and integration of design and design thinking into a diverse range of private, public and third-sector organisations. The management consulting industry is dominated by firms whose practice rests on analytical approaches, highly formalised processes and technical advice. As documented in the book *Lords of Strategy*,³² management consulting is a relatively new industry founded on the concepts and principles of engineering, where an organisation and the market it operates in is modelled as a series of mechanisms.

The practices of 2nd Road are heavily influenced by its founder, Tony Golsby-Smith, who brought his liberal arts background and deep knowledge of the written and spoken word to this field. With the guidance of Richard Buchanan, the firm has brought these arts of language and the arts of design

²⁹ Karen McLean, Jim Scully, and Leslie Tergas, "Inland Revenue New Zealand: Service Design in a Regulatory Context," *Design Management Review* 19, no. 1 (2008).

³⁰ *On a personal note, I often wonder whether ATO senior management would have pursued the integration of design had they fully realised the audacity of what they were undertaking.*

³¹ See: www.secondroad.com.au

³² Kiechel.

together to address topics of strategy and organisational innovation. Many of the practices and examples described in this thesis are taken from this experience.

During the course of accumulating this practice experience, two themes have emerged, which describe the ways that design thinking and an emergent *social system design* have been developed and applied. These are:

1. The creation of strategy, including strategic arguments, concepts and models, and the integration of innovation into strategic management.
2. The development of what can be termed 'cultures of innovation'; where the disposition for and knowledge of design thinking are held and practiced by everyone in an organisation and applied broadly, from day-to-day work design to the design of organisational arrangements and major systems of human interaction and activity.

These themes have been used to structure our broad approach to developing commercial offers to potential clients, and will be used to organise the following survey of literature aimed at building an evidence base for the emergence of design applied to social systems and situations.

1.3. Tracing the Emergence of a New Design

Craig Vogel describes the evolution of design thinking,³³ and in particular the emerging application of design to challenges of social change. He begins by noting Victor Papanek's sustained critique in his *Design for the Real World*, as characterised by his opening statement: '*There are professions more harmful than industrial design, but only a very few of them*'.³⁴ Vogel charts a steady growth in the idea of social responsibility in design and the application of design to large-scale systems, pointing to the pioneering efforts of A.G. Lafley, who drove the integration of design thinking and system level innovation at Proctor & Gamble.

³³ Craig M. Vogel, "Notes on the Evolution of Design Thinking," in *Design Thinking: Integrating Innovation, Customer Experience and Brand Value*, ed. Thomas Lockwood (New York: Allworth Press, 2010). p. 11.

³⁴ Victor Papanek, *Design for the Real World* (Chicago, Illinois: Academy Chicago Publishers, 1984). p. ix.

Jorge Frascara has introduced the provocative concept of the '*dematerialisation of design*',³⁵ and describes a number of themes marking the shift in focus for design from '*a concern with objects to a concern with people*'. These themes point to design as becoming primarily concerned not with things, but with the complexities of social relations, with political questions of '*public good*' and the tension between the poles of '*efficiency and democracy*', with rhetorical dimensions of shifting from a stance of '*transmitter-receiver*' to '*producer-interpreter*', on the cultural impact of design and the recognition that the '*position of an object of thought on a value scale creates the basis for people's attitudes, and defines the terrain and the purpose for persuasive communications*'. In terms of practice, Frascara insightfully names emergent kinds of design as a '*problem oriented, [problem reducing], interdisciplinary activity*.'

It can then be argued that the intellectual conditions within the design community have been evolving and are becoming increasingly conducive to the emergence of new and broader expressions of design and design thinking. These examples provide a backdrop to this thesis.

1.4. Current View: Evidence from Literature

From this starting point, I will move to establish, from a survey of design, business and management literature, that in recent years there has been a clear emergence of investigations into the juxtaposition of design and business. An exhaustive survey of the field is beyond the scope of this work, however I seek to establish the nature of this emergence and to highlight that the development of method to support this trend is incomplete at best.

Institutions such as the Design Management Institute have contributed to this expansion, supporting conferences that push the boundaries of design,³⁶ such as the *Re-thinking Design* conferences held in 2009 and 2010, and the *Design in Management Thinking* conference held in 2011, and in papers exploring the widening influence of design. An example is a contribution by Andrew Hargadon, proposing that designers focus on the design not just of products, but of business ventures:

³⁵ Jorge Frascara, "The Dematerialization of Design," *Tipográfica* 50 (2001). *This is an excerpt from the essay: Jorge Frascara, "People-Centered Design: Complexities and Uncertainties," in Design and the Social Sciences, ed. Jorge Frascara (London: Taylor & Francis Publishing House, 2001).*

³⁶ See: "D.M.I. Conferences", Design Management Institute http://www.dmi.org/dmi/html/conference/conferences_s.htm (accessed 12 November 2011).

*'As firms look to create networks as sources of competitive advantage, the need to design these new ventures for the varied needs and resources of diverse actors will only increase. The principles and practices of the design profession make it well prepared to assume leadership roles in this process—but only where designers abandon elitist positioning and pursue leadership roles in organizations. We'll see true design leadership not when design dominates strategic decisions but when the principles and practices of design are what frame the strategic conversation.'*³⁷

However, the discourse concerning the emergence of design and design thinking into new arenas extends beyond the design community. Many of the most enthusiastic advocates of this approach have management and business research backgrounds.

Henry Mintzberg, a prominent business and management theorist, was among the first to recognise the imminent breakdown of the analytical, engineering approach to managing businesses in complex and competitive environments. In the early 1990s he proclaimed '*strategic planning*' an oxymoron³⁸ and articulated a number of fallacies that underpinned the development of organisational strategy through analytical methods. He posited that strategy is a creative process. While Mintzberg actually invoked '*design*' to stand for the top-down and hierarchical approach to strategy that he was arguing against, it is clear that a shift in approach to tackling organisational challenges was underway. Lester *et. al.* identified the challenges facing organisational managers with those faced by managers of new product development, and went on to compare the old style '*analytical*' management approach with the '*interpretive*' approach that enables a manager to deal with uncertainty and ambiguity through an open and emergent process.³⁹ Here, design has been explicitly named as an alternative to mainstream and accepted management processes. This call for organisational management was echoed by Roger Martin in describing an art of integrative thinking that enables managers to '*embrace complexity, tolerate uncertainty, and manage tension in searching for creative solutions to problems.*'⁴⁰

From these early contributions, there has emerged a significant increase in focus on the convergence of design and the broad challenges facing managers within a diverse array of organisations.

³⁷ Andrew Hargadon, "Leading with Vision: The Design of New Ventures," *Design Management Journal* Winter 2005 (2005). p. 39.

³⁸ Henry Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners* (New York: Free Press, 1994).

³⁹ Richard Lester, Michael Piore, and Kamal Malek, "Interpretive Management: What General Managers Can Learn from Design," *Harvard Business Review* March - April (1998).

⁴⁰ Roger Martin, "The Art of Integrative Thinking," *Rotman Management* 1999. p. 4.

Mainstream business publications now regularly focus on design. For example, *Business Week* magazine sponsors a blog with prominent design thinking advocate Bruce Nussbaum as editor, *Fast Company* magazine publishes an annual design-focused issue, and design topics regularly appear in the bastion of business and management thinking, *Harvard Business Review*.⁴¹

Within these publications there is significant focus on the theme of encouraging business to improve the efficiency and effectiveness in their use of mainstream design disciplines in order to accelerate innovation cycles. Examples can be found from both the design academy, for example the work of Jevnaker⁴² and a series of contributions to a recent edition of the *Design Management Journal* dedicated to the topic of leading and inspiring designers,⁴³ as well as from mainstream business and management publications, however it is the contributions that mark out new practices and applications of design that will be highlighted.

As identified above, there are two primary themes that highlight the new relationship between design and business. The first of these is the use of design in strategy making and strategic management; the second is the use of design focusing on the development of *design thinking* in general for application across a range of challenges, from small-scale day-to-day work problems to large-scale and conceptual challenges affecting complex social systems.

Jeanne Liedtka describes the growing recognition that linear and structured approaches to strategy-making are breaking down in the face of increasing demands for speed, flexibility and adaptability in enterprise, but argues that the '*metaphor of design offers rich possibilities for helping us think more deeply about the formation of business strategy*'.⁴⁴ Building on the work of Rittel, Schon and Buchanan, Liedtka makes an explicit claim that design and design thinking can serve as foundations for strategy creation, exploring the ways in which strategy can be constructed as a design activity.

Significantly, she draws a parallel between the contingent and contestable nature of both designed things and business strategy, and the implication that because strategic choices, like design choices, can never be proven right or wrong, there is a deep need to make both compelling to participants: '*[t]his calls into play Rittel's role of argumentation and focuses attention on others, and the role of*

⁴¹ See for example: 'Roberto Verganti, "Innovating through Design," *Harvard Business Review* 84, no. 12 (2006). and Ravi Chhatpar, "Innovate Faster by Melding Design and Strategy," *Harvard Business Review* 85, no. 9 (2007).

⁴² Birgit H. Jevnaker, "Vita Activa: On Relationships between Design(Ers) and Business," *Design Issues* Volume 21, no. Number 3 Summer (2005).

⁴³ Frans Joziassse and Folke Meijer, "Getting the Best out of Designers: Blending External and Internal Forces," *Design Management Review* Volume 17, no. 3 (Summer 2006).

⁴⁴ Jeanne Liedtka, "In Defense of Strategy as Design," *California Management Review* 42, no. 3 (2000). p. 8.

rhetoric in bringing them into the design conversation'.⁴⁵ Liedtka's proposed form of design is a close corollary of *social system design*. She goes on to describe the hallmarks of quality strategic thinking, and observes that the central characteristics of design thinking are those that mark strategic thought: *'[t]aken together, these characteristics borrowed from the field of design – synthetic, abductive, dialectical, hypothesis-driven, opportunistic, inquiring, and value driven – describe strategic thinking.'*⁴⁶

Others have contributed to this emerging theme. Among the few practitioners to explore this link Golsby-Smith has developed the use of design thinking and design argumentation as a basis for strategy: *'we need a new approach to strategy that can unlock fresh energy and make it more innovative and less data driven. This is what design thinking can offer. Design opens a door to a whole new art of thinking'*⁴⁷ that focuses not on the status quo but the *'discovery of alternative possibilities'*. The critical role of imagining and inventing new possibilities is coupled with the necessity to make a compelling case for these new possibilities before a community, as it is a *'persuaded community'* that is the key to coherent and effective action. As for Liedtka, argument is a theme that bridges the domains of strategy and design: *'[t]hus every strategy is an argument, every plan is an argument and every design is an argument. The concept of "argument" opens a door onto a new landscape of tools and pathways to craft strategy and make it the "design" process that it naturally is.'*⁴⁸

Heather Fraser, a director of the Rotman School of Management *designworks Strategy Innovation Lab*, describes an important insight gleaned from their practice of integrating design and strategy, namely that by *'broadening the definition of "design" and expanding the application of design methodologies and mindsets to business, enterprises can move beyond mere survival and incremental change, and open up new possibilities for breakthrough growth strategies and organizational transformation.'*⁴⁹ Their experience has been that a *'design way'* can be beneficial for organisations if *'embedded into an organization's strategic planning practices'* and supported by the widespread adoption of the mindsets and methods of design thinkers.

⁴⁵ Ibid. p. 21.

⁴⁶ Ibid. p. 23.

⁴⁷ Tony Golsby-Smith, "The Second Road of Thought: How Design Offers Strategy a New Toolkit," *Journal of Business Strategy* Volume 28, no. 4 (2007). p. 22.

⁴⁸ Ibid. p. 25.

⁴⁹ Heather M.A. Fraser, "The Practice of Breakthrough Strategies by Design," *Journal of Business Strategy* 28, no. 4 (2007). p. 66.

Tim Brown also made the link between strategy and design, for the purpose of generating as well as effectively communicating strategy: *'Put simply, it is a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity.'*⁵⁰

There has been a notable surge in interest and exploration of design and design thinking applied to varying facets of management and organisation. Roger Martin is a vocal advocate of the application of design thinking as a new general management and organisational philosophy. He argues that *'[d]esign skills and business skills are converging. To be successful in the future, business people will have to become more like designers – more 'masters of heuristics' than 'managers of algorithms'.*⁵¹ He asserts the view that design is an ability to begin with the unknown – 'mystery' – and move towards the creation of a new way of knowing – that of the *heuristic*. In a later article, he grapples with the practical implications of trying to build a design thinking culture within inherently *'design-unfriendly'* organisations,⁵² and contends that mainstream business organisations should adopt *'design-shop'*⁵³ approaches in order to harness the latent creative talents of employees. He has chronicled the integration of design thinking approaches in companies like Intuit,⁵⁴ through their Design for Delight (D4D) approach, and the surprising uptake of design in the latest iteration of U.S. Army doctrine, as seen in the Field Manual 5-0.⁵⁵

Other examples abound. Lauralee Alben developed a proprietary method called Sea Change that is based on *'design sensibility and techniques to help us grapple with the diverse challenges of our modern condition'*⁵⁶ – here, Alben's experience in user research and design guided her development of a comprehensive organisational change methodology. Liedtka ventured into this domain through speculation about what the implications would be if *'managers thought like designers'*, for instance emphasising that invention is strategy and proposing that business conversations should begin from the perspective of design possibilities, not management constraints.⁵⁷ Darius Mahdjoubi⁵⁸ develops

⁵⁰ Brown, "Design Thinking." p. 2.

⁵¹ Roger Martin, "The Design of Business," *Rotman Management* 2004. p. 8.

⁵² Roger Martin, "Designing in Hostile Territory," *Rotman Management* 2006. p. 4.

⁵³ Roger Martin, "Creativity That Goes Deep," *Business Week Online*, no. August 2005 (2005) (accessed August 2005).

⁵⁴ Roger Martin, "The Innovation Catalysts," *Harvard Business Review* 89, no. 6 (2011).

⁵⁵ Roger Martin, "Design Thinking Comes to the U.S. Army," (2010).

<http://www.rotman.utoronto.ca/rogermartin/DesignObserver.pdf> (accessed 25 October, 2011).

⁵⁶ Lauralee Alben, "Navigating a Sea Change," *Design Management Journal* Volume 13, no. 2 (2002).

⁵⁷ Jeanne Liedtka, "If Managers Thought Like Designers," *BATTEN BRIEFINGS*, no. WINTER 2005 (2005). www.darden.edu/uploadedFiles/Centers_of_Excellence/Batten/BBW05_Liedtka_Design.pdf

a contrast between analytical thinking approaches and the synthetic approaches of '*design methodology*', making the link then to the emergent topic of design thinking with a management focus. Brown⁵⁹ describes ways in which design thinking can be adopted as a key element of any business innovation strategy. Beverland and Farrelly have explored the characteristics of an organisation that has adopted design as the 'dominant logic'.⁶⁰ These include valuing curiosity, empathy across functional boundaries, the focus on 'constant ethnography' and the expression of brand and strategic positioning through design outcomes.

Richard Boland and Fred Collopy contrasted a '*decision attitude*' with a '*design attitude*' and stated their belief that '*if managers adopted a design attitude, the world of business would be different and better.*'⁶¹ Their thesis emerged after an experience of working with Frank Gehry on a design for a new faculty building. They came to realise that their work in teaching students of management had over-emphasised analytical and formulaic approaches, which lead to an ability to decide only amongst existing alternatives. They saw that what was missing from management education and the practice of management in the business world was a systematic capability to create different alternatives. It is this capability that is so important in fluid, fast moving and highly competitive industries. A '*design attitude*' is critical to improving management performance in modern business environments.

The venerable Henry Mintzberg re-entered the discourse with Liedtka, overcoming his early characterisation of design as hierarchical and rigid, instead extolling the benefits of the adoption of the ways of design into the general practice of management, stating that '*design is not [just] a metaphor for management, but as [Herb] Simon said, the very essence of it.*'⁶² Differentiating amongst different approaches to design, the authors identified a '*conversational*' approach to be the most impactful for management:

'Conversational design challenges leaders in ways that formulaic and visionary design do not. Business cultures that center on hierarchy, expediency and authoritarian leadership get in the way

⁵⁸ Darius Mahdjoubi, "Design Methodology as a Migration from Analytical Methodology," *Design Management Review* Volume 18, no. 4 (2007).

⁵⁹ Brown, "Design Thinking."

⁶⁰ Michael Beverland and Francis Farrelly, "What Does It Mean to Be Design-Led," *Design Management Review* Volume 18, no. 4 (2007).p. 11.

⁶¹ Richard Boland and Fred Collopy, "Design Matters for Management," in *Managing as Designing*, ed. Richard Boland and Fred Collopy (Stanford, California: Stanford university Press, 2004). p. 3.

⁶² Jeanne Liedtka and Henry Mintzberg, "Time for Design," *Design Management Review* Volume 17, no. 2 (2006). p. 10.

... we all know about the opportunities that exist in the white spaces between divisions, regions, and functions'.⁶³

Social, conversational design is critical for organisations in exploring and producing '*dramatic innovations*'. They go onto identify the expanded range of artefacts that can be the subject of design:

'Cities, buildings, products, services, systems, [organisational] structures, and strategies all face the same need to combine expertise, insight, engagement, and adaptation, as well as to confront the tensions of designs, designing and designers. To appreciate this will get more of those great designs that so enhance our daily lives'.⁶⁴

Rae describes a pertinent example of how design thinking is being used by Proctor & Gamble, a USD81.5 billion fast moving consumer goods (FMCG) firm that has a global reach, to change its organisational culture. Named 'The Design Thinking Initiative' and developed by the Vice President for Design, Claudia Kotchka, the aim of this work was to '*get design into the DNA of the company*'.⁶⁵ Rae describes how design has been elevated from '*the last decoration station on the way to market*' to a core element in building a culture that applies design thinking to everyday work and to problems that are beyond the traditional reach of design:

'Perhaps most important, half of the workshops focused on something other than new product initiatives to include other types of pressing business issues such as strategy, retail relationship building, and matters of operational excellence. "We want people to use these techniques daily in their work - using broad insights; learning faster; failing faster. Design thinking can be applied everywhere, every day," says Tripp.'⁶⁶

Rae describes this as transformative for the organisation's leadership as they have moved to becoming immersed in situations where cross-functional groups use design thinking approaches, visualisation and prototyping techniques to engage with customers and other participants in tackling difficult business issues. This is a prime example of how design and design thinking are breaking out of mainstream practice, where trained designers use their craft to make things, to situations where

⁶³ Ibid. p. 17.

⁶⁴ Ibid. p. 18.

⁶⁵ Jeneanne Rae, "P&G Changes It's Game," *Business Week Online* (2008).

http://www.businessweek.com/print/innovate/content/jul2008/id20080728_623527.htm (accessed 28 July 2008). p. 2.

⁶⁶ Ibid. p. 1.

mixed communities of designers and non-designers use revolutionary thinking approaches to drive innovation into many facets of organisational activity.

It is clear from the evidence outlined above that many different organisations are seeking to apply design and design thinking to a wide variety of challenges. The need for a coherent body of well grounded theory and method is growing. In my own consulting experience, I have participated in a number of programs to build individual and organisational capability in *design thinking*. These have been both in private sector businesses, with prominent examples in banking and insurance companies, and in federal public sector organisations. These involve both providing widespread educational programs, running demonstration projects and assisting management in designing roles, processes and facilities to lead the development of what they described as their '*innovation culture*'.

There is a growing body of case studies and examples where design thinking and reformed design approaches are being used to tackle a diverse range of organisational and social, or human, interaction system challenges.

The ATO, through its Integrated Tax Design (ITD) project, applied design to a wide range of new legislative and administrative problems. Amongst these was the design of the administrative regime for the *Consolidations* initiative in 2002, where the Commonwealth Government implemented a system in which wholly-owned corporate groups could act as a single entity for income tax purposes, so as to reduce compliance costs and allow more efficient business structures to evolve. The introduction of the '*Baby Bonus*' during this period was also developed using a design approach.

Julian Jenkins describes the design-led renovation of strategic reporting within the GST Branch of the ATO, aimed at providing the information that allows a senior executive community to cease expending energy '*on short-term, narrowly-focused operational issues*'⁶⁷ and shift their focus to '*thinking more holistically about the overall health and long-term direction of their business*'.

In 2004, the UK Design Council established the RED Project to tackle significant '*social and economic issues through design led innovation*.' The project was led by Hilary Cottam, recently named by *Business Week* as one of the world's most influential designers making an impact on business today.⁶⁸ During its tenure, RED focused on a wide variety of social design topics. These included

⁶⁷ Julian Jenkins, "Information Design for Strategic Thinking: Health of the System Reports," *Design Issues* 24, no. 1 Winter 2008 (2008). p. 68.

⁶⁸ See: Helen Walters and Venessa Wong, "World's Most Influential Designers", *Business Week* http://images.businessweek.com/ss/10/02/0201_worlds_most_influential_designers/ (accessed 15 January 2012).

proposing new approaches to designing Health Services,⁶⁹ new ways politicians can engage with their constituents in order to revitalize democracy,⁷⁰ and insights into how citizenship can be reinvigorated.⁷¹ The method that RED developed and used was named *Transformation Design*⁷² which strived to adopt principles of working in interdisciplinary teams, leaving a legacy of organisational capacity in place following an intervention and holding an ambition to '*proactively transform systems and organisations*'.

1.5. Intersections with Established Fields of Design

As stated in the Introduction, this thesis aims to mark out and describe *social system design* as its own place; as a distinct field of design inquiry and practice. In doing this it is necessary to discuss a range of categories that are dealt with in other fields of design. By way of example, there is a substantial discourse within Participatory Design, and the allied fields of Computer Supported Collaborative Work and Human Computer Interaction, that focuses on categories such as politics, ethics, community and the role of the designer.⁷³ However, any discourse is conducted within the context of the field of practice to which it relates. In this section, I specifically discuss the different foci of *social system design* in relation to Participatory Design to highlight the need to deal with categories such as those outlined above from a different perspective.

Participatory Design is historically shaped and structurally oriented toward the development of technology; and in particular, Information and Communication Technology (ICT).⁷⁴ The focus of

⁶⁹ See: Robin Murray and others, *Red Report 01: Open Health* (UK Design Council, 2006).

⁷⁰ See: Colin Burns and others, *Red Report: Democracy* (UK Design Council, 2006).

⁷¹ See: Hilary Cottam and others, *Touching the State* (UK Design Council, 2004).

⁷² See: Colin Burns and others, *Red Paper 02: Transformation Design* (UK Design Council, 2006).

⁷³ See for example: Heike Winschiers-Theophilus, Nicola J. Bidwell, and Edwin Blake, "Community Consensus: Design Beyond Participation," *Design Issues* 28, no. 3 (2012). *This paper both locates the concern of Participatory Design as technology systems and access ethical, political and community dimensions through the Zulu concept of Ubuntu.* See also: Toni Robertson and Jesper Simonsen, "Challenges and Opportunities in Contemporary Participatory Design," *Design Issues* 28, no. 3 (2012). *The temptation to subsume the distinct aspects of design thinking under the banner of Participatory Design is evident here:* Erling Björgvinsson, Pelle Ehn, and Per-Anders Hillgren, "Design Things and Design Thinking: Contemporary Participatory Design Challenges," *Design Issues* 28, no. 3 (2012).

⁷⁴ See the discussion in: Toni Robertson and Jesper Simonsen, "Participatory Design: An Introduction," in *Routledge International Handbook of Participatory Design*, ed. Jesper Simonsen and Toni Robertson (New York: Routledge, 2013). p. 3. *While claiming a broad reach for Participatory Design, the field remains oriented towards ICT, with other foci of design positioned as secondary to ICT design:* 'Increasingly, participatory designers have sought to develop processes to enable active stakeholder participation in the design of the tools, environments, businesses, and social institutions in which these

social system design, in contrast, can be described by way of an anecdote. In 2003 Tony Golsby-Smith made a presentation titled 'A Seat at the Table: New Horizons for Design', where he gave an overview of how 2nd Road was bringing design to the executive suites of large organisations. Moving to a different and perhaps imperfect metaphor, he differentiated this upstream application of design from the more tradition downstream application of design to technical and material domains. Following the presentation, a number of professional designers expressed their frustration at how they were struggling in their own practices with the issue of not being able to move upstream, where they could see significant de facto design decisions being made.⁷⁵

The metaphor of *upstream/downstream* in the flow of design decisions and activities is employed in the fields of ecological engineering and engineering design.⁷⁶ The metaphor is used to identify the flow of activities and information, often for the purpose of seeking ways to compress or overlap design activities. In the context developed by 2nd Road, 'upstream' carries this temporal aspect, but also brings into play the idea of upstream activities that are broadly conceptual, even architectural. This use can be connected to, and is consistent with, Buchanan's doctrine of four master design placements: '[t]o gain some idea of how extensively design affects contemporary life, consider the four broad areas in which design is explored throughout the world'; those of 'symbolic and visual communication ... material objects ... organised activities and services' and 'environments for living, working, playing, and learning'.⁷⁷ The more conceptual and immaterial places are *upstream* domains.⁷⁸ This metaphor will give way to the term 'architectonic' in this thesis, considered more appropriate given the intersection of design and rhetoric is a primary concern.

The *upstream* domain, which focuses on the *whole* of a social system, such as an organisation, is inclusive of many, often technological *parts*, and is the intended focus for *social system design*. This focus is identified in this thesis via the application of the concept of the *architectonic* role *social*

information and communication technologies are embedded.' Robertson and Simonsen, "Challenges and Opportunities in Contemporary Participatory Design." p. 3. *My emphasis*.

⁷⁵ "Tony Golsby-Smith", AIGA http://powerofdesign.aiga.org/content/smith_cat.html (accessed 2 September 2013).

⁷⁶ See for example: Scott D. Bergen, Susan M. Bolton, and James L. Fridley, "Design Principles for Ecological Engineering," *Ecological Engineering* 18, no. 2 (2001). and Susan M. Molenaar Keith R. Diekmann James E. Bogus, "Strategies for Overlapping Dependent Design Activities," *Construction Management and Economics* 24, no. 8 (2006).

⁷⁷ Buchanan, "Wicked Problems in Design Thinking." p. 9. *This is discussed further in Chapter 2.2.4. Other references to this placement schema can be found in:* Katarina Wetter Edman, "Exploring Overlaps and Differences in Service Dominant Logic and Design Thinking: First Nordic Conference on Service Design and Service Innovation," in *Dethinking Service Rethinking Design* (Oslo: 2009). and John Broadbent, "Generations in Design Methodology," *The Design Journal* 6, no. 1 (2003).

⁷⁸ *Participatory Design can be located primary with Buchanan's 2nd order; social system design can be located with the 3rd and 4th order.*

system design could play with respect to other forms of production.⁷⁹ This perspective looks to integrate diverse technologies and expertise into design hypotheses that impact a whole social system. A practical example can be found with the ATO, where six '*product families*'⁸⁰ were identified as making up the technical knowledge infrastructure of the organisation, with ICT being only one of these alongside such domains as legal expertise and marketing. A key design principle was then that any whole of system design needed to look to integration across these product families, rather than focusing on any one of them. The instances of design applied to topics of organisational strategy and culture, as outlined in this chapter, are examples of design moving towards this 'upstream' domain.

The different domains of focus in Participatory Design and *social system design* leads to a difference in the way the categories of ethics, politics, community and the role of the designer are approached. For instance, Robertson and Wagner discuss ethics with respect to Participatory Design,⁸¹ making reference to concepts that will be touched on in this thesis: the Aristotelian concepts of what constitutes a good life, or *eudemonia*, the concept of *phronesis* and a discussion on absolutism versus relativism.⁸² The question of the relation of technology to society is discussed,⁸³ along with claims for Participatory Design to share a connection to '*civil society*' in the process dimension and a discussion of '*practical, situated ethics*' in terms of dialogue and deliberation in design.⁸⁴

From this shared background, however, the discussion that ensues diverges from the arguments developed in this thesis. For example this thesis argues for ethics and politics as mutually constitutive with respect to any *polis*; that is, anywhere a community of people are actively seeking to shape their circumstances towards the highest collective *good*.⁸⁵ In contrast, Robertson and

⁷⁹ See a brief discussion in the Introduction and a more detailed exploration in Chapter 2.

⁸⁰ See: *The Guide: Applying an Integrated Approach to Tax Design*, 2002.

⁸¹ See: Toni Robertson and Ina Wagner, "Ethics: Engagement, Representation and Politics-in-Action," in *Routledge International Handbook of Participatory Design*, ed. Jesper Simonsen and Toni Robertson (New York: Routledge, 2013).

⁸² These three concepts are referenced in Chapters 2, 7 and 4 respectively, and discussed in: Ibid. p 66 – 68.

⁸³ Robertson and Wagner invoke the work of Hans Jonas to bring forward the role of ethics in better understanding the impact of technology, see: Hans Jonas, *The Imperative of Responsibility: In Search of an Ethics for the Technological Age* (Chicago: University of Chicago Press, 1984). This topic is discussed at length in Chapter 2, particularly via Clive Dilnot discussion of the role of design in repositioning human concern as a central element of civic discourse.

⁸⁴ See: Robertson and Wagner, "Ethics: Engagement, Representation and Politics-in-Action." p. 68. See also discussions in Chapters 6 and 7.

⁸⁵ See Chapter 7.3 for a discussion of the central role this relation plays in an argument for a true social system, or civic, form of design.

Wagner focus on these categories in practice, and so treat ethics and politics as distinct categories that '*become blurred*' within a design project.⁸⁶

In developing *social system design* ethics are understood as an integral aspect of shaping and guiding the arguments and agents that influence the social system as a whole, focusing on the relational fabric of a social system, which would encompass any particular instances of use of ICT. It is aimed at enabling constituents in better deliberating on the upstream questions of the relation and function of technology-in-general with respect to the wider social system, before engaging them in downstream questions dealing with particular ICT use.

Robertson and Wagner outline ethics with respect to Participatory Design as a lens on the *process* of engagement with *users*, within the context of a design project, and directed towards the details of use and usability of material technologies towards the utile end of a '*well functioning [ICT] system*'. This is complementary to the stance within social system design as to the structuring role ethics play across a social system itself. Similarly, in this thesis the social system itself is seen as political in essence, perhaps the most effective shorthand that distinguishes human from other forms of system, and evoking Aristotle's provocative juxtaposition of terms in describing humans as political animals.⁸⁷ Robertson and Wagner position politics as a practical question of manoeuvring through a project.⁸⁸

DiSalvo *et. al.* builds broader perspectives on community with respect to Participatory Design by positioning community-based Participatory Design as a distinctive field.⁸⁹ This allows a stretching of the tension between the technology-oriented foundations of Participatory Design and the broader social and relational fabric the authors seek to discuss. The focus on community in this thesis is general in nature as the relation of a system constituency to social system design is developed,⁹⁰ and is complemented with the more particular discussions by DiSalvo on criteria for identifying a

⁸⁶ Toni Robertson and Ina Wagner, "Ethics: Engagement, Representation and Politics-in-Action," in *Routledge International Handbook of Participatory Design*, ed. Jesper Simonsen and Toni Robertson (Hoboken: Taylor and Francis, 2012). p. 67. See also: Marc Steen, "Human-Centered Design as a Fragile Encounter," *Design Issues* 28, no. 1 (2011).

⁸⁷ See the discussion on Vickers in Chapter 3.3.4. *The statement 'Man is by nature a political animal' is located in: Aristotle, Ernest Barker, and Stalley R.F., The Politics (Oxford; New York: Oxford University Press, 1995). Book I, 1253.a2.*

⁸⁸ See Robertson and Wagner, "Ethics: Engagement, Representation and Politics-in-Action." p. 74.

⁸⁹ See: Carl DiSalvo, Andrew Clement, and Volkmar Pipek, "Communities: Participatory Design for, with and by Communities," in *Routledge International Handbook of Participatory Design*, ed. Toni Robertson and Jesper Simonsen (New York: Routledge, 2013). p. 182. See also a discussion on community engagement in: Peter Dalsgaard, "Participatory Design in Large-Scale Public Projects: Challenges and Opportunities," *Design Issues* 28, no. 3 (2012).

⁹⁰ See for instance the discussion on social system design as a relational epistemology in Chapter 4. 4, the discussions with respect to audience in rhetoric in Chapter 5, and the role of the constituents of a community, a social situation, in the creation and enactment of any design developed from the standpoint of social system design.

community and examples of design with respect to particular communities. Their discussion identifying particular ICT design projects as forms of public argumentation, the notion that a range of communities, or a Deweyan '*multiplicity of publics*', can be constructed around shared motivating problems and concerns resonate with arguments developed in this thesis.⁹¹ Their subsequent invocation of Bruno Latour's '*Making Things Public*' to highlight the interplay of politics and designed artefacts, and their focus on the role of ICT as an instance of social infrastructure brings a complementary material focus to the themes of immateriality developed in this thesis.⁹²

This thesis develops the role of a designer as supportive of design by a system constituency, where the most appropriate 'expertise' with respect to a particular social and relational fabric of a community is possessed by those constituents who inhabit, are impacted by and actively shape their social system. There is a complementary notion of expertise, whether possessed by designers or other professionals where the design of particular forms of technology is required.

In conclusion, given the different focus and orientation proposed for *social system design*, the arguments developed in this thesis for establishing *social system design* as a distinct field of scholarship and practice requires that a number of topics that are discussed in related fields of design must be re-approached and not simply drawn across and uncritically accepted.

1.6. Conclusion

There is clear evidence from a wide variety of sources that design and design thinking are increasingly applied to a class of organisational, business and social system challenges. This evidence, however, is disparate and fragmentary and does not create a coherent picture of these emergent expressions of design, nor is there any significant basis for drawing these diverse examples together as expressions of a unified kind of design. This thesis aims to contribute to the development of a cohering argument for such design activity, named in this work as *social system design*.

⁹¹ DiSalvo, Clement, and Pipek, "Communities: Participatory Design for, with and by Communities." p. 200. See also: Carl DiSalvo, "Design and the Construction of Publics," *Design Issues* 25, no. 1 (2009). These concepts are strongly developed in Chapter 6.

⁹² DiSalvo, Clement, and Pipek, "Communities: Participatory Design for, with and by Communities." p. 201. See discussion in Chapter 4.3.

A common theme that has emerged in this chapter is the nature of businesses' and public organisations' engagement with design, which arises from an intuitive grasp of the role that design – or, at least, 'design' as it is contemporarily understood – plays in such organisations. The methods by which this work is being pursued are often intuitive and tacit, or inappropriately coupled with general business process models. Where attempts have been made to develop distinct methods, they are proprietary or, as the Rotman *designworks* has done, discussed publically only at a general and perfunctory level. This thesis centres on developing explicit and transparent theoretical frames and methodological elements for *social system design* in order that this kind of design can be developed and practiced across a design community.

To pursue the development of such an argument, it is important that a way forward from within design scholarship additionally be located and explored. Chapter 2 will focus on providing the theoretical foundations for *social system design*.

Chapter 2

Literature Review: The Argument for Broadening Design

2.1. Outline

In the opening chapter of this thesis the focus was given to establishing the foundations for an argument for *social system design*. This was accomplished through a survey of how the ways in which a new kind of design is evident in the literature, with particular reference to the rapid emergence of this topic in literature devoted to management and business. This was supported through the description of prominent examples of design applied to social systems, and the identification of the key themes under which the emerging discourse can be characterised.

Having examined the emergence of this new kind of design, and having established the legitimacy of pursuing arguments for it, Chapter 2 turns to developing in depth the theoretical foundations that will underpin the development of concepts, methods and techniques for *social system design* in later chapters, satisfying a key aim for this investigation by drawing together appropriate theoretical foundations illustrated by practical examples from commercial consulting environments.

The path chosen to accomplish this is to proceed from the key terms of this investigation. This chapter, Chapter 2, focuses on a review of design literature that explores an understanding of design that extends beyond its accepted disciplines, such as industrial design or multimedia design. Chapter 3 constructs a background for understanding and interpreting social systems for the purpose of proposing methods of design of, and within, these phenomena. In Chapter 4, these aspects are brought together in order to clarify key characteristics and criteria for how design is to be constructed when applied to social systems, so framing subsequent development of method and establishing the argument for *social system design*.

The structure of this chapter centres on three key authors within the design field who have made significant contributions to expanding the realm of what can reasonably be thought to be within design. These primary authors – Victor Margolin, Clive Dilnot and Richard Buchanan – approach the task from different perspectives and draw different conclusions, but each thread of argument weaves a useful overall position on how best to approach the design of the immaterial.

The perspective that Victor Margolin develops, through a series of papers written over a 20-year period, provides insight into a trajectory of thinking that continually tests and expands the boundaries of what should be considered within design. This begins with small steps away from its traditional focus on material production towards explorations of the relation between design, all that falls within artifice and the boundary with the natural world.

Clive Dilnot enriches the discourse on the possibility of a broad art of design that is socially significant through arguing from foundations of established philosophical thought regarding relational knowledge. In particular, he develops an insightful contribution based on the social philosophy and epistemology of Jurgen Habermas.

Finally and centrally, Richard Buchanan develops through a series of landmark papers an avenue for developing an encompassing art of design in his juxtaposition of contemporary design with ancient arts of rhetoric and dialectic. This operates through his recognition of the parallels between rhetoric as an art of invention in thought and word that prefaced social action, and his framing of design-in-general that draws together all the particular disciplines and expressions evident in literature and in practice.

These three authors have been active in investigating design from a theoretical and historical perspective over many years, and have been prominent in contributing to design discourse in journals such as *Design Issues*. For example, Buchanan's 'Wicked Problems in Design Thinking' has been extensively cited. Different authors have noted different aspects of Buchanan's arguments; the introduction into design literature of the concept of wicked problems,¹ his introduction of the concept of rhetorical placements as relevant to design² or his arguments as to the broad, evolving and expanding nature of design itself.³ There is, however, little indication that the arguments made by Buchanan, or those of the other two authors whose work this chapter discusses, are explored in much depth by later researchers, instead confined providing limited context and perhaps a degree of *ethos*, where the stature of these authors is used to lend authority.

Given that this investigation is seeking to outline the development of an emergent kind of design activity, it is critical to review those works that tackle the question of what design can encompass, and the role that design can play beyond its visible manifestations tied to production and consumption. In order to claim that *social system design* does in fact lie within the field of design, arguments that deal with design as potentially broader than the sum total of currently observable design practice must be examined.

¹ See: Jodi Forlizzi, Carl DiSalvo, and Francine Gemperle, "Assistive Robotics and an Ecology of Elders Living Independently in Their Homes," *Human-Computer Interaction* 19, no. 1-2 (2004). p.55. and John Zimmerman, Erik Stolterman, and Jodi Forlizzi, "An Analysis and Critique of Research through Design: Towards a Formalization of a Research Approach," in *Proceedings of the 8th ACM Conference on Designing Interactive Systems* (ACM, 2010). p. 311.

² Lars Hult, Magnus Irestig, and Jonas Lundberg, "Design Perspectives," *Human-Computer Interaction* 21, no. 1 (2006). p. 8.

³ Lucila Carvalho, Andy Dong, and Karl Maton, "Legitimizing Design: A Sociology of Knowledge Account of the Field," *Design Studies* 30, no. 5 (2009). p. 484.

It is relevant to re-state that the vision for, and the definition of, design developed by Herb Simon figures prominently in each of these three authors' arguments for expanding design. Each overcomes the positivist orientation of Simon's developments for design as a science, to build upon Simon's argument for design as a central discipline with respect to artifice and the artificial.

In concluding this chapter, contributions by Tony Fry are briefly considered in order to provide insights into real world implications and applications for such a way of perceiving, constructing and practicing design as discussed by the preceding three authors. Fry's unique perspectives on the imperatives for design to take on a larger role in civic affairs are considered via his concepts of *defuturing* and *sustain-ability*.

The broad theoretical constructs explored in this chapter establish the foundations for proposing *social system design* as a distinct kind of design, with rhetoric established as a viable source for informing and developing governing concepts and method.

2.2. Surveying the Theoretical Ground for Expanding Design

2.2.1. A Comment on Arts

The use of the term *art* in this thesis is not to be confused with the common and modern understanding of art as 'fine art'. It is instead used in deference to the Greek distinction between *epistémé*, the attainment of knowledge for its own sake, and *techné*, where knowledge is applied through rational method to the planning, invention and/or production of things. It is the concept of *techné* that is generally translated as, and provide a corollary for the term *art* as applied in this thesis.⁴

⁴ An early example of the use of the term can be found applied to the practice of medicine in *Hippocrates' Aphorisms* (sect. I, no. 1), generally translated as:

Life is short,
[the] art long,
opportunity fleeting,
experiment fallible,

Richard Buchanan defined an art as '*knowing what to do next*',⁵ thus positioning artful practice between knowing without doing, the epistémé of the ancient Greeks, and doing without knowing, or the contemporary use of the rule of process. The Greek term hodos – 'path' or 'way' – and the etymological root for the modern term 'method' is a fitting for an art that has a general domain of knowledge and known principles and ways as its basis, but which can respond to and shape itself to any particular situation or set of circumstances.

2.2.2. Victor Margolin: Expanding the Boundaries of Design and Designing

Victor Margolin has been a regular contributor to the discourse on design, both as an author and as a long standing editor of the influential journal *Design Issues*. His contributions have continually tested and sought to expand the boundaries of what should be considered within design. His stance has been one of an enthusiastic advocacy for design a clear belief in the positive role that design can play in technological culture, in contrast to the more radical and uncompromising critiques offered by authors such as Papanek⁶ and Mok,⁷ which cast the influence of design on the world in a negative light.

Although his recent contributions stake out a territory that is vast and deeply connected to the broader human mission, his has not been a headlong rush to this position but a series of arguments that have steadily expanded and then tested the boundaries of design, the next contribution building on the foundations of the last. His approach is inherently interdisciplinary; he commonly begins a line of argument by locating a focus in a discipline outside of design, and then noticing the 'design-shaped hole' present in the discourse of the other discipline.

Among the many themes that Margolin has developed, three are of particular relevance to the concept of *social system design*. Firstly, Margolin develops design as not only participating in the necessary interdisciplinary approach required of tackling complexity, but proposes design as integrative of other knowledge domains.⁸ Secondly, Margolin recognises the intrinsically relational nature of designing and acting; this is a fundamental tenet of any kind of socially oriented design.

judgment difficult. See: Hippocrates and Francis Adams, "Aphorisms", The Internet Classics Archive <http://classics.mit.edu/Hippocrates/aphorisms.1.i.html> (accessed August 2012).

⁵ Richard Buchanan, pers. comm..

⁶ Papanek.

⁷ Clement Mok, "Time for Change," *Communication Arts*2003.

⁸ Richard Buchanan similarly claims a role for design as integrative of multiple streams of knowledge.

Thirdly, Margolin brings to the fore the problematic of the limits of the artificial, exploring at length the breakdown of the historically held neat boundary between the 'real' and the 'not real', which has important implications for a kind of design that must grapple with situations where the artificial and the 'natural' are deeply entwined, where 'design makes incursions into the realms that were once considered belonging to nature rather than culture'.⁹ As design moves in focus from material objects to immaterial systems, and as acts of design are considered to be no longer confined to what takes place in a studio, but enacted by many, if not all, constituents of a system in an ongoing way, responding to both design intent and situational circumstance, the question of what the artificial entails is a critical one.

For the purpose of illustrating the evolution of Margolin's contribution to understandings of design and designing, a series of papers that cover a period from 1988 to the present are investigated, thereby giving a longitudinal perspective on his thinking. Against a backdrop of contributions with a historical orientation, his first clear move along a trajectory of contemplating the nature and extent of design can be located in a 1998 contribution that declared his mission in the title of his paper as: 'Expanding the Boundaries of Design ...'¹⁰ where he explored and described the increasingly broad context in which design operates.

A persistent premise that Margolin uses to ground many of his arguments is that much of design discourse, education and practice have been caught in a narrow focus on material products. In building his argument for broadening design, Margolin first highlights a lineage of thinking that is the domain of theorists who focus on the appearance of products and the relationship of form to function. He then seeks to challenge this apparently dominant perspective through an exploration of the implication for design of information technology products. The form and function relationship is challenged by a medium that is essentially formless in any material sense, but which nevertheless delivers multiple, complex functions. This increase in the complexity of what can be considered a *product* leads to Margolin's second theme, which is that increasing product complexity is paralleled by an increasing complexity of user interaction; from simple, physical use, on towards a deeper emotional and cognitive participation with the product. The third key move that Margolin makes is the broadening of a focus on the singular product to a '*product environment*',¹¹ defined in this way:

⁹ Victor Margolin, "The Politics of the Artificial," in *The Politics of the Artificial: Essays on Design and Design Studies*, ed. Victor Margolin (Chicago: University of Chicago Press, 2002). p. 107.

¹⁰ Victor Margolin, "Expanding the Boundaries of Design: The Product Environment and the New User," *Design Issues* 4, no. 1/2 (1988).

¹¹ *Ibid.* p. 61.

*'All the necessary conditions for acquiring the product, learning to use it, following its changes and improvements, providing components for it, and keeping it in good repair are part of the product environment. The term "environment" denotes everything that surrounds the product and becomes part of its identity and value.'*¹²

The implication for this broader and inherently complex perspective on the interaction of products and users is a recognition that the designer can no longer foresee all the ways that the array of increasingly complex products will be used – this necessitates a shift in focus from product specification to *user outcomes*, thus necessitating a need to understand more completely *'the evolving relationship between products and users'* with *'the total organisation of such environments'*¹³ constituting the next phase for design.

Continuing this theme into the realm of use, Margolin then seeks to more profoundly connect the idea of product with social action, noting that many prominent social theorists ignore the role that products play in enabling or inhibiting action.¹⁴ Within this argument is Margolin's first reference to a definition of product that includes *'the human-made material and immaterial objects, activities, services and complex systems or environments that constitute the domain of the artificial.'*¹⁵ This broad definition of product is brought into juxtaposition with social action via a concept that Margolin names as the *'product milieu'*, the aggregate of all products that fills the *lifeworld* and are *'physically or psychically tangible'* in the everyday choices and actions we make. This extends along a spectrum from large scale civic projects, through those products generated with the market and on to independently designed things. He makes the point that this product milieu is not neutral but is an *'interactive presence'* that actively shapes the experiences we have and the actions we make. The implication of these arguments is a radical extension of that which is designed to include everything we can observe in the domain of culture, creating a place that demands a deeper awareness of the *contingent nature of the artificial.*¹⁶

Having established an argument for a broader definition for design, and having made a connection between the product and social action, Margolin moves on to explore the role of an expanded

¹² Ibid. p. 61.

¹³ Ibid. p. 64.

¹⁴ Victor Margolin, "The Product Milieu and Social Action," in *Discovering Design: Explorations in Design Studies*, ed. Richard Buchanan and Victor Margolin (University of Chicago Press, 1995). p. 121.

¹⁵ Ibid. p. 122.

¹⁶ *After Herb Simon from the Science of the Artificial, Margolin goes onto consider the question of 'who designs?'* and argues that the demarcation of professional from non-professional lies not in skill or capability, but in the degree of motivation, experience and social acknowledgement.

design, with an introduction to the notion that such a perspective allows for the re-connection of isolated professional practice, with the implication that design can be an integrative force in the development of a new relational mapping of disparate knowledge domains.¹⁷

This argument culminates in a theme that recurs across Margolin's subsequent contributions: design as a form of social action, which in turn is dependent on the existing product milieu. In this way, Margolin recognises that the world can only be meaningfully considered as a social, inter-subjective one, where action and experience can only be seen from a relational perspective. This then leads to the awareness that designers have choice in how they work in the social nature of the '*lifeworld*';¹⁸ either retreating to an isolating position, which Margolin describes as *Mitwelt* as developed by Alfred Schulz, or engaging in a shared experience of social reality, the *Umwelt*.

In experimenting with a juxtaposition of design, user outcomes (or projects) and social action through the 'product milieu' concept, Margolin puts in place the idea of design as '*a fundamental constituent of all human action*', which is '*intended to expand our awareness of how we participate as designers and users in the lifeworld ... where we can explore the multiple dimensions of design activity and the way it operates as a powerful instrument of social construction.*'¹⁹ This is an important theme that any new conception of design focusing on social systems must incorporate. Reducing such an art to a technical plane without attending to the broader social and ethical context would be counterproductive.

Having repositioned design within the realm of social concern and social action, Margolin moves to examine arguably the most significant and complex of the concrete challenges this positioning opens up, that of global sustainability. Building on the ground of a definition of design that includes all that is within the domain of the artificial, Margolin draws a link to other thinkers who have sought to significantly broaden the reach of design, including Richard Buchanan's naming of design as a '*liberal art of technological culture*'.²⁰ This demonstrates once again his hopeful vision for design to play a civic role as an integrating force for bridging the boundaries across knowledge disciplines.

¹⁷ This is a critical aspect of building the interdisciplinary capacity to bring about systemic coherence, not discounting the natural innovative force inherent in allowing and encourage emergence but hopefully working against the 'tragedy of the commons' risk in isolated practices pursuing internally defined ends.

¹⁸ Margolin, "The Product Milieu and Social Action." p. 133.

¹⁹ Ibid. p. 141.

²⁰ Victor Margolin, "Global Expansion or Global Equilibrium? Design and the World Situation," *Design Issues* 12, no. 2 (1996). p. 22

Margolin calls for an understanding of design that is not limited to well-established forms of practice, such as graphic and industrial design, indeed declaring that these *'old divisions of design practice now appear increasingly inadequate and ineffectual.'*²¹ The imperative then, as designers tackle the larger and more complex challenges of sustainability, is to move to the *'fourth domain of design'*, a reference to Richard Buchanan's *fourth order of design*,²² where the focus moves to the role design can play in shaping cultural and, if necessary, ecological environments.

Following this call, Margolin proposes a way whereby design's capacity for tackling complex and messy problems and devising useful resolutions can be used to guide interdisciplinary projects. Margolin identifies two broad and competing ideas of the world: an *expansionist* perspective that is constructed on economic models that assume unlimited growth is possible and serves as a model for present day markets, institutions and societies; and an *equilibrium* perspective that insists we confront the real limits of ecological systems, and the disastrous consequences of transgressing these limits, which leads to an imperative to restructure human endeavour within the bounds of ecological equilibrium.²³

These two perspectives are often locked in an irresolvable discourse, a battleground of competing ideas that unfolds with little opportunity for any practical and effective resolutions in the world. To break this deadlock, Margolin turns to the work of Hans Küng who proposes that a new "*ethics of responsibility*" is required which:

*'... is oriented to the consequences of decisions and actions as they are manifest in concrete situations. This ethic he sees as a complement to an ethic of disposition which propounds idealistic virtues without concern for the process and effects of their adoption. "Without a dispositional ethics," he writes, "the ethics of responsibility would decline into an ethics of success regardless of disposition, for which the end justifies the means. Without an ethics of responsibility, dispositional ethics would decline into the fostering of self-righteous inwardness.'*²⁴

Margolin argues that an expanded form of design – one that operates across Buchanan's four domains, is integrative of multiple strands of knowledge and is capable of tackling indeterminacy – could find a way through competing ideas of the world in order to produce practical and effective

²¹ Ibid. p. 23.

²² See: Buchanan, "Wicked Problems in Design Thinking."

²³ *This perspective has been developed at length by CSIRO Executive Director James Bradfield-Moody, see: James Bradfield-Moody and Bianca Nogrady, The Sixth Wave (North Sydney, N.S.W: Random House Australia, 2010).*

²⁴ Margolin, "Global Expansion or Global Equilibrium? Design and the World Situation." p. 30.

outcomes. As an art that traverses the spectrum of conception through to action, design can naturally integrate both the dispositional ethic, as well as Kung's ethic of responsibility. This again introduces the requirement for an ethical dimension in emerging kinds of design that extend beyond the world of products to a situation where: *'[o]ur task is ... to encourage social and human innovation which, when compared to its cousin, technological innovation, is definitely a poor member of the family.'*²⁵

Margolin continues to consolidate his argument for design's role in the social challenge of creating sustainable and equitable societies. Lamenting the slow progress in shifting the focus of design beyond product and the *'underlying premise of design practice that the role of the designer is to work within the system of consumer culture'*,²⁶ he renews his quest by first noting the growing evidence of ecological crisis and the resultant shift in the consciousness of many social groups. He continues to issue the challenge for designers to critically reflect on their place in the world and to consider the role that the design professions might play in the emerging *'culture of sustainability'*.

Recognising the contingent, and therefore malleable nature of design itself, Margolin declares that the focus for design must lie not with *'what new product to make, but how to reinvent design culture so that worthwhile projects are more clearly identified and likely to be realised'*;²⁷ these projects would be those founded on a new ethic grounded in an emerging consciousness of the urgent imperatives for creating sustainable outcomes for society.

Continually expanding his view of what should lie within design, Margolin connects to the work of R. Buckminster Fuller, the prominent early 20th century architect and inventor, who brought a systemic perspective to design, looking to draw in an understanding of available resource and efficient use, alongside the classic design focus on *'the object'*. The juxtaposition of design and a systems perspective is important for forging any capacity to tackle the complex, systemic issues that the sustainability perspective brings to light. Extending this, Margolin cites the work of Pauline Madge, who identifies the deficiency of the single product focus of movements such as *'eco-design'*, naming *'sustainable design'* as a practice with a large systems approach that is broad in scope and brings an *'increasingly critical perspective on ecology and design'*.²⁸ This amplifies Margolin's vision for an expanded design, where *'[d]esigners have the ability to envision and give form to material and*

²⁵ Quote from King and Schneider, *"The First Global Revolution"*, in *Ibid.* p. 29.

²⁶ Victor Margolin, "Design for a Sustainable World," *Design Issues* 14, no. 2 (1998). p. 85.

²⁷ *Ibid.* p. 86.

²⁸ *Ibid.* p. 90.

*immaterial products that can address human problems on a broad scale, and contribute to human well-being.*²⁹

This highlights the importance of introducing a strong systems perspective into this thesis, as extending design to encompass social situations and systems must embrace the deep relationality of such systems, and work with the inherent mutuality between different aspects and elements of such systems. Margolin effectively expands the field of view for design to encompass the scale of systems that cannot be neatly isolated and operated on; where the social, the technological and the natural co-exist entwined and interdependent. This emphasises the question of where the *'made'* ends and the *'natural'* begins.

Margolin turns his attention to the relationship between the natural and the artificial in an essay titled *'The Politics of the Artificial'*.³⁰ Beginning by positioning the boundaries of the artificial and its relationship with nature as a central problem for design, Margolin again lifts the potential focus of design to take into account the most profound question facing humanity: the negotiation of our relationship to the natural world, and our sustainability within it. He notes that, until recently, the distinction between the natural and the artificial appeared to be clear, and that design had a similarly clear focus bound to the *'object'*. As humanity's technological prowess has expanded to the point where disruptive and potentially irreversible impacts on our ecological spheres are a reality, it would be deeply problematic to leave the relationship between the artificial and the natural unexamined within an expanded conception of design.

Margolin introduces the work of Herb Simon and others who provided a ground for the expansion of design to that of a process that underpins all that is artificial, thereby providing a pathway for the gaze of design to lift beyond the singular product. He notes, however, that Simon equated the natural with the real, leaving the boundary with the artificial uncontested and further describing *'nature as the ground of meaning against which a science of the artificial or a broadly conceived practice of design would be defined.'*³¹

Identifying this mode of thought as implicitly positivist, Margolin names this approach after Andrea Branzi's *'First Modernity'*, where reality was *'an uncontested term'* that served as a *'stable ground*

²⁹ Ibid. p. 90.

³⁰ Margolin, "The Politics of the Artificial."

³¹ Ibid. p. 108.

for the attribution of meaning to objects, images and acts.'³² Moving to explore the numerous challenges to this school of thought, Margolin notes the critiques of thinkers such as Paul Feyerabend who began to question the tacit acceptance of the natural as the real. Margolin extends this exploration to include the challenges offered to modernist thought by post-structuralism, via the contributions of thinkers such as Jean-Francois Lyotard, who rejects the possibility of any meta-narratives that serve to shape society.

In a similar vein, we may look to Jean Baudrillard's argument centred on his concept of the simulacrum, where simulacra are signs for the real that substitute for the real itself, and so representation breaks down. He contemplates the outworking of this break down to the highest order:

*'But what if God himself can be simulated, that is to say, reduced to the signs which attest his existence? Then the whole system becomes weightless, it is no longer anything but a gigantic simulacrum---not unreal, but a simulacrum, never again exchanging for what is real, but exchanging in itself, in an uninterrupted circuit without reference or circumference.'*³³

This perspective accords to Baudrillard's fourth '*phase of the image*', where '*it bears no relation to any reality whatever: it is its own pure simulacrum*'.³⁴ Margolin views these challenges as legitimate attempts to break down the hegemony of positivist thought and the resultant exclusion of diverse voices within society. He is, however, critical of the extension of this project to the nihilistic abolition of any unifying presence that stands outside the immediacy of socially constructed interaction, citing Gianni Vattimo's description of this nihilism as the reduction of Being to exchange-value, and declares his dissatisfaction with this '*post-modern condition*'.³⁵ For Margolin, '*the [spectre] of instrumental reason, with its increasing technological power, let loose on what remains of nature without any moral or ethical imperative to govern it is terrifying*'.³⁶ His primary concern lies with what we could inadvertently lose, the possibility of '*managed bio-systems*' becoming '*simulacra of the natural without our knowing it*'.

³² Ibid. p. 109.

³³ Jean Baudrillard as cited in: Ibid. p. 111.

³⁴ Jean Baudrillard, "Simulacra and Simulations," in *Jean Baudrillard, Selected Writings*, ed. Mark Poster (Stanford University Press, 1988). p. 168.

³⁵ Such challenges include thought experiments exploring artificial worlds decoupled from the natural, such as those created by Donna Haraway, which serve to encourage a clearer perspective on the relationship between the artificial and the natural.

³⁶ Margolin, "The Politics of the Artificial." p. 112.

This loss of distinction between the natural and the artificial realm sees one as being interchangeable with the other, a situation that he regards as unacceptable. For this reason, Margolin declares that we cannot persist with the extreme social reductionism of post-structuralism and so calls for the renewal of a meta-narrative, but one that can be inclusive of the diverse voices present in our culture. Margolin looks to spiritual narratives, such as those sustained by the Gaia metaphor, where nature is sacred and it is held implicitly that, to be fully human, and to not drift into a world of cyborgs and simulacra, we must maintain the sanctity of the natural and to re-affirm this as the real, repudiating the idea that it is interchangeable with the artificial.

Although beyond the scope of this thesis to fully develop, sustaining a discourse that focuses on such questions as what it means to be '*fully human*', and whether a spiritual narrative, drawn from tradition, or re-made for a modern condition would be valuable in teasing out the relationship between the human, the artificial and the natural, will be important for a design concerned with large social, or civic, systems.³⁷

Margolin picks up this theme, proposing that the task for design is to incorporate this grand meta-narrative into its discourse, in so doing providing a cohering thread from which design can resist the '*colonising impulses of techno-rhetoric*', come to a considered understanding of an appropriate bounding of the artificial with respect to nature, and allow designers to better understand how design can contribute to social and psychic well-being. For such a discipline to become whole, it is necessary to develop a philosophical dimension, but one that is not to be held at arm's length in esoteric and arcane discourse, but which is woven into its everyday methods and practices. Such a discourse is offered by authors such as Clive Dilnot. Becoming an integrative discipline means that design must firstly be able to integrate the various threads of knowledge that are often held apart, with each seeming to have little relevance for the other.

Leading on from the exploration presented in 'The Politics of the Artificial', Margolin returns to the theme of connecting an expanded vision of design to the largest challenges facing humanity. In doing so Margolin once again lifts his perspective to locate design at the junction of '*a dialectical space between the world that is and the world that could be. Informed by the past and the present, their activity is oriented towards the future. They operate in situations that call for interventions, and they have the unique ability to turn these interventions into material and immaterial forms.*'³⁸

³⁷ This theme of distinctly human ways to know is further discussed in Chapter 4.4.

³⁸ Victor Margolin, "Design, the Future and the Human Spirit," *Design Issues* 23, no. 3 (2007). p. 4.

The field in which this concern operates echoes the challenging and contested relationship between the natural and the artificial raised in his previous contributions. Margolin cites the work of Tomás Maldonado and adopts his positioning of the human environment as a subsystem of the broader *'ecological system of nature'*,³⁹ as well as his reference to the capacity of the human system to irreversibly impact other systems. The question then returns to a common theme developed by Margolin: "What role can design play in this?" In answer to this, Margolin places design at the nexus of the unlimited possibilities of a technological culture and the limited capacities of our ecological systems. He proposes, as the 'place' from which this challenge should be addressed, firstly the dialectical tension between the past⁴⁰ and present, and secondly the situations these create for a deliberation of the possibilities of the future.

Recognising the accelerating pace of technological change, and the growing complexity and potential for social impact of the product milieu, Margolin calls for designers to engage with the future in a more profound and direct way. He goes on to lay out a variety of methods by which we can grapple with the future. The point of this entreaty is to become far more aware of the future, both from a predictive (what could happen) and a prescriptive (what should happen) perspective. He cites Bill Joy's reflection on the situation that atomic scientists in the 1940s found themselves in: *'We can, as they did, create insurmountable problems in almost no time flat. We must do more thinking up front if we are not to be similarly surprised and shocked by the consequences of our inventions.'*⁴¹

Margolin goes on to discuss the importance to this engagement of having in place *'broad and coherent social scenarios'* to serve as a context within which work can unfold. These *'predictive'* scenarios then need to be counterpointed by a *'prescriptive'* ethical position that can be drawn from broader religious and philosophical narratives, or from modern derivatives of these arguments, such as the aggregate of United Nations declarations. These allow the construction of operational strategies to *'align one's self with other social actors and institutions, whose concerns are compatible with one's own'*.⁴²

³⁹ Ibid. p. 5. *This is contrasted to Clive Dilnot's position of the dominant modality of modern life being subsumed by the artificial.*

⁴⁰ Margolin builds on the work of Eric Hobsbawm on the critical role that systemic interpretation of the past has in creating balanced and imaginative frames for future social actions in: Victor Margolin, "Design in History," Design Issues 25, no. 2 (2009).

⁴¹ Margolin, "Design, the Future and the Human Spirit." p. 10.

⁴² Ibid. p. 12.

The imperative to pull the future into conversations of the present underpins the arguments that juxtapose design and strategy. While Margolin's argument is that design needs strategic thinking, the converse can equally be argued; that the capabilities and capacities of design and designers can be used to build strategic perspectives in an increasingly complex and fluid world.

2.2.3. Clive Dilnot: Locating Design at the Centre of a New Modernity

In a similar way to that of Margolin, Clive Dilnot gives voice to a radical expansion of what is and what could be within design. He locates design as an important element for engaging with the social sphere and the most serious civic challenges we face. Dilnot shares with Margolin a starting point which recognises that a focus on singular, material products is, in one sense, a tremendous asset for design as a practice, with an '*attendant modesty*' described as '*a virtue of design*'.⁴³ In a wider sense, however, this traps design in a role serving as an adjunct to the technical production of commodities, and so serves to keep design from fulfilling a more significant potential. Dilnot's contribution constructs a perspective that provides important insights into the role that design can and should play in how we come to know and act in an era of the artificial.

Dilnot goes further than Margolin; however, by arguing that maintaining this narrow focus for design is not just undesirable but structurally deeply problematic. This argument has unfolded over a number of contributions spanning 25 years. The ground for his evolving argument has roots in an exploration of the nature of the connection between design and society. He begins with the proposition that by focusing on the products or the results of design, or just on the problems it tackles, design itself '*disappear(s) from conceptual view*'.⁴⁴ This has the effect of lowering the discursive power of design and, further, it locates design as little more than a means to ends determined outside of design – a technical activity operating as an instrument alongside other elements of commodity production. This leaves it with no more significance than other technologically oriented elements.

Access to design for the purpose of understanding it is then limited to the analysis of the material artefacts it generates,⁴⁵ which tends design studies towards the sciences. In obscuring the processes

⁴³ Dilnot, "The Promise and Actuality of Design Research." p 25.

⁴⁴ Clive Dilnot, "Design as a Socially Significant Activity: An Introduction," *Design Studies* 3, no. 3 (1982). p. 139.

⁴⁵ *This is in line with Richard Buchanan's insight that 'determinacy in existing products' frames perspectives on the activity of designing, and evokes Kenneth Burke's concept of 'prediction after the fact' as an explanatory device: see Richard*

by which design occurs, it becomes a something of a mystery, whereby the relative status of the designer is elevated in the popular imagination. The broader impact, however, is that design itself is devalued, marginalised and '*exterior to the 'natural' understanding of government, industry and educationalists*',⁴⁶ meaning that it is difficult for the non-design community to grasp the potential significance of design beyond the niche it currently occupies in commodity markets.⁴⁷

Dilnot argues that attempts to explore and explain design via analogy with other disciplines, such as *design-as-art*, *design-as-science* and *design-as-technology*, are misguided in that they define design only in terms of that which it is not. This has been '*destructive of our tacit sense of design*' reducing design to the commonly held view of design as a singular, obscured process dedicated to forming products. This leaves us without conceptual frameworks or adequate language to understand and explicate design as '*a pluralistic and multiple activity, a synthesis of heterogeneous activities defined not by the separate[ion of] activities but by their integration*'.⁴⁸ This is not helped by the '*anti-rationalist*' response of promoting design as a tacit practice; Dilnot cites the work of Abel, which is correct in rejecting attempts to rationalise design, but in countering with an opposite stance serve only to continue to obscure design from true understanding.

The preceding having been established as premise, Dilnot moves to propose a way forward. If design is defined not by the problems it addresses or by the outcomes it brings about, but as an *activity* in its own right, so it can be understood on its own terms. Bringing the activity of designing to the fore opens the way to locating the distinct ground on which design rests. Significantly, this ground is located with thinking and communicating, not with the material craft skills. As Archer and others declare: '*... that there exists a designerly way of thinking and communicating that is both different from scientific and scholarly ways of thinking and communicating, and as powerful as scientific and scholarly methods of enquiry, when applied to its own kind of problems*'.⁴⁹

This establishes a clear break from the association of design solely with material culture, which it shares with many other professions, and emphasises the attributes that are unique to design. As Dilnot describes, design knowledge is not knowledge for its own sake, but is knowledge created for

Buchanan, "Rhetoric, Humanism and Design," in *Discovering Design: Explorations in Design Studies*, ed. Richard Buchanan and Victor Margolin (Chicago: University of Chicago Press, 1995). p. 26.

⁴⁶ Dilnot, "Design as a Socially Significant Activity: An Introduction." p. 141.

⁴⁷ *In many consulting projects run by 2nd Road in mainstream government, industry and educational institutions, often the most difficult task is shifting the perspectives of non-design staff so they at least become open to the possibility that design can offer significant advantage in non-traditional areas.*

⁴⁸ Dilnot, "Design as a Socially Significant Activity: An Introduction." p. 141.

⁴⁹ *Ibid.* p. 144.

the purpose of achieving a *'desired transformation of human-social relations'*. This knowledge is generated through design thinking and communicating, operating in reciprocal and reflective relations with the *'material embodiment'* of our social situations.

The notion that the distinctive character of design lies in thinking and communicating is amplified by Dilnot's recognition that we are moving towards a *'post-product'* society.⁵⁰ This does not mean that there will be no products, but instead that people will move beyond *'more is better'* consumerism towards building a more critical relationship to products, where economic and social value is to be found more in knowledge than things, and where there is *'more explicit social management of man-environment relations'*. This shifts the reciprocity from that of being between thought and material transformation, towards being between thought and transformation at the *'level of concepts'*, an idea resonant with Buchanan's *four orders of design*. This moves us towards a better understanding of design as an activity that is distinguished as a discipline of transformative thought and language.

From this proposition emerges Dilnot's claim for the social significance of design. It is located in two major themes. The first is an extended and reconstructed concept of forming as not simply material artefacts but a *'conscious ordering of material and social materials for human ends'*.⁵¹ He identifies this as a core to what it is to be human, and so names this expanded *'forming'* as *'praxiological'*: design activity equated to human activity, and so a concept central to human ontology. This critical role in forming social and technological arrangements is an important antidote to the *'imperious logic'* of technological systems, which promotes the view of these large-scale systems as omnipotent and unformable. Design has a function in asserting social control over that which is made.

It is here that Dilnot then locates the second area of significance of design activity, namely that of its capacity to synthesise disparate and diverse areas of knowledge and value systems *'belonging to different orders and conflicting requirements'*.⁵² This challenges the *'dominant western-analytical logos'* whereby knowledge domains are separated and limit rich interaction between them. Design as a synthetic activity *'models in actuality the synthesis of technical-instrumental and symbolic*

⁵⁰ This is explored elsewhere, see for example the concept of dematerialisation of design in Frascara, "The Dematerialization of Design.", and the macro shift from an economy founded on products to one founded on services in Bradfield-Moody and Nogrady.

⁵¹ Dilnot cites an example of social forming, or forming of social materials, provided by Stephen Yeo of different forms of production, such as co-operative factories and retailers.

⁵² Dilnot, "Design as a Socially Significant Activity: An Introduction." p. 145.

*interactive-communicative requirements, and thus gives us a concrete model of how these apparently antithetical realms of human experience can be brought together.*⁵³

Extending this argument in a keynote address to the FUTUREGROUND conference in 2004, Dilnot located the mission of design as *'futuring a more humane world'*.⁵⁴ Describing a design reduced to a *'mere technical or commercial practice'* has no worth in terms of thought and attention; he posits that a *'structural relation'* exists between design and the humane, and so there is more to design knowledge than *'design itself wishes to know'*. This is the basis for his hopeful aspiration for design to make the *'future better – more democratic, more humane and more sustainable'*. As Margolin has done, Dilnot turns to the work of Herb Simon, but goes further to uncover the essential force of Simon's propositions for design and its inextricable links to artifice and the artificial. Dilnot focuses on two propositions from Simon's *The Sciences of the Artificial*.⁵⁵ Firstly, design offers a *'common core of knowledge'* that may stand against the *'fracturing of knowledge in modern culture'*, and secondly, quoting Simon, *'design should be 'the proper study' of human-kind 'as a core discipline for every liberally educated person'*.⁵⁶

This extends a theme developed earlier, that of the centrality of design to social knowledge, and the centrality of thought and language in design – the role of *'design in the life of the mind'*. This significant claim rests on two grounds. The first is Simon's realisation that the essential character of the artificial lies with the contingent, not with the necessary – with how things might be and not with how they are – *'in short, with design.'* Dilnot points out that, for Simon, the *'necessity for design'* as an essential element for the configuration of made systems is *'discovered not asserted.'*⁵⁷ Margolin also noted this key distinction, a distinction extensively explored by Aristotle, and one that locates design alongside rhetoric, as an art of the *contingent*, and apart from science, which is the study of the *necessary*.

This is given additional force through Dilnot's claim for a key turn having occurred in human affairs in modernity, namely that the horizon of being is defined by and through the artificial, where *'being cannot be thought of outside of artifice and outside the web of relations which artifice makes*

⁵³ Ibid. p. 145.

⁵⁴ Dilnot, "The Promise and Actuality of Design Research." p.20.

⁵⁵ Simon.

⁵⁶ Dilnot, "The Promise and Actuality of Design Research." p.20.

⁵⁷ Ibid. p. 21.

possible (and impossible)'.⁵⁸ Margolin rejected this claim but appears to misunderstand what is being claimed. Dilnot has not asserted that the natural is no longer present, but that the world of the natural and the artificial can now be thought about only through the lens of artificiality. This is not to succumb to nihilism, as Margolin feared, but to seek to re-construct the way we come to knowledge about the world.

Dilnot recognises the import of this turn. Traditional ways of knowing are directed to looking through the mediating influence of the artificial to get to the universal, determinate laws that lie beneath. This turn, however, leaves this approach and the existing categorical structures it rests on as '*radically inadequate*' for knowing in an era dominated by the artificial. Within artifice there is only the contingent, only the principle that '*things can be other*',⁵⁹ where there are no fixed categories and where configuration has nothing to conform to but itself. Recalling Margolin's description of bio-systems that become simulacra without our being conscious of it, Dilnot recognizes that, in response to the fluid reality we find ourselves in, our primary focus for knowledge must move to exploring the '*implications and consequences of things made*'. Here Dilnot locates design as a key to this new way of knowing:

'... means through which we relationally explore being (in terms of the possibilities of how we can attune ourselves and our potentiality in regard to the artificial world) ... that which mediates between human beings and technical and artificial systems; and as the practice that explores, through configuration, the relational possibilities of mediated being'.⁶⁰

Design and its relation to the artificial become ontological issues. This gives voice to a theme located in Margolin's writing: the immediate relevance of a philosophical approach for the formation of a new kind of design. While applying design to social systems is emergent, elevation to the level of a complete art requires conscious forethought based on strong philosophical and theoretical foundations.

This argument brings us back to Simon's propositions and their essential force. If the artificial is our horizon of being, and if design is the '*principal channel through which we can most profoundly gain access to the nature of the artificial*',⁶¹ then design should indeed become a '*common core of*

⁵⁸ Ibid. p. 22.

⁵⁹ This refers *Aristotle's development of the contingent in his Nichomachean Ethics*, see: Alan G. Gross and Arthur E. Walzer, eds., *Rereading Aristotle's Rhetoric* (Carbondale, Ill.: Southern Illinois University Press, 2000).p. 137.

⁶⁰ Dilnot, "The Promise and Actuality of Design Research." p. 24.

⁶¹ Ibid. p. 24.

knowledge' and *'a core discipline for every liberally educated person'*. Dilnot goes on to uncover the implications for design itself: design is not *'the content of design action'*, or the sum of its outcomes, but a revelatory way of reflecting on and knowing the world. This rests on the interaction between two places that design occupies. The first is the *'ontological potentiality'* of the artificial as we experience it, while the second is the *'modes of transformative action by which we ... set in place, in a deeply originating sense, the artificial.'*

As Dilnot summarises, this rests on design's capability to conjoin (ontological) positing⁶² with making. Design is the window through which we interpret and come to know the potentiality of the artificial and is, in turn, the means through which we continue to re-configure or transform its actuality.

Design can become cognisant of and accountable for the horizon it is committed to creating. Where Margolin was anxious about the relationship between the natural and the artificial, Dilnot is *'exhilarated'* about the potential for our capability to become conscious of, and consciously shape artifice for both human and ecological good. This argument, however, is not without its detractors.

As stunning as these claims are for the indispensable role that design plays in our engagement with artifice and the artificial, and the central role that knowledge and cognitive making (along with practical making) has for design, Dilnot extended his argument further still in a contribution to the WonderGround conference in 2006.⁶³ Perhaps in recognition of the resistance his theses encounter within design, Dilnot notes that the design community is *'peculiarly resistant to theory'*, and goes on to confront theory itself, developing an argument for design's critical role in knowledge as a whole, as a *'wonderground'* on which new forms of thought serve our engagement with an age of the artificial.

Beginning with an exploration of theory as we currently understand it, Dilnot opens with a description of knowledge as offered by Schelling, quoted by Jürgen Habermas: *'It is by studying a strictly theoretical philosophy that we become most acquainted with Ideas, and only Ideas provide action with energy and ethical significance.'*⁶⁴ In other words, Schelling holds that only the pursuit of the pure *Idea*, divorced from the polluting influence of *'human interest'*, can lead to true understanding, which can in turn guide action. This most Platonic of perspectives has been dominant in the *'tradition of great philosophy since its beginnings'*. This perspective is built on the

⁶² Here Dilnot evokes Heidegger and names this as **poiesis**: production as an act that situates us in time, historically, and opens us to reflexively (action\reflection) to take the *'measure of [our] dwelling on earth'*.

⁶³ Dilnot, "Design, Knowledge and Human Interest."

⁶⁴ Ibid. p. 2.

'three-fold movement by which theory was secured'— three underlying principles that define theory and appear to exclude design.

This is an important development. Dilnot's argument is that for design to take a significant place in shaping our relationship to the *'horizon of the artificial'* it must lie within the realm of theory. There must be a sustained discourse within design to construct and refine theory to actively shape and direct practice. The first of these *'traditional'* principles demarcates that which belongs to theory, locating this in the *'realm of the eternal'*, the disinterested contemplation of the cosmos, leaving *'to doxa "the realm of the mutable and the perishable."'* All that belongs to finite and historical practice *'falls below theory ... so cannot be theorised ... in a classical sense'*. The second principle states that the concern of theory lays with *what is*, namely that which, after Habermas, *'must be a-priori understood as that which stands outside of, and subsists independently of us.'*⁶⁵ That which could be other, that which is located with artifice, is beyond the reach of theory.⁶⁶ The third principle completes the circle by describing how this knowledge of the eternal shapes action in the world, where the *'immortal order'* of the cosmos is internalised within the observer, and so shapes the *'conduct of life'*. That which is not grounded in structures of the natural falls outside of this circle. Knowledge only proceeds along the hierarchy of *cosmos-philosopher-action*, *'activity is not thought nor its immanence constituted as that which could provide ideal [Ideal] templates for practice.'*⁶⁷

Design as an activity that is situated, historical and concerned with human interest and the material environment, *'not other than interested and immanent'*, and so from a traditional philosophical perspective appears to lie beyond theory. For Dilnot, however, accepting this schism between theory and practice is no longer viable, regarding this certainly as an issue for design, but, more significantly, as a *vital* issue for theory (knowledge) itself. Traditional ways of approaching theory are sound where we locate our ground in the natural. However, as we inhabit *'a world transformed, increasingly into artifice'*, modes of theorising that exclude design also exclude that which design most effectively addresses, the realm of the artificial.

Dilnot then proposes a radical inversion. Rather than persisting with trying to force design into a traditional mould (*design-as-science*),⁶⁸ his argument is that in an era where the artificial is becoming

⁶⁵ Ibid. p. 3.

⁶⁶ As Buchanan points out, this key distinction is often subject to confusion, where design is conflated with 'science' in that it is only when an artefact has come to be that it becomes available for theoretical analysis.

⁶⁷ Dilnot, "Design, Knowledge and Human Interest." p. 5.

⁶⁸ See, for example Cross's chronicling of the various attempted juxtapositions of design with science in: Cross, "From a Design Science to a Design Discipline: Understanding Designerly Ways of Knowing and Thinking."

the dominant modality of existence, it is *theory* itself that must be renewed and re-constructed *through design* and so becomes a relevant force for the urgent imperatives of understanding the artificial and its consequences for the world and for being human.

This is not a sleight of hand. To achieve this inversion in a reasoned way, Dilnot returns to Habermas, who interprets the Greek development of pure theory as '*both strategic and emancipatory*', a situated and historical move to gain distance from the '*enmeshing of consciousness with [the] gods*' and the superstitions that accompany such a state, and the '*passions*' of everyday life. This was a strategy to allow the development of reflective capabilities, to be released from '*dependence on hypostasised powers*',⁶⁹ and to come to an understanding of the cosmos on its own terms, as it objectively is, rather than a plaything of the gods.

This suggests that as much as the Greeks found it necessary to separate knowledge from the passions, it is now necessary for us to reverse this, connecting knowledge back to human interest and seeking to emancipate subjects '*not from the passions but from the debilitating limitations of technical and objectivist practice that [operates] outside of human interest*'.⁷⁰ The contingent nature of the artificial demands that being re-engages with time and place – or as Dilnot describes '*subjectivity is re-discovered as historical being*', because, as the artificial both threatens and permits '*self preservation and utopian fulfilment*', it is vital to learn how to best shape it.

Dilnot's argument creates the conditions whereby design comes to the fore, belonging as it does to the realm of *doxa*, as that which most effectively provides the space to explore, via reflective propositioning and active configuration, the consequences of the artificial for human interest. Dilnot concludes that design offers '*a language of synthetic thought and action*' that brings praxis and knowledge together so providing an alternate model for theory, where the '*work of theory is active exploration of the interactions of subjects and artifice*' and where (finite) being comes to be known through how it makes the world. It constructs design as a broad discipline that can play a role at least integrative of, if not architectonic of, other disciplines of knowledge and where it can legitimately tackle the most pressing of significant human concerns. Importantly, it creates a rationale for the connection of design to that other art of invention and deliberation in the realm of the contingent, in the concerns of human affairs: rhetoric. In this it can be seen not simply as an

⁶⁹ Dilnot, "Design, Knowledge and Human Interest." p. 7.

⁷⁰ Ibid. p. 8.

arbitrary and eccentric choice with respect to method, but as a reflection of the essential characteristics of the domain of thought and knowledge into which design is venturing.

Dilnot's contribution provides two broad themes that are significant for my concept of *social system design*. The first is his case for locating thinking and communication as central to and essential for developing design on its own ground as a discipline that has *social significance, and is not confined as an input into systems of material production*. This is a critical turn and opens the way for forms of design that are founded not in any technical craft, but in words, images and ideas. The second is in establishing that, during modernity, where the horizon of being has become the artificial, design becomes significant because it is a vehicle whose central capability lies not simply with things but with knowledge. These themes resonate with Buchanan's definition of the higher orders of design⁷¹ and underpin his claim for design to be as much concerned with rhetoric, the production of knowledge, as with poetics, the production of tangible things.

2.2.4. Richard Buchanan: Providing a Basis for Developing Method

So far, the contributions examined have constructed the argument that design can be radically broadened, that it can be concerned with the immaterial as much as the material, and that it has the potential to play a larger, if not architectonic, role in remaking our relationship to the realm of the contingent, to technology and artifice, and in turn it can seek to re-balance the artificial with the ecological. It has become clear that design is cognitive in nature, that it must be practiced relationally, and that it must be as concerned with the ethical as it is with the technical.

What is yet to be examined, however, are the pathways by which any new kind of design could begin to move into the conceptual frame provided by these contributions, and begin to operate pragmatically but also substantially, in bridging the gap between bold theory and grounded practice. Richard Buchanan, while standing with the previous authors in arguing for design as a broad and vital civic art, provides such a path, through his claim for bringing together design and rhetoric, both arts of the contingent, and the domains of artifice and human affairs.

This is critical move for this thesis. By making this connection, Buchanan brings into view the extensive intellectual and practical repertoire of rhetoric, making it accessible as a source of

⁷¹ This refers to Buchanan's four orders of design as developed in: Buchanan, "Wicked Problems in Design Thinking." p. 9.

disposition, method and technique for *social system design*, which is emerging within the theoretical umbrella developed by the authors examined in this review.

In a similar vein to the arguments examined thus far, Richard Buchanan has developed a strong theme, built up over a series of contributions, of the tremendous potential for design and design thinking to take on a significant role in endeavours outside and beyond the confines of design disciplines as they are commonly understood and practiced. Buchanan does not structure his arguments from first principles; he builds from similar premises and positions that other authors develop as their arguments. What can be described as a series of commonplaces that are shared across participants in this emerging form of design philosophy are present in Buchanan's arguments, however these are contributory elements to Buchanan's overriding theme of searching for a unifying idea or theme for design in *general*. His approach is to survey, and indeed celebrate, the undeniable plurality of *particular* design worldviews, practices and outcomes in order to locate *intelligible patterns* that serve to offer a cohering identity for design. The goal of this enterprise is to distinguish design from other disciplines, not to create new divisions with design, and to understand how the unique characteristics of the design arts can make a wider contribution to other professions and society at large.

Buchanan's commitment to pluralism within design is one illustration of the influence of the prominent American philosopher Richard McKeon, whose ideas resonate throughout Buchanan's arguments. The most significant of these themes, developed throughout a long series of contributions, is the role that a revived and revised rhetoric can play in forging unity across the diversity of design disciplines and the social situations where design is active. Buchanan's reliance on rhetorical concepts, such as his use of *topoi* and *schemata* as devices that aid in his exploration of design, reveals the influence McKeon and a new rhetoric has on his methods.⁷²

In this, Buchanan proceeds by opening up as a source for thinking on design the long and substantial history of developments in Western thought. In an early line of development for his broader argument, Buchanan focuses on the communicative aspects of design that have recurred as significant themes in design studies.⁷³ If designers and designed things seek to influence 'an audience of consumers or society at large', then design becomes a mediating agency between designers and an intended audience, and so design takes on an inherently *rhetorical* dimension.

⁷² *Rhetoric is examined via McKeon's developments in Chapter 5.3.*

⁷³ Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice."

This becomes significant because of the increasing presence of *technology* in the last 100 years, and the sense held by many that these technologies are beyond serious influence and the guidance of human values. In this way technology is regarded as an applied science, along with the inevitability and immutability of the forms of technology that this association implies. This creates a distance between technologists and designers, with the latter often taking excursions into what may be regarded by the former, and by other inhabitants of technocratic organisations as '*unruly, antagonistic, bizarre and often inexplicable*.'⁷⁴

Drawing broadly similar conclusions to those of Dilnot and Margolin, Buchanan finds that the potential alienation created by technology must be challenged. What is required is a critical (re-) engagement with technology where the core principle holds: that technology is ***not immutable***; that the perspectives and argument embodied in expressions of technology are entirely contestable; and that the apparent hegemony of technology can be questioned and, if necessary, re-designed or even overturned.

If this is a valid argument, then a theory of rhetoric in design⁷⁵ is essential for providing the basis upon which human values and interest⁷⁶ can be understood to guide and shape technological development. This is an important development and provides a foundational principle on which a concept of *social system design* will be built.

Buchanan explores the rhetorical character of design in general. He argues that products of technology can be regarded as *arguments*, conceived and made in a way that seeks to persuade audiences towards certain beliefs and directions, via their adoption and use. This principle has found expression in the use of commercial design research to access the fundamental values and meaning structures that '*target demographics*' hold, allowing these to be woven into the fabric of the next compelling '*must have*' product.⁷⁷

In this way, artefacts, as arguments, have the potential to shape individual outlooks and therefore social interactions and structures. Buchanan thus identifies a previously under-recognised theme of the rhetorical quality of these artefacts. Through rhetoric, that which is habit or intuition in design

⁷⁴ Ibid. p. 5.

⁷⁵ Buchanan contrasts a rhetorical approach with '*grammatical theories*' that emphasise a rule based construction and one way transmission of the designer's position to an audience. It is a contrast between imposition and persuasion.

⁷⁶ After Dilnot, "Design, Knowledge and Human Interest."

⁷⁷ See: Stephen Diller, Nathan Shedroff, and Darrel Rhea, Making Meaning : How Successful Businesses Deliver Meaningful Customer Experiences (Berkeley, Calif.: New Riders, 2006).

can be brought to the surface and ‘we have a better perspective from which to identify the elements of art common to all the variations of design practice’.⁷⁸ The primary obstacle in pursuing this is a failure to recognise that technology is ‘in some fundamental sense concerned with the probable and not with the necessary’, with the *contingent* of Margolin and Dilnot. This inverts the orthodox relation of technology and design through naming technology as a design art, with design in general possessing at its core a rhetorical dimension.

In summary, Buchanan offers an evocative definition: ‘*design is an art of thought directed to practical action through the persuasiveness of objects [that serve as] vivid expressions of competing ideas about the good life*’.⁷⁹ This rhetorical dimension is then examined by Buchanan through the primary elements of rhetoric, the three proofs of rhetorical argument as described by Aristotle – *logos*, *pathos* and *ethos* – with each element present to a certain degree and in a certain way in every instance of *product-as-argument*.

Beginning with *logos*, or technological reasoning, as the backbone of a design argument, Buchanan describes this as the integration of an understanding of natural or material principles with the interpretation of a real human need, which results in a form that meets that need in an ‘*reasonable, expedient way*’. Via a number of examples, different approaches to *logos* are concretely illustrated, as are the elements of *ethos* (the character of the product) and *pathos* (the appeal of the product). This analysis can then be extended to consider the ‘*rhetorical stance*’ after Wayne Booth, or the integration of the characteristics of *useful*, *usable* and *desirable*.⁸⁰

Buchanan recognises the utility of concepts more often associated with ancient forms of verbal rhetoric for a ‘*rhetoric of things*’, positioning artefacts of design not as inevitable, but arguable, and bringing to the fore a way to tease apart the argumentative dimensions of an artefact. Of particular importance is his observation that technological reasoning can be balance with a human dimension, with concerns for *ethos* and *pathos*, because this has implications for the place of design in society. This juxtaposition disrupts the apparently neat break between words and things, separated in the Renaissance and driven further apart during the Enlightenment, where the distrust of rhetorical or

⁷⁸ Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice." p. 6.

⁷⁹ Ibid. p. 7. *In this definition the 3 fundamental forms of human activity, the sciences, politics and ethics, and the aesthetic arts, are integrated via the art of design as rhetoric, of particular note for further development is the ethical dimension implied and evocative of the Greek concept of eudemonia.*

⁸⁰ Richard Buchanan, "Design and the New Rhetoric: Productive Arts in the Philosophy of Culture," *Philosophy and Rhetoric* Vol. 34, no. No. 3 (2001). p. 196.

figurative language reached a new zenith.⁸¹ This realignment is important for the exploration of the use of *'rhetorical doctrines and devices'* in new kinds of design, and Buchanan turns to John Dewey to broaden our understanding of what can be considered within language. He argues that in a culture dominated by *'written language and literacy'* ideas of language gravitate towards a **denotative** frame, where words convey thoughts *'complete within themselves apart from communal operational force.'*⁸² In contrast, Dewey posits language as **connotative** and performative, including *'rites, ceremonies, monuments and the products of industrial and fine arts'*,⁸³ thus highlighting the communicative dimension of objects and the *'eloquence of voice'* with which they convey purpose. Buchanan positions design as an art that precedes the diversity of production, and is therefore *architectonic* to all forms of making. In turn, rhetoric can be understood as capable of structuring design, as so operates as an *architectonic* art of (fore) thought.⁸⁴

Further seeking to provide a unifying core to design from the perspective of rhetoric, Buchanan develops his argument through an understanding of the historical intellectual lineage of design in the twentieth century.⁸⁵ Declaring the inherent rhetorical nature of *'all design thinking'*, this argument is built up via an outline of a fundamental quality of the *'subject matters of design'*: he argues that these are contingent and not *given*, as are the subject matters of science. Drawing a key distinction between the *discovery* of under- or un-determined things and the *invention* required when encountering the **indeterminate**, Buchanan lays the ground for the differentiation between design and other disciplines and uses this concept to account for the diverse array of products created through design. He returns to the theme implicit in his location of design with the realms of the probable and the indeterminate: *'design as a discipline deals with ... things that may be other than they are'*,⁸⁶ and so they fall within the realm of the contestable, of argument. As in Dilnot, this is ground on which design can be formulated on its own terms.

The **radical indeterminacy** that design deals with is the essence of the art, and marks design as a discipline where *'the conception of subject matter, method, and purpose is an integral part of the*

⁸¹ See, for example, John Locke's description in his *Essay concerning human understanding* written in 1690: '... if we would speak of things as they are, we must allow, that all the art of rhetoric besides order and clearness, all the artificial and figurative application of words eloquence has invented, are for nothing more else but to insinuate wrong ideas, move the passions and thereby mislead the judgement; and so indeed are perfect cheat ...' in: John Locke, *An Essay Concerning Human Understanding* (T. Tegg and Son, 1836). p.372.

⁸² Buchanan, "Design and the New Rhetoric: Productive Arts in the Philosophy of Culture." p. 192.

⁸³ Ibid. p. 193.

⁸⁴ Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice." p. 21.

⁸⁵ Buchanan, "Rhetoric, Humanism and Design."

⁸⁶ Ibid. p. 25.

activity and of the results',⁸⁷ contrasting to disciplines where subject and method can be held apart from any particular instance of practice. This leads to a crucial distinction and one that Buchanan regards as critical to a complete understanding of design, namely that the *poetics* of an art and its products are different to the *rhetoric* of products: '*[d]esigners often confuse the qualities of existing products with the problems of designing new products'* which can lead to the naming of design as a determinate discipline and so associated with other determinate disciplines of science and engineering.

As with Dilnot's arguments, Buchanan is positioning design as a vital art for exploring, **inventing** and making within the realm of the **indeterminate**, the contingent or artificial. Highlighting the rhetorical dimension of design is a path to establishing design on its own terms, one that is principally concerned with human experience in modern, technological culture and focused on profoundly shaping not just things, but '*qualities of community experience*'.⁸⁸ This sets design up to be considered as '*an essential element in a new philosophy of culture, replacing the old metaphysics of fixed essences ... [with] the experimental nature of inquiry*',⁸⁹ which Buchanan connects to the work of John Dewey directed towards the nature of inquiry and its relation to lived experience.

Further developing the theme of design as rhetoric via an exploration of the development of the latter throughout history, Buchanan describes how Aristotle, through his science of production, *poetics*, could identify an underlying intellectual virtue of the '*reasoned state of capacity to make*', making as an integrative and synthetic activity,⁹⁰ as distinct from the virtues that underpin theory and action. Aristotle further distinguishes *forethought* from the specific activities of making, locating it as a universal art independent of but common to all forms of making. Critically, in most craft activities *forethought* and production exist seamlessly within an individual, and so this intangible element can be lost against the material presence of the produced object, which Buchanan locates as an issue still present in attempts to understand design.

It was only in the arts of literature and language, comparatively diverse and extensively developed in ancient times, where *forethought* was located in a distinct art, that of rhetoric. Although associated with its 'products' – words spoken and written – it was conceived by Aristotle as an art of thought

⁸⁷ Buchanan, "Wicked Problems in Design Thinking." p. 26.

⁸⁸ Buchanan, "Rhetoric, Humanism and Design." p. 29.

⁸⁹ Ibid. p. 29.

⁹⁰ *It is important to resist the semantic correlation with wider applications of the term 'make' and so avoiding the unhelpful dilution of this concept.*

via argument that integrated matters of politics and ethics, knowledge and experience, with the activities of making.

Buchanan goes on to describe how Renaissance humanism inadvertently degraded rhetoric by limiting it to superficial concerns and began the movement towards the categorisation and specialisation of the sciences of making, and the fragmentation of different ways of knowing, leaving the proto-forms of design isolated from its intellectual and integrative roots. This is an important observation: the rhetoric received in modernity no longer holds the intellectual and inventive force it held in antiquity.⁹¹

During the modern era, attempts to re-animate the architectonic nature of design via the Bauhaus met with limited success, and it was left to the polymath Herb Simon to re-establish these foundations in *The Sciences of the Artificial*. Buchanan draws out the significant correlation between Simon's 'real subjects of the new intellectual free trade among the many cultures ... our thought processes of judging, deciding, choosing and creating'⁹² with the divisions of early rhetoric: *invention, judgement, disposition and delivery*) and particularly with the four intellectual arts (*invention, judgement, custody and tradition*) of the revised rhetoric of Francis Bacon developed in his exploration of conceptions of technology as words and things. It must be noted that the concerns of expression and styling do not disappear but become relevant as the range of techniques through which design thinking is manifested, integrative of the array of decisions made during the conception, planning and realisation of any product.

Having established the ground for understanding and the potential for developing ways of design through rhetoric, Buchanan pushes further to focus on the implications for both design and the wider civic sphere.⁹³ Paralleling the later contributions of Dilnot, Buchanan names design as a liberal art, describing it as an art of forethought **integrative** of diverse kinds of knowledge for the purpose of 'enriching human life'. Revisiting the theme of the increasing specialisation and fragmentation of knowledge and citing the observations of Richard McKeon that the range of technical subjects we have constituted have 'lost connection with ... the common problems ... of daily life',⁹⁴ Buchanan positions design thinking as a discipline that, in combining practice and theory for productive

⁹¹ This theme is further developed in Chapter 5 which builds the argument for why ancient rhetoric, centred on the writings of Aristotle, is the most effective source for informing a modern genre of social design.

⁹² Buchanan, "Rhetoric, Humanism and Design." p. 44.

⁹³ Buchanan, "Wicked Problems in Design Thinking."

⁹⁴ Richard McKeon as cited in: Ibid. p. 6.

purposes, can bring a systemic perspective to knowing, making and acting. Where Dilnot drew on Habermas, Buchanan turns to John Dewey for the philosophical ground on which to build his arguments.

The imperative for a new integration of knowledge is the '*cultural upheaval*' brought about through the emergence of the artificial as a significant characteristic of human experience. Dewey describes the shift this brought about, from an old centre of the universe where the self-contained mind is '*exercised upon and an antecedent material ... complete within itself*' to a new centre where '*indefinite interactions [take] place within a course of nature that is not fixed and complete, but which is capable of direction to new and different results through the mediation of intentional operations.*'⁹⁵ As Dilnot achieves via a different philosophical route, the old divisions between theory and practice are dissolved, in a similar vein to Dewey's description of the of knowing being assimilated to the useful arts. Within technological culture the primary focus for knowledge is now gained not through the contemplation of an ultimate reality, but derived experimentally, as the '*product of operations ... undertaken in conformity with a plan ... that has the properties of a working hypothesis.*' This Dewey describes as 'technology': widening the concept beyond product and production, he understands technology as '*an art of experimental thinking*', an activity that establishes a relation between the sciences and the arts of production and action. Buchanan names these intentional operations as design thinking,⁹⁶ as indeed Simon does in his description of those professions concerned with the artificial.

In describing the way that design serves to integrate knowledge and integrate this with everyday experience, Buchanan lays out a schema that describes '*four broad areas*' in which design is expressed across a variety of disciplines. The significance of these ***four orders of design*** is that they bring together the traditional concerns of design with respect to communication and material design, with newly emerging forms of design in '*activities and organised services*' often referred to as functional systems, and '*environments and complex systems*', or the coherence of human systems found in a central or organising idea. This schema is grounded in rhetorical concepts in two significant ways.

The first is Buchanan's description of these not as fixed categories, but as '*places of invention shared by all designers*' which serve to interconnect different perspective in a way that enables *inter-play*

⁹⁵ John Dewey as cited in: Ibid. p. 6.

⁹⁶ Buchanan interchanges design and design thinking when referring to design as architectonic in thought with respect to making and acting: refer to Ibid.

and innovative *conceptual re-positioning*. The concept of **place** is core to rhetoric, and so to design, and are described elsewhere as difficult to understand but important '*laboratories of the mind*' that allow the provisional locating and juxtaposing of aspects of, or perspectives on, a situation.

Designers are intuitively familiar with this approach. To be able to lightly hold dimensions of a situation, of ways to name the problem, and elements of solution in fluid, malleable and playful tension with each other is an essential strategy for fruitful exploration and speculation, useful interpretation and impactful invention.⁹⁷

The second rhetorical grounding lays with the fact that Buchanan's four orders are underlain by Richard McKeon's '*four fields of the new rhetoric in the philosophy of culture*',⁹⁸ namely *signs, things, actions and ideas*. This is based on McKeon's reformulation of the ancient principal foci, or species, of rhetoric away from a concern with untangling temporal complications, the past (*forensic*), present (*epideictic*) and future (*deliberative*), to one of untangling the spatial and systemic complexities of the '*moving present*', which are the dominant themes in the problems we seek to address in modern times. As Dilnot described, in this situation, the present is brought into the foreground, with the past and future drawn into this plane, rather than standing as independent places.

Buchanan emphasises the crucial role that placements, over categories, play in design thinking, declaring that '*an explicit understanding of the doctrine of placements will make it an important element of design as a liberal art*',⁹⁹ a capability shared by '*all men and women [in order] to live well*'. If design thinking is to be seen as something other than a loose collection of creative tricks, then a systematic approach is required for the way designers explore *indeterminate situations*. Buchanan provides the link via rhetoric, where placements, as distinct from categories, play a central role. These are described as the *quasi-subject matters* of designers, where particular placements are used to enable possibilities and patterns inherent in any situation to be recognised. In a succinct description of the role of placements Buchanan states:

'... placements take on a special significance as tools of design thinking. They allow the designer to position and reposition the problems and issues at hand. Placements are the tools by which a designer intuitively or deliberately shapes a design situation, identifying the views of all

⁹⁷ Richard Buchanan, "Children of the Moving Present: The Ecology of Culture and the Search for Causes in Design," *Design Issues* 17, no. 1 (2001). p. 75.

⁹⁸ Buchanan, "Design and the New Rhetoric: Productive Arts in the Philosophy of Culture." p. 200.

⁹⁹ Buchanan, "Wicked Problems in Design Thinking." p. 14.

*participants, the issues which concern them, and the invention that will serve as a working hypothesis for exploration and development.*¹⁰⁰

He further notes the ease with which placements, or *heuristic devices*, can become categories and so become unthinking rules to be applied, and so lose their conceptual power, such that they are thus regarded with cynicism, as clichés of design. This provides a significant dimension on which proposed methods for *social system design* will be founded.¹⁰¹

Having described the fields that design figures in, and the essence of design thinking as a liberal art, Buchanan turns to explore the challenges of *'technological culture'* via the concept of the *'wicked problem'*. Introduced by Horst Rittel and Melvin Webber¹⁰² to the discussions of policy making and design in social systems, Buchanan outlines the power of this concept through the rich explanations of the characteristics of wicked problems, and the implications these have for those seeking to tackle such problems. He correlates this concept with *indeterminacy* and Rittel and Webber's tame problems with *determinacy*. This emerges from Dewey's philosophy, as described in *Logic, A Theory of Inquiry*: *'[i]nquiry is the transformation of an indeterminate situation into a unified whole through the controlled and directed determination of its constituent parts and relations.'*¹⁰³

For designers, indeterminacy requires the *'subject matters'* to be located in the *particulars* of specific circumstances, not drawn from the *universal* subject matter categories of traditional knowledge, of the traditional domains of theory. Standing in the particular is central to understanding design as integrative and differentiating, via *'a principle of relevance'*. This disposition allows the designer to understand which knowledge may be useful for dealing with the issue at hand, *'without reducing design to one or another of these knowledge disciplines'*. This is the architectonic quality of design thinking. In parallel to Dilnot, Buchanan notes that, if these activities of design thinking are obscured by a focus on the problems and correlated products of design, this unique and broadly significant quality of design thinking can be overlooked, clouding the distinctive nature of design and its potential for wide application. In summary Buchanan describes the *technologia* of design, *the discipline of systematic thinking, (the logos of techné)* after Dewey, that is the essence of design thinking, as an art of thinking expressed as practical reasoning and argumentation and realised

¹⁰⁰ Ibid. p. 17.

¹⁰¹ *The role of placements is developed at length in Chapter 6.3.*

¹⁰² Horst W. J. Rittel and Melvin Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4, no. (1973).

¹⁰³ Richard Buchanan, "Strategies of Inquiry in Design Research," (2005).

http://wiki.iat.sfu.ca/SIAT_Interaction_Design_Reading_Group/images/9/97/Buchanan_05_StrategiesInquiryDesign_Research.pdf. p. 4.

through the wide variety of material and immaterial artefacts that make up our technological culture, the horizon of the artificial and directed to the purpose of addressing the concrete needs and values of human beings.¹⁰⁴

2.3. Conclusion

The three authors discussed in this chapter have convincingly argued for an expansion of the boundaries of design. Each has understood design as encompassing far more than material production, taking in instead a diverse range of made things, both material and immaterial, with the only common theme being that these things are intentionally planned and made.

The consummation of Margolin's investigations extends his focus to the role design should play in continually reflecting on and negotiating the boundary between the artificial and the natural. This was to be approached via a '*spiritual meta-narrative*', a social and relational approach to what otherwise might be regarded as an exercise in technical categorisation. Dilnot also elevated design to be a field that has a significant role to play with respect to the challenges of the artificial. Arguing that the '*horizon of the artificial*' is now the dominant modality of being, Dilnot goes on to position design as important to theory and knowledge in an era where the challenges of the artificial are prominent in human concern. He argues that because design cannot but engage with human situations, experiences and concerns, i.e., that design is '*not other than interested and immanent*', it is uniquely capable of relationally exploring being with respect to artifice and so becomes the essential medium through which we construct our relationship with the made world. Buchanan builds a case for design standing as a '*liberal art of technological culture*', unifying the classical concept of a body of knowledge essential to wise civic participation with the modern condition of culture dominated by the made.

It is clear that, although they take divergent paths, these three authors pick up the baton from Herb Simon in articulating a potentiality for design as centrally important to the conduct of social and civic

¹⁰⁴ Buchanan, "Wicked Problems in Design Thinking." p. 19 – 20. *While Buchanan focuses design towards the challenges of maintaining human values in the face of the artificial, he does not extend his exploration to the themes of the artificial that present as challenges, which Dilnot names as democratic, humane and sustainable, in correspondence with Aristotle's 3 basic activities, and the implicit hypotheses these descriptions hold for these domains of human experience.*

affairs in a world where technology dominates. They have made a case for substantially broadening the territory for what can be considered to be within design, and have constructed design as cognitive in nature, equally concerned with the immaterial as the material, socially significant and relational in practice.

Tony Fry argues that the directions of these arguments are not arcane abstractions, but have serious implications for us. His focus, while still broad and largely theoretical, is held sharply on the implications of the designed, on the potentially deleterious impact our collective artifice holds for ecology, and, in turn, our ability to become sustainable. He consistently points to the disservice design does to itself and the world by failing to come to terms with its impact, that the '*realisation of the omnipresent power of design, and its past, present and future importance, is still under-recognised in the design professions*'.¹⁰⁵ The field must, as a matter of urgency, reconstruct itself as '*redirective practice seeks to displace the defuturing character inherent in*'¹⁰⁶ design.

Central to this approach is the recognition that the future is not a blank slate, but is '*already colonised by what the past and present have sent to it*',¹⁰⁷ echoing Kompridis' developments in the introduction of a new critical theory based around *reflective disclosure*. This consciousness is critical in awakening design to the idea that designed things go on designing, limiting or opening possibility on the future. In an echo of Dilnot's critique of theory, Fry observes that our inability to know the future with certainty causes our institutions to turn away from it, focusing instead on short term and pragmatic imperatives, and serving only to sustain unsustainability.

It is clear from the arguments built by Margolin, Dilnot and Buchanan that *social system design*, emerging as a new field of design activity beyond the realm of traditional disciplines can be legitimately understood as being within the sphere of design. Furthermore, modes of production in thought and language, and modes of practice that are relational and socially located are supported by the arguments discussed in this chapter.

As Fry urges, what is required is forms of design that are interdisciplinary, that are focused just not on material products but the structures of the '*social ecology*' – he calls on designers to '*engage with*

¹⁰⁵ Tony Fry, *Remakings: Ecology, Design, Philosophy* (Sydney: Envirobook, 1994). p. 9.

¹⁰⁶ Tony Fry, "Redirective Practice: An Elaboration," *Design Philosophy Papers*, no. #01/2007 (2007). http://www.desphilosophy.com/dpp/dpp_journal/journal.html (accessed 4 July 2007). p. 1.

¹⁰⁷ Tony Fry, *A New Design Philosophy: An Introduction to Defuturing* (Sydney, Australia: University of New South Wales Press Ltd, 1999). p. 11.

*the complexity of design as a world-shaping force and help explain it as such.*¹⁰⁸ The arguments of Margolin, Dilnot and Buchanan also appear to suggest that emergent types of design practice, such as *social system design*, are essential to the evolution of design.

2.3.1. Design and Rhetoric

Buchanan's *four orders of design*, based on the concept of rhetorical placements, is the most structured expression of the diverse range of possible design activities and disciplines. The third and fourth orders resonate with the domain of production which is the focus of *social system design*, namely the design of the immaterial in human systems and cultural relational settings.

Richard Buchanan contributes an insight that is pivotal to this thesis, by providing a well-argued connection between new directions for design and the deep well spring of concept, method and practice available in rhetoric. Buchanan clearly lays out the case for design being principally concerned with *indeterminacy*, introducing the concept of the *wicked problem* to name these situations. As outlined, he builds considered and considerable argument for design to be regarded as a corollary of ancient rhetoric, providing a key pathway towards proposing method for *social system design*. Buchanan drew the correlations in general terms, between rhetoric in general and design as a general and all-encompassing placement.

The purpose of this thesis is to explore the *particulars* of this proposition: what particular kind of rhetoric is suitable for adaptation, what are the particular aspects of this art that can be drawn upon, and in what particular ways can modern design methods be made and practiced? Buchanan provides an important direction for this investigation in his description of the importance of rhetoric and argument to invention, and by bringing into design discourse the concept of placements. This is the basis for a detailed investigation of the aspects of rhetoric that can be adapted to inform the principles and methods of *social system design*.

As outlined in the overview of this chapter, the following two chapters, Chapters 3 and 4, will continue to explore the key terms framing this work, specifically by considering the complexities of social systems, and by proposing the fundamental orientation and principles for *social system design* as a newly emergent kind of design. Having developed this frame, Chapter 5 will investigate the

¹⁰⁸ Tony Fry, *Design Futuring: Sustainability, Ethics and New Practice* (Sydney: UNSW, 2009). p. 3.

most appropriate way to interpret rhetoric, setting up the last section of this thesis for proposing methods for *social system design* that are drawn from rhetorical theory and practice.

Chapter 3

Literature Review: Investigating Complex Social Systems

3.1. Outline

This chapter turns to examine the ground on which *social system design* is practiced by exploring the notion of *social systems*.

The preceding chapter focused on a detailed investigation of the arguments of key theorists, establishing design as a broad field that extends to all matters of artifice, and which indeed plays a part in negotiating the boundary between the artificial and the natural. Margolin, Dilnot and Buchanan argued that design can, and indeed should, play a significant role in social and civic affairs. In reviewing these positions, I have argued that *social system design* may be legitimately named as a kind of design, i.e., that it may be located within the domain of design-in-general as marked out by these authors.

This chapter turns to examining the other key term in *social system design*, that of the social system. This is pursued firstly through an examination of the emergence of the concept of *system* in modern consciousness, and the predominately scientific nature of the fields of study that this concept has spawned. This *systems orientation* is perhaps under-recognised with regard to the influence it has upon how we perceive the world, not only in academic discourse but also in many strands of contemporary culture.¹ An understanding of this systems orientation is developed through a condensed discussion of key aspects of the development of systems studies, as a prelude to examining where the systems concept has been applied to the social sphere. This includes a discussion of the *critical systems theory* movement that sought to approach social systems and human experience from a scientific, analytical stance. Despite the theoretical coherence of *critical systems theory*, I argue that this movement is an attempt to modify system science and that it does not adequately account for the distinctive aspects of social, or human systems.

An alternative perspective on social systems is then developed through arguments furnished by Horst Rittel and Melvin Webber, and by Geoffrey Vickers. Each provides a unique but ultimately complimentary basis for critiquing predominantly scientific approaches to *social systems*, in order to highlight the aspects of such systems that are critical to any development of viable design methods.

¹ This consciousness extends to design discourse: the systems concept can be seen the arguments developed by Margolin and Dilnot in Chapter 2.2.2 and 2.2.3. It also resonates with the key turn in McKeon's renewal of rhetoric, as discussed in Chapter 5.3.

3.2. The Evolution of the Systems Orientation

When considering the development of *design thinking*² as an element of organisational culture, or the application of design to challenges such as the Australian taxation system or matters of protecting Australia's borders, as described in Chapter 1, it is clear that the outcomes of these efforts are not products in any conventional sense. In these situations, not only are design endeavours unfolding within a background of *complex social systems*, but elements of complex social systems are also the *object* of design, and any designed outcome will lead to an intervention in, and an impact upon, these complex systems.

In order to articulate an approach to *social system design*, it is necessary to develop a perspective on the defining characteristics of complex social systems themselves. In order to construct this perspective, it is necessary to outline the elements of such a concept. This will be pursued by first outlining the emergence of the idea of *system*, which has both influenced established disciplines and spawned new disciplines of system studies. This is followed by an exploration of the emergence of the understanding of *complexity* with respect to systems, and a focus on examples of the application of the idea of *complex systems* to the *social* arena. Attention will then turn to critiques of the fundamentally scientific basis of mainstream system disciplines.

3.2.1. Differentiating Complex Social Systems

The descriptive placeholder of *complex social systems* is used in this thesis in order to hold two distinct but interdependent ideas. The first is the perhaps obvious point that a *system* must be the primary focus of *social system design*: focusing on a particular object, individual or element would stray from the systemic orientation of this approach. The second is to connect *social* and *complex* in a way that marks a distinction between that complexity which is characteristic of many systems, and the principle that a *social system* has dimensions that stand it apart from a complex natural system.

² As discussed in Section 2.1, cognitive and communicative aspects are the unique and defining characteristics of an expanded perspective on design, indeed, Buchanan uses 'design' and 'design thinking' interchangeably when discussing design as a broad civic, or liberal, art.

The distinctly human traits related to consciousness require a distinct focus on the nature of such phenomena. The term 'complex social system' is used interchangeably with the term 'human system' in this thesis. These terms name the same phenomena, although the former term is more descriptive and functional, while the latter is more evocative and specifically acknowledges the work of Geoffrey Vickers,³ whose work provides valuable insight into the unique characteristics of social systems. It is relevant to note Whitman's recognition that a concern for *human* or *social* systems necessitates an integrative disposition: '*[i]n any event, an appreciation of human systems as characterized by Geoffrey Vickers requires a certain disrespect for academic boundaries—a quality that might be in short supply.*'⁴

It is therefore necessary to build a perspective that draws upon the broad range of systems-related disciplines. This will not be an exhaustive cataloguing of these disciplines, but an attempt to draw on selected instances of work from across these disciplines in order to provide an appropriate overview. This illustration of the trajectory of thinking about systems in general is necessary in order to establish the basis for a critique of the ideas underpinning these disciplines. This will permit a view of alternative ways to approach human, social or civic systems that are not simply co-opted from the methods developed for their natural counterparts.

A critical aspect of this distinction is to incorporate the vital aspects of **intent** and ethics, or human values, and the influence these dimensions have on expressions of **agency** within a social system. A design orientation is not primarily concerned with what a system *is*, with an *objective* or *complete* description, but with what a system *does*. Any design intervention is aimed at positively impacting people, the *constituents* of that system, and so what is of primary concern and focus is the **lived experience** of that system. Human systems are constituted in order to achieve some end, in other words, with **intent**. Progression towards satisfying intent is largely determined by the interpretations, judgements and actions, in other words the collective expression of individual **agency** from across the system.

The general concept of a system and the particular perspectives wrought through the diverse naming of systems and system theories have one thing in common: *system* is a dimensionless concept that applies to many different scales. This is no different for the perspective of *complex social systems* as it is being constructed for this investigation; the concept holds for social entities

³ See, for example: Jim Whitman, "Human Systems and Global Governance," *Systems Research and Behavioral Science* 22 (2005).

⁴ Ibid. p. 317.

from the scale of families, through formal organisations and onto larger and more diffuse civic situations. The focus of this work lies with formal business and public organisations for two reasons. Firstly, as described above, it is with organisations that there is a clearly identifiable body of literature and scholarship dealing with the emergence of this new design, and, secondly, a focus on organisations provides a graspable middle ground that will enable a development of *social system design* to be practical and usable for entities that are more clearly bounded, visible and cohesive than the broader and more diffuse challenges presented by civic situations. Further, the organisation is the context in which many of the tools and techniques for guiding innovation described in this investigation have been tested and applied, through commercial consulting experience.

3.2.2. The Systems Orientation: General Systems Theory

An orientation towards framing inquiry into the world from a systems perspective is well entrenched in current thinking on a broad range of topics. In fields as diverse as ecology, management and sociology, a *systems orientation* has been generating new and productive insight for some time. An example of this is the impact in the management world of the work of Peter Senge and his development of systems thinking within the context of creating '*learning organisations*',⁵ which Peter Drucker, the prominent management theorist and author, has claimed as the '*organisational concept of the future*'.⁶

The emergence of a specific focus on a systems perspective cannot be definitively located to a single moment in time. According to Lars Skyttner⁷, an early example can be found with Friedrich Hegel, who outlined a series of characteristics for systems, which turned on the interplay of whole and parts, re-animating the oft-quoted phrase attributed to Aristotle: '*the whole is greater than the sum of the parts*'.⁸ However, the genesis within the general scholarly consciousness of the concept of systems emerged in the early 20th Century, as exemplified Ludwig von Bertalanffy's '*Outline of*

⁵ Peter M. Senge, *The Fifth Discipline : The Art and Practice of the Learning Organization* (New York: Doubleday/Currency, 1990).

⁶ Robert L. Flood, *Rethinking the Fifth Discipline : Learning within the Unknowable* (London: Routledge, 1999). p. 1.

⁷ Lars Skyttner, *General Systems Theory : An Introduction*, Information Systems Series (Basingstoke: Macmillan Press, 1996).p. 30.

⁸ *This connects the emergence of the systems orientation to the ancient philosophical problem of the One and the Many as developed in Chapter 4.4.*

General Systems Theory,⁹ in which he recognised a growing focus on the relational aspects between elements, rather than on the elements themselves, isolated and removed from any context.

Von Bertalanffy described the impetus in a number of branches of science, economics and even philosophy to proceed via the reduction of phenomena to isolated components, where *'there is a tendency to consider a society, an economy, or a nation as a whole which is superordinated to its parts.'*¹⁰ Via recognition of general systems laws that apply to a variety of distinct situations, he proposed the formation of a *General Systems Theory*, a mathematically based discipline where *'[t]here are principles which apply to systems in general, whatever the nature of their component elements or the relations or 'forces' between them.'*¹¹ Pursuing inquiry within this systems orientation was conceived as a *'logico-mathematical'*, as rigorous, formal and scientific. This represented a significant shift, in his view, from any understanding of the world as static, towards a perspective where *'dynamic interaction appears to be the central problem in all fields of reality'*.¹²

As Dilnot identified, the *'metaphysical turn'* established in Classical Greek thought has culminated in the modern situation where the primary lens through which we seek to understand and interpret the world is science; as Ervin Lazlo exclaims: *'(if we want to understand the world around us ... we could very likely not do better, and could do a lot worse, than to turn to the contemporary sciences for elucidation.'*¹³ Lazlo follows Bertalanffy in identifying that these contemporary sciences have tended towards discrete specialisations of knowledge and isolated foci. This leads to *'small bubbles of knowledge'* that lead to the fragmentation of understanding, at the expense of coherent pictures of whole situations and systems. Adherence to this approach is in line with what Lazlo identifies as the Newtonian view of the world as a series of reducible mechanisms. But, as he observes, the *'characteristics of complex wholes remain irreducible to the characteristics of their parts'*¹⁴ and so systems sciences arose to focus on complex and integrated situations, described by Warren Weaver as *'sciences of organised complexity.'*¹⁵

The scientific basis of this philosophical response to insular over-specialisation was counterpointed by the ruthlessly pragmatic engineering focus of the progenitor of the systems disciplines,

⁹ Ludwig von Bertalanffy, "An Outline of General System Theory," *British Journal for the Philosophy of Science* 1 (1950).

¹⁰ Ibid. p. 140.

¹¹ Ibid. p. 142.

¹² Ibid. p. 164.

¹³ Ervin Laszlo, *The Systems View of the World: A Holistic Vision for Our Times* (Cresskill, NJ: Hampton Press, Inc., 1996).

¹⁴ Ibid. p. 6.

¹⁵ Ibid. p. 8.

Operations Research. This field emerged during World War II in response to the need to maximise the efficiency and output of production systems in order to support military campaigns. The methodology recognised that the complex problems of production were best addressed by seeking to understand wholes, requiring the attention of multiple disciplines.¹⁶

From these beginnings, the emergence of a systems orientation in the consciousness of both researchers and practitioners has generated a diverse array of sub-disciplines, to the point where attempts have been made to characterise these with meta-schemes, such as that proposed by Bela Banathy,¹⁷ and it can be seen that this describes the depth to which this orientation has developed, and the degree to which the *systems sciences* have taken hold. The scope of the present work prohibits any extensive cataloguing of these fields, so I will instead focus on three important systems perspectives that provide a canvas onto which *social system design* can be positioned and developed.

A survey of literature dealing with systems reveals the tendency for systems studies to have a strong scientific and technical basis, in direct lineage from Von Bertalanffy's original thesis. This is reflected in the scientific basis of the three system disciplines selected to illustrate important aspects of the systems orientation. In particular, detailing these three domains illustrates the way in which systems sciences have been extended into the social sphere, but also that the approaches that work well for natural systems, or the naturalistic aspects of human systems, do not adequately account for the unique human dimensions of social systems. Investigating key characteristics of these disciplines provides a point from which my critique of these approaches can be developed, so creating a conceptual space for *social system design* to emerge as a distinct discipline.

The first domain is that of the development of concepts of complexity and complex adaptive systems. The second is the application of the systems orientation to social situations, gathered under the banner of complexity based sociology, as defined by thinkers such as Niklas Luhmann. The third domain is the fields of management and system sciences as exemplified by the work of C. West Churchman, Peter Checkland, Russell Ackoff and the '*systems thinking*' movement catalysed by Peter Senge.

¹⁶ See for example: "Operations Research", <http://www.britannica.com/EBchecked/topic/682073/operations-research> (accessed 15 January, 2013 2013).

¹⁷ Banathy proposed an approach to Human Systems Inquiry and describes four domain of systems inquiry; *Philosophy, Theory, Method and Application*, see: Bela H. Banathy, "The Evolution of Systems Inquiry Part 2", *International Society for the Systems Sciences (ISSS)* <http://www.iss.org/primer/004evsys.htm> (accessed 20 November 2011 2011).

3.2.3. Insights from Complex Adaptive Systems Science

The study of complex adaptive systems has emerged strongly in the last 25 years, as marked through the establishment of the Santa Fe Institute, founded in 1984 to advance complexity science in diverse applications. The recognition of complex phenomena has been dealt with extensively,¹⁸ characterised by spontaneous self-organisation, often explored through concepts such as emergence and synchrony,¹⁹ along with the capability to be adaptive¹⁹ and to respond dynamically to disturbances so as to maintain order.

Emerging from the growing body of knowledge dealing with non-linearity first developed in the 1950s, and the development of mathematical concepts of chaos by researchers such as Edward Lorenz,²⁰ who gave the world the term '*butterfly effect*' to describe the sensitivity of chaotic systems to initial conditions, complexity science has spawned tremendous insights in many fields as diverse as artificial life, neuroscience and ecological sustainability.²¹ This investigation will not draw on complexity science in any of its technical aspects and it is noted that the application of technical concepts in figurative or analogous ways must be done with great care.

The development of complexity science not only allows advances in science, the literature pertaining to complex adaptive systems has much to offer inquiry into social systems in general,²² and in three respects in particular. The concept of complexity has representational, heuristic and metaphorical and applications outside of technical disciplines, where practitioners engaged with a wide variety of systems can understand and interpret these from a *complexity frame*. This helps to avoid overly simplistic and mechanistic interpretations of systems and enables the less tangible and complex nature of human and social dynamics to be legitimately incorporated into consideration and design.

¹⁸ See for example: M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York: Simon & Schuster, 1992).

¹⁹ See for example: Steven H. Strogatz, *Sync: The Emerging Science of Spontaneous Order* (New York: Hyperion, 2003).

²⁰ See: Tim Palmer, "Edward Norton Lorenz," *Physics Today* 61, no. 9 (2008).

²¹ See for example: Steven Johnson, *Emergence: The Connected Lives of Ants, Brains, Cities, and Software* (New York: Scribner, 2001). and C. S. Holling, "Resilience and Stability of Ecological Systems," *Annual Review of Ecology and Systematics* 4 no. 1 (1973).

²² For example Jay Forrester and his development of *Systems Dynamics*, an analytical method applied to model and gain often counter-intuitive insights into the dynamic and non-linear behaviour that emerges from complex systems, can be used to attempt to quantify such phenomena as 'policy resistance', where instituting well-intentioned policy results in unintended and undesirable outcomes, for example how the partial de-regulation of the Californian electricity market led to severe supply disruptions and price volatility, see: John D. Sterman, "System Dynamics Modeling: Tools for Learning in a Complex World," *California Management Review* 43, no. 4 (2001). p. 8.

In terms of representation, the process developed by Valdis Krebs for the generation of *Social Network Maps*,²³ can provide insight into the distribution and connectivity of relationships, power and knowledge across an organisation were built on the scientific work of Albert-Laszlo Barabasi and his relatively recent discovery of the concept of scale free networks. This discovery has given rise to a capacity to quantitatively describe a wide range of naturally occurring and human made systems, or networks, such as the *World Wide Web*. The primary import of this discovery is the insight that the relational structures of these systems are not random as previously presumed, but that they adhere to a power law and form through a mechanism of preferential attachment.²⁴ This quantitative knowledge has enabled a development in understanding and quantifying social systems.²⁵

The second dimension is the **qualitative** use of significant characteristics or properties of complex adaptive systems to guide thinking on organisation and social systems. While these characteristics are founded in technical analyses of complex systems, they can be used '*heuristically*' to provide cues for approaching and interpreting such systems. Such principles or characteristics can be synthesised from the work of Laszlo:²⁶

1. Complex systems are wholes with irreducible properties; so while there is validity in approaching a system through a decomposition and reduction of **parts**, it is also valid to tackle these systems as complete entities, as **wholes**.
2. Complex systems exhibit '*self-creativity*'; even though social systems are guided by intent, the characteristics of **emergence** and **self-organisation** act upon the system, its constituents and any designed intervention.

²³ See for example: Valdis Krebs, "Orgnet.Com: Social Network Analysis Software & Services for Organizations, Communities, and Their Consultants" <http://orgnet.com/> (accessed 12 February 2013).

²⁴ See for example: Albert-László Barabási, "Scale-Free Networks: A Decade and Beyond," *Science*. 5939 (2009).p. 412. For a deeper exploration: Albert-László Barabási, *Linked : The New Science of Networks* (Cambridge, Mass.: Perseus Pub., 2002).

²⁵ The work of C.S. Hollings in contributing the field of ecological economics, the purpose of which is to ground economic theory in the resource availability and constraints of the physical world, along with the insights provided to the likes of Thomas Homer-Dixon in developing a macro-systemic deep history view of the ebbs and flows of human societies in: Thomas F. Homer-Dixon, *The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization* (Washington: Island Press, 2006).

²⁶ Laszlo. p. 25.

3. Complex systems are ‘*coordinating interfaces in nature’s holarchy*’; in other words, any complex system in focus is an interdependent part of a larger **multi-system**, and so design in any particular system must be sensitive to the surrounding system context.²⁷

It is also important to acknowledge a third dimension, which is the use of complex adaptive systems as a metaphor, providing an orientation from which to perceive, interpret and act on phenomena such as organisations. For example, Gareth Morgan has introduced the use of metaphors of complex phenomena, such as organisms, brains or civic systems, as perspectives that provide purchase when tackling organisational challenges.²⁸ The work on conceptual metaphors by authors such as Lakoff and Johnson provided a path to understanding complex and abstract phenomena via reference to our physical and relational settings.²⁹ The metaphor of complexity has prompted the development of a variety of tools for understanding and interpreting systems such as organisations.³⁰ The work of management theorist Margaret Wheatley draws heavily on the metaphor of the complexity and irreducibility of natural phenomena, in order to promote relational networks, the free flow of information and change that proceeds organically.³¹

In conclusion, the discovery of the complex adaptive nature of systems, and the diverse fields this has generated, has had a visible impact on the *zeitgeist*, with the language of systems and complexity penetrating everyday discourse. *Complexity*, and its associated concepts and characteristics, provides important insights into the indeterminate, irreducible and relational nature of social systems and situations, and the requirement for the design of and intervention into such systems and situations.

²⁷ *The importance of carefully constructing a particular ‘problem space’ and differentiating from broader systems and contexts will be pursued in detail in Chapter 6.2 and 6.3.*

²⁸ Gareth Morgan, *Images of Organization* (Beverly Hills: Sage Publications, 1986).

²⁹ George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980).

³⁰ See: Glenda Eoyang, "The Practitioner's Landscape," *E:CO* Vol. 6, no. No. 1 & 2 (2004); Edwin E. Olson and Glenda H. Eoyang, *Facilitating Organizational Change : Lessons from Complexity Science* (San Francisco, Calif.; Chichester: Jossey-Bass ; Wiley, 2001). and Carl Henning Reshcke and Sascha Kraus, "Strategic Management, Evolutionary Economics, and Complex Adaptive Systems," in *Applications of Complex Adaptive Systems*, ed. Yin Shan and Ang Yang(Hershey, PA: IGI Publishing, 2008). p. 208.

³¹ See for example: Margaret J. Wheatley, *Leadership and the New Science : Discovering Order in a Chaotic World* (San Francisco, Calif: Berrett-Koehler, 2006).

3.2.4. Insights from Social Systems Theories

The penetration of the systems orientation across the diverse fields of science has also extended into sociology. There are substantial precedents for the application of the '*systems orientation*' to the study of social structures, although it is clear that this has largely been pursued via the first dimension developed in the previous section – namely via attempts to quantify complexity in social systems using a scientific approach. Work by authors such as Talcott Parsons in the 1950s and 60s, with his focus on '*structural-functionalism*' – the analysis of social systems via their decomposition into functional elements – and later work by Nicholas Luhmann gave rise to the study of social situations via the concept of system.³² Luhmann was influenced both by the '*technocratic*' nature of Parson's work and by the work of Maturana and Varela on '*autopoiesis*',³³ or the principle of spontaneous emergence and self-organisation/stabilisation in biological systems.

The technical and scientific grounding noted in wider systems disciplines can also be seen in sociology. Although Luhmann abstracted the concept of *autopoiesis* in order to '*apply this abstracted concept to social systems*',³⁴ he is nonetheless building his arguments from within a scientific paradigm. The emergence of fields such as computational sociology and the prominence of agent-based social system modelling in the literature³⁵ follow on from this early trajectory.

Urry has described this as the '*complexity turn*'³⁶ within sociology, which, on his account, began to emerge in the late 1990s, largely in response to the rapid increase in the complexity of products, production systems and organisation across the globe. This has resulted in the '*transmutation*' of social and cultural studies, wherein '*complexity approaches both signify and enhance a new structure of feeling; one that combines system and process thinking*'. By this, Urry is referring to the impact that the concept of systemic complexity has had through bringing to attention the '*contingent openness*' of social systems; i.e., a recognition that there are no determined futures, that non-linear change is the norm, that natural and social systems are entwined and deeply interdependent. He notes that '*the term 'complexity' is 'present' and doing metaphorical,*

³² See: Stephen Fuchs, "Networks and Systems," in *Talcott Parsons Today: His Theory and Legacy in Contemporary Sociology*, ed. A.J. Treviño (Rowman & Littlefield Publishers, 2001). p. 125.

³³ See: Humberto R. Maturana and Francisco J. Varela, *Autopoiesis and Cognition: The Realization of the Living* (Dordrecht, Holland; Boston: D. Reidel Pub. Co., 1980). p. 78.

³⁴ Magnus Ramage and Karen Shipp, *Systems Thinkers* (London: Springer, 2009).p. 211.

³⁵ See for example: Xiaochen Li and others, "Agent-Based Social Simulation and Modeling in Social Computing," *Lecture notes in computer science*. 5075 (2008).

³⁶ John Urry, "The Complexity Turn," *Theory Culture Society* 22, no. 5 (2005).

*theoretical and empirical work within many social and intellectual discourses and practices besides 'science'.*³⁷

It is clear, then, that the systems orientation has made the transition from the physical sciences into disciplines concerned with society and culture. Even though the expressions are largely quantitative or semi-quantitative in nature, the rapid growth and diversification of systems approaches applied to the social domain lends weight to an understanding of social arrangements and situations as *complex systems*, which holds the concept of these situations as complex wholes formed from the relational interplay of many, often diverse, parts constituted towards a common intent or purpose.

3.2.5. Critiques Emerging from Management System Practice

The history of the application of a systems orientation to the field of management and organisation can be seen as a microcosm of the broader evolution of the systems orientations. There has been a progression from the technical and pragmatic focus of disciplines such as Operations Research looking within systems for optimisation, onto the change orientation and a focus on systems as represented by the *cybernetics* of Stafford Beer, and the *interactive planning* of Russell Ackoff and the Peter Checkland's *Soft Systems Methodology*.

A prominent theme within the broader discipline of system science is the widespread application of systems thinking to problems of management and operations in organisations. Robert Flood describes the broad evolution of the *systems orientation* from the early development of Operations Research through three major '*paradigms*'.³⁸ He describes Operations Research, and the other '*hard systems*' disciplines, such as systems analysis and engineering, and management cybernetics, as representative of the dominance of a '*positivist quantitative*' paradigm during the 1950s and 1960s. This gave way, during the 1970s and 1980s, to a paradigm of what he describes as '*interpretive "soft systems" thinking*'.³⁹ This was developed in response to a growing awareness of the limitations of a purely rational and quantitative approach to working with organisational systems, however it was still focused upon objective description and quantification, albeit with increased emphasis on the complex and social characteristics of these systems.

³⁷ Ibid. p. 2.

³⁸ Robert L. Flood and Michael C. Jackson, *Critical Systems Thinking: Directed Readings* (Chichester; New York: J. Wiley, 1991). p. 3.

³⁹ Ibid. p. 1.

Yet, even the softening of the systems approach with the admission of social considerations, as in Checkland's naming of systems as '*socio-technical*', was regarded as an inadequate account of the human and social dimensions of these systems.

C. West Churchman led an emerging consciousness of the complexity of human systems through a critique that, while recognising the broadening of focus of the systems approach, stated that the '*systems approach*'⁴⁰ was not a particular quantitative methodology but a '*continuing debate between various attitudes of mind with respect to society*'. In other words, it is a conversation that seeks to expand our understanding of ourselves, as much as it seeks to describe *objective* realities. Churchman acknowledged the dominance of the scientific approach and recognised the difficulty this approach encountered with '*poorly structured problems*'.⁴¹ His insight extended to an understanding that, within human systems, purpose is **difficult to isolate** but **vital to understand**.⁴² Purpose or intent is often implicit; as a result, different people will provide different interpretations of a system's purpose. As outlined earlier, however, intent for any human or social system is central and significant to both its current configuration and the future direction of the system in question.

Robert Flood notes that, from the earliest development of the systems disciplines, thinkers such as C. West Churchman had recognised the ethical and purposeful nature of complex social systems. Flood cites Churchman's view that '*the systems approach begins when you first see the world through the eyes of another*'⁴³ – an appeal to ground systems methodology in empathy and a concern for the human dimensions of a system.

Churchman noted that, in the scientific pursuit of '*real objectives*', the development of detailed cost-benefit analyses and '*rational proposals*' for intervention, there is a risk that the '**system they have created may be largely irrelevant or partially destructive**'⁴⁴ for the non-material and deeply human aspects of existence. This evolution reflects a growing awareness in these disciplines of both the wider understanding of complexity and that, while complex systems can be, at least in part,

⁴⁰ C. West Churchman, *The Systems Approach* (New York: Delacorte Press, 1968). p xi.

⁴¹ *Ibid.* p. 14.

⁴² *See: Ibid.* p. 13. *Churchman recognises that beginning with describing a system by its structure misses the point; beginning with purpose, with all the attendant variations and vagueness, opens up to the possibility of seeing the system in radically different ways and certainly as a whole, thereby avoiding poor solutions that arise from a fixed or narrow view of the system, and opening the way for genuine innovation. He continues with a discussion on the importance of distilling the real objectives of a system for any assessment of the success of an intervention on page 179.*

⁴³ Flood, *Rethinking the Fifth Discipline : Learning within the Unknowable*. p. 63.

⁴⁴ Churchman. p. 226. *My emphasis.*

understood and described quantitatively, complex social systems incorporate an elusive dimension that can perhaps be best described as *'ethical'*.

The emerging *qualitative* paradigm can be understood via the work of key practitioners such as Ackoff, Checkland and their modern day successor, Peter Senge. Ackoff began his career as a proponent of the *'hard'* school but recognised that the *'quantify and control'* approaches such as Operations Research were not suited to the kinds of complex, interacting problems being tackled in organisations. He coined the term *'social mess'*⁴⁵ to stand for the complex and largely intractable nature of social situations and advocated for an approach to systems based on invention and design towards the fulfilment of human purpose. These *'purposeful systems'* require an approach that *'requires the interaction of a wide variety of disciplines'*,⁴⁶ not just systems analysts and engineers, and should involve those affected by any intervention so that *'they can bring their interests to bear on it, or their interests should be well represented by researchers who serve as their advocates.'* His interactive planning methodology was still grounded in deeply rational and analytical thinking, but, by recognising the potential role of design, it opens the way for better alternatives.

Peter Checkland was similarly influenced by Churchman, as well as the systems philosopher Geoffrey Vickers, and specifically by Vickers' emphasis on the intentional and relational aspects of *'human systems'*. He coined the phrase *'soft systems thinking'* and developed the *Soft Systems Methodology*,⁴⁷ which sought to develop relational models of system landscapes as a way of gaining insight into the *'problematic situations'* of those systems. This was developed in response to the failure of *'systems engineering'* approaches when applied to *'messy, ill-structured, real-world problems.'*⁴⁸ Highly effective in exploring *'human activity systems'* and sensitive to the perspective and subjective nature of any account of a particular social situation or system, *Soft Systems Methodology* was nevertheless strongly influenced by Checkland's Operations Research background in its assumption of *'taming'* mess through rigorous cataloguing of system elements. Along with many soft system approaches, it *'neglected to deal with issues of moral and ethical judgement which*

⁴⁵ The term originated with Ackoff, see: Russell Ackoff, *Redesigning the Future: A Systems Approach to Societal Problems* (New York: Wiley, 1974). p. 21.

⁴⁶ Russell Ackoff, "The Future of Operational Research Is Past," in *Critical Systems Thinking: Directed Readings*, ed. Robert L. Flood and Michael C. Jackson (New York: John Wiley and Sons, 1979). p. 56.

⁴⁷ *The Soft Systems Methodology is described at length* in: Peter Checkland, *Systems Thinking, Systems Practice* (Chichester, UK: Wiley, 1981).

⁴⁸ Peter Checkland, "From Optimizing to Learning: The 1990s," in *Critical Systems Thinking: Directed Readings*, ed. Robert L. Flood and Michael C. Jackson (New York: John Wiley and Sons, 1991). p. 68.

*Churchman had debated at length.*⁴⁹ It further focused on analysis and gave insufficient attention to the question of innovation and invention within social systems.

An evolving critique led to the development of the third paradigm Flood recognised within the systems movement. The '*critical systems theory*' frame emerged from an acknowledgement of the shortcomings of the existing mainstream cultures of systems studies and a desire to locate the foundations of the systems orientation in an appropriate philosophical domain. The central theme underpinning this '*break with soft systems thinking*' is summarised by Jackson, who argued that '*methods from the natural sciences cannot simply be taken over to the domain of the social sciences, and soft methods cannot be used where economic and social structures give rise to coercive constraints.*'⁵⁰ Systems theorists were recognising that any intervention in a system is political, that to attempt to be neutral and objective where people are subject to coercion is unacceptable.

Both Ackoff and Checkland had declared that '*hard*' system approaches were '*special cases*' of soft approaches, leading to the critique that this leads to a '*denaturing of the hard by soft tenets.*'⁵¹ However the claim of *soft* practitioners to ideological and political neutrality both denied the subjectivity of all participants in a system and critically, that such a stance served to reinforce a status quo of unequal and possibly unjust social power relations.

The shortcomings of these approaches led, in turn, to fields such as second-order cybernetics, but most significantly for this research they gave rise to the transformational stance developed within *critical systems theory*. This movement is built on an awareness of the inevitable incompleteness of any knowledge of a system and is increasingly focused on the critical importance of social context and the role that the subject plays in perceiving and acting on a system, thus bringing into view the dimension of social construction. Seeking to build a movement that was capable of real and sustained social change that benefited the widest possible range of constituents, the aim of critical systems theory is to make explicit those implicit assumptions and prejudices always present in any social situation and to explore, reflect on and work to overturn '*hidden*' power relations.

Advocates of this domain of theory emphasised the importance of plurality in bringing together diverse epistemological, methodological and practical aspects within a critical frame and a primary concern with '*emancipation*'. Emancipatory practice, developed from the work of Habermas, as

⁴⁹ Flood and Jackson, *Critical Systems Thinking: Directed Readings*. p. 17.

⁵⁰ *Ibid.* p. 5.

⁵¹ *Ibid.* p. 79.

applied in an organisational context was aimed at challenging structures and relations of power that limit the interests of all constituents of a system, in favour of the interests of managerial or dominant groups wielding knowledge as an instrument of power.

One of the concepts developed by proponents of this theory was the *boundary critique problem*:⁵² this challenged the naive assumptions of objectivity present in mainstream system studies by acknowledging that system boundaries are not extant, and that in circumscribing a system boundary one is making a subjective and possibly political judgement.

The history of the evolution of systems disciplines is a move from an initial emphasis on the *objective* discovery and control of material systems, as represented by *Operations Research*, towards the admission of the subjective aspects of human experience and the subjective nature of such systems, as represented by *Soft Systems Methodology*. Further evolution can be seen via the emergence of attempts to ground systems disciplines not in objective discovery but creative potential; to admit incompleteness, subjectivity and real consequences of intervention into the fundamentals of any systems approach, as represented by the paradigm of *critical systems theory*.

The development of the critique of mainstream systems studies offered by *critical systems theory* was a clear attempt to challenge the analytical and objectivist orientation of system-related disciplines through drawing on and applying tenets of *critical theory*, in particular the thinking of Jurgen Habermas. Although the philosophical and theoretical arguments of *critical systems theory* are well grounded, this movement appears to have had only a limited impact on the mainstream disciplines of systems science. As Clive Dilnot alluded,⁵³ the hegemony of science-oriented thought across the systems research community, and the extraordinary analytical capability provided by computing technologies, has held in place an innate belief that the problem is human fallibility, that can be overcome and supplanted by superior machine technologies.

Despite the call to pay attention to the ethical and teleological aspects of social systems such as organisations, there is little evidence of rigorous attempts to build these dimensions into the core of systems disciplines. This is borne out through Flood's critique of Senge's approach, as developed in *The Fifth Discipline*.⁵⁴ As influential as it was, it largely sidesteps the difficulties of locating the boundaries of any particular systems inquiry – so-called *boundary judgement*, along with the issue of

⁵² Derek A. Cabrera, " "Boundary Critique: A Minimal Concept Theory of Systems Thinking", " in *Proceedings of the 50th Annual Meeting of the ISSS [Online]* (2006). p. 1.

⁵³ See discussion in Section 2.2.4.

⁵⁴ Senge.

'*knowledge-power*', the Habermasian concept that focuses upon *who* decides on the validity of any particular viewpoint. This implicit belief in the possibility of being ethically neutral, and the continuing focus on a socially naive systems dynamics approach, is summed up as not '*appreciating systemic thinking as a process of ethical judgements*'.⁵⁵ Of course, such concepts are difficult, if not impossible to quantify and to reduce to algorithm. It is likely for this reason that the systems movement has largely failed to adequately incorporate these dimensions into the diverse array of systems methods that have been developed.

3.3. Towards An Alternative Perspective on Social Systems

The systems sciences, and the outgrowth of the science of complex adaptive systems, are invaluable for deepening our understanding of natural systems. It is also clear that there is utility in complexity science for social systems, as discussed above. Further, there is a precedent for the application of a *systems orientation* in those fields that focus on social dimensions, as well as extensive application to management and organisational development. However, as the emergence of concepts such as *critical systems theory* demonstrates, these approaches remain coupled to their *objectivist* origins, and are, as such, inadequate for the purpose of informing design, which is situated, historical and concerned with human interest and the made environment, a civic art wholly focused on the betterment of social conditions. What is required is a radical alternative, not a position that incrementally evolves from systems science, but one which emerges from a distinctly different place.

3.3.1. Wicked Problems: A Missing Dimension

While proponents of *critical systems theory* sought to provide critiques that could expand and reposition the system disciplines towards the inclusion of social dimensions, it is clear from the preceding discussion that these disciplines remain firmly located within the *scientific* paradigm. Although Flood provides insightful critiques of widely accepted and widely employed systems

⁵⁵ Flood, *Rethinking the Fifth Discipline : Learning within the Unknowable*. p. 73.

approaches, his propositions for new methods rely upon the same thinkers he has criticised. For example, in discussing concepts around meaning, '*political forces*'⁵⁶ are regarded as external constraints that impinge on decision making and must be excluded or managed accordingly. The rationalist emphasis on efficiency and technical purity remains intact.

Rittel and Webber were among the first to recognise and characterise social systems as different, so requiring fundamentally different approaches. In their seminal paper published in 1973, they drew a distinction between '*wicked problems*' and '*tame problems*', declaring that '*[t]he search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are "wicked" problems, whereas science has developed to deal with "tame" problems.*'⁵⁷

While acknowledging the difficulties inherent in homogenising *science* and *not science* into simple categories, and then contrasting these domains in simple dualities, this is nonetheless a profoundly insightful and useful framing of a disposition and an approach to dealing with systemic challenges. The critique offered by Rittel and Webber, and others that have followed, emerged in response to a growing awareness of the limitations of rationalist approaches, and this in a time of increasing pluralism, resulting in a '*great differentiation of values that accompanies differentiations of publics*' and an increased focus on the more intractable challenges that lie beyond equipping a society for continuity, in the provision of basic services and amenities for the majority of a populace.

Some 30 years later, Richard Coyne, in revisiting wicked problems, declared that the '*intractable nature of design is so accepted into the canon of design thinking that it is easy to lose sight of the radical edge of the original proposition, at least as presented by Rittel and Weber*'.⁵⁸ This theme will be developed at length, as the wicked problem proposition indeed has radical implications for any practice dealing with complex social systems. Further, despite Coyne's assertion, I contend that it has not been fully appreciated by the design community.

Rittel and Webber, in 1973, lamented the dominance of the idea of efficiency, drawn from classical Newtonian physics, in guiding the planning activities of government and industry, whereby '*problem-solutions*' could be designed and easily and cheaply implemented. This concept still has a powerful

⁵⁶ Ibid. p. 115.

⁵⁷ Rittel and Webber. p. 155.

⁵⁸ Richard Coyne, "Wicked Problems Revisited," *Design Studies* 26, no. 1 (2005).p. 5.

hold in organisations today; indeed, Rith points out that *'the rationalist "problem-solving" view of design remains a widely held popular belief'*.⁵⁹

There have been a number of authors from within the design literature that have recognised certain classes of design problems as *'wicked'*, however, the extent of the implications of this concept are under-recognised. For example, Goldschmidt follows Simon's lead in declaring wicked problems as *ill-defined* or *ill-structured* and proceeds to describe a process that would not be out of place in an engineering manual.⁶⁰ This suggests that these authors regard the problem as fully extant, even if they may be obscured or complicated. They view these problems as entirely discoverable; it just requires a sustained effort to uncover and adequately describe them. Similarly, Dorst represents design problems in the *'ill-structured'* or *'wicked'* class as *'underdetermined'*,⁶¹ suggesting again that the problem is determined and exists distinct from any human concern. In this perspective, it is simply a matter of applying sufficient effort in order to move from under-determined to usefully determined.

In these perspectives, all that is required is an uncovering and describing of an *a priori*, determinate problem in order to then proceed to the task of solving the identified problem. It is clear, then, that these perspectives remain within a *problem solving* frame, and indeed proponents have simply attempted to incorporate and *tame* the *wicked problem* concept. While there is some dissatisfaction with the nature of deeply reductionist approaches, they remain entangled in this worldview, as evident by the language they use and the processes they suggest. By subsuming wicked problems into the rationalist worldview, they have let slip the potential that this concept has for redefining how we approach problematic social situations.

There is, however, a movement to reflect on and question the hegemony of the rationalist paradigm. Coyne describes the challenges to the dominance of rationalist approaches as understood and practiced by the professions: *'where does the authority of the experts reside if not in their participation in rationality, best exemplified by a scientific approach to their discipline?'*⁶² He goes on to note the broader challenge to *'scientific rationality'* from writers such as Kuhn. He notes

⁵⁹ Chanpory Rith and Hugh Dubberly, "Why Horst W. J. Rittel Matters," *Design Issues* 23, no. 1 (2007).

⁶⁰ Gabriela Goldschmidt, "Capturing Indeterminism: Representation in the Design Problem Space," *Design Studies* Volume 18, no. 4 (1997). p. 441.

⁶¹ Kees Dorst, "The Problem of Design Problems," in *Expertise in Design: Design Thinking Research Symposium 6* (University of Technology, Sydney, Australia: 2003). p. 2.

⁶² Coyne. p. 6.

also that the '2nd generation' of moving analytics onto a more empirical footing shifted rather than reframed the problems of rationality. This is reflected in the preceding examples.

Rittel and Webber's '*tame*' problems stand for those problems that are the provenance of rationalism. They are those that can be exhaustively described, where there are clear objectives and measures and there is a well-defined set of rules and operations available for solving the problem. Approaches that are reductive and analytical, seeking reliability and repeatability are relevant in these situations.

Tame does not mean simple: some of the problems tackled by science and engineering are incredibly demanding and complicated, but they nonetheless remain in the domain of the determinate. Even the problems of complex, or complex-adaptive, systems are tame because they are governed by universal rules or laws, and thus, at least theoretically, a definable cause and effect is in play. It is worth noting, however, that while these systems are tame in a strict sense, the chaotic nature of these systems can defeat the practical, or even theoretical, limits of calculation.⁶³

That such kinds of problems exist is not at issue. What is problematic is where there is insufficient understanding of the situation that one faces, and a lack of awareness that the methods appropriate for tame situations do not apply to wicked ones. As Rittel and Webber note: '*the social professions were misled somewhere along the line into assuming they could be applied scientists – that they could solve problems in the way scientists solve their sorts of problems. The error has been a serious one*'.⁶⁴

Wicked problems cannot be *tamed*. Wickedness is an inherent and insoluble characteristic of these complex social situations. However, innumerable tame problems can exist within a wicked context, just as natural and mechanical elements can be subsumed within a human system, as Vickers describes. Vickers' insight into human systems is discussed below.⁶⁵ Within this setting, a well-framed and specified tame problem, as may be found in a typical commercial design brief, simply means that the '*wicked problem*' has either been dealt with elsewhere or ignored.

Wicked problems are not simply obscure or difficult. They have no objective existence in the way an engineering fault does or a technical design brief may suggest. In these situations, a definitive

⁶³ See discussion of the Landauer – Lloyd limit: Paul Davies, "Higher Laws and the Mind-Boggling Complexity of Life," *New Scientist*, 5 March 2005 2005.

⁶⁴ Rittel and Webber. p. 160.

⁶⁵ Vickers' perspective on human systems is discussed in Section 3.3.4.

formulation exists, or has been provided. In tackling a wicked problem, one must recognise that the problem does not exist until one chooses first to create and shape it. How it is shaped, then, is dependent on the worldview, values, perceptions and situation of those involved in tackling it, and everyone involved starts from the same level of knowledge.⁶⁶

3.3.2. Exploring the Properties of Wicked Problems

Serving as a counterpoint to the science-oriented notions of design that were in circulation at the time of its development, and which arguably persist into the present,⁶⁷ the concept of wicked problems introduces principles that begin to frame the criteria for any method used to tackle these challenges. Rittel and Webber made it clear that the term 'wicked' did not have a moral basis. In attempting to clarify what they meant by 'wicked' the authors made a distinction between their use of this term and other terms that are often synonyms for wicked, such as '*malignant*', '*vicious*', '*tricky*' or '*aggressive*'. Rittel and Webber developed '*ten distinguishing properties*' for wicked problems. A discussion of the implications of these properties follows below.

The last of the properties listed – '*The planner has no right to be wrong*'⁶⁸ – is perhaps the most profound. It is no coincidence that Rittel and Webber were dealing with challenges of civic planning. They were cognisant of the real and possibly deleterious impact of poor solutions to wicked challenges. The most elegant systems dynamics model is inevitably an incomplete and proxy representation of reality, but there is little consequence if the objective is abstract knowledge, and if the refutation of hypotheses does not invite censure or punishment. As Rittel and Webber suggest, however, '*in the world of planning and wicked problems no such immunity is tolerated*'.⁶⁹ Any interventions have consequence for real people and so planners and decision makers are liable. In other words, wicked problem solvers are fully accountable for their actions.

Turning then to the most revealing insight, the first principle states that '*there is no definitive formulation of a wicked problem*',⁷⁰ but every formulation of a wicked problem corresponds to the

⁶⁶ Rith and Dubberly. p. 73.

⁶⁷ Coyne. p. 6.

⁶⁸ Rittel and Webber. p. 166. *My emphasis*.

⁶⁹ Ibid. p. 167.

⁷⁰ Buchanan, "Wicked Problems in Design Thinking." p. 16.

formulation of solution; problem understanding and problem resolution are concomitant to each other.⁷¹

The implications of this are that the very earliest part of any design venture with a focus on a human system is the most critical phase, and the first and arguably most important act of creation is that of a satisfying description of the problem. In these initial stages of inquiry, when the situation is ambiguous and poorly understood and where there is no solid or material object with which to work, the first forming of the *problem* occurs. Because *problem* and *solution* are not distinct, but intertwined and interdependent, any shaping of a problem space immediately sets up a trajectory along a particular thinking path towards a particular type of solution. This requires a design method that can deal with *designing before design*. It further suggests that any formulation is contestable, and so cannot be proven right, but can at best be accepted as good enough by those involved.

This cannot be dealt with by simply adding to or adjusting a well-ordered and orthodox series of phases, those that begin with analysis, moving through synthesis to evaluation. Gero details different variations on this theme, noting methods of design founded '*from logic, mathematics and operations research*', artificial intelligence and cognitive science, claiming such progression has led to models of design with '*increasing explanatory power; models which form the basis of computational systems which either mimic designing or provide aids to designing*.'⁷² The model he develops attempts to reduce design to a linear process, with some concession to complexity with the inclusion of feedback loops, and formal algorithm. In this, he represents recent developments that seek to place design firmly within a rational paradigm, developing a systemised '*science of design*' in the footsteps of Simon.

Rittel and Webber provide the necessary counterpoint to this line of reasoning: '*[o]ne cannot understand the problem without knowing about its context; one cannot meaningfully search for information without the orientation of a solution concept; one cannot first understand, then solve*'.⁷³

This perspective challenges any rational, sequential method. Fully embracing the implications of wicked problems requires a very different starting point for constructing a design approach to tackling the challenges of human systems. They proceed to provide a significant clue about the basis of such an alternative approach:

⁷¹ Rittel and Webber. p.161.

⁷² John. S. Gero, "Towards a Model of Designing Which Includes Its Situatedness," in *Universal Design Theory*, ed. H. Grabowski, S. Rude, and G. Grein(Aachen: Shaker Verlag, 1998). p. 47.

⁷³ Rittel and Webber. p. 162.

*'The systems-approach ... is inadequate for dealing with wicked-problems. Approaches ... should be based on a model of planning as an **argumentative process** in the course of which an image of the problem and of the solution **emerges** gradually among the participants, as a product of incessant judgment, subjected to critical argument.'*⁷⁴

The emphasis on socially founded argumentation sets in place an important criterion for a new design approach built on the principles and methods of rhetoric. Further, within any humanistic enterprise it becomes apparent that the wicked-tame duality is a false one; every situation is wicked and tame problems exist only where a the choice has been made to artificially simplify and constrain a problem space. As Coyne concludes, **'[t]o summarise, we can go further than Rittel and Webber did in their 1973 article. Wickedness is the norm. It is tame formulations of professional analysis that stand out as a deviation.'**⁷⁵

If there is no definitive formulation, there is also no definitive end point to planning or design problems: **'wicked problems have no stopping rule'**.⁷⁶ Because *'there are no criteria for sufficient understanding and because there are no ends to the causal chains that link interacting open systems'*,⁷⁷ there is no signal to indicate that enough has been done. In this instance, time, money or patience runs out, or the resolution is judged to be good enough.

The lack of definitive formulation is then given an additional dimension with the principle that declares that every wicked problem is a subset of a broader context of problems, or: **'every wicked problem can be considered to be a symptom of another problem'**.⁷⁸ This has been recognised within *critical systems theory* by way of the notion of *boundary critique*, which recognises the importance to systems thinking of making *boundary judgements* explicit and available for reflection. As Ulrich states, *'the practical implications of a proposition (the "difference" it makes in practice) and thus its meaning as well as its validity depend on how we bound the system of concern, i.e., that section of the real world which we take to represent the relevant context.'*⁷⁹

⁷⁴ Ibid., p. 162.

⁷⁵ Coyne. p. 12. *My emphasis.*

⁷⁶ Rittel and Webber. p. 162. *My emphasis.*

⁷⁷ Ibid. p. 162.

⁷⁸ Ibid. p. 165. *My emphasis.*

⁷⁹ Werner Ulrich, "Critical Systems Thinking for Citizens, or Systems Thinking as If People Mattered," in *8th International Conference on Systems Research, Informatics and Cybernetics (InterSymp '96)*, ed. G.E. Lasker (Baden-Baden, Germany: The International Institute for Advanced Studies in Systems Research and Cybernetics, 1996). p. 30.

While Ulrich notes that this concept opens systems inquiry to the layperson as much as the expert, there is an emphasis on the categorisation of the relevant "*facts*" (e.g., *consequences*) and "*values*" to be included, with the concomitant exclusion of matters judged not to be relevant. Indeed, both early and recent descriptions (see Churchman⁸⁰ and Cabrera⁸¹) reflect the exclusionary basis of the concept as applied in *critical systems theory*. Rittel and Webber's principle, while acknowledging the need to demarcate a problem space, recognises the contingent and subjective nature of the boundary-finding decision, and that the higher level situation both actively frames one's chosen *system in focus* and that any action one takes in addressing that system in focus will have an influence on the larger context: *'if the problem is attacked on too low a level (an increment), then success of resolution may result in making things worse, because it may become more difficult to deal with the higher problems.'*⁸²

The remaining six principles are instructive and worthy of contemplation, however it is beyond the scope of this dissertation to exhaustively describe each one. The remaining principles do, however, contribute to the picture that Rittel and Webber built, in that every wicked problem is a unique *particular*. This perspective establishes that wicked problems, or wicked situations, cannot be generalised, that there are no universally applicable algorithms that can be called upon, and that solutions cannot be uncritically lifted from one situation and applied to another. This is the challenge of designing in social complexity.

3.3.3. Rittel and Webber: Conclusion

The introduction of the '*wicked problem*' concept provided a timely critique of the hegemony of the '*rationalist paradigm*' in the approach to tackling systems, and particularly social systems. It created a ground for constructing alternative approaches to systems that lie outside the mainstream science based approaches, without these alternatives being dismissed as '*anti-rational mysticism*'.

Furthermore, the recognition of the central role of socially constructed and conducted argumentation as an important aspect of tackling wicked problems lends support to Buchanan's introduction of rhetoric as an appropriate and useful basis for developing particular ways of

⁸⁰ C. West Churchman, "*Operations Research as a Profession*," *Management Science* 17 (1970).

⁸¹ Cabrera.

⁸² Rittel and Webber. p.165.

designing in these situations. Within this broader context, other characteristics that Rittel and Webber recognised underpin the connection between rhetoric and design activity in complex social systems. For example, their identification that there are no *definitive formulations* for wicked problems; that within a contingent situation, any formulation of a *problem*, or design challenge, must be socially designed and accepted. This corresponds to the recognition, within the rhetorical corpus, of the critical role of the concepts of the *opportune moment* and of locating the best structuring of the *issue at hand*.⁸³

From a rhetorical perspective, it is uncontroversial to say that every problem is a symptom and subset of larger, more complex problem spaces, as developed by Rittel and Webber, and as is a primary concern of the *boundary critique* within *critical systems theory*. In this frame, boundary judgements are not seeking objective *rightness* but subjective utility, and social agreement on the shape of any particular '*problem space*' provides a way to deal with the political implications of imposing a system boundary from without. Further, any boundary in a rhetorical frame is a provisional '*placement*'; it exists by agreement for only so long as it is useful and active within design and once a resolution is in play it ceases to be of use and so simply dissolves.⁸⁴

It is clear, however, that the radical implications of the wicked problem critique have not been fully grasped, even by Rittel himself. Rittel went on to develop a method for tackling wicked problems in conjunction with Werner Kunz, named as the *Issue-Based Information System* (IBIS), which provided a rational and reductionist approach to identifying and making decisions that emphasises a traceability of process. The assumption that the relevant elements of an argument can be laid out with mathematical precision, and that this would underpin the development of a '*Design Rationale*'; a method that seeks an explicit specification of the decision paths, reveals that Rittel adhered to a world view that places a premium on a scientific approach, and the power structure of '*design engineer as expert*'.

A further issue with the '*wicked problem*' concept lies in its title. A reference to *problem risks* enabling an interpretation that problems in social systems have a degree of autonomous existence apart from subjective judgement, and therefore the possibility of being technically soluble. It also risks precluding issues that are more in the realm of opportunity, or challenge.

⁸³ This is further developed in Chapter 7.2 through the methodological development of attention structures.

⁸⁴ Placements are further developed in Chapter 6.3.

This can lead to a dilution of the radical implications of wickedness. Indeed, within design literature there is evidence that these kinds of situations are described, inadequately, as ‘*ill defined*’ or ‘*ill structured*’, the implication being that, following a more detailed exploration of the ‘problem’, the extant features will be uncovered, and traditional technical design approaches will then suffice in reaching a logical solution:

‘Wicked problems persist, and are subject to redefinition and resolution in different ways over time. Wicked problems are not objectively given but their formulation already depends on the viewpoint of those presenting them. There is no ultimate test of the validity of a solution to a wicked problem. The testing of solutions takes place in some practical context, and the solutions are not easily undone.’⁸⁵

While acknowledging the profound shift that Rittel and Webber made, in order to more firmly construct a perspective on social systems that adequately accounts for the fundamental distinction between social systems and other kinds of systems, it is necessary to explore perspectives that lie beyond mainstream systems thinking. This is a simple extension and amplification of a growing consciousness across systems disciplines, beginning with Churchman and Checkland⁸⁶ and evident in treatments within *critical systems theory*: interventions in social systems matter to people, and any design creates real impacts on, and consequences for, people and the lives they wish to lead.

These dimensions bring nominally subjective notions to the fore: the importance of human *intent*, of values and *ethics*, and of the importance of freely directed *agency*. They challenge the notion inherent in traditional forms of systems thinking and design founded on objective rationality and give space for a radical but sound alternative, where a discipline of design founded in rhetoric – a civic art concerned with dialogue, inventive argument and social judgement – may provide a useful path for communities in shaping their futures.

3.3.4. Geoffrey Vickers: Human Systems are Different

If Rittel and Webbers’ argument stood alone, it might be easily dismissed as aberrant. There is, however, another significant argument advanced in a similar vein, namely that complex social systems are sufficiently different to their natural or mechanical counterparts so as to require

⁸⁵ Coyne. p. 6.

⁸⁶ As discussed earlier in this section.

different perspectives and approaches. Where Rittel and Webber challenged orthodox thinking on systems and identified an insightful set of principles or characteristics of social systems, Sir Geoffrey Vickers V.C. developed extensive arguments for the distinctiveness of human systems, exploring at length the roles of collective *appreciation* and *judgement* in shaping social situations and institutions – these are key tenets of rhetoric and so are supportive of a rhetorical approach to design.

Vickers is regarded as ‘one of the twentieth century’s premier theorists’⁸⁷ in the field of thinking on ‘organised human activity’, or human systems, and his achievements can be regarded as being of ‘such a nature and extent that he ought to be recognised under the name of philosopher’.⁸⁸ Vickers was perhaps ahead of his time, and developed his perspective on human systems in the 1970s and 1980s, when systems studies in general had yet to attempt to grapple with the distinct aspects of social systems. He developed his thinking not from a place of theory, but from a lifelong engagement in professional practice engaged in developing systems of organised human activity, beginning with his experience as an officer serving in France during World War 1.⁸⁹ Vickers has been influential for prominent systems methodologists: Checkland holds that Vickers’ work on appreciation is ‘an epistemology which can make sense of the process by which we create the webs of significance that define and constitute for us the perceived world we inhabit.’⁹⁰ Checkland regards Vickers as ‘one of the most important social thinkers produced by our society’⁹¹ in that he was able to develop a systemic way of making sense of the social processes by which we are relationally entwined with each other.

Vickers held to the systems concept as a crucial way of understanding the relations of things and phenomena, but broke ground by locating as central to the sophisticated body of thought he developed the critical and important distinction between human, or social, systems and other kinds of systems: ‘[a]ll human systems must be distinguished from a man-made system no less than from

⁸⁷ Geoffrey Vickers, ed. *The Art of Judgement: A Study in Policy Making*, ed. Henry D. Kass, Advances in Public Administration (Thousand Oaks: SAGE Publications, 1995). p. xiv.

⁸⁸ Garrath Williams, "Geoffrey Vickers: Philosopher of Responsibility," *Systems Research and Behavioral Science* 22, no. 4 (2005). p. 291.

⁸⁹ *Vickers provides a stunning example of masterful systems thinking by way of an address given by General Campbell during the closing days of the war in:* Geoffrey Vickers, "The Poverty of Problem Solving," *Journal of Applied Systems Analysis* 8, no. (1981). p. 18.

⁹⁰ Peter Checkland, "Webs of Significance: The Work of Geoffrey Vickers," *Systems Research and Behavioral Science* 22, no. 4 (2005). p. 287. *Checkland’s reporting of Vickers’ approach to his appreciative systems is similar to the concept of placements developed in Chapter 6.3: ‘First, the model is groundless and self creating; it is in Geoffrey’s phrase ‘moored in vacancy’. There are no absolutes in it, no dogma; its content is never a given’.*

⁹¹ *Ibid.* p. 290.

an ecological system'.⁹² He goes on to clarify that, rather than being distinct entities, there exists a progression, in that human systems certainly have characteristics of ecological systems: *'[the] stability that they have is in part the **undesigned** resultant of their interaction with the world around them'*.⁹³ They are also, to an extent, man-made systems in that *'... such stability (and success) as they have is in part to **designed** result of their interaction with the world around them'*.⁹⁴

The key distinction between *'even the most political of man-made systems'* and human systems is located in the disposition of the designer. Holding a system as an object of study, or asserting design from outside, and without deep participation in the system, locates the system as *'man-made'*:

'The essence of a human system is that it is composed of human beings who bring it into being by their actions and their experiences ...' which involves overcoming the gulf between that which *'separates the observer from the agent experient even when the two roles are combined in the same person ...'*⁹⁵

Vickers goes on to clarify that the *'man-made'* aspect of a human systems involves a greater element of judgement, as opposed to calculation, than with standalone man-made systems *per se*. Exploring this claim through the *man-made system* of the constitution of the United States, he makes a distinction between the technological – the calculation within norms taken for granted – and the political – judgement on the best norms, and their definitions, for a culture⁹⁶. After Vickers, we may recognise that a human system is structured on social judgement, i.e., that judgement precedes and structures calculation.

This has clear implications for the role of the designer structured as *'disinterested expert'*, an assumption evident even with Rittel and Webber's perspective. Vickers establishes a defining principle in that a system can be named as a **fully human system** only as long as any designer is indeed a participant, a constituent, fully immersed and engaged in the ongoing shared interpretation, judgement and co-construction of the system at hand, in shared and collective expressions of agency. The moment we step away and attempt to deal with a social system from an objective distance, we re-frame it as a man-made one.

⁹² Geoffrey Vickers, *Human Systems Are Different* (London: Harper & Row Ltd., 1983). p. 174.

⁹³ Ibid. p. 174. *My emphasis*.

⁹⁴ Ibid. p. 174.

⁹⁵ Ibid. p. 175.

⁹⁶ Ibid. p. 175.

This is an important set of distinctions, as it is thus necessary to be clear about which perspective one is using to frame a particular line of inquiry. Using the '*organisation as ecosystem*' frame, either literally or metaphorically, is appropriate only if one is inquiring into the naturalistic dimensions of such a situation, such as physical complexity or physiological and behavioural phenomena. In such an inquiry, the methods of empirical science may be seen as a useful approach. Inquiry into the nature and shape of constructed aspects of a system, be it material technologies or organisational arrangements, leaves one within the '*organisation as man-made system*' frame.

However, as Vickers' schema suggests, in order to honour the whole of a human system it is necessary to take on the placement of *organisation as human system*, subsuming natural and mechanical aspects, and strive for concepts and methods of inquiry that are appropriate to this perspective. Vickers struggles to identify a direction in which to proceed, however his outline of the distinct and unique characteristics of human systems provides important clues.

One such distinction is the nature of purpose, or intent, in human systems. Vickers, in evoking the US Constitution, notes that such a man-made system is regarded as a tremendous success, however this technological artefact acts within the **human system** that is the nation of the United States itself, prompting and provoking ongoing discourse, constant argumentation and sometimes bitter and partisan contestation; the shape of American society does not stem directly from the Constitution, but from particular judgements made by particular people in particular situations and circumstances.

3.3.5. Intent, Agency, Ethics: Defining Characteristics of Human Systems

Vicker's argument highlights the tacit dimension of **intent**, and therefore criteria for success, that does not hold for ecological or technological systems. Intent cannot be asserted from outside the system; it is woven into its fabric and is constructed from the experiences, dispositions and aspirations of its constituents. Human systems are constituted around purpose, or intent. However locating, clarifying, advancing and voicing said intent is an exercise in facilitation and elucidation; a careful bringing to the light, as opposed to authoritative declaration or systematic analysis.

As for the criteria and assessment of success in human systems, these are not the objective measurements against external benchmarks that are a familiar part of technological systems, and which inform our study of natural or ecological systems. Vickers understood that measures are

actually part of any human system, *acting* as much as *acting upon*. They are the products of judgement guided by not only the appreciable facts of a situation, but by the '*tacit norms and explicit values*' that an agent brings to a situation, and which themselves will be changed through engagement with a situation.

In exploring **agency** as political power, Vickers begins from the Enlightenment proposition as expressed by Condorcet's libertarian doctrine: that there would come a day when there would be '*none but free men with no master save reason*'.⁹⁷ His perspective on human systems aligned to this shift, where '*the doers*', as opposed to the done-by, '*were seen as the few – the selfish few – it was reasonable to hope that a world controlled by the many would give the many a far greater share of its resources*'.⁹⁸ This marked a shift in the nature of agency in human systems, from power exercised by a few upon the many, to an aspiration for the many to be autonomous in their exercise of agency, bound only by rationality.

Vickers notes the hold that this vision still has on our consciousness, but shows the naivety of such a position in building the proposition that we are not '*born free*', since we come into a web of relations and interdependence, and nor do we become free, because as we grow we become more and more deeply enmeshed in a '*sea of mutual and complimentary responsibilities. The antithesis of servitude is not freedom but service and service may indeed be an enlarging and ennobling experience*'.⁹⁹

Vickers understood that countering autocratic expressions of power lay not on the path towards '*autonomous man*' but along the path of '*relational man*', and that judgements arise from sound reasoning, via argumentation, and not pure rationality. A human system is not characterised by a set of autonomous rational agents, but as a relational community of *agent experiencers* where the '*doers*' are as much '*constrained*' by the '*done-bys*' as the commonly assumed reverse.

It is clear, then, after Vickers, that the defining characteristic of a fully human system is that it is constituted within and by relationality, and that deep mutuality and interdependent responsibilities structure these inter-subjective domains and shape interpretations, judgements and the construction of knowledge. This relational model of agency that characterises fully human systems then establishes the frame in which **ethics**, expressed as values, must be understood not as an

⁹⁷ Ibid. p. 100.

⁹⁸ Ibid. p. 176.

⁹⁹ Ibid. p. 100.

abstraction that stands outside a situation, but as constitutive of a situation,¹⁰⁰ constructive of shared cultural norms and active in moderating the '*interdependence of facts and value judgements*'.¹⁰¹

Vickers summarised this dimension of human systems by identifying the two intimately connected aspects of '*epistemology and evaluation*'¹⁰² as the essence of the nature and function of these systems. This captures the deep characteristics of our systems with remarkable efficacy: if we are to '*communicate and co-operate*' with each other in creating the artificial structure of our civic worlds, then these activities are structured by the imperatives that we '*must share some common assumptions about the world (we) live in; and (we) must also share some common standards by which (we) judge (our) own and each other's actions in the world.*'¹⁰³

These perspectives structure the way Vickers proposes how design and work proceed within complex situations in a fully human way, through **appreciation** and the **appreciative system**; the '*self-spun web*' that constitutes our social world and gives us location and meaning. This overcomes the issue of the possible misinterpretation of Rittel and Webber's use of the word '*problem*'; Vickers is clear that a move from a perception of '*problem solving*' to one of '*understanding situations*'¹⁰⁴ is critical if we are to avoid falling to a focus on '*the episodic activity of seeking specific goals*', built on implicit models of rational behaviour towards '*satisficing*' and the deployment of linear cause and affect reasoning. In this he rejects the rationalist models such as those developed by Simon and March.¹⁰⁵

Vickers was aware that it was often *concern* about some problematic aspect of a situation that drew people to seek to understand it more fully, but he recognised that this concern could also hold for the dimension of hope and aspiration for the future, and, further, that recognising a problematic aspect of a situation did '*not necessarily create a problem – let alone a soluble one*'. This is reminiscent of Rittel and Webbers' first principle of wicked problems.

¹⁰⁰ Raimond Gaita discusses this concept in: Raimond Gaita and Margaret Simons, *Breach of Trust : Truth, Morality and Politics* (Melbourne, Vic.: Black Inc., 2004). p. 18-19.

¹⁰¹ Williams. p. 293.

¹⁰² Vickers, ed. *The Art of Judgement: A Study in Policy Making*. p. xvii.

¹⁰³ Vickers, *Human Systems Are Different*. p. 38.

¹⁰⁴ Vickers, "The Poverty of Problem Solving." p. 15.

¹⁰⁵ Simon and March developed such concepts as bounded rationality, and structured problem solving in: James G. March and Herbert A. Simon, *Organizations* (Wiley, 1993).

He further recognised that designing or policy making in human systems involved a '*constant engagement in the adjustment of human relationships in society*'¹⁰⁶ – he borrowed the term *regulation* from the cybernetics movement of the period to hold this idea. As highlighted by Williams, Vickers understood that '*life consists in experiencing relations, rather than in seeking goals*',¹⁰⁷ this relational approach to apprehension, judging and knowing provides a contrast to the strictly instrumental accounts of the function and operation of any system.

For Vickers, this was not an abstract notion. Indeed, he held that the limits of any society are structured by the limits of '*trust and shared appreciation*', '*by the extent to which (we) share an appreciative system ... and by the aptness of those systems to interpret contemporary experience, especially when its pattern is changing.*'¹⁰⁸ He used the term 'culture' to describe this shared basis of appreciation, and developed a schema to characterise the range of cultures in human systems, which described seven levels of appreciation that structure '*communication*', or, to substitute a broader term, '*interaction*'. These ascend from *violence*, through various intermediate states such as *bargain* and *persuasion*, towards ***dialogue***; a situation where '*each seeks to share ... the other's appreciation and to open his own to the other's persuasion with a view of enlarging*'¹⁰⁹ the field of shared appreciation and so the ways in which the situation can be named, structured and designed.

Central to the development of appreciation is the distinctly and uniquely human capability of judgement. For Vickers, exercising judgement was an essential precursor to any '*meaningful engagement with the larger ethical and political concerns of the social world.*'¹¹⁰ This is in opposition to the drive towards precision and objectivity evident in others involved in the social disciplines.

Vickers made distinctions between three kinds of judgement. The first kind, resonating with the concept of the internal regulation and operations of a system, as described above, is named as *instrumental*.¹¹¹ Vickers saw that it was these kinds of decisions that had received the bulk of attention from students of both '*systems engineering*' as well as human behaviour, and with this the uncertainties and subjectivities of the other two kinds of judgement, those of *appreciation*, were not only put aside, but often eliminated from view.

¹⁰⁶ Nevil Johnson, "Sir Geoffrey Vickers: Some Thoughts on His Life and Ideas.(Notes and Reflections)," *Systems Research and Behavioral Science* 22, no. 4 (2005). p. 343.

¹⁰⁷ Williams. p.293.

¹⁰⁸ Vickers, *Human Systems Are Different*. p. 45.

¹⁰⁹ *Ibid.* p. 43.

¹¹⁰ Vickers, ed. *The Art of Judgement: A Study in Policy Making*. p. xvi.

¹¹¹ *Ibid.* p. 40.

For Vickers, any large scale design in and of a social system had to invert this relationship, to elevate appreciative judgement and the work of understanding what makes information informative, and what makes meaning in any social situation or system. The second of these are '*reality judgements*',¹¹² or judgements of facts of any matter as to what is or is not the case, of what has been or might be. The third are '*value judgements*', where what ought or ought not to be the case and what significance, or meaning, judgements on facts have for the appreciator. Vickers described these as '*inseparable constituents of appreciation*' and did not shrink from noting the tacit dimension of these acts – he argued that to hold something as tacit '*does not relegate it to the realm of the mystical*'.¹¹³ In this way, Vickers expands on Rittel and Webber's principles on the role of values in the formulation of any 'wicked problem' and sets up an approach that brings epistemology and ethical evaluation together. Vickers' propositions on the qualities of intent, agency and ethics in human systems, and the central role of collective appreciation and value-driven judgement to design and innovation in human systems, as opposed to assumptions of objective analytics leading to rational decision, provides further support for a discipline of *social system design* and innovation drawing on rhetoric.

There is one further contribution relevant to this investigation, and that lies in Vickers' focus on institutions. Williams notes that Vickers provides a distinct, and perhaps unique, philosophical account of the modern age in his framing of modernity in terms of the '*escalation of our institutions*'¹¹⁴ and the degree to which the redesign of these institutions has come to be a hallmark of cultural development. In interpreting Vickers, Williams describes three interdependent characteristics of modern life. The first is the increasing power of technology in all its forms, and the concurrent increase in our expectations. In order to harness increasing power and furnish increasing expectation, we are '*weav(ing) ever more complicated institutional fabrics*', where these institutions '*pick up the pieces*' when our expectations are, inevitably, not completely met.

Vickers saw our culture, our webs of social systems, through the lens of the institution, the '*most ubiquitous embodiments of our (modern) culture*'.¹¹⁵ He builds a defence of the organisation, noting that as we insist on our rights in our interactions with institutions, we are continuing in our '*rejection of all responsibilities we have not actively chosen*'. This sets up a paradox: we emphasise and '*romanticise individual agency*', all the while demanding more and more of our institutions. For

¹¹² Ibid. p. 54.

¹¹³ Ibid. p. xix.

¹¹⁴ Williams. p. 295.

¹¹⁵ Vickers, ed. *The Art of Judgement: A Study in Policy Making*. p. xxii.

Vickers, it is webs of mutual and shared responsibility that form the basis of stable relations that enable us to pursue '*deliberate social change*' and where increased power also increases the '*field of human responsibility*'. For all the constraints that organisations bring, they are artefacts through which our collective, and considerable, agency is manifest.

This perspective provides support for the selection of the organisation as a ground for exploring and developing an approach to, and methods for, *social system design*, and for placing intent and ethics at the centre of any deliberations that will be instrumental in directing agency and the instruments of technological power.

To conclude, it is instructive to acknowledge, as Buchanan does, the debt that this perspective owes to the pragmatic philosophy of John Dewey.¹¹⁶ Dewey provides a clarifying insight into the implications of knowing and acting within indeterminacy and provides support to the arguments developed by Vickers. His description provides a broad template for how design proceeds in the face of contingency.

Coyne¹¹⁷ outlines how Dewey, in *Art as Experience*, argues that professional enterprise is infused with the rational structures of scientific pursuit and the values, aesthetic preferences and feelings and prejudices of the artistic soul, echoing Vickers' juxtaposition of *facts* and *values*. The professional judgements we make '*draw on the aesthetic dimension as much as that of any poet or painter, though arguably within different time frames, and using different modes of justification and explanation, and drawing on different authority structures.*'¹¹⁸

In his *Logic: A Theory of Inquiry*,¹¹⁹ we can find useful complimentary perspectives on the work of tackling challenges within these complex social systems. Dewey develops the idea that any process of inquiry, for which design could be regarded as a type, begins with and in an '*indeterminate*' situation. Such a situation, which includes the perceiver, is inherently '*doubtful*'; the situation has a '*unique, pervasive felt quality of disturbance, trouble, ambiguity, confusion, conflict, doubtfulness-in one general term, indeterminateness.*'¹²⁰ This confusion is not within the perceiver; it is a feature of the situation. A broad correlation can be drawn between '*indeterminate*' and '*wicked*'. For Dewey,

¹¹⁶ See Buchanan's discussion of Dewey's insights into operating within indeterminacy in : Buchanan, "Wicked Problems in Design Thinking." p. 6.

¹¹⁷ Coyne. p. 7.

¹¹⁸ Ibid. p. 8.

¹¹⁹ John Dewey, *Logic: The Theory of Inquiry* (New York: Holt, Rinehart, and Winston, 1938).

¹²⁰ John O'Connor, "Indeterminate Situation and Problem in Dewey's Logical Theory," *The Journal of Philosophy* Volume 50, no. 25 (1953). p. 754.

inquiry begins from a perception of incoherence and proceeds towards a determination: '*the unique quality of indeterminateness in any given case controls inquiry until the inquiry (if successful) has transformed the situation into a determinate one*'.¹²¹

This elegantly captures the essence of *social system design*: it is concerned with grappling with the doubt and confusion of the indeterminacy inherent in complex social systems, focusing on those matters that lie within the horizon of the artificial, and proceeding through socially argued and constructed innovation towards a determination that will be enacted through the judgement of the concerned community.

3.4. Conclusion

This chapter has traced the emergence of and discussed the significance of the systems orientation and the extensive and diverse range of fields of systems studies that have arisen since Bertalanffy's original work. This has served to open up the world to examination in ways that extend beyond accounts of direct and linear cause and effect, and brings recognition of the deep interconnectedness and interdependence of parts within any complex systemic whole, and that these parts cannot be sensibly reduced to an inventory of parts when attempting to understand the whole – in other words, the whole is different to the sum of its parts. Further, this understanding of complex systems brings recognition of the characteristics of emergence and self-organisation, and the challenges of acquiring sufficient information to completely and objectively understand system dynamics. It examined where the systems concept has been applied to the social sphere and, most significantly, identified substantial challenges to the hegemony of a scientific orientation over the systems movement and the arguments for identifying social or human systems as distinct from other kinds of systems, thus requiring radically different approaches, as developed by authors such as Rittel, Webber and Vickers.

It is clear that the orthodox approaches to working with systems are inadequate for addressing the matters raised by Margolin, Dilnot and Buchanan: the centrality of *human concern* in striving for civic

¹²¹ Ibid. p. 754. Note I have used Buchanan's substitution of 'a determination' for 'determinate' as this aligns to the idea that wicked problems are never 'solved'.

and social arrangements that enable human wellbeing. This raises the question: if scientific approaches are insufficient then what approach is appropriate and effective in designing in social situations? As Buchanan argued in *Wicked Problems in Design Thinking*, it is the civic art of design, and its ancient corollary of rhetoric, that are most apt in tackling the distinct and different qualities of human systems. The characteristics and qualities of these systems outlined above provide support and expand upon Buchanan's proposition.

With the case for a broad, socially significant perspective of design developed in Chapter 2, Chapter 3 has focused on constructing a perspective on the distinctive attributes of social, or human, systems. These perspectives will be brought together in Chapter 4 in order to develop a description of the fundamental principles of this emerging discipline of design. Buchanan's connection of rhetoric to design then opens the path for interpreting and adapting rhetoric for informing *social system design* methods through the perspectives developed by key authors who have interpreted rhetoric for contemporary conditions. These authors – Richard McKeon, Kenneth Burke, Richard Lanham and Eugene Garver – all look to Aristotelian rhetoric as their primary source. A perspective on rhetoric of Aristotle is developed in Chapter 5, with key elements of method developed in Chapters 6 and 7.

Chapter 4

Describing *Social System Design*

4.1. Outline

The aim of this chapter is to describe the foundational principles for *social system design*, and to identify significant characteristics of this type of design activity. This will be done by first summarising the arguments developed by the prominent design theorists investigated in Chapter 2 for a broad and socially significant *design-in-general*, and on the distinct perspectives on social or human systems, as developed primarily by Rittel and Webber, Vickers and described in Chapter 3. These summaries are then followed by a distillation of the significant points of the arguments made in Chapters 2 and 3 into principles that could inform future *social system design* development and practice.

This thesis aims to establish a methodological framework for *social system design*. It is therefore important to avoid providing purely instrumental and technical accounts of process and aspects of practice. The intent of this is twofold. Firstly, it is to ensure that this kind of design can continue to be developed as it emerges and not be subsumed into another strand of design, or even another field altogether. Secondly, it is intended that a solid theoretical and methodological substrate should overcome a problem often encountered in the experience of 2nd Road commercial projects. Many of these projects involve client employees with limited formal design background, and so unless they are able to appreciate the *fundamentals of design* and can work to understand and adopt a *designerly disposition*, the application of any design process is compromised. There is a tendency to interpret the processes of design from the point of their own particular disciplines and organisational experiences. The best design method is ineffective if not deployed in a *designerly way*.

As outlined in Chapter 2, Dilnot described attempts to interpret and understand design in terms of other domains and disciplines as misguided, where viewing design through the prism of science, the creative arts or technology engineering is actually destructive to building a sense of any genre of design on its own terms and grounds. Cross has catalogued the history of the extensive efforts to bring design to science,¹ but concluded that design as a discipline could not be located on this ground, turning to the work of Donald Schön to seek out an alternative. Schön's theory of the '*reflective practitioner*'² provided one such perspective that creates a basis for seeking out a new ground: '*Schön proposed instead to search for 'an epistemology of practice implicit in the artistic,*

¹ See for example: Nigel Cross, *Designerly Ways of Knowing* (London: Springer, 2006). p. 95 – 99.

² See: Donald A. Schön, *Reflective Practitioner : How Professionals Think in Action* (New York: BasicBooks, 2000).

intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict,' and which he characterised as 'reflective practice'.³

Although he offers few clues regarding its shape, Cross argues for the necessity of an understanding of design-in-general as a distinct discipline, one which albeit takes on an interdisciplinary character:

'It is the paradoxical task of creating an interdisciplinary discipline. Design as a discipline, rather than design as a science. This discipline seeks to develop domain-independent approaches to theory and research in design. The underlying axiom of this discipline is that there are forms of knowledge peculiar to the awareness and ability of a designer, independent of the different professional domains of design practice.'⁴

Departing from Dilnot's challenge, Schön's description of an alternative epistemology, and Cross's recognition of the distinct knowledge within design, I will propose a particular ground for *social system design*.

4.2. A Summary of the Frames Developed for *Social System Design*

So far, three broad tasks have been tackled in this thesis. Firstly, the body of evidence in practice, scholarly and mainstream literature was reviewed in Chapter 1 in order to establish that there is indeed an emergent kind of design in which design thinking and effort is being directed towards social and organisational challenges, the character of which lies outside to the concerns of traditional design disciplines. The key issue, and therefore the focus of this research, is that the principles, methods and practices being employed in these endeavours are not being clearly explicated, let alone drawn together as the basis for articulating how *social system design* could operate.

The following two broad tasks built towards this aim, by first, in Chapter 2, establishing the basis within design literature for a kind of design that could operate with the intangibles of culture and

³ Cross, *Designerly Ways of Knowing*. p. 100.

⁴ Ibid. p. 100.

innovation in social structures and arrangements. Secondly, in Chapter 3, since the focus of this genre of design was on social situations and systems, an investigation of the emergence and trajectory of the *systems orientation*, the relatively recent turn enabling wholes to be perceived as **relational** parts, was conducted. Against this backdrop, where systems in general are treated through a broadly scientific prism, particular attention was paid to identifying the distinct characteristics of *human systems* seeking to establish approaches that are appropriate to designing for social good. In the following sections these will be drawn together in order to develop a relevant set of attributes and principles for *social system design*.

4.2.1. The *General Frame for Design*

This section is a summary of Chapter 2, where the arguments of key design theorists were investigated in order to establish that new kinds of design, such as *social system design*, could be legitimately accommodated within these theorists' understandings of design-in-general.

One of the significant themes developed by these authors is the central place of design in matters relating to the domain of the contingent or the artificial, evoking Simon's assertion of a structural relationship between design and the contingent. In this vein, Buchanan declared the potential for design to emerge as a '*liberal art of technological culture*',⁵ and in recognising the parallels between design constructed in such a way and ancient rhetoric, he was able to characterise aspects of the way designers interact with indeterminacy. This framing of design as rhetorical – as an art of invention in thought and word – positions the rhetorical concept of *placement* as significant in exploratory and experimental thinking and *argument* as an effective way to mediate the interaction of product and audience.

The importance of this for developments in design is heightened when considered against a further significant theme developed by these authors: the dominant role that the artificial plays in modern life. As Dilnot argued, the '*horizon provided by artifice*'⁶ has emerged as the dominant and defining modality of the modern world. He develops the ontological implications of this phenomenon, observing that, as much as human idea and agency creates and shapes the artificial world, our immersion within the artificial also shapes us. Design is important to balancing the '*defuturing*

⁵ Buchanan, "Wicked Problems in Design Thinking." p. 5.

⁶ Dilnot, "The Promise and Actuality of Design Research." p. 18.

*condition of unsustainability*⁷ and the hegemony of technological systems, challenging 'technological euphoria',⁸ and placing human interest central in matters of artifice.

Design, then, has a critical role to play in understanding human experience with respect to the artificial and shaping the material and social action required to effect positive transformations within artifice. This extends beyond matters of production: Margolin calls for the design community to take on and sustain a discourse that attends to and negotiates the boundary between the artificial and the ecological.

This broad perspective frames exploration of the characteristics common across the diverse plurality of design disciplines. Firstly, each author recognises that design encompasses not only material artefacts, so extending the reach of design into the *immaterial* realm of the 'social materials' of ideas and action, and positioning design as 'socially significant'.⁹ This highlights the cognitive dimension of design and underpins the sense of the elevation of *design thinking* as a distinct endeavour. Secondly, design is recognised as an art that is synthetic of thought of action, and integrative of multiple domains of knowledge.

Dilnot inverts orthodoxy through the development of a compelling argument for the importance of design to *knowledge* in general, where the primary focus of knowledge shifts from the *discovery* of universal and pure Ideas, to being *invented* in response to particular emergent conditions. This leads to a third important characteristic, namely that design is integrative of the concerns and values of people, and directed towards the purpose of continually transforming the artificial in order to bring about social good. This marks a radical turn, as knowledge becomes situated, historical and concerned: '*not other than interested and immanent*'.¹⁰ To paraphrase McKeon, rhetoric (as design) has replaced metaphysics.

There is a further theme that holds significant implications for *social system design*, namely the role design can play in integrating *knowing* with *making* and *acting*. Buchanan addresses this through his observation that '*without integrative disciplines of understanding, communication, and action, there is little hope of sensibly extending knowledge beyond the library or laboratory in order to serve the*

⁷ Fry, *Design Futuring: Sustainability, Ethics and New Practice*. p. 1.

⁸ Langdon Winner, "Technological Euphoria and Contemporary Citizenship," *Techné* 9, no. 1 Fall 2005 (2005). p. 124.

⁹ Dilnot, "Design as a Socially Significant Activity: An Introduction." p. 139.

¹⁰ Dilnot, "Design, Knowledge and Human Interest." p. 2.

purpose of enriching human life'.¹¹ In this way, he characterises design thinking as important for its ability to '*connect and integrate useful knowledge from the arts and sciences alike ... in ways that are suited to the problems and purposes of the present*'.¹² Buchanan thus establishes the potential for a form of design to bring about '*concrete integrations*' of knowledge from diverse disciplines and perspectives for '*new productive purposes*'.

Dilnot also takes up this theme, noting that design offers a '*language of synthetic thought and action which is capable of configuratively negotiating incommensurability*'.¹³ *Social system design*, concerned as it is with the broad systemic aspects of any human situation, and corresponding as it does to Buchanan's third and fourth orders of design, is particularly well suited to take an *architectonic* role.¹⁴ This role focuses on organising and integrating the diverse array of the domains of knowledge required to effectively tackle broad systemic challenges.

Within 2nd Road, this form of design is described as '*moving upstream*' – this names the method by which senior managers of an organisation can creatively and productively shape the future of their enterprises. It is important to note that this does not displace or diminish other disciplines, including the mainstream design disciplines. However, where the *system-in-focus* is complex and social in character, *social system design* may provide an effective means of integrating knowledge from across these disciplines, cohering disparate technical activities and architecting effective system-level interventions.

4.2.2. The *Particular* Frame for Social Systems

Having summarised the characteristics of *design-in-general* developed to inform *social system design*, focus now turns to providing a summary of the characteristics of the *particular* domain of social systems, and the implications these hold for *social system design*. In Chapter 3, the *systems orientation* that developed during the twentieth century was examined, with particular attention paid to the scientific and engineering character of the mainstream systems theories. This focus is clearly not problematic *per se*, since many of these approaches have been extraordinarily successful and have penetrated many fields of diverse practice. Management and organisational practice has

¹¹ Buchanan, "Wicked Problems in Design Thinking." p. 6.

¹² Ibid. p. 6.

¹³ Dilnot, "Design, Knowledge and Human Interest." p. 10.

¹⁴ *The danger of hubris infected design taking an architectonic role is discussed in the Introduction, see: Wigley.*

taken and sought to apply systems theories, as the work of Peter Senge¹⁵ and Otto Scharmer¹⁶ attests.

While movements such as *critical systems theory* sought to bring social dimensions to the fore, they were nonetheless outgrowths of mainstream systems thought and they neither substantially influenced this discourse nor created a viable alternative. In order to appropriately ground the kind of design that operates within a *systems orientation*, an alternative perspective is required, specifically one in which the unique character of human social systems is central and constitutive. Rittel and Webber provided such a critique, developing Churchman's concept of '*wicked problems*',¹⁷ where the radically indeterminate and effectively incalculable nature of social systems was brought to light via their ten distinguishing principles. While influential within design literature, the majority of authors appear to not have grasped the profound implications of this concept. For instance, Dorst has recognised the pervasive conception of design problems as '*ill structured*' and has noted that the methodological constructs directed to solving '*design problems*'¹⁸ is itself problematic, and has referred to design problems as merely '*underdetermined*'.¹⁹

Within this perspective, challenges do not exist until named and designed by constituents of the system. Further, the formulation of a design challenge both shapes the possibilities for its resolution, and is in turn shaped by the emergent solution. The observation that there is no possibility of definitive methods of inquiry or evaluation suggests that *social system design* must be informed by a disposition that is fundamentally oriented away from *epistémé*, from the study of the necessary, towards *rhetoric*, a productive *techne* of thought and word developed for the purpose of knowledge production in the domain of the contingent.

While Rittel and Webber challenged the hegemony of systems science through the development of their insightful list of principles for social or *wicked* situations, they did not go on to develop a complimentary perspective for working with social systems. Geoffrey Vickers provided this critical perspective, in a way that bridged philosophical and pragmatic concerns, constructed during an eclectic leadership and management career. He positioned *human* systems as distinct from and

¹⁵ See for example: Senge.

¹⁶ See for example: Claus Otto Scharmer and Peter M. Senge, *Theory U : Leading from the Future as It Emerges : The Social Technology of Presencing* (San Francisco, Calif.; London: Berrett-Koehler ; McGraw-Hill [distributor], 2009).

¹⁷ Rittel and Webber. p. 155.

¹⁸ Kees Dorst, "Design Problems and Design Paradoxes," *Design Issues* 22, no. 3 Summer 2006 (2006). p. 14.

¹⁹ Dorst, "The Problem of Design Problems." p. 1.

different to their '*man-made*' and '*ecological*' counterparts, developing a series of concepts that provide useful guidance for the study of design and regulation in social systems.

Vickers noted that while a human system has characteristics of human-made and ecological systems, and can be interacted with as such, a system can only be regarded as fully human when its constituents are fully engaged in the interpretation, intervention and maintenance of their *lifeworld*. The moment a designer adopts a stance of dispassion and seeks *objectivity*, or positions members of a community as simply *participants* in their design, the system effectively collapses to the equivalent of any human-made, technological system. Maintaining *humanness* in a human system requires care and attention; Vickers' argument echoes Margolin's call to resist '*techno-rhetoric*'²⁰ through a '*meta-narrative of spirituality*' that seeks to place human '*welfare and life enhancement*' at the centre of concern for design, and emphasises a complementary relationship between the artificial and the natural. Vickers' argument also resonates with Dilnot's argument for a design that repositions knowledge to become '*immanent and interested*',²¹ conducted by an engaged citizenry concerned with human good in the face of the objectifying force of technology.

Within the corpus developed by Vickers over his career, there are three broad themes that are of particular importance for informing *social system design*. The first of these lies with the concepts of **appreciation** and **aptness**. Noting the questions central to human systems; those of *epistemology* and *ethical evaluation*, Vickers argued that our interpretations of the world are not the purely rational acts, as aspired to by Enlightenment thinkers, but wholly framed by our experience, which creates in us a '*readiness to notice particular aspects of our situation, to discriminate them in particular ways and to measure them against particular standards of comparison*' – our constructs of the world around us are '*appreciative*', which we collectively organise as appreciative systems.

The particular way we attend to and **appreciate** any situation is fundamental and central to how we judge what is **apt** for a particular situation, which is informed as much by values as it is by evidence. The quality of our appreciation governs how we subsequently *know*, *make* and *act*. This aspect is under-recognised relative to accounts of analytics and process towards regulation,²² but for Vickers the interdependent acts of judgement of fact and judgement of value are all-important. Judgement is the defining operator in appreciating certain facts, and in determining what it is about that information that we find informative. For *social system design*, socially located appreciation and

²⁰ Margolin, "The Politics of the Artificial." p. 116.

²¹ Dilnot, "Design, Knowledge and Human Interest." p. 2.

²² See: Vickers, ed. *The Art of Judgement: A Study in Policy Making*. p. 50.

judgement is not subjugated below quantifiable evidence; it instead occupies a critical and complementary place in determining significance in the face of indeterminacy.

The second theme is Vickers' rejection of those constructs that regard individuals as essentially autonomous agents engaged in self-defined and self-serving '*goal seeking*'. This functional and bleak outlook is countered by the argument that we are '*born into*' and are defined by a '*sea of mutual and complementary responsibilities*',²³ and that the purpose central to any human system is ongoing regulation and re-creation of this relational whole towards an end of common good. In pursuing this, Vickers argued for '*the moral importance of responsibility to the maintenance of human culture and cooperation*'²⁴ in respect to the growth of individual expectations and ever-louder assertions of individual rights. This is reflected in Vickers' consideration of '*dialogue*' as the highest order for an appreciative system; this underpins the importance of rhetorically structured conversation to *social system design*.

Vickers marks human social systems as distinct from other kinds of systems, and develops at length the requirements for dealing with them on their own terms, in ways that preserve their innate humanness. This includes the subjective approaches of appreciation and aptness in constructing arguments for innovative change, and the intersubjective, relational nature of knowledge construction in these situations. These are central themes in developing methods for *social system design*.

The third theme is Vickers' recognition of the emergence of the institution, or the *organisation*, in modernity and the defining role that institutions play in human systems, being the vehicles by which we collectively strive for, and to varying degrees achieve, collective and common good. As Williams finds, '*Vickers teaches us to honour the complex institutional achievements that harness our powers and, to a greater or lesser extent, meet our expectations. For all their constraints and all their failings, our networks of organisations are networks of our interdependence and the condition of our effective agency.*'²⁵ Organisations have become the predominant means by which innovation enters into civic life. They are therefore the natural focus and object for *social system design*.

²³ Vickers, *Human Systems Are Different*. p. 100.

²⁴ Williams. p. 291.

²⁵ Ibid. p. 295.

4.3. Towards Principles of Social System Design

The perspectives gained from investigating the arguments of key design theorists for *design-in-general* and the particular and unique characteristics of social or human systems have demonstrated two vital premises underpinning the evolution of *social system design*: firstly that this kind of design can be legitimately located within broader domain of design-in-general, and secondly that rhetoric, another art of social invention, may usefully inform it.

The argument developed so far for *social system design* is clear, however, as developed above, there is yet to emerge a coherent body of scholarship on theorising and describing these efforts as a unified kind of design activity.²⁶ What is required is an argument that fully addresses the distinct foundations and criteria that lead from an understanding of the nature and characteristics of organisational challenges. These will in turn frame a development of effective and appropriate method and practice strategies.

In developing this picture, it is worthwhile reinforcing that these principles represent a clear differentiation with respect to current mainstream design practices. So while this emerging genre of activity falls clearly within design, it is also different enough to warrant a distinct approach to methods and practices.

The degree to which empiricism influences the way design is researched and described is under-recognised. John Chris Jones has argued that the apparently '*irrational*' mental processes observed in designers' acts of creativity should be seen in '*cybernetic or physiological terms*'²⁷ Jones' perspective represents the more reductive of these positions, but even where attention turns to designing in a setting of complex systems,²⁸ indeterminacy and sociality are unrecognised – the focus is instead confined to the technological or material dimensions of these systems, with discourse conducted in terms of *analysis, process, and demonstrability*, the hallmarks of the natural sciences. While recognising the complexities facing modern designers, there is insufficient contestation of the appropriate approaches to design lying with an analytical or science-like catalogue of methods.

The central and significant principles for *social system design* can be resolved into three interdependent themes. *Social system design* must be constructed and practiced as fundamentally

²⁶ This is discussed in Chapter 1.

²⁷ John Chris Jones, *Design Methods* (New York: Van Nostrand Reinhold, 1992). p. 46.

²⁸ See: Fiona Charnley, Mark Lemon, and Steve Evans, "Exploring the Process of Whole System Design," *Design Studies* 32, no. 2 (2011).

relational in two distinct but interdependent senses. The first pertains to the social nature of this kind of design: our perspectives on, and knowledge of, any situation in which we are entrained is entirely shaped by the web of *social relations* within which we live. The second pertains to the systemic nature of this kind of design: systemic *wholes* are made up of *related parts*, and the nature of those relations is not just complex, but indeterminate. The third important dimension is that the significant and governing structures of human or social systems are largely *immaterial* in nature.

4.3.1. Social Systems are Fundamentally Relational

In terms of developing method, one fundamental tenet is that *probable*, not *necessary*, reasoning is central; that *local or cultural*, rather than *universal*, truths are sought, and these are found via *subjective* and *inter-subjective* knowledge. As Ian Hacking describes, many of the '*truths*' we hold are the '*product of historical events, social forces and ideology*'.²⁹ In the domain of the contingent, any act of design cannot be considered apart from the social and cultural contexts within which it unfolds, nor can it be isolated from the past and future of constituents. Past experience, as well as concern and aspiration, wholly frame and direct design activity.

A further tenet, as Vickers understood, is that a social system is entirely defined by its relational structures; how we perceive and interpret any situation is dependent on the web of social relations in which we are placed, and it is via our collective intent for a social system and the collective agency that we bring to bear on realising such intent that a social/human system takes its shape.

The implication is, then, that the primary lens guiding a design interaction within a social system is not informational but relational, that these *objects of design* are inherently social entities. It is within communities of mutual orientation and concern that design activities – interpretation, invention and intervention – are conceived and enacted. The focus of any design venture shifts from being centred on the designer to being centred on an interdisciplinary group of system constituents, who will carry any design forward on behalf of the community to which they belong. Within the 2nd Road practice, these groups are termed *Co-Design Teams*, in order to reflect the primary intent of establishing a true collaboration between consulting professional designers and a representative team drawn from the organisation or institution that is undergoing systemic change.

²⁹ Ian Hacking, *The Social Construction of What?* (Cambridge, MA; London: Harvard University Press, 1999). p. 3.

Therefore, in practice, *social system design* must proceed entirely in terms of and shaped by the system constituency. Design in social settings therefore provides a motive, rather than a controlling force. The role of design shifts towards providing a starting point or a catalysing moment; from here, the system is first and foremost *socially constructed*, in that it is only through the active expression of the will and agency of human beings that the system attains any palpable existence. Furthermore, the primary identity and role of a designer must shift from *artisan* to *mentor*, or *facilitator*.

4.3.2. Social Systems are Fundamentally Indeterminate

Social system design must be constructed and practiced as fundamentally relational in two distinct aspects: socially and spatially. This means that for organisational and civic challenges a *key tenet* is that it is not sufficient to focus design efforts on discrete material *parts*, but to account for the relationship between parts in the context of a whole system, accepting that the named boundaries of a system are themselves an artifice, a designed choice.

Complexity studies reveal that emergent patterns and activities of '*system agents*'³⁰ are well beyond the direct control, or even the full reach and understanding, of those participating in the design of any complex system. The fact that a small variation in initial conditions can generate significant differences in downstream outcomes means that seemingly minor design decisions can generate high-impact consequences. Some of these emergent consequences will work to the advantage of constituents, others will be detrimental.³¹

In addition, order emerges in ways that are non-linear and dynamic, and so cannot be fully predicted through extrapolation into the future from any point in time. The principles of emergence and self-organisation reveal that while design is influential in shaping a social system, the nature of the system itself, the number and density of interconnections, and the rules and cultural schemata that are in place have a significant impact on designed outcomes.

³⁰ If Price, "Complexity, Complicatedness and Complexity: A New Science Behind Organizational Intervention?," *E:CO* Volume 6, no. 1-2 (2004). p. 43.

³¹ For a discussion of the scientific background to complexity, chaos and emergence, see for example: Stephen H. Kellert, *In the Wake of Chaos: Unpredictable Order in Dynamical Systems* (University of Chicago Press, 1993). The application of these concepts to social systems and organisations is discussed in: *Wheatley*.

However, as shown by Rittel and Webber, Dewey and Vickers, seeing a social system as merely complex is inadequate. The complexity analogy is useful, however the defining characteristic of human systems has been shown to be in the idea of *wickedness*, or indeterminacy, i.e., the idea that human systems are not knowable in any objective sense.

Apart from the potentially infinite scope of information and the probable nature of truth that constrains the scope of the particulars of the situation-at-hand, an emphasis on **particularity** brings into focus the unique characteristics and qualities of a situation, providing the opportunity to design with the constituents of a system for their particular needs and hopes. This works to hold the humanness of the human system in place.

The implication here for *social system design* is that it is important that participants in the design process craft an *orientation* and a *disposition* that emphasises the fact that the way we attend to, apprehend and appreciate a social system is the key factor in shaping a particular design venture. This involves abandoning notions of the possibility of objective information and favouring instead a *subjective perspective*, abandoning the possibility of completeness and coverage and favouring instead *leverage* and *impact*. It further involves abandoning the idea of *solving* wicked problems, once and for all, as a criterion for success, and favours instead an acceptance of community adherence to a design argument and progress towards provisional resolution as a mark of success.

It also necessary that any *method* developed for *social system design* is not founded on the collection and analysis of data and the application of controlled and repeatable process; instead it should seek an approach grounded in *hodos*, an artful way.³² Discipline is vital, however method must bring insight and judgement to the fore and it must be adaptive and responsive to the particulars of the situation-at-hand.

4.3.3. Social Systems are Fundamentally Immaterial

The relational quality of complex social systems has provided the ground for identifying a number of **foundational tenets** for *social system design*.

³² See Section 2.2.1 for a discussion of the concept of *hodos*.

The third of the major themes is the *immaterial*, or unsubstantial, nature of the fundamental and defining structures of human systems.³³ This is not to discount the extraordinarily complex and important technological and material *things* that are so visible across systems landscapes - indeed, as Margolin and Dilnot argue, it is the apparent inevitability of technological hegemony that is problematic.³⁴ Nor is it to deny that an interaction with a material product has an immaterial dimension – such an interaction will generate human reaction, create experience or spark ideas and new intents.³⁵

Importantly, this discussion should not be understood as an attempt to diminish or subordinate the role that material artefacts may play in social system design.³⁶ As can be seen from the development of method and anecdotes of practice discussed in Chapters 6 and 7, materials are significant in *social system design* and to 2nd Road's consulting approach.

The question of immateriality and materiality can be approached through Buchanan's four orders of design. The higher orders mark out activities of design that deal with more complex, systemic and immaterial foci.³⁷ As a schema of placements, there is no connotation of hierarchy or importance; the distinctions that are made between *places* are made in order to provide, either alone or in combination, generative perspectives for fields of design, existing and emerging. As Buchanan states, '*signs, things, actions and thoughts are not only interconnected, they also interpenetrate and merge in contemporary design thinking with surprising consequences for innovation.*'³⁸

³³ *This use of the language of immateriality is distinct from its use to refer to the design and development of virtual realities, the 'imagoes' and 'electric phantoms' described by Moles: Abraham A. Moles and David W. Jacobus, "Design and Immateriality: What of It in a Post Industrial Society?," Design Issues 4, no. 1/2 (1988). p. 25.*

³⁴ *Marc Steen refers to this as a 'technology push approach' that 'brings a risk of creating products or services that people cannot or do not want to use', see: Steen. p. 72.*

³⁵ *See for example the role of common household objects in the creation of meaning and the potential for this role to change how we relate to the material world, in: Mihaly Csikszentmihalyi and Eugene Rochberg-Halton, The Meaning of Things : Domestic Symbols and the Self (Cambridge [England]; New York: Cambridge University Press, 1981).*

³⁶ *For examples on the role the material can play in both representation of ideas for ideation see: Dan Roam, The Back of the Napkin : Solving Problems and Selling Ideas with Pictures (New York: Portfolio, 2008). and David Sibbet, Visual Meetings : How Graphics, Sticky Notes, & Idea Mapping Can Transform Group Productivity (Hoboken, N.J.: John Wiley & Sons, 2010). For grappling with the immaterial dimensions of experience at different stages of design see: William Buxton, Sketching User Experience: Getting the Design Right and the Right Design (San Francisco: Morgan Kaufmann, 2007). and Carolyn Snyder, Paper Prototyping : Fast and Easy Way to Design and Refining User Interfaces (San Francisco, Calif.; Oxford: Morgan Kaufmann ; Elsevier Science, 2003). For general explorations of the role that artefacts can play in the mediation of social interaction, see: Greg Wilson and Carl G Herndl, "Boundary Objects as Rhetorical Exigence: Knowledge Mapping and Interdisciplinary Cooperation at the Los Alamos National Laboratory," Journal of Business and Technical Communication 21, no. 2 (2007). Nick J. Fox, "Boundary Objects, Social Meanings and the Success of New Technologies," Sociology 45, no. 1 (2011). and, the discussion in Chapter 4.4.1. With specifically with respect to Human Computer interaction, see: Ernesto Arias and Gerhard Fischer, "Boundary Objects: Their Role in Articulating the Task at Hand and Making Information Relevant to It.," in International ICSC Symposium on Interactive and Collaborative Computing (2000).*

³⁷ *Refer to discussion in Chapter 2.2.4.*

³⁸ *Buchanan, "Wicked Problems in Design Thinking." p. 10.*

Within this schema, *social system design* can be identified most closely with the 3rd and 4th orders of design, so there is a primary concern with the immaterial. Invoking one of Richard Lanham's devices,³⁹ the ensuing discussion seeks to look THROUGH the surfaces of materiality and look AT the immaterial dimension beneath, in order to see this dimension in a fresh, uninterrupted and unobscured light.⁴⁰ In other words, the significance of the material realm is clear, but this thesis focuses on the immaterial realm because it is here that primary structures of social and civic systems are found.

A number of years ago I was involved in a project for an overseas government revenue body that sought to design a new operational strategy. In the opening conversations with their management team, we sought the most appropriate way to understand their system. Their insight led them to redefining their system from one that collects and dispenses money, to one of ensuring community confidence through information: for instance, confidence that the right amount of tax was paid, that there were no outstanding taxation issues, that payment recipients could pay their rent and feed their families. This conversation was certainly represented and mediated by material things – word maps, sketches, and simple models – however the new design was essentially an idea, held in thought and word. While it profoundly shifted the way this group interpreted the role of their system, and their roles within it, it was yet to take any material form in the world.

It can then be argued that the governing role that these conceptual structures, held in thought and language within and between the constituents of a social system, play in civic life is under-recognised. Taking the example of the Australian taxation system, it is the *governing idea* or *core concept* of the role that paying tax has for building and maintaining an equitable society that is at the heart of this system. The visible surfaces - the technologies of legislation, information processing and architecture - are in place to support the ongoing manifestation of this governing *idea*. It was this profound recognition that people are not against the *idea* of tax, but against any administration of that idea that erodes trust, equity and fairness, that turned the Australian Tax Office towards design. Social or human systems are conceived first and foremost in words, images and ideas.

The implication for *social system design* is that the *idea* moves from a role of catalysing the shaping of a material thing toward becoming the product itself. In the development of material products,

³⁹ See discussion in Chapter 7.2.1.

⁴⁰ In a similar move Mads Nygaard Folkmann seeks to begin with an examination of the 'categories of the immaterial' dimensions of culture and then move to exploring how this plays out in design, see: Mads Nygaard Folkmann, "Encoding Symbolism: Immateriality and Possibility in Design," *Design and Culture* 3, no. 1 (2011). p. 51 – 52.

words and images are stepping stones on the way to the creation of an extant thing. In the design of the immaterial, as in Buchanan's 3rd and 4th order design, there is an inversion of this relationship, such that words, images and ideas move from facilitating the creation of material forms to a situation where the arrangements of words, images and ideas themselves, existing first and foremost between people and not embodied in some artefact, *are the design*.

Further, as noted above, such a design cannot be considered to have any independent existence apart from the commitment of a constituency to enact, to the best of their ability, a designed concept. The design can attain being only when people recognise it, understand it, accept it and apply it. There is an irony at play here. The immaterial and essentially immanent nature of an intellectual conceptual structure that serves to organise a complex social system makes it relatively easy to pass over, misinterpret or even subvert. However, in being enacted by a community, such a structure has the potential to have significant and transformative impact on a social situation.

When applying *social system design*, it becomes necessary to operate with a dramatically broadened concept of what can be understood as a legitimate product of design; working in the media of concepts, arguments, strategies and hypotheses can be regarded as within design.⁴¹ The difficulty with such a definition is that the discrete and distinct identity of a product becomes blurred. It becomes difficult to distinguish between the designed product and the environment in which it operates, and there is no clear *endpoint* to such a design, no point at which it might be considered complete, as there will be continuous conscious and unintended modification of any immaterial design as it is enacted.

In human systems, particular intents, ideas and cultural themes remain disembodied, fluid and effectively subject to ongoing design and alteration by conscious or emergent acts and activities of a constituency. The immateriality inherent in social system designs points to a further inversion of a relationship present in mainstream design disciplines. While, in crafting a material product, intellectual activity is directed towards said production, however in *social system design*, thinking comes to the fore, with materials operating in aid of representation, mediation and the creation of meaning. The primary media can be argued to be the interplay of thought and language.

The implication is that for *social system design* there is an inversion of the relationship between thought and activity: activities involving aspects of material craft are carried out in support of

⁴¹ It is, however, important to distinguish between serious attempts to design within these emergent frames, and examples where the term design is co-opted as a semantic affectation.

intellectual work. Material artefacts, such as models, diagrams, documents or other artefacts become not the *end* for design but the *means* that contribute to a designed idea or concept held initially in thought and language; these material things are instrumental *parts* of an intellectually constructed, held and enacted conceptual *whole*. The artificial and civic world is architected by our thoughts and held between us in word and image.⁴²

As Boland and Collopy state: '*Design thinking is evident in the history of management methods and organization structures and processes, especially as they relate to ensuring control of an organisation. Design thinking is also at the core of effective strategy development, organizational change, and constraint-sensitive problem solving.*'⁴³

4.3.4. Social System Design as an Art of Language

This leads to what is arguably the most important of the foundational tenets of *social system design*, the idea that it is fundamentally an *art of language*. It is necessary, therefore, to carefully describe the distinct disposition towards language required of invention in the immaterial. The basis for proposing such a disposition can be brought to light through the work of Terry Winograd and Fernando Flores. In their seminal work *Understanding Computers and Cognition: A New Foundation for Design*, they seek to challenge the dominance of what they term the '*rationalistic orientation*'⁴⁴ in order to develop an orientation on thought, language and design that takes better account of the human dimension of artificiality.

In this rationalist orientation, language is a system of symbols that are composed into patterns that directly and unambiguously correspond to things in the world. It is assumed that words '*can be taken as denoting (in the world) objects, properties, relationships, or sets of these.*'⁴⁵ Thought is reduced to a discrete and logical process carried out by a discrete and independent processing unit, be that a computer or a human mind. Cognition is regarded as a kind of mathematical coding, a universal set of systematic rules and logical processing operations that will result in rational

⁴² See the discussions on the role of language in constructing social forms and action in Chapter 4.3.4 and Chapter 6.2

⁴³ Boland and Collopy. p. 17.

⁴⁴ Terry Winograd and Fernando Flores, *Understanding Computers and Cognition: A New Foundation for Design* (Norwood, New Jersey: Ablex, 1986). p. 14.

⁴⁵ Ibid. p. 17.

outcomes. Words and images are seen to be autonomous, without need to reference any ‘act of uttering the words’⁴⁶ or the situational context in which they appear and are used.

Winograd and Flores propose a new orientation, which is informed by speech act theory as developed by Austin and Searle, the phenomenology of Heidegger, and the hermeneutics of Gadamer. They seek to interpret human cognition and language in terms of human nature and social experience. This work enables the resolution of two significant perspectives on language that are relevant to *social system design*.

Firstly, language is understood to be far more than a functional means of communication, it is shown to be ‘a form of human social action directed towards the creation of ... ‘mutual orientation.’⁴⁷ With reference to the theoretical domain of speech acts, language is shown to be performative, where utterances are not limited to describing the world, but also generate commitments and action in the listener which can in turn elicit commitment and action in the speaker. The generation of *co-commitments* leads to *mutual orientation* amongst speakers and listeners.

In this way, language creates and sustains ‘consensual domains – as interlinked patterns of activity.’ Rather than focusing on the individual, and the cognitive and linguistic mechanics, this perspective reveals the intensely relational character of language, and the role it plays in structuring human relations. Language is the basis on which we create and sustain our relational selves, and our relational ways of being. In language, we design and constitute our social systems.⁴⁸

This frames the second perspective significant for *social system design*, namely that language is not simply descriptive, a way to hold and carry information about the world, but is *constitutive of* the made world. In speaking with each other, we speak things into existence. As Winograd and Flores state ‘we design ourselves (and the social and technological networks in which our lives have meaning) in language.’⁴⁹

Language as socially performative and constructive, whether written, verbal, somatic or visual, is the primary *technology* for *social system design*. It is the means, the medium and also the end

⁴⁶ Ibid. p. 18.

⁴⁷ Ibid. p. 76.

⁴⁸ Roy Harris has acknowledged Ferdinand Saussure’s role in developing linguistic theory towards recognising that language is the product of social interaction and forms the basis of how we both articulate and constitute our world, see: Roy Harris, *Language, Saussure, and Wittgenstein : How to Play Games with Words* (London; New York: Routledge, 1988). and: Ferdinand de Saussure and others, *Course in General Linguistics* (LaSalle, Ill.: Open Court, 1986).

⁴⁹ Winograd and Flores. p. 78.

(product); it is the primary way in which the intellectual and relational dimensions of the made world are architected. This central role for activities of interpretation, invention and judgement, carried out predominately within the domain of thought and language, lends further weight to the argument that juxtaposes rhetoric and design. This thesis is underpinned by the notion that *rhetoric* is an art dedicated to creating coherent civic action through social invention in thought and language, for that rhetoric can thus legitimately inform *social system design*.

The implication for *social system design*, therefore, is that rhetoric is the frame within which method will be developed – heuristic invention and arrangement in the form of argument is a primary means by which this genre of design proceeds. Through design modelled after rhetoric moral and telic intent can be developed, tested and put to social judgement, all towards generating effective social action. The central and significant role of language in innovation in the relational sphere, in systems of organisation, has long been recognised, for example, by the ancient Greek rhetorician Isocrates wrote in *Antidosis*:

‘Speech (logos) is responsible for nearly all our inventions. It legislated in matters of justice and injustice and beauty and baseness, and without these laws, we could not live with one another. By it we refute the bad and praise the good; through it, we educate the ignorant and recognize the intelligent. We regard speaking well to be the clearest sign of a good mind, which it requires, and truthful, lawful, and just speech we consider the image (eidolon) of a good and faithful soul ... if one must summarize the power of discourse, we will discover that nothing done prudently occurs without speech (logos), that speech is the leader of all thoughts and actions, and that the most intelligent people use it most of all.’⁵⁰

4.3.5. Knowledge as Central to Social System Design

The arguments developed previously regarding the foundational tenets of social systems and the implications for *social system design* establish the basis for exploring and articulating the characteristics of the particular and distinct ground from which such a kind of design would emerge. While *social system design* can be understood as *an art of language*, it is also and more profoundly

⁵⁰ Isocrates and others, *Isocrates* (Austin: University of Texas Press, 2000). p. 15.255-57. *The emphasis on this ancient perspective on language is relevant as Isocrates was a contemporary of Aristotle, and, as developed at length in Chapter 5, the most effective source of rhetoric is in its original forms developed in Classical Greek and Roman times.*

identified as primarily concerned with socially oriented, relationally conceived and constructed *knowledge*.

A prominent and persistent theme identified so far is the immaterial, or unsubstantial, character of human and social systems, and the central place that intellectual constructs, played out in language, have in this context. In searching for a distinct ground, one that would sustain a cohering and generative identity, the concept of *knowledge* provides a pragmatic and evocative prism.

Given this, there are three important characteristics of *social system design* that can be resolved. Echoing Aristotle's description of rhetoric as operating differently at different levels of his system, knowledge within *social system design* would also be multidimensional, with each expression operating interdependently with the others.

The *first* of these relates to the relationship of *social system design* to the diverse range of other disciplines that might be present within an organisational setting. In cases where the *topic-in-focus* is intentional change in a social or organisational system, *social system design* might operate as *architectonic* of other disciplines and their attendant knowledge domains, technologies and practice cultures, and it may play a particularly critical role in the formative stages of any creative venture. Knowledge generated in this perspective is therefore directed towards concepts and ideas that organise and frame subsequent *making* and *acting*.

The *second* primary characteristic is that design operating in an architectonic role does not simply hover over the interdisciplinary construction of new knowledge carried out across the system, but, as Buchanan⁵¹ develops, strives to be *integrative* of knowledge from multiple disciplines and across a diverse range of aspects of the social system. There is certainly an imperative to be integrative of knowledge across any of the technical disciplines and domains of knowledge present in a social system, however there are other important dimensions requiring integration. Within the wickedness of a social system, it becomes vital to develop a capability for negotiating in conditions of incommensurability. This requires inclusion and integration across not just domains of knowledge, but also other dimensions of human existence: dispositions, perspectives (and even prejudices); needs and desires; and hopes and aspirations. There must also be an integration of both analytical and synthetic modes of thought and, lastly, an integration, or synthesis, of the diverse ideas and inventions emerging from a design venture.

⁵¹ See: Buchanan, "Wicked Problems in Design Thinking."

The *third* characteristic relates to the role of knowledge as a productive end for *social system design*. Knowledge is not simply instrumental in the creation of products, nor does it simply play a purely functional role within the confines of technological reasoning. It is knowledge itself that is the outcome of social designing, and, importantly, it is concerned with and directed beyond technology and aesthetics towards attainment of human and civic good. If artifice is the dominant mode of modern existence, then it is imperative that we actively design and shape our orientation toward this modality, and, in turn, toward the interventions that nurture individual and civic life within the context of the world, both natural and constructed.⁵²

4.4. Locating an Epistemological Foundation for *Social System Design*

If the concept of knowledge itself is central to informing developments in methods for *social system design*, it is necessary that an appropriate perspective on knowledge be developed.

Design reasoning and the application of design knowledge is common to all acts of design. Within *social system design*, however, this activity is directed towards the conception and creation of the immaterial dimensions of human systems, i.e., to the ***shared and social knowledge*** that structures and governs our human systems and situations. It is useful, then, to explore the epistemic qualities of *social system design* and to build into its foundation an epistemological dimension.

If knowledge is central and crucial to *social system design*, then it is critical that an apt and adequate theoretical frame be located in order to serve ongoing reflection and development for how knowledge is thought about, used and made within *social system design*. As with other investigations in this thesis, there is limited scope to delve into the field of epistemology itself to any extensive degree; instead, the focus is on highlighting the major themes and identifying those aspects that provide insight for grounding *social system design*.

⁵² Naomi Klein declared: 'The task of our time is to insist that we can afford to build a decent society - while at the same time, respect the real limits to what the earth can take.' Naomi Klein, "Occupy Wall Street: The Most Important Thing in the World Now," (2011). <http://www.naomiklein.org/articles/2011/10/occupy-wall-street-most-important-thing-world-now> (accessed 3 March 2012).

4.4.1. Exploring the Prism of Knowledge

Within mainstream management literature, knowledge has been the subject of a wide variety of contributions. One of the most prominent developments of theory with respect to dimensions of knowledge within the context of management practice comes from the work of Ikujiro Nonaka. Beginning with the seminal text *The Knowledge Creating Company*,⁵³ Nonaka has been influential in bringing to prominence the topic of knowledge in organisations. Nonaka emphasises the difference between information and knowledge: the former is characterised as a '*flow of messages*', while the latter is that which arises from information but which is '*anchored in the beliefs and the commitment of the holder*'.⁵⁴ He notes that the dominant view of knowledge in modern organisational life, those reductive and process-oriented impulses that characterise traditional *knowledge management*, focus on information control and processing. This rests on the metaphor of the organisation as a machine, and as such '*fails to capture the essence of organisations as knowledge creating entities*'.⁵⁵ Instead, Nonaka posits knowledge creation as dynamic, continuous and '*self transcending*', and the management of such activity as the sustainment of *ba*, or the interaction space where knowledge is made. Nonaka additionally argues that the traditional epistemologies of the West view knowledge in a way that is '*absolute, static and non-human*', which have worked against the task of recognising and capturing the deeply human and social dimensions of knowledge.

Dominique Foray has constructed a broad and systemic perspective of the ongoing transformations in modern economic activity: he observes a shift from being material-intensive to becoming knowledge-intensive. In describing the emergence of both a focus on knowledge and the '*knowledge-based economy*', Foray maps the shift across society as a whole towards '*knowledge-intensive activities*' and it is her hypothesis that this marks a potentially significant '*structural transformation of our economies*'.⁵⁶ As with Nonaka, Foray takes care to distinguish information and its attendant technologies from knowledge, however she notes that alongside a rapid increase in

⁵³ Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation* (New York: Oxford University Press, 1995). *The well known SECI (Socialisation, Externalisation, Combination and Internalization) Model, dealing with tacit and explicit knowledge can be found in this text.*

⁵⁴ Ikujiro Nonaka, Noburu Konno, and Ryoko Toyama, "Emergence Of "Ba"," in *Knowledge Emergence : Social, Technical, and Evolutionary Dimensions of Knowledge Creation*, ed. Ikujiro Nonaka and Toshihiro Nishiguchi(Oxford; New York: Oxford University Press, 2001). p. 13.

⁵⁵ Ibid. p. 13.

⁵⁶ Dominique Foray, *Economics of Knowledge* (Cambridge, Mass.; London: MIT, 2004). p. ix.

investment in the creation of knowledge – in other words, *innovation* – it is a dramatic reduction in cost to codify and communicate knowledge that is driving this evolution.⁵⁷

Of significance to the centrality of knowledge in *social system design* is Foray's acknowledgement of the difficulty in quantitatively measuring the economic impact of knowledge, noting that the tacit nature of knowledge, its heterogeneous nature across a society, and the absence of '*any stable model that that can be used to convert inputs (into the creation of knowledge) and outputs (of economic effect)*'⁵⁸ poses serious challenges to gauging the impact of knowledge, an attribute which is anathema to orthodox management culture.

Further, Foray notes the impossibility of measuring the '*physical stock*' of knowledge, in that there is no possible way to define that knowledge which should be included or excluded from such an accounting in the '*vast domain encompassing practical, intellectual and spiritual knowledge*'.⁵⁹ Moreover, there is the problem of *additivity*: in a physical economy, the production and trading of tangible goods is measurable, however there is no way to reliably establish what constitutes a unit of knowledge, and where knowledge is traded both the provider and the recipient retain possession.

Foray develops the concept of a knowledge-based economy to '*fully understand a qualitative innovation in the organisation and conduct of modern economic life*', where the factors of success are more than ever dependant on the '*capacity to produce and use knowledge*'.⁶⁰ It is clear that knowledge is being advanced as a defining theme of organisational, economic and societal systems.

With respect to design, Clive Dilnot's argument is pivotal for developing an alternative frame for knowledge. In describing the emergence of the *horizon of the artificial* as our dominant mode of being, his perspective shows how this significant ontological shift requires a concomitantly radical shift in the primary focus for knowledge, away from the metaphysical and towards contingent and synthetic concerns. As described in Chapter 2, for Dilnot, knowledge must take a **relational turn**.

The question of epistemology becomes important as one of the founding pillars of *social system design*. Mahdjoubi provides an overview of the developments of epistemologies of design, noting deficiencies in analytical methodology with respect to synthesis and invention⁶¹ and going on to

⁵⁷ Ibid. p. x.

⁵⁸ Ibid. p. 9.

⁵⁹ Ibid. p. 10.

⁶⁰ Ibid. p. x.

⁶¹ Mahdjoubi. p. 50.

identify the work of Herb Simon as heralding that there are different epistemic foundations between the natural and the '*artificial sciences*'. However, where he looks to describing the basis for knowledge with respect to design, there is reference only to authors from the fields of management and organisational studies, such as Nonaka, Agyris and Gibbons.⁶² In terms of locating a distinct ground for developing the epistemic dimensions of design, he provides an important link to rhetoric, noting the ancient Greek distinction between the knowledge inherent in the discovery of universals, founded in deductive logic, *episteme*, and design-like and creative 'craft' knowledge, *techné*.⁶³ He notes that the '*synthetic methodologies*' have not received the same attention as analytical methodologies.

Bertelsen seeks a '*design-oriented epistemology*',⁶⁴ building a challenge to the hegemony of science-oriented epistemology, as Margolin does, by drawing on the radical critiques of Feyerabend with respect to method. It is relevant to note in particular the role he ascribes to intuition and invention in instances of great progression in scientific knowledge. In questioning universal method, he creates room for considering the likely aspects of a design epistemology; he develops the notion that design proceeds via '*socially developed mediation*' across what he refers to as *heteropraxiality*. This mediation takes place across the broad activity themes of conception, construction and cooperation. A second prominent theme that follows is his contention that design artefacts serve as *boundary objects* in mediating across heterogeneity, and importantly he expands the idea of *design artefact* to include the theories and methods of design itself. These are then neither outside of, nor fully prior to any act of design, they are enmeshed in shaping designers and designs, and are in turn shaped by these experiences. Bertelsen understands that designing requires one to draw upon and organise knowledge from many disciplines, both from the sciences and the humanities, however his focus remains on knowledge as instrumental to the processes of design.

The investigations discussed above provide useful background into innovation knowledge processes within organisations. They do not, however, map out a sufficiently robust ground for the development of disposition, method and aspects of practice for the knowledge intensity of *social*

⁶² Darius Mahdjoubi, "Epistemology of Design," *Integrated Design and Process Technology, IDPT-2003* (2003). <http://www.ischool.utexas.edu/~darius/Epistemology%20of%20Design-5-IDPT.pdf>. p. 4.

⁶³ *Ibid.* p. 4.

⁶⁴ Olav W. Bertelsen, "Design Artefacts: Towards a Design-Oriented Epistemology," *Scandinavian Journal of Information Systems* 12, no. 1 (2000). p. 16. *It should be noted that this paper focuses only on establishing some of the premises for a design-oriented epistemology rather than proposing one. Furthermore the focus is on the mediating role designed artefacts play in the social system, with the relational fabric of the social system itself placed in the background.*

system design. The following section explores and proposes an alternative epistemic perspective, focusing on the relational qualities of socially relevant knowledge production.

4.4.2. Locating an Alternative Perspective on Knowledge

Within traditional epistemologies, focus lies with knowledge itself, as disembodied and discrete *objects*, and the *objective* procedures by which truth, or true knowledge, comes to be discovered, justified, and verified as true or otherwise.⁶⁵ While varying along a spectrum between absolutist and relativist, knowledge is treated as distinct from context or subject. Burwood, writing in an educational context, succinctly names the difficulty with this: he argues that we invite failure if learning, the gaining of knowledge by students, is regarded as *'the transmission of de-contextualised precepts to an unsituated subject'*.⁶⁶ Knowledge as object and student as vessel are, in his view, *'erroneous conceptualisations'* – he contends that in *'pursuit of transparency and codification we have seemingly forgotten education's existential dimension: that education is closely tied to questions of personal identity and the formation of character and that this is an embodied project.'*⁶⁷ This marks the requisite shift for knowledge: it must be reconnected with context and subject, and it must become situated and interested.

When considered within the context of artifice and for the purpose of the ongoing innovation and transformation of this horizon of being towards *human and social good*, the generation of knowledge is intrinsically embodied. It is inextricably tied to the situation, perspectives, capacities and intents of human subjects. As Winograd and Flores state, *'knowledge and understanding ... arise from the individual's committed participation in mutually oriented patterns of behaviour that are embedded in a socially shared background of concerns, actions and beliefs.'*⁶⁸

Further, and in contrast to the myth of the autonomous knower as developed by Vickers, knowledge is created via immersion in a web of relations; the invention of knowledge for transforming the conditions of being is, at its core, a *relational* act. As Dewey found, the acquisition of knowledge – in

⁶⁵ Roberts and Wood discuss the focus of traditional epistemologies on *'fastidiousness and technical finery'* that made epistemology increasingly irrelevant to human concerns. They instead seek to connect epistemology to ethical and social intellectual life, in: W. Jay Wood, "Intellectual Virtues: An Essay in Regulative Epistemology", Oxford Scholarship Online <http://www.myilibrary.com?id=115403>.

⁶⁶ Stephen Burwood, "Imitation, Indwelling and the Embodied Self," *Educational Philosophy and Theory* 39, no. 2 (2007). p. 120.

⁶⁷ Ibid. p. 118.

⁶⁸ Winograd and Flores. p. 78.

other words, *learning* – is carried out in a relational setting; it is only reflection on experience, followed by conceptualisation and experimentation,⁶⁹ which creates the conditions for new *socially significant* knowledge.

This shift in emphasis for knowledge with respect to artificiality sets the compass for the primary disposition towards knowledge located at the centre of *social system design*. The central concern with respect to a social system is not what it is, not how it can be accounted for and catalogued, but what it does. The central and overriding concern for *social system design* is building an understanding of the impact that such a system has on its constituents, on the degree to which the overall intent for the system can be attained, and the degree to which individual and collective purpose is helped or hindered. The perspectives on lived and living experience can generate insight into the adequacy or otherwise of governing concepts, social arrangements and material conditions, so providing the starting point for any design endeavour. Drawing from categories of prior knowledge, residing within the technical disciplines becomes secondary to the construction of *places* for generating new knowledge in partnerships with constituents of a social system.

Indeterminacy is a defining feature of complex social systems. Implicit in this concept is that of the *unknowable*, i.e., the concept that in the face of incommensurability, overwhelming complexity and the essential opacity of the future, we cannot hope for complete and objective knowledge of these situations. This is the '*naive realism*'⁷⁰ of Winograd and Flores. The only pragmatic course, where sufficiently robust understanding, interpretation and meaning can be gained, is via knowledge inter-subjectively generated, invented, and judged to be socially significant and therefore enacted as new concepts, structures and arrangements within the civic realm. This articulated *intent* gives direction to a collective *agency* that would move towards *ethically sound action*.

This shift from a focus on knowledge in and of itself towards a perspective on knowledge that is inextricably bound to human and social interest, that is relative and relational, is the model of knowledge that underlies *social system design* – it might be described as a form of *relational epistemology*.⁷¹

⁶⁹ See for example: John Dewey, *How We Think* (Mineola, N.Y: Dover Publications, 1997). p. 215 – 224.

⁷⁰ Winograd and Flores.p. 72.

⁷¹ I wish to acknowledge Dr. Mark Strom for leading me towards understanding social system design as an example of a relational epistemology; the conversations on this topic have profoundly shaped the discussion that follows.

4.4.3. Social System Design as a Relational Epistemology

The domain of epistemology is a complex and contested one. The dominant approach within epistemology during the 20th Century can be described as an analytical preoccupation with the rationale and rules for determining what can be accepted as *true* knowledge. Jonassen has noted that, in the view of this '*objectivist*' orientation, '*[k]nowledge is stable because the essential properties of objects are knowable and relatively unchanging. The important metaphysical assumption of objectivism is that the world is real*'⁷² and that any '*meaning that is produced ... is external to the understander, and it is determined by the structure of the real world.*'

This mainstream perspective has been challenged by the emergence of various strands of epistemology that admit a more social dimension. Emerging from sociology and the sociology of science are treatments of epistemology that seek to recognise that knowledge cannot, or should not, be thought of only as isolated phenomena, or wholly the concern of single and isolated minds.

There is considerable debate as to where the boundary of '*real epistemology*' can be drawn. Goldman gathers many recently emergent '*strands*' of epistemology under the heading of revisionism, including '*postmodernism, deconstructionism, social constructionism, and various social studies of science*'⁷³ and places them outside of mainstream epistemology.⁷⁴ This excluded group is itself diverse. Goldman includes the radical constructivism of thinkers like Latour,⁷⁵ who holds all facts to be constructed, an approach that '*breaks with convention and develops a theory of knowledge in which knowledge does not reflect an objective, ontological reality but exclusively an ordering and organization of a world constituted by our experience.*'⁷⁶

He also dismisses more moderate constructivist perspectives, including the pragmatist arguments of Richard Rorty. Rorty distinguished between the world and human representations: '*To say the world is out there ... is to say ... that most things in space and time are effects of causes which do not include human mental states.*'⁷⁷ However, he sets up truth as distinct from existence:

⁷² David Jonassen, "Evaluating Constructivist Learning," *Educational Technology & Society* 36, no. 9 (1991). p. 28.

⁷³ Alvin I. Goldman, "Why Social Epistemology Is Real Epistemology," in *Social Epistemology*, ed. Adrian Haddock, Alan Millar, and Duncan Pritchard (Oxford: Oxford University Press, 2010). p. 3.

⁷⁴ Goldman's work in *Knowledge in a Social World* is placed outside of '*real*' epistemology, see: Ibid. p. 1 - 2.

⁷⁵ Goldman cites: Bruno Latour and Steve Woolgar, *Laboratory Life : The Construction of Scientific Facts* (Princeton, N.J.: Princeton University Press, 1986).

⁷⁶ Ernst von Glasersfeld, "An Introduction to Radical Constructivism," in *The Invented Reality*, ed. P. Watzlawick (New York: W.W. Norton & Company, 1984). p. 24.

⁷⁷ Richard Rorty, *Contingency, Irony, and Solidarity* (Cambridge; New York: Cambridge University Press, 1989). p. 5.

'Truth cannot be out there – cannot exist independently of the human mind - because sentences cannot so exist, or be out there. The world is out there, but descriptions of the world are not. Only descriptions of the world can be true or false. The world on its own – unaided by the describing activities of humans - cannot.'

It is not within the scope of this research to join in the objectivist - constructivist debate on what constitutes a valid epistemology, but it will suffice to note that there is a great diversity in perspectives. It is clear that *social system design* has been developed in terms of a broadly constructivist perspective, as evidenced by the discussions involving Winograd and Flores, Dilnot and Buchanan. However, what further becomes clear is that much of the debate within epistemology centres on the truth status of knowledge.

It should be noted that Goldman acknowledges that the epistemic evaluation of social systems, placed by some outside of real epistemology, are projects that *'are infrequently encountered in historical or mainstream epistemology.'* Fricker similarly notes that *'in epistemology it can too often seem as if a concern with truth and rationality were wholly disconnected from any concern with power and the social identities of the participants in epistemic practices'*.⁷⁸

The purpose of allying *social system design* with the notion of a relational epistemology is to place at the foundation of the former an alternative perspective for knowledge. To constrain knowledge innovation in a relational, social context to orthodox frameworks would not take sufficient account of the deeply relational, situated and generative perspective required for a robust kind of relational design. The discussion that follows seeks to point to emergent characteristics that are important for the successful development of *social system design*.

There are three such characteristics. Firstly, knowledge cannot be uncoupled from the relational contexts in which it is found or made. This relational context is not simply the interpersonal domain of communication, but extends to the social, civic and political spheres of community and society. Secondly, concern for the utility and function of knowledge with respect to artifice sits alongside concern for the truth status of knowledge. As Dilnot states, consequence and outcome matters more than determination for design.⁷⁹ The third concerns knowledge with respect to the artificial: it

⁷⁸ Miranda Fricker, "Rational Authority and Social Power: Towards a Truly Social Epistemology," in *Social Epistemology : Essential Readings*, ed. Alvin I. Goldman and Dennis Whitcomb(Oxford, New York: Oxford University Press, 2011). p. 55.

⁷⁹ Dilnot, "The Promise and Actuality of Design Research." p. 29.

is not simply descriptive, but constitutive of the (made) world within the context of indeterminacy and the unknowable.

The perspectives of pragmatists such as Dewey represent other alternatives, namely the view that knowledge is more than the direct representation of reality, but that it is experimental reasoning directed towards understanding what constitutes a worthy problem, and the design of suitable tools, methods and solutions to address such problems.⁸⁰

This is important because it opens up the possibility of admitting practical, social and contextual dimensions, as Tsekeris observes:

'Through the 1990s, many scholars, following the epistemological path paved by the "crisis of representation" and the "linguistic turn," have been led to a "praxis-oriented" or "performative" turn of knowledge ... [t]his amounts to a radical move from the Cartesian split of mind/body/spirit to a relational epistemology of co-emergence, from "representation" to "participation", from the rational to the embodied. In such a viewpoint, knowledge is a participative and transformative social process which can be seen as actively performed through bodies, texts, spoken words, or visual images, and displayed as movement'.⁸¹

Developed under the concept of '*performativity*', in deference to Austin's '*performative utterances*' within his theories on speech acts, these epistemologies seek to fundamentally challenge, and pose radical alternatives to, rationalist orientations.

As Dilnot developed from Habermas, the emergence of the horizon of the artificial as our dominant modality of being, forces a retreat from metaphysics towards pragmatic concerns and the need to bring knowledge into history and to connect it to human experience and concern. This radically shifts the primary focus of knowledge away from the pursuit of knowledge for its own sake, for which theories of what constitutes true and valid knowledge are central. Instead, the focus of human reason and the generation of knowledge shift towards *knowing* as an adjunct to and precursor for effective human *making* and *acting*. This inversion of the metaphysical turn of Aristotle and his contemporaries are not ends in themselves, but directed towards the *telos* of human good: *eudomonia*, or flourishing and fulfilment.

⁸⁰ For a discussion of the practical dimension of Dewey's philosophy, see: Peter Godfrey-Smith, "Dewey on Naturalism, Realism and Science," *Philosophy of Science* 69, no. S3 (2002).

⁸¹ Charalambos Tsekeris, "Performativity," in *Blackwell Encyclopedia of Sociology*, ed. George Ritzer (2007). http://www.blackwellreference.com/public/tocnode?id=g9781405124331_yr2012_chunk_g978140512433122_ss1-52.

Further, and to reiterate, the concept of wickedness, or Deweyian indeterminacy, leads to the insight that the quest for complete knowledge can be regarded as folly. We cannot hope to understand all of the aspects and inter-relationships within a complex human system, and, as Heidegger developed, this includes our own place and role in these situations. As Vickers found, human aspirations and values become the primary determinants upon which design and design knowledge is found. This perspective does not diminish the pursuit of reliable and true knowledge in those fields where this is an essential component, but it recognises that in the domain of the contingent, the human realm where *'things can be other'*, an alternative epistemological frame is the most apt.

Shifting epistemology towards a social, systemic, pragmatic and context-dependant footing brings about a situation where design and epistemology become relevant to each other, echoing Dilnot's observation that design has become important to thought and knowledge, noting that the overriding question for epistemology has moved from *"how is reliable knowledge possible?"* towards the complex question of *'how adequate knowledge can combine, actively, with the understanding of human interests to create modes of praxis capable of dealing, in the context of artifice, with our twinned needs for self-preservation (the maintenance of a viable social system) and movement towards that which we recognize today as objectively possible, namely an emancipated world.'*⁸²

The idea of a *relational epistemology* provides a useful frame for exploring this juxtaposition. Barbara Thayer-Bacon provides an exploration of the concept of a *'relational epistemology'*⁸³ that offers a counterpoint to *'traditional epistemologies'*. She writes: *'I question that it is possible to accomplish what transcendental epistemologists claim to be able to do. I want to suggest that we can never remove the quotation marks from around knowledge and reality.'*⁸⁴

Describing traditional epistemologies as those that hold knowledge to be autonomous and entirely objective, and where the criteria for justification, validity and verification can be found as external to any act of knowing, she frames the alternative as a situation in which knowledge and knower are mutually entwined, and where *'individual knowers are developed out of a community of other knowers and are affected by their environment and the people that surround them.'*

⁸² Dilnot, "Design, Knowledge and Human Interest." p. 10.

⁸³ Barbara Thayer-Bacon, "A Pragmatist and Feminist Relational (E)Pistemology," *European Journal of Pragmatism and American Philosophy* II, no. 1 (2010). <http://inx.journalofpragmatism.eu/wp-content/uploads/2010/07/12-thayer-bacon.pdf> (accessed 20 Jan 2012). p. 2.

⁸⁴ *Ibid.* p. 2.

She introduces the idea, based on Berger and Luckmann's seminal work *The Social Construction of Reality*, that our experiences, and the interpretations we make of them, construct our sense of reality and this in turn shapes not only what and how we know, but also the criteria that we might establish for assessing any particular knowledge. In this broader frame, and as Dilnot asserted, ontology cannot be separated from epistemology,⁸⁵ knowing cannot be separated from being.

Thayer-Bacon locates the ground between the extremes of '*vulgar absolutism*', and '*vulgar relativism*', and notes that even within the absolutist school there is a softening that seeks to acknowledge and admit '*non-dogmatic*', fallible and corrigible knowledge and knowing. Taking a similar line, she identifies herself within a frame of '*qualified relativism*', where in embracing *fallibilism* and *pluralism*, one must embrace a form of relativism. The qualified relativist '*grounds her claims "in experiences and practices, in the efficacy of dialogical negotiation and of action."*'⁸⁶

Thayer-Bacon describes eloquently the distinct character of her alternative epistemology, and so this is worth quoting at some length:

*'I seek to offer an epistemological theory that insists that knowers/subjects are fallible, that our criteria are corrigible, and that our standards are socially constructed, and thus continually in need of critique and reconstruction. I offer a self-conscious and reflective epistemological theory, one that attempts to be adjustable and adaptable as people gain further in their understanding. This epistemology must be inclusive and open to others, because of its assumption of fallible knowers. And, this epistemology must be capable of being corrected because of its assumption that our criteria and standards are of this world, ones we, as fallible knowers, socially construct.'*⁸⁷

Thayer-Bacon places '*relations*' at the heart of this epistemology, asserting that we come to know and make contributions of new knowledge only with the help of others, that our knowing is utterly dependent on the background of '*our social environments, our cultures, past, present, and future, as well as our surrounding natural environment*',⁸⁸ and, in the foreground, the connections and relations to people around us. This echoes Vickers' proposition regarding the dependence we have on the '*web of relations*' in which we live. Thayer-Bacon notes Dewey's insight in *On Experience*,

⁸⁵ See discussion in Section 2.2.3.

⁸⁶ Barbara Thayer-Bacon, "Navigating Epistemological Territories," *Philosophy of Education Yearbook*(1995). http://www.ed.uiuc.edu/eps/PES-Yearbook/95_docs/thayerbacon.html#fn5. quoting: Lorraine Code, ed. Taking Subjectivity into Account, ed. Linda Alcoff and Elizabeth Potter, *Feminist Epistemologies* (N.Y. and London: Routledge, 1993).p. 40.

⁸⁷ Thayer-Bacon, "A Pragmatist and Feminist Relational (E)Pistemology." p. 2.

⁸⁸ Ibid. p. 2.

Nature, and Freedom regarding the analytical traditions within philosophy, specifically the notion that *'the most pervasive fallacy of philosophic thinking goes back to neglect of context, to philosophy's effort to describe itself in a transcendental manner, removed from the context of the everyday, common world.'*⁸⁹

It is important to note that in outlining this alternative approach, Thayer-Bacon is not denying or diminishing the need to carefully justify claims for truth, just that these can have *'transcendental force'*. It actually heightens the requirement to continually reflect on and test standards as they shift and change within contingency, and the need for careful and thoughtful interpretations of the *'strong contextuality'* which overhangs every human situation, experience and judgement. To summarise: *'[m]y relational epistemology views knowing as something that is socially constructed by embedded, embodied people who are in relation with each other.'*⁹⁰

Mark Strom offers the perspective that the concepts of *relationality* and relational knowing are both grounded in, and a way to effectively negotiate between, what he describes as the most fundamental tension in Western thought and philosophy: that of the *One and the Many*.⁹¹ As the 19th Century American philosopher Williams James noted:

*'I wish to turn its light upon the ancient problem of 'the one and the many' ... I myself have come, by long brooding over it, to consider it the most central of all philosophic problems, central because so pregnant... [t]o believe in the one or in the many, that is the classification with the maximum number of consequences.'*⁹²

Colin Gunton⁹³ uses this fundamental frame in an exploration of post modernity. Where Thayer-Bacon was seeking to provide a counterpoint to absolutism, Gunton offers a critique of the *'radical relativism'* he sees in the modern world, namely that modernity, and its final flourish of postmodern thought, has created a radical *Many*, a *'fragmentation and decline into subjectivism and relativism'*⁹⁴ that has led to an extreme disengagement and so to the disintegration of relational ways of being.

⁸⁹ Ibid. p. 1.

⁹⁰ Ibid. p. 2.

⁹¹ Dr. Mark Strom, *pers. comm.*

⁹² William James, *Pragmatism* (New York: Dover Publications, 1995). p. 80.

⁹³ *Although this is primarily a work of theology, Gunton's insights hold a broader explanatory force and can effectively provide insight and structure for secular theory.*

⁹⁴ Colin E. Gunton, *The One, the Three, and the Many : God, Creation, and the Culture of Modernity* (Cambridge; New York, NY, USA: Cambridge University Press, 1993).p. 2.

He traces this to the problems of a world divided along a fracture between the *One and the Many* – a theory of the duality of ‘*creation*’ he traces to the Pre-Socratics, using the perspectives of Heraclitus of Ephesus, who held that change and motion is the primary way of being, to represent the *Many*, in contrast to Parmenides of Elea, who held that matter is eternal and unchangeable, and that all that can occur is the appearance of change, as standing for the *One*. Plato attempted to reconcile the paradox of these two positions, attempting to bring them back into some kind of juxtaposition. This perspective came to Western thought, philosophy and theology via the ‘*Platonizing minds of Origen and Augustine*’.⁹⁵

Gunton’s diagnosis interprets the dynamics of culture throughout post-Hellenic history as marked by an oscillation between a radical *One* and a radical *Many*, the irony of which is that in moving to an extreme of one place, the other actually collapses into it. So, for modernity, the radical *Many* create a situation where a bland and homogenising *Oneness* comes into effect. He notes, through the work of Michael Polanyi, that this is exacerbated by a shift from ‘*a knowledge of all experience for a knowledge of atomic data*’, that the particularity arising from an ‘*embodied mind in particular and determinate relations with the world*’⁹⁶ has meant that experience has been displaced by empirical data as a legitimate source of knowledge.

In his analysis of modernity, Gunton identifies the reduction of all ‘*governing*’ concepts to the immanent plane. This reinforces Thayer-Bacon’s critique of ‘*transcendental epistemologies*’, the notion that the distinct places of transcendence and immanence have collapsed into each other. He seeks to differentiate but interconnect the *One and the Many* through a reanimation of the idea of the transcendental as a distinct, if mysterious, place,⁹⁷ citing the error of displacing concepts that ‘*enables the human mind to understand something of the way things belong together in space and time*’.⁹⁸ His view is that our ability to make sense of our collective being depends not on standing in one or other of these places, but on establishing a vital and generative tension between the place of the transcendent *One*, and an immanent *Many*.

⁹⁵ Ibid. p. 2.

⁹⁶ Ibid. p. 43.

⁹⁷ *This points to an aspect of the potential contradiction in Gunton’s argument, and it turns on one’s willingness to define such concepts in a way that allow for the inclusion of the perspectives of a diversity of traditions.*

⁹⁸ Gunton. p. 23.

He places at the centre of his revision a thesis of '*a trinitarian conceptuality*',⁹⁹ and a pluralistic approach to knowing, making and acting. This three-fold place of places creates an opportunity for stability – a way to dampen the oscillations of culture between the poles of *One and Many*.

Referring to Coleridge's description of a trinity as the '*idea of ideas*', he positions this third place as a way that overcomes the radicalising oscillations between the oppressive homogeneity enforced by a One and the disabling homogeneity created by an extreme Many, an all-important third place that '*enables us to think of our world, in a way made impossible by the traditional choice between Heraclitus and Parmenides, as both, in different respects, one **and** many, but also one and many **in relation***'.¹⁰⁰ The naming of the spirit of this third place as **relationality**, to be understood through the concept of pluralism, provides a path to imagining how a *trinitarian concept* can be applied in the diversity of modern society as a master heuristic.

As McKeon, Dilnot and Thayer-Bacon have each argued in their own way, the foregrounding of those questions of '*wisdom, the broad sense of light for the human path*'¹⁰¹ necessitates a perspective that fundamentally rests on a spirit and practice of pluralism. This perspective must construct a frame that is integrative of and architectonic of multiple and diverse traditions, rather than attempting to build such a frame from within a single, particular tradition. Gunton recognises the challenge in this, questioning whether there can be a '*unity that also respects plurality*'; on this point, he quotes Coleridge: '*Make yourself thoroughly, intuitively, master of the exceeding difficulties of admitting a one Ground of the Universe (which, however, must be admitted) and yet finding room for anything else*'.¹⁰²

The generative tension between a transcendent *One*, and an immanent *Many*, made possible by the construct of the third place of the trinity, is a communal place, one where, in our diversities, we come together to forge the knowledge we need to live well together and in the world. This must begin with an interpretation of *human being* that is dynamic and relational (relative to each other and the world, in relative motion to '*eternal essences*'), rather than as a fixed catalogue of characteristics.

These appear consistent with constructing a relational account of how humanity comes to know, make and act in the world. If this is to be achieved through pluralism, then we must accept

⁹⁹ Ibid. p.7.

¹⁰⁰ Ibid.p. 7. *My italics*.

¹⁰¹ Ibid.p. 7.

¹⁰² Ibid. p. 21.

relativities in the way our traditions find and accumulate knowledge. There are both overlaps and unique aspects in this, and we acknowledge that such knowledge is shaped by the environments, circumstances and social relations in which knowers can find themselves.

A relational epistemology is therefore relational in two senses, the first being the socially relational way in which we know, and the second being the relational juxtaposition of the One and the Many that the third place enables. There is a delightful tension at the heart of this concept. It emerges from the difficult relationship between the fallibility and corrigibility of relational knowing, and the subjective nature of the Many, and the eternal and infallible nature of the One.

This is where transcendence provides an opportunity to work with this conflict, as it pulls the eternal and the immanent apart, locating each on a different plane and making room for both. Taking the idea of transcendence seriously leads to this: as finite creatures, we are constrained temporally and spatially, we have limited lexicons and, while extraordinary, limited powers of intellection, and so any grasp of a transcendent Truth will be framed and coloured by our lived experiences. The lens of immanence will occlude the transcendent Truth, and this may forever be the case. Indeed, there is some speculation within the domain of science as to whether the human mind is capable of fully decoding the universe that brought it into existence.

That knowing cannot be separated from being, that our knowledge is fallible and changeable, may be intrinsic to any definition of *human being*. The perennial struggle to know enough in order to *live well* in whatever situation is core to our being, and it is just this uncertainty and opportunity for advancement in knowledge that underpins the durability of a pluralistic and relational way of knowing.

Indeed, if we were to suddenly have full access to the One Truth and its attendant Meaning, then, it can be argued, there would be no need for any epistemology, relational or not, for all that would be left to humanity would be the meanest operational outworking of a life lived in the shadow of an omnipresent and determining One Truth. If, instead, we acknowledge that there is such a thing as an objective Truth, but that no matter how much we come to know, there will, perhaps forever, remain much of which we have *yet to know*. An inclusive and workable account of a *relational epistemology* constructed as a vibrant pluralistic pursuit of useful truths and meanings in the plane of the Immanent must rest, ironically, on a radical *un-knowing* of the One and Transcendent. So the pluralism that is at the heart of the third place is not a *'pluralism that grows from a denial of*

truth,¹⁰³ but a pluralism that finds common ground in an acceptance of, a faith in, the existence of an objective Truth and a willingness to contend rationally for the truths that lie within it.

This creative tension is perhaps the most significant of forces leading us to community (through generations, an expanded temporality that could be seen to approach timelessness) to useful truths that are founded on the philosophies and concepts that arise from our articulations of how we are interpreting objective Truth. That we may never attain this Truth is an aside, the real purpose is to turn inwards from the eternal to quantified time and space, now and here, to continue to struggle to create patterns, wisdom, communities that allow us to live well with ourselves, with each other, and with the world.

In summary, this alternative argument stands in contrast to those perspectives that hold that '*Knowledge = Truth*', as Thayer-Bacon states: '*I join others in arguing that **none of us have access to transcendence**, none of us can know what is True or Real, in a universal sense, and so we must all be content to continue to talk about "knowledge" and "reality" as Berger and Luckmann do, with quotation marks around the terms.*'¹⁰⁴ Further, the relational nature of this theory of knowledge is not incidental but the central and governing concept:

*'My relational epistemology calls for active engagement, aims at democratic inclusion, joins theory with praxis, strives for awareness of context and values, while tolerating vagueness and ambiguities. I argue that knowing is something people develop as they have experiences with each other and the world around them',*¹⁰⁵ and: '*I offer a theory of knowing based on an assumption of connection in many forms. I find it an advantage, not a disadvantage, that relational means connections in so many ways.*'¹⁰⁶

¹⁰³ Ibid. p. 105.

¹⁰⁴ Thayer-Bacon, "A Pragmatist and Feminist Relational (E)Pistemology." p. 1. *My emphasis.*

¹⁰⁵ Ibid. p. 3.

¹⁰⁶ Ibid. p. 17.

4.5. Conclusion

This chapter has focused on bringing together the elements of argument developed in Chapter 2, pertaining to design as a broad civic art, and Chapter 3, pertaining to development of relevant perspectives on complex social systems. This was done as a precursor for proposing a range of principles and foundational aspects for *social system design* as a distinct and viable type of design.

A central theme developed in this chapter is the identification of *social system design* as a kind of design that is potentially architectonic with respect to and integrative of the different domains of knowledge present in any social system. This integrative focus lies in particular with the kind of knowledge directed towards making and acting in response to the challenges inherent in the artificial, the human and human-made world. The question of a foundational epistemology therefore becomes an important one. To this end, an argument for anchoring *social system design* in an appropriate and relevant epistemic frame was developed in detail in the preceding section.

Such an argument for an alternative epistemology is critical in order for the role of knowledge to retain relevance and vitality with respect to interpreting and intervening in the artificial realm. Building a solid foundation ensures the underlying concept of knowledge for *social system design* does not fall back upon orthodox, transcendental frames. Further, continuing to develop such an argument also ensures that this essential connection to concepts of knowledge is not lost, leading to degradation in practice towards becoming understood as a little more than a loose collection of instruments and techniques.

Relationality lies at the centre of this alternative concept of epistemology. As discussed above, this can be developed from two perspectives. The first is the interconnectivity and interdependence inherent in understanding and interacting with the world from a systemic perspective. The other dimension, more important for *social system design*, is the profound role social relations play in inventing, constructing and using socially relevant knowledge. The arguments of key figures incorporated into this thesis – Dilnot, Margolin, Buchanan, Vickers, Thayer-Bacon and Gunton – all develop this relational dimension.

Placing a relational epistemology at the core of *social system design* sets the foundation for directing the development of method that brings a focus upon creating epistemic situations that places human interest at the centre. It ensures knowledge required for the effective design of the artificial, inclusive of technology and technological systems, is relationally found, and comes about through

the harnessing of collective and social invention, and judgement regarding the best courses of coherent *action*. This action is judged on the basis of whether it has the highest potential to bring about both individual and social good in the made world. Intent is realised in expressions of ethical agency.

It is in this frame that **language** becomes paramount; access to experience cannot be primarily gained via observation and measurement. Experience is constructed and held within us, and it is only via language, spoken, written and visually represented, that we can hope to bring these experiences with a relational setting and build collective understanding and insight. Recalling Dilnot's model of a rhythm of alternating between interpretations of, and intervention in, artifice, it is clear that language is the primary conduit through which we make sense of and create meaning in the experienced world, and, further, that serves as the means by which appropriate social system interventions are conceived, designed and enacted.

This perspective additionally identifies the central role that *argument* must play in any method and practice of *social system design*. It is through argument, serving as a placement, where experience and aspiration, invention and judgement are integrated and unified. This becomes coherent and therefore actionable knowledge as a preface for shaping expressions of collective agency. In practice, arguments are constructed in *conversation*. It is through exploring our shared remembering of the experience of any system in focus that we can build up the layers of a multi-perspectival representation of the system at hand. From this landscape, those aspects that are judged to be socially, inter-subjectively significant can be located and serve as the basis for instigating socially significant knowing, making and acting.

This alternative perspective on knowledge provides further support for *social system design* to be modelled on deliberative rhetoric, an art of relationally and locally constructed *truths* regarding the most prudent forms of civic action. This frame that brings relational *knowing* into a productive juxtaposition with socially focused *making* and *acting* requires the articulation of a rhetoric that is an integral part of a broader knowledge schema. Such a schema can be found in the works of Aristotle; these will be investigated in Chapter 5.

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Chapter 5

Building a Useful Interpretation of Rhetoric

5.1. Outline

Rhetoric is a complex art with a long and varied history. The aim for this chapter is to develop a coherent account, founded in scholarly literature, of a rhetoric that might most aptly and usefully inform *social system design*. When developing propositions for method in this new application of design, the domain of rhetoric as a whole must be approached respectfully.

So far, this thesis has developed a theoretical foundation for *social system design*. In Chapter 4, this rested upon theoretical examinations of how this emerging field is located within the broader discipline of design, as was developed in Chapter 2, and its relationship to perspectives on complex social systems, as developed in Chapter 3. A detailed articulation of an argument for a form of rhetoric will be developed in this chapter, specifically a dynamic and pragmatic form that will underpin development of method and practice, and is the final element in developing how *social system design* might emerge and evolve.

There are three themes pursued in this chapter. The first is to examine precedents that draw upon rhetoric to serve the scholarly development of other fields. The second is to locate within modern literature an argument for rhetoric as a dynamic, adaptable and generative art that is well-suited to tackling the significant challenges of late modernity. The work of Richard McKeon on adapting rhetoric for the challenges of modernity provides such a perspective. The third theme then examines ancient rhetoric via McKeon's insights, centred on Aristotle's development of rhetoric in further detail, as it stands in relation to the broader system of knowledge developed across his corpus. All of this is in order to construct a picture of a rhetoric that, when placed at the centre of *social system design*, will provide orientation and guidance for future innovations in method and practice, and one that emphasises inventive and pragmatic relational *knowing, making and acting*, in conditions of indeterminacy.

5.2. Precedents for Adapting Rhetoric

Given that a broad thrust in developing aspects of *social system design* involves drawing on and adapting aspects of rhetoric to ends outside itself, it is important to explore precedents for this strategy. Three diverse examples of the adaptation of rhetoric will be explored, with both the

nature of such adaptation, and the ends towards which rhetoric is being employed will be examined. This provides evidence that a strategy of cross-disciplinary adaptation has both legitimacy as well as utility.

The examples were chosen to highlight different perspectives on rhetoric. First, is the reinterpretation of rhetoric itself, as illustrated by Lloyd Bitzer's restructuring of rhetoric in order to place emphasis on the situation in which it unfolds.¹ There are also those authors that have explored and explained the rhetorical foundations of their respective technical and specialised disciplines. For example, Paul Robertshaw has written on the deep connection between rhetoric and the practice of law. Noting that Plato's '*victory over the rhetoricians*' has led to the situation where rhetoric '*has been torn from its roots in ... public law, particularly in its more developed Roman form*'² and to the perception of rhetoric as '*an art of prettification of language*' or worse, of '*dressing up poor arguments in false attire*.'³ Robertshaw goes on to develop a '*Structuralist Rhetoric*' that provides '*categories of rhetorical structure*' for the analysis and interpretation of the genre of legal Summing-Up. He invokes his new categories that distinguish amongst forms of speech in a trial: formal *dogma* and less formal *doxa*, between instructional *nomos* and reflective *kritos*, unified via *mythos* and interwoven with the old tropes and structures.⁴

Secondly, attention is given to instances where rhetoric has been drawn upon to aid in the novel development of a discipline. Deirdre McCloskey builds extensive arguments on the deeply rhetorical nature of economics,⁵ a discipline practiced and culturally regarded as thoroughly technical and rational. In an example developed below, Michel De Certeau draws on rhetoric as a source of concepts and techniques as the basis of his analysis of the everyday practices of modern life, thereby creating a novel commentary within the field of social theory.

In the final two examples to be developed in this section, rhetoric and forms of design have been explicitly and imaginatively juxtaposed by Young, Becker and Pike,⁶ and Kaufer and Butler,⁷ respectively, in order to advance the discipline of original and inventive composition.

¹ Lloyd Bitzer, "The Rhetorical Situation," in *Contemporary Rhetorical Theory: A Reader*, ed. John Louis Lucaites, Celeste Michelle Condit, and Sally Caudill, Revisioning Rhetoric (New York: Guilford Press, 1999).

² Paul Robertshaw, *Summary Justice: Judges Address Juries*, Open Linguistics Series (London; Washington, DC: Cassell, 1998). p. 3.

³ *Ibid.* p. 3.

⁴ *Ibid.* p. 7 – 8.

⁵ See: Deirdre McCloskey, *The Rhetoric of Economics* (Madison: University of Wisconsin Press, 1998).

⁶ Richard Emerson Young, Alton L. Becker, and Kenneth L. Pike, *Rhetoric: Discovery and Change* (New York: Harcourt, Brace & World, 1970).

5.2.1. Michel de Certeau: Rhetoric in Cultural Theory

An example of the adaptation of rhetoric can be found in the work of French cultural theorist Michel de Certeau. His analysis of everyday practices inverts the orthodox understanding of the relationship between the dominant systems of production and passive consumers, in that he theorises consumption as a form of individual and autonomous production, an art of private making. De Certeau evokes the Greek term *poiesis* to characterise these acts. To pursue this he brings to the fore and illuminates the often invisible and unremarkable ‘*everyday practices*’ of ordinary people, which become all the more invisible when looked at through quantitative lens, where ‘*statistical investigation remain virtually ignorant*’⁸ of the paths that consumers weave through the more obvious and material product grid, a concept reminiscent of Margolin’s *product milieu*.

De Certeau recognises that this private production is invisible because it is often expressed in ‘*ways of using the product*’,⁹ including the subtle alteration or inclusion of structures imposed by a dominant order. For this reason, he chooses to analyse these practices through the use of linguistics, and in particular the notion of speech acts, as a sustained metaphorical frame. He argues that, in the act of naming the otherwise invisible practices of the everyday, these practices emerge into view for understanding and interpretation – this theme is resonant with the larger theme of this thesis.

De Certeau’s ‘*everyday creativity*’ is, via an analysis of Foucault, expressed through ‘*miniscule technical procedures*’ that quietly reorganise the ‘*functions of power*’.¹⁰ These ways of operating, which, ‘*constitute the innumerable practices by means of which users reappropriate the space organised by techniques of socio-cultural production*’,¹¹ are constructed and referred to as commonplace ‘*tactics*’, that counter and often subvert the ‘*strategies*’ of the proper places, the visible institutions and ossified social constructs of the elite and powerful. De Certeau notes that these take place within the spaces of the other, but that they are not categorically and materially distinct.

⁷ David S. Kaufer and Brian S. Butler, *Rhetoric and the Arts of Design* (Mahwah, N.J.: L. Erlbaum Associates, 1996).

⁸ Michel de Certeau, *The Practice of Everyday Life* (Berkeley: University of California Press, 1984). p. xviii.

⁹ This equates to Buchanan’s concept of the career of the product, or where design persists beyond the designer.

¹⁰ Certeau. p. xiv.

¹¹ Ibid. p. xiv.

Rhetoric emerges both in the style of de Certeau's writing, with extensive use of metaphor and metonymic reduction, and in the methods he uses to analyse everyday practice. In describing the 'trajectories' that consumers craft – '*silent discoverers of their own paths in the jungle of functionalist rationality*' – he evokes a linguistic metaphor, casting these trajectories as '*unforeseeable sentences, partly unreadable paths across a space.*'¹²

The tactics of this art of making that '*flourish at the very point where practice ceases to have its own language*'¹³ can be differentiated into types using the discipline of rhetoric, since '*rhetoric, the science of "ways of speaking" offers an array of figure types for the analysis of everyday ways of acting even though such analysis is ... excluded from scientific discourse.*'¹⁴ It must be noted that although de Certeau invokes rhetoric as a discipline that can usefully be employed to understand practices taking place with social situations and spaces, he, like Barthes,¹⁵ brings a modern perspective to rhetoric, reducing it to a technical discipline of oratory. He further reduces the application of rhetoric to the use of figures as tools of categorisation, arguably locating his use within the traditions of tropology, as represented in the work of Henry Peacham, particularly *The Garden of Eloquence*, published in 1577.

De Certeau's analysis also provides useful insights into *social system design*. Firstly, in exploring everyday practices as tactical ways of operating that represent '*victories of the "weak" over the "strong" (whether the strength be that of powerful people or the violence of things or of an imposed order, etc.), clever tricks, knowing how to get away with things*',¹⁶ the concept of practical intelligence is introduced through the Greek term *metis*. This sharp insight into the ongoing '*use as production*' and creative adaptation and alteration of imposed orders brings to light an important principle when considering the interleaving of a design into a social system: the recipients, the consumers, of any designed system will apply practical intelligence to create '*trajectories*' across the imposed system and, in the process, will change the design in both operational intent and expression.

The second insight is a note of caution. In seeking to theorise both the operational practices of participants in a social system, and the (social system) design practices that seek to construct useful

¹² Ibid. p. xviii.

¹³ Ibid. p. xvii.

¹⁴ Ibid. p. xx.

¹⁵ See: Roland Barthes, "The Old Rhetoric: An Aide Memoire," in *The Semiotic Challenge* (Berkeley: University of California Press, 1994).

¹⁶ Certeau. p.xix.

and desirable interventions for those systems, we risk objectifying these human endeavours, where they become passive sources of data to feed theory. Practice itself remains elusive, in danger of '*constantly slipping away*'.¹⁷ De Certeau builds from Kant's writing on judgement that narrations about practice can be taken as objects for theory but notes that they are also an integral part of the internal, tacit theories that stand within everyday practices — they are part of the ongoing construction and organisation of activities. Theory that stands outside cannot dictate to social practice, as Vickers found; such a stance erodes the *telos* of humanist design.

In summary, de Certeau provides a useful case study for the adaptation of rhetoric, and, further, gives recognition to the way in which constituents of a social system can design and significantly shape dimensions of their everyday, within and perhaps despite, the broad structural configuration of the system as a whole.

5.2.2. Young, Becker and Pike: Rhetoric in Composition

Where de Certeau drew on rhetoric to perform his analysis of everyday culture, Richard Young, Alton Becker and Kenneth Pike sought to adapt rhetoric more completely in order to apply the discipline to written composition and communication. Convinced that rhetoric should be an essential aspect of tertiary education and despairing of the '*intellectual emptiness and practical ineffectiveness*'¹⁸ apparent in educational practice, they sought to broaden the existing '*working definition*' of rhetoric to encompass the creative process, the '*pre-writing*' that lay behind the writing process. They understood rhetoric as not simply procedures for speaking persuasively, but a broader art that begins with discovery and invention and proceeds towards a finished product that effects a change in thinking in an audience, which in turn will change how people make and act within a system.

Their approach is an example of the malleability of rhetoric. Not feeling constrained to simply resurrect the old codes and scripts of a received rhetoric, they sought to reinvent and reinvigorate rhetoric through a new juxtaposition with linguistic theory. This stemmed from Pike's background in the development of tagmemics, a linguistic method developed in response to field work aimed at the translation of texts, into languages and dialects that were largely oral, or where there was little previous tradition of translation. The key aspect of tagmemics that is relevant to the application of

¹⁷ Ibid. p. 77.

¹⁸ Young, Becker, and Pike. p. xii.

rhetoric to productive ends is that it is employed in order to access and understand the experience that lies behind language, so that any translation is not simply technically correct but maintains its intended conceptual force and meaning.

Tagmemics was applied to the rhetorical process through six maxims that provided a framework for modularising and organising experience '*units*', an approach that is founded in the analytical nature of the linguistic disciplines.¹⁹ Young, Becker and Pike apply these maxims in a less categorical way, recognising the need to proceed less rigidly. Of the six maxims, two describe novel heuristics that, although they can be deconstructed in terms of a number of original and ancient devices, are valuable additions to the art and are useful in the development of *social system design*. These are Maxim 3: an experience unit can be adequately understood only if three aspects are known, its contrastive features, its range of variation and its distribution in larger contexts; and Maxim 4: a unit of experience can be viewed as a particle, or as a wave, or as a field. In other words it can be seen from different perspectives as static and isolated, as dynamic and in motion, or as a part of a larger network.²⁰ The principle adhered to here is that the rhetorical process begins with the interpretation of experience, and that '*language provides a way of unitizing experience*'.²¹

Young, Becker and Pike were concerned with proposing and co-developing a rhetoric reconfigured to be useful for the task of written composition within the conditions of modernity. This requires a rhetoric that '*implies we are all citizens of an extraordinarily diverse and disturbed world, that the "truths" we live by are tentative and subject to change*',²² where we must invent new truths that can intermingle with old ones and towards an end of '*enlightened cooperation*'. They invoked a quote from St. Augustine; that '*two things are necessary ... a way of discovering those things which are to be understood, and a way of teaching what we have learned*'²³ that locates rhetoric as an art that is located between situations ripe for inquiry and the means for effecting coherent and collective change in those situations. In their hands, rhetoric is art of reasoning that is directed towards material change.

The innovations developed by these authors reinforce the argument that, in order to work meaningfully with rhetoric, we must give away the trained and honed instinct to seek unambiguous

¹⁹ Ibid. p. xi.

²⁰ Ibid. p. 56 and 122.

²¹ Ibid. p. 27.

²² Ibid. p. 9.

²³ Ibid. p. xiv.

distinctions, clear and stable boundaries, and well-understood territories and applications, as can be expected within the technical disciplines. A discipline that deals with contingency can be contingently constructed (or deconstructed), can be applied to any topic including itself and can at once be architectonic to and subordinate of other disciplines. This requires the art to be held lightly and to be approached with an expectation that ambiguity, fluidity and novelty is intrinsic and indeed essential to its practice; *social system design* is a case in point.

5.2.3. Kaufer and Butler: Rhetoric as Design

Kaufer and Butler share with Young, Becker and Pike a concern with the inventional aspect of original written composition. This starting point led them to explore, in a similar fashion, the role that rhetoric can play in informing a theory of written composition in a social context. The first theory they developed is based on a *'forensic, past-oriented, model of case-based reasoning, a type of reasoning familiar in law'*.²⁴ This takes an approach of using the analysis of existing *'cases'* as the basis for developing *'original'* positions. Kaufer and Butler recognised that this was a *'limited theory'* and that they needed to build an expanded theory that was more deliberative and future-focused, *'more interactive with the public rhetorics of the Aristotelian tradition'*.²⁵ The case-based approach can hone analytical and technical reasoning skills, however it fails to accommodate the invention and development of argument in a social context; the need to acutely understand the particulars of situated indeterminacy and what *'ancient rhetoricians understood as 'probable' arguments encouraging audiences into uncertain futures'*.²⁶

In establishing the fundamental place a deliberative rhetoric has for invention in words, Kaufer and Butler recognise that the rhetoric they find within the academy had become an *'analytical and critical art ... diminishing its ties to production'*,²⁷ turning rhetoric into a body of *'analytical knowledge'* and so moving rhetoric towards a *'science'*, a technical discipline. They further recognised that rhetoric is much diminished in any general sense: *'[t]o moderns, rhetoric is a word of*

²⁴Kaufer and Butler.p. xiv.

²⁵ *This has implications for the traditional business school model of using the analysis of existing cases as the basis for teaching a method of situated problem solving. It assumes that deductive reasoning is sufficient to tackle business 'problems' regardless of the particulars of the situation and the social context in which the problem is unfolding. This has become a hallmark of technocratic management.*

²⁶ Kaufer and Butler.p. xiv.

²⁷ Ibid. p. xv.

odium, signifying uses of language that are self-serving and unprincipled'.²⁸ As a civic discourse, it gave way to the voices of professionalization and specialisation, c.f. Michel de Certeau's '*expert*'.²⁹ To have any relevance for invention in the written word, rhetoric needed to be reconnected to production, to the practical aspects of conception, planning and making. As they declared, the task was to accept that rhetoric is not an axiomatic science, as a precursor to recovering for rhetoric an '*epistemological model of productive knowledge*',³⁰ which led them to identifying rhetoric as among the family of design arts, an art that has gained status in a productivist global economy. In pursuing a '*philosophical justification of rhetoric as a productive design art*',³¹ Kaufer and Butler have explicitly connected ancient rhetoric and modern design as a path to develop modern applications of productive knowledge, where thinking and reasoning have social (and political) action as their *telos*.

To pursue this development in rhetoric, the authors have chosen to use the relationship with design to frame rhetoric as an art of design. It should be noted that this thesis will use this relationship to draw on rhetoric to inform a new development in design. In reaching beyond the stultifying effects of the academy, Kaufer and Butler have taken design to be a technical discipline,³² systematic and structured, capable of being '*broken into parts*' and applied to pragmatic ends. They build the case for the convertibility between design and rhetoric through a description of the characteristics of design furnished by Goel and Pirolli³³ who developed 11 characteristics that describe a '*generic design art*'.³⁴ Having established an argument for the '*family resemblances*' between design and rhetoric, Kaufer and Butler develop a '*rhetorical design*' model built around a recursive system of abstract '*Plans*', adaptive '*Tactics*' and '*in-the-moment*' shaping of delivery to audiences via '*Events*'.³⁵ They then use this model to analyse the aspects of Rhetoric as Design through the Lincoln Douglas debates conducted as part of the 1858 campaign for the Illinois Senate.

To summarise their project, Kaufer and Butler take as their foundation the title of J.L. Austin's 1975 William James lectures '*How to Do Things with Words*' and reframe this to declare the task for

²⁸ Ibid. p. 1.

²⁹ Certeau. p. 7.

³⁰ Kaufer and Butler. p. xvi.

³¹ Ibid. p. xvi.

³² *There is some irony that in declaring the error of the academy in reducing rhetoric to analytical knowledge, the authors take a technical and structured perspective on design as a starting point.*

³³ See: Vinod Goel and Peter Pirolli, "The Structure of Design Problem Spaces," *Cognitive Science* 16 (1992).

³⁴ Kaufer and Butler. p. 41.

³⁵ Ibid. p. 46.

rhetoric today: 'How do we "Design Things" with Words?'³⁶ In spite of their interpretation of both design and rhetoric as technical and described in terms of highly structured models, these authors provide a clear example precedent for understanding one of these disciplines in terms of the other. Although their focus is on the designerly characteristics of rhetoric, there is nothing to preclude an equivalent interpretation of the rhetorical character of design.

5.2.4. Adapting Rhetoric for Social System Design

There is clear evidence establishing a precedent for adapting rhetoric for purposes outside the discipline itself. Of significance to this investigation, are the examples of where rhetoric is interpreted and adapted for the purposes of enhancing a capacity for innovation in composition and other inventional arts. Having established the legitimacy of such adaptation, attention can now turn to locating a useful perspective on rhetoric for the purpose of developing *social system design*.

5.3. Locating a Useful Rhetoric for Design

The current popular perception of rhetoric is rarely positive. Rhetoric is often associated with the verbal combat of politics: spin, obfuscation and flummery are often derided and dismissed as "mere rhetoric". Implicit in this view is the notion that rhetoric is a technique of using words stripped of substance and significance, for the purposes of manipulation of an audience, practiced by people of questionable character.³⁷ This degradation of rhetoric was aided by 'ideological critiques'³⁸ aimed squarely at implicating the practice of rhetoric in sustaining the ruling classes. What was once regarded as an art, in which merit was central, became a vehicle for exploring a modern distaste for ancient cultural and social structures.

Within the domain of scholarship, rhetoric remains the topic of serious study, however it is commonly directed towards a relatively narrow focus of oral and written composition; indeed, there

³⁶ Ibid. p. 9.

³⁷ See for example: William M. A. Grimaldi, "Studies in the Philosophy of Aristotle," in *Landmark Essays on Aristotelian Rhetoric*, ed. Richard Leo Enos and Lois Peters Agnew (Mahwah, N.J.: Lawrence Erlbaum Associates, 1998). p. 15.

³⁸ Takis Poulakos, "Modern Interpretations of Classical Greek Rhetoric," in *A Companion to Greek Rhetoric*, ed. Ian Worthington, Blackwell Companions to the Ancient World (Malden, MA; Oxford: BlackWell Publishing, 2007). p. 16.

are academic departments that focus on written communication only.³⁹ While beneficial to the practice of original composition, this focus reflects the perspective that holds rhetoric as concerned only with expression and communication, a set of technical skills that can be applied to the arranging and styling of words in order to produce an effect on an audience. In this vein Sonja Foss defines rhetoric as, ‘. . . the actions humans perform when they use symbols for the purpose of communicating with one another’.⁴⁰

For rhetoric to be drawn upon to inform an art of design for indeterminate systems, there is a need to create a broad understanding of the development of rhetoric, and in particular to locate, within the long history of rhetoric, forms of the art that can best serve this emergent genre of design. This section is not intended to be a chronology of rhetoric, for there are many detailed accounts that serve this topic well.⁴¹ The fact that rhetoric has been a pervasive and ever-present force in Western thought for over 2,500 years, that it has undergone innumerable developments and interpretations, and that it has been absorbed into many different contexts and situations, means that attempting to do justice to this history within the limits of this thesis would not be possible.

It is worthwhile, however, to explore significant shifts in the evolution of rhetoric that have influenced the forms of rhetoric that have been received into modernity, so providing some insight into the reasons for the shape of cultural perspectives and scholarly developments that are to be observed today. Identifying the origins and the nature of these shifts contributes to explaining why ancient forms of the art provide a richer source of concepts, method and practices than do its later manifestations.

The aim of this section, therefore, is to provide an overview of this critical context, and to underpin the argument that rhetoric cannot be dealt with uncritically, that all forms of rhetoric cannot be regarded as valid corollaries of design, and that it is necessary to elevate certain conceptions of rhetoric above others to inform *social system design*.

This is not cynical revisionism; rather, it is a search for authentic and legitimate expressions of rhetoric that we can draw upon for practical outcomes. This is consistent with Buchanan’s observation that the nature of rhetoric encourages and sustains ongoing innovation and the

³⁹ See for example: Janice M Lauer, *Invention in Rhetoric and Composition* (West Lafayette, IN: Parlor Press and the WAC Clearinghouse, 2004).

⁴⁰ Sonja. K. Foss, *Rhetorical Criticism* (Prospect Heights, IL: Waveland Press, Inc., 1996). p. 4.

⁴¹ See for example: George Alexander Kennedy, *A New History of Classical Rhetoric* (Princeton, N.J.: Princeton University Press, 1994).

inclusion of new ideas, ways, media and expressions, both towards itself and towards the subjects to which it is applied.

5.3.1. Richard McKeon's New Rhetoric

Richard McKeon, a prominent American pragmatic philosopher, exercised significant influence over many aspects of modern philosophy and education, played a foundational role in the establishment of UNESCO, and contributed to the first draft of the Universal Declaration of Human Rights in 1948.⁴²

His doctoral thesis was completed on Spinoza, which directed his attention towards the history of ideas, and he discovered, while studying in Paris, that it was '*clear that without its Greek foundations Western thought was "unintelligible."*'⁴³ During his career, he underwent a transition that saw his thinking move from a rational tradition towards civic humanism and, in so doing, he located and revived rhetoric as the central means by which '*we can reveal and arrange the significant parts of any human undertaking*',⁴⁴ interpreting and developing it first and foremost as an intellectual art.

McKeon's account diverges from the orthodox body of scholarship on rhetoric, which has roots in both the historical trajectory of rhetoric itself as well as the analytical disposition of many modern scholars.⁴⁵ As Abbott notes,⁴⁶ the study of rhetoric is either one of constructing historical accounts, or accounting for rhetoric's assimilation into one or another modern sciences, such as semiotics. McKeon identifies the rhetoric of ancient Greek and Roman practice, and particularly the contributions of Aristotle and Cicero, as providing the most appropriate direction and inspiration for the development of his *New Rhetoric*, the context for which is developed by outlining why the rhetoric received into modernity is a degraded version of its ancient form.

⁴² Richard McKeon, Zahava Karl McKeon, and William G. Swenson, *Selected Writings of Richard Mckeon*. Vol. 1, Philosophy, Science, and Culture (Chicago; London: University of Chicago Press, 1998). p. 4.

⁴³ *Ibid.* p. 2.

⁴⁴ Richard McKeon and Mark Backman, *Rhetoric : Essays in Invention and Discovery* (Woodbridge, CT: Ox Bow Press, 1987). p. xx.

⁴⁵ *See for example:* Barthes.

⁴⁶ Don Paul Abbott, "Splendor and Misery: Semiotics and the End of Rhetoric," *Rhetorica: A Journal of the History of Rhetoric* 24, no. 3 (2006). p. 303.

The central thrust of McKeon's philosophy was the problem of pluralism: Watson proposes that *'the idea of pluralism is the generative idea of McKeon's philosophy'*,⁴⁷ and that McKeon is *'our preeminent pluralist and is likely to remain so.'* The particular challenge with respect to plurality that recurs through McKeon's work is that of the unity and diversity of truth: *'the recognition ... that there is a sense in which truth, though one, has no single expression and a sense in which truth, though changeless, is rendered false in the uses to which it is put'*.⁴⁸ As Wayne Booth notes, McKeon's philosophy is directed towards the problem of the One and the Many, to working out the tension between the One – *'the inaccessible incomprehensible single truth'* – and his conviction that only *'a pluralistic embrace of the Many can do justice to the One.'*⁴⁹ With respect to this, Booth's observation resonate with the role the One and the Many plays in structuring *social system design* as a relational epistemology. Booth states that few *'other thinkers in our time or any other have probed as deeply and constructively into the mysteries of a value-laden creation that permanently eludes our efforts to pin "It" down.'*

McKeon's approach to pluralism ushers in his development of rhetoric as an instrument by which pluralism can be pursued, whereby *'human beings come together around common ... problems'* and where *'well-conducted discussion leads to agreement on a course of action'*.⁵⁰ He explored the fundamentals of this revival through a deep historical interpretation of the relationship between rhetoric and other arts and sciences, particularly a perspective on the mutuality between rhetoric and philosophy. His erudite insights into the long history of rhetoric led him to an emphasis on recovering rhetoric from a perspective that is close to its source. Here it *'becomes clearer the nearer we approach its origins'*,⁵¹ namely the rhetoric as developed and practiced in ancient Greece, and in particular by Aristotle. The rhetoric that McKeon uncovers is a dynamic and changeable art with a long, complex and varied history. He investigated *'the intricate relationship between rhetoric and the extraordinary number of arts and sciences it has penetrated'*,⁵² and it made no sense to him to constrict rhetoric, as his view was of an art that *'goes beyond the verbal art of persuasion with which the word is commonly associated.'* His perspective was built on a view of rhetoric that is far larger

⁴⁷ Walter Watson, "McKeon: The Unity of His Thought," in *Pluralism in Theory and Practice : Richard Mckeon and American Philosophy*, ed. Eugene Garver and Richard Buchanan(Nashville: Vanderbilt University Press, 2000). p. 11.

⁴⁸ Ibid. p. 10.

⁴⁹ Wayne C. Booth, "Richard Mckeon's Pragmatism: The Path between Dogmatism and Relativism," in *The Essential Wayne Booth*, ed. W. Jost(University of Chicago Press, 2006). p. 137 - 138. *My emphasis.*

⁵⁰ Eugene Garver and Richard Buchanan, *Pluralism in Theory and Practice : Richard Mckeon and American Philosophy* (Nashville: Vanderbilt University Press, 2000). p. x.

⁵¹ McKeon and Backman, *Rhetoric : Essays in Invention and Discovery*. p. xiii.

⁵² Ibid. p. vii.

than an *'art of expression'* and he further rejected *'the notion that rhetoric and philosophy are separate disciplines, each dedicated to different and contradictory ends'*,⁵³ even though the distinction between knowing and doing is often problematic. In fact, he regarded knowing, acting and making as interrelated and interdependent within our technological culture.⁵⁴ He locates rhetoric as an architecting force in the relocation of metaphysics to lie within an *'ecology of culture'*,⁵⁵ which is directed towards the problems of the relationship between knowledge and action. McKeon's approach was based on this deep systemic perspective of the history of Western thought, and his efforts to uncover significant patterns and cycles in the co-development of rhetoric and philosophy is his *'most important contribution to contemporary philosophic analysis.'*⁵⁶

McKeon rejected an approach to the history of rhetoric as *'pedantic explorations of ... an art of persuasion and belief'* that focuses on received forms and terms, where there is an assumption of *'fixed, unalterable meanings'* in the key concepts and where novel developments *'pass unnoticed'*. Such a static approach leads to a view of modern rhetoric that is *'derivative rather than ... original and inventive'*.⁵⁷ McKeon moved beyond these *'microscopic inspections'* in developing arguments for the ancient form of rhetoric as an art that underwent continual development and renewal in the context of the civic structures in which it was embedded. He recognised that the *'modern world is a product of rhetoric's pervasive and enduring influence.'*⁵⁸ This aspect has clearly been lost for many interpreters of rhetoric. McKeon's interpretation of the deep history of rhetoric, from antiquity through to the medieval, sees rhetoric as *'the sources of doctrines which have since become the properties of other sciences ... and of particular devices which have been applied to a variety of subject matters.'*⁵⁹ This underpins his unconventional perspective, which holds that the *'history of rhetoric is at heart the story of new applications for borrowed words, concepts and distinctions'*, and that to confine rhetoric as a single subject matter *'denies it a vital history'* and so its future potential.

The significance of McKeon's approach to the re-interpretation of a systemic rhetoric is that he positions rhetoric as an art *architectonic* of all forms of production. This is not an entirely original

⁵³ Ibid. p. viii.

⁵⁴ Garver and Buchanan. p. ix.

⁵⁵ Richard Buchanan, "The Ecology of Culture: Pluralism and Circumstantial Metaphysics," in *Pluralism in Theory and Practice: Richard McKeon and American Philosophy*, ed. Eugene Garver and Richard Buchanan (Nashville: Vanderbilt University Press, 2000). p. 136. *Buchanan cites Dewey as the originator of this turn, central to McKeon's philosophy and resonant with Dilnot's argument on the importance of design to theory.*

⁵⁶ McKeon and Backman, *Rhetoric: Essays in Invention and Discovery*. p. xi.

⁵⁷ Ibid. p. xii.

⁵⁸ Ibid. p. xiii.

⁵⁹ Ibid. p. xv.

move: he identifies that Cicero, in developing a civic philosophy that sought to unify wisdom and eloquence via rhetoric, enlarged it to a '*universal productive art, an ars disserendi*' that sought to address fundamental problems of Roman culture. He recognises that the '*distinctions and analyses of Aristotle*'⁶⁰ provide the basis for understanding rhetoric as an architectonic art, formalising the concept of '*architecton*' within his schema for organising the arts and sciences.

As Backman indicates, and subsequent to the example of Cicero, who '*fixed the influence and oriented the interpretation of ancient thought, Greek as well as Latin*',⁶¹ rhetoric has expanded and contracted many times in the hands of philosophers and thinkers. The evolution of Western thought turns '*on the successive re-discovery and novel application of commonplaces freed from the mindless repetition of things past*'.⁶² With this, rhetoric can be understood as '*the crucial force in intellectual change*' throughout history and into the present.

McKeon's argument further consolidates the argument for developing *social system design* in terms of rhetoric. It adds further support to the argument that this emergent form of design can be understood as an art of relational and productive knowledge, a form of relational epistemology. McKeon's recovery of an architectonic rhetoric, a civic and social art that organises structures of human knowledge in general and prefaces all forms of productive knowledge in particular, strengthens this connection. These insights into the essential force of rhetoric stand at odds with the stature of the art in modernity. The next section examines the origins of this paradox. This provides a useful counterpoint for examining a rhetoric where the structuring and invention of knowledge was unified with forms of its expression, when rhetoric was understood to have a central and essential role in broader schema of human knowledge.

5.3.2. The Breaking of Rhetoric in the 16th Century

There could be many points in history that could be seen as significant for the evolution of rhetoric since its formalisation as a productive civic art in 5th Century BCE Greece, however it is clear that changes in thought and culture during the Renaissance in Europe mark a particularly important turning point in the fortunes of rhetoric as a complete and vibrant art.

⁶⁰ Richard McKeon, "Uses of Rhetoric in a Technological Age," in *Rhetoric: Essays in Invention and Discovery*, ed. Mark Backman (Woodbridge CT: Ox Bow Press, 1987); McKeon and Backman, *Rhetoric : Essays in Invention and Discovery*. p. 2.

⁶¹ McKeon and Backman, *Rhetoric : Essays in Invention and Discovery*. p. xix.

⁶² Ibid. p. xx.

The lead up to these changes was long in the making. With the decline of democracy in the Greek city-states, the importance of rhetoric as a civic art also receded. A resurgence of rhetoric took place in Rome; Greek rhetoric certainly had influenced Roman practice, however it was appropriated through a different cultural perspective.⁶³ Connolly has characterised Roman society as militaristic, ordered and conservative, and it was in this context that the received knowledge of rhetoric took on new forms and applications. Rhetoric was seen to be a way of bringing about order, as *'the arbiter of communal propriety, the source and guard of standards ... a universalising adhesive for ... social order.'*⁶⁴

During this period, Marcus Cicero redeveloped rhetoric into a form that would prove to be highly influential to later students of rhetoric. Cicero approached rhetoric as a civic art, not simply a technical craft, shaping it to the pragmatic ends of formalized and structured Roman oration. He was at pains to criticise those that had reduced rhetoric to *'trite precepts'*⁶⁵ to be learnt by rote and so holding little value to those engaged in Roman public life. As May notes, he *'viewed himself primarily as a statesman and as a speaker'*, and so the effectiveness of his writing on rhetoric stemmed from the fact that *'they were composed from the point of view of one of the most successful and skilful practitioners of the art of oratory in the history of the world.'*

Conley notes that in *De Oratore* Cicero enlarges the scope of rhetoric by binding together into a unified whole *'oratory, philosophy and statesmanship'*,⁶⁶ topics that Aristotle had split across different works. Conley provides insight into Cicero's approach, seeing a revival of the Isocratean approach to rhetoric, pointing out that at the heart of Cicero's method was an application of eloquence to *'multiplex ratio disputandi, a multivoiced method, which begets controversia, a dialogue in which practical and philosophical formulations are situated in divergent frames of reference, brought into conflict in debate, and tested for their respective claims of probabilitas.'*⁶⁷

This compact articulation of a multi-perspectival, relative, situated and practical disposition is one that resonates with the aims for *social system design*.

⁶³ William J. Dominik and Jon Hall, "Confronting Roman Rhetoric," in *A Companion to Roman Rhetoric: Blackwell Companions to the Ancient World*, ed. William J. Dominik and Jon Hall (Malden, MA: Blackwell Publishing, 2007). p. 4.

⁶⁴ Joy Connolly, "The New World Order: Greek Rhetoric in Rome," in *A Companion to Greek Rhetoric*, ed. Ian Worthington (Malden, MA; Oxford: Blackwell Pub., 2007). p. 140.

⁶⁵ James M. May, "Cicero as Rhetorician," in *A Companion to Roman Rhetoric*, ed. William J. Dominik and Jon Hall (Malden, MA: Blackwell, 2007). p. 250.

⁶⁶ Thomas M. Conley, *Rhetoric in the European Tradition* (Chicago: University of Chicago Press, 1994). p. 37.

⁶⁷ Ibid. p. 37.

The transition of the Roman Republic to the Roman Empire from 25 BC onwards led to the use of rhetoric for civic and political discourse falling away, and the dawning of the Patristic Age saw rhetoric put to the service of interpreting scripture. As with Paul of Tarsus, many of the Church Fathers had training in rhetoric, including Augustine of Hippo as the most important of these figures. The practice of rhetoric was to remain bound to theology until the emergence of Renaissance humanism. By way of illustration, Petrus Abailard claimed that the '*intention of all divine scripture is to teach or to move on the manner of a rhetorical speech*' and that the Old and New Testaments could not be '*read and appreciated without grammar and rhetoric*'.⁶⁸

Paul Soukup⁶⁹ outlines how these developments gave way to the revolution that took place during the Renaissance, not only in human knowledge, but in the structure and systems through which knowledge is created, used and passed on. He describes the growing status of the increasingly distinct and widespread disciplines of science and mathematics, informed by the methods of logic. This was a reflection in the shifting emphasis from spoken and public argumentation to private and written demonstration.

Petrus Ramus (1515–1572) emerged as a pivotal figure in instigating profound shifts in the attitude towards and the development of rhetoric, who remained influential into modernity. Ramus, a Parisian professor, was concerned with developing school curricula in the topics of the *Trivium*; grammar, rhetoric, and logic or dialectic. He, along with many scholars of his time, became dismayed with the contradictions and confusions that had proliferated with the works of Scholasticism during the Middle Ages,⁷⁰ which was an effort to reconcile the interpretations of Christian doctrine, as represented by the works of Saint Augustine, and works of Aristotle and other Greek philosophers, newly recovered from Arabic scholars.

Ramus' reaction to scholasticism was expressed as stridently anti-Aristotelian. He attacked what he perceived to be the philosopher's '*errors, confusions, vain precepts and altercations*',⁷¹ rather than the later interpretations to which he and others objected. In seeking to impose order on this apparent mess, Ramus separated the traditional five parts of rhetoric into two broad divisions.

Richard Lanham neatly summarises the impact that Ramus had on rhetoric, describing how he gave

⁶⁸ Richard McKeon, "Rhetoric in the Middle Ages," in *Rhetoric: Essays in Invention and Discovery*, ed. Mark Buchanan (Woodbridge CT: Ox Bow Press, 1987), p. 150.

⁶⁹ Paul A. Soukup, "Walter J. Ong, S.J.: A Retrospective," *Communication Research Trends* Volume 23, no. 1 (2004), p. 4.

⁷⁰ See: McKeon, "Rhetoric in the Middle Ages."

⁷¹ Ibid. p. 164.

invention, argument and arrangement to philosophy, as these are concerned with thought and reasoning, leaving *'style and delivery as the only true parts of the art of rhetoric'*.⁷²

In this, Ramus sought to separate thought from language; rhetoric and grammar thus became cosmetic arts. Speaking and writing were subordinated and afforded only secondary status relative to the pure and procedural arts of logic. With this move, reason was intended to break apart from speech, taking on a *'Platonic self-standing freedom'*.⁷³ This was not a radical break; it was a common feature of thought in the Middle Ages to regard *'grammar a concern with meaning, to dialectic the production of conviction, and to rhetoric, the motivation of the will'*.⁷⁴ Ramus had an immediate and lasting impact on the teaching of rhetoric, and his work marks a significant and enduring turn in the position of rhetoric in Western culture.

Walter J. Ong, regarded as an authority on Ramus, has traced the change in systems of thought during and after the Renaissance. He recognised that the division of *invention* from the arts of oration conducted for the purpose of *judgement* was no simple taxonomic re-organisation. It was a rendering of image from word, of thinking from speaking. Ong locates the origins of Ramus' destructive move to divide invention from rhetoric with the work of Rudolphus Agricola⁷⁵ (1443 – 1485), as detailed in his *Dialectical Invention*. In his efforts to revitalise dialectic, he took the fluid and sophisticated art of placements from rhetoric and, in giving them to dialectic, redefined them as fixed catalogues of *things*, in order that *'all discourse can be assimilated to scientific, and the poem made as "logical" as the mathematical treatise'*,⁷⁶ thereby leaving for arts such as rhetoric the work of ornamentation only.

Ong notes a significant *'allegory'* in approaching cognition as the tensional pairing of invention and judgement, where *'invention and judgement are protean in their applicability to intellectual and linguistic activity'*. While all manner of combinatorial play with this tension can be found, these, in the end, do not describe discrete cognitive steps but are *'two different ways of approaching the cognitive process.'* Ong ascribes the basis for the separation of invention from judgement to the different analogies behind these perspectives:

⁷² Richard A. Lanham, *The Electronic Word: Democracy, Technology, and the Arts* (Chicago: University of Chicago Press, 1993). p. 90.

⁷³ *Ibid.* p. 157 – 158.

⁷⁴ Quoted in McKeon, "Rhetoric in the Middle Ages." p. 151.

⁷⁵ Walter J. Ong, *Ramus, Method, and the Decay of Dialogue; from the Art of Discourse to the Art of Reason* (Cambridge, Mass.: Harvard University Press, 1958). p. 97.

⁷⁶ *Ibid.* p. 102.

*'Invention sees it in terms of an analogy with a high visual and spatial component: one looks for things in order to find them; one comes upon them (invenio, εὐρίσκω). This notion is allied to the Greek (and Latin) concept of knowledge and understanding, based on some sort of analogy with vision (γινώσκω, intelligere).'*⁷⁷

In contrast, judgement is interpreted as being *'connected with judicial procedure ... and suggests the Hebraic concept of knowledge (yadha') which is analogous to hearing.'*⁷⁸ This differentiation had further impact. Not only was invention rendered from rhetoric, but the rhetoric that remained was stripped of its dialogic core. Ong notes that *'Ramist rhetoric ... is not a dialogue rhetoric at all, and Ramist dialectic has lost all sense of Socratic Dialogue ... [t]he Ramist arts of discourse are monologue arts.'*⁷⁹ This is located in Ramis' emphasis on didactics and his disdain for interaction, leading to the profound *'orientation of Ramism towards an object world (associated with visual perception) rather than towards a person world (associated with voice and auditory perception).'*⁸⁰

Ong characterises Ramus' work to subjugate and structure rhetoric as the *'amateurish works of a desperate man who is not a thinker but merely an erudite pedagogue'*.⁸¹ Despite this, his propositions caught the mood of his age, and represent a seismic shift in the fortunes of rhetoric. Logic and didactic were ascendant, displacing argumentation and dialogue. This legacy has persisted into the present.

5.3.3. After Ramus: The Trajectory of Rhetoric into Modernity

Although the writings of Ramus mark a turn in the treatment of rhetoric, with the excision of the dimensions of thought leaving an emphasis on stylistic matters in language, the Renaissance was ironically a time of renewed interest in works of antiquity, including those on classical rhetoric. As the humanism of this period took hold,⁸² rhetoric received new attention and was reinvigorated through the works of such scholars as Erasmus of Rotterdam, with his 1512 *De Duplici Copia Verborum et Rerum*. The educational works of Juan Luis Vives and Thomas Wilson, whose 1560

⁷⁷ Ibid. p. 114.

⁷⁸ Ibid. p. 114.

⁷⁹ Ibid. p. 287.

⁸⁰ Ibid. p. 287.

⁸¹ Walter J. Ong, *The Barbarian within, and Other Fugitive Essays and Studies* (New York: Macmillan, 1962). p. 79.

⁸² For a discussion of the origins of humanism see: Klemens Löfler, "Humanism," *The Catholic Encyclopedia* 7(1910). New Advent: <http://www.newadvent.org/cathen/07538b.htm> (accessed October 21, 2011).

work the *Arte of Rhetorique* is thought to be among the earliest examples of a treatment of this topic in English, became influential as a teaching text in English educational institutions.⁸³

These works still dealt with rhetoric as a complete art, structured as they were around the five parts of rhetoric developed through the Roman period, however the focus on stylistic elements was becoming more prevalent. Erasmus, for example, emphasised the use of *copia*, or the extensive use of variation in expression, as a strategy for creativity. Works that held influence in the development of rhetoric in the English world were becoming both exclusively focused on matters of eloquence and virtual catalogues of arrays of rhetorical stylistic devices. This is evident in works written in the later part of the 16th Century, such as Richard Sherry's *A Treatise on Schemes and Tropes*, Henry Peacham's *Garden of Eloquence* and George Puttenham's *The Arte of English Poesie*.

Ramus' example of seeking to develop simple, methodical and unambiguous treatments of these matters for the purposes of educating students became widely influential, and so the spread of this approach into mainstream pedagogical discourse had the effect of accelerating the wide acceptance of his simplified, possibly simplistic, re-organisation. With rhetoric now confined to matters of style and eloquence, its practice became increasingly the target of critique by thinkers concerned with matters of the need to communicate matters of science and natural knowledge. While, ironically, entirely rhetorical in character, people of stature and influence were seeking language that was clear and concise.⁸⁴ Francis Bacon held an ambivalent attitude towards rhetoric, recognising that it played an important role: '*the duty and office of rhetoric is to apply reason to imagination for the better moving of the will.*'⁸⁵ Although recognising rhetoric as important, he confined it to the eloquent communication of that which had come to be known through science, and developed at length the way in which words produced false knowledge. This reinforced rhetoric's isolation from invention in thought, as Lauer points out, '*so Bacon's view of rhetorical invention robbed it of an epistemic function.*'⁸⁶

In 1664, the Royal Society established a committee to improve the English language, where Thomas Spratt advocated for speakers to '*reject all the amplifications, digressions, and swellings of style: to return back to the primitive purity, and shortness, when men deliver'd so many things, almost in an*

⁸³ James Franklin, *The Science of Conjecture : Evidence and Probability before Pascal* (Baltimore: Johns Hopkins University Press, 2001). p. 128.

⁸⁴ Richard Lanham refers to as the CBS school – *Clarity, brevity, sincerity – in oral and written prose.*

⁸⁵ Francis Bacon and others, *The Works of Francis Bacon* (New York: Garrett Press, 1968). p. 409.

⁸⁶ Lauer. p. 41.

equal number of words...' seeking to communicate in ways that brought *'all things as near the Mathematical plainness, as they can ...'*.⁸⁷ This quest for the symbolic that accurately and precisely represented reality can be seen as represented by the thinking of René Descartes (1596 – 1690). His *Rules for the Direction of the Mind*, though incomplete, limit reason to *'intuition'* or *'deduction'*; these rules would deal with the class of *'perfectly understood problems'* of mathematics, and hold that the class of *'imperfectly understood problems'* of empirical science could be reduced to be perfectly understood.⁸⁸ In this we find the influential idea that problems of any nature could be tackled as one would tackle a mathematical equation.

This shift was important for what was to come and where we are now. The confluence of logic, or dialectic, visual categorisation, styles of communication that suited the physical sciences, and the emphasis on the certainty of demonstrative proof, created a cultural disposition evident in the positivist impulses of modernism. This movement has given rise to the faith in scientific management techniques apparent today, the modern emphasis on numerical analysis and algorithms as pathways to knowledge, and a preoccupation with measurement as a universal approach applicable to all possible situations. This theme is developed at length by Roger Martin.⁸⁹

As outlined above, the rhetoric received into modernity was a degraded and fractured form of the art developed and practiced in ancient Greece and Rome. It is for this reason that ancient sources provide the best opportunity for gaining an understanding of rhetoric as a whole art, an integrated art of invention and production, of thinking and making in situations of civic argumentation.

5.3.4. Before Aristotle: The Origins of Rhetoric

In order to build an appropriate insight into the rhetoric of Aristotle and his contemporaries, it is necessary to understand the context in which his thinking developed.

The origins of rhetoric are usually ascribed to Corax, and later to his student Tisias, who, following the early stirring of democracy in Syracuse in 467 BCE, began to develop ways in which citizens could

⁸⁷ Thomas Sprat, *History of the Royal Society* (St. Louis: [Washington University], 1958). p. 113.

⁸⁸ René Descartes, *The Philosophical Writings of Descartes* (Cambridge [Cambridgeshire]; New York: Cambridge University Press, 1984). p. 7.

⁸⁹ See: Roger Martin, *The Design of Business : Why Design Thinking Is the Next Competitive Advantage* (Boston, Mass.: Harvard Business Press, 2009).

participate in public and legal matters.⁹⁰ Rhetoric was popularised and spread throughout Greece by the Sophists, travelling orators and teachers who would demonstrate and, for a fee, teach the methods of persuasive and elegant speech to those who could afford it. Of these practitioners, two of the most notable of the time were Protagoras of Abdera (ca. 490 – 421 BCE) and the Gorgias of Leontini (c.485 – c. 380 BCE), their impact living on through the *Dialogues* of Plato. Protagoras is regarded as the inventor of the practice of speaking to both sides of an argument, the *dissoi logoi*: ‘*there are two logoi on every subject opposed to one another*’.⁹¹ In this, the concept that knowledge could be relative and constructed came into view:

‘no absolute truth can be found, said Protagoras, but only such truths as hold for given men under given conditions; contradictory assertions can be equally true for different persons or at different times. All truth, goodness, and beauty are relative and subjective; “man is the measure of all things— of those that are, that they are, and of those that are not, that they are not.”’⁹²

Gorgias was an orator of note and was thought to have made fortunes by teaching people to speak persuasively.⁹³ He recognised the power of words in epideictic speech to move and convince an audience, as relayed via Plato in the *Encomium of Helen*: ‘*Speech is a powerful lord, which by means of the finest and most invisible body effects the divinest works: it can stop fear and banish grief and create joy and nurture pity.*’⁹⁴ Few works of Gorgias are known; it is through Plato that the sophistic method is known to us. He appears as a character in order to serve as a foil in Plato’s highly critical arguments against the Sophists. The use of clever construction and eloquent delivery of speech in order to persuade on any topic, perhaps independent of virtue or truth, was the focus of Plato’s criticisms. Plato credited Gorgias in a dialogue named for him, *Gorgias* (c. 380 BCE), with a definition for rhetoric as a ‘*producer of conviction capable of influencing the souls of the hearer*’.⁹⁵ This perspective is still with us today.

Isocrates, a student of Gorgias, went on to found a school that provided a broad civic education, focusing on both rhetoric and philosophy and emphasising performance and social production. As Haskins has developed, Isocrates’ rhetoric can be understood as ‘*a more performatively grounded*

⁹⁰ Michael Gagarin, "Background and Origins: Oratory and Rhetoric before the Sophists," in *A Companion to Greek Rhetoric*, ed. Ian Worthington, Blackwell Companions to the Ancient World (Maldon, MA; Oxford: BlackWell Publishing, 2007). p. 30.

⁹¹ Ibid. p. 33.

⁹² Will Durant, *The Life of Greece* (New York: Simon and Schuster, 1939). p. 359.

⁹³ Jeroen A.E. Bons, "Gorgias the Sophist and Early Rhetoric," in *A Companion to Greek Rhetoric*, ed. Ian Worthington, Blackwell Companions to the Ancient World (Maldon, MA; Oxford: BlackWell Publishing, 2007). p. 37.

⁹⁴ Plato and Robin Waterfield, *Gorgias* (Oxford: Oxford University Press, 1998). p.8.

⁹⁵ Bons. p. 40.

*notion of human agency and a more socially productive approach to rhetoric than can be supported by Aristotle's writings alone.*⁹⁶ Isocrates '*promotes rhetoric as a discourse that constitutes both culture and human agency. Isocratean prose underscores the performative – that is, active and continually born anew – quality of human agency.*'

In this, the work of Isocrates should be seen not as a degradation of rhetoric, but as setting the scene for the generative juxtaposition of philosophy and rhetoric, and Aristotle's understanding of the relationship of rhetoric to the *Politics*, a *techné* of *praxis* directed towards good social outcomes.

Plato's philosophy took shape in Athens, then undergoing radical change as a proto-democracy following the reforms of Cleisthenes⁹⁷ in 508 BCE. Civic issues were becoming the concern of citizens, success and stature could be determined by how well one could speak in a public forum, language became important and those that could wield it well exerted power. It was in this context that Plato's attitude towards Sophistic rhetoric was shaped. He was devastated by the trial and execution of his mentor Socrates in 399 BCE on charges of '*corrupting the youth of Athens and making new gods*',⁹⁸ an accusation often levelled at the Sophists. Socrates was said to have opposed the Sophists, claiming that '*the tuition of the sophists encouraged a dereliction of virtue in favour of vanity, political power and wealth*',⁹⁹ and this stance was presented forcefully as a literary device in Plato's *Dialogues*. Plato was not against all rhetoric as is often claimed; he was opposed, vehemently, to the expressions of sophistic oratory as were being practiced in the forums of Athens. Plato believed that there was little prospect of political progress unless society came under the guidance of philosophy: '*there will be no end to the suffering... for the human race ... unless philosophers become kings ... unless there is an amalgamation of political power and philosophy*'.¹⁰⁰ However, he built rhetoric into his construct of philosophy, and sought to develop it as he understood that his philosophical content required rhetorical forms if it was to achieve political and social goals.¹⁰¹

⁹⁶ Ekaterina V. Haskins, *Logos and Power in Isocrates and Aristotle* (Columbia: University of South Carolina Press, 2004). p. 3.

⁹⁷ *Cleisthenes established the Assembly, a political decision making body made up of all male and free citizens of Attica over the age of 20, overseen by an elected group of 10 generals.*

⁹⁸ Keith Crome, "Socrates and Sophistry," *Richmond Journal of Philosophy* 9 (2005). p. 2.

⁹⁹ *Ibid.* p. 2.

¹⁰⁰ Plato, G. R. F. Ferrari, and Tom Griffith, *The Republic* (Cambridge; New York: Cambridge University Press, 2000). p. 473d.

¹⁰¹ Harvey Yunis, "Plato's Rhetoric," in *A Companion to Greek Rhetoric*, ed. Ian Worthington, Blackwell Companions to the Ancient World (Malden MA; Oxford: Blackwell Publishing, 2007). p. 75.

Rather than its nemesis, Plato can be regarded as the originator of rhetoric as an intellectual art. He coined the term *rhetoriké* and expanded the domain of rhetoric, bringing in both literary forms and dialectic methods, dialectic being a systematic way of thinking. Aristotle of Stagira¹⁰² (384-322 BCE) studied under Plato and so was intimately familiar with Plato's critiques of sophistic rhetoric and his expansion of rhetoric as an intellectual architecture that gave voice to philosophic *truths* that could have social and political effect.

5.4. Aristotle's System of Knowledge

Richard McKeon's understanding of the nuanced and complex roles and relationships of rhetoric with respect to other ways of knowing serves as an important foundation for a positioning of rhetoric as a viable basis for developing modern productive arts. This is based on his insights into the Greek system of thought, and in particular to Aristotle's treatment of rhetoric, not as an isolated discipline as often studied, but as part of a broad system of knowledge and knowing. There are many interpretations of Aristotle's rhetoric, some finding failure and others success, however, as Gellrich recommends, embracing the apparent tensions and ambiguities allows for a rich reflection *'on the intractabilities of mastering the art of persuasion within a philosophical system.'*¹⁰³ This perspective allows rhetoric to be developed as an art *'constitutive'* in language and not merely one confined to expression, to the delivery of speech alone.

As McKeon stated:

'The influence of Aristotle, ... has been continuous from his day to the present, for his philosophy contains the first statement, explicit or by opposition, of many of the technical distinctions, definitions, and convictions on which later science and philosophy have been based, and those distinctions and emphases were broadly and ingeniously applied in the learned disciplines by the

¹⁰² Aristotle was born in 384 BC to Nicomachus, a physician, and Phaestis. His connection to Plato formed early in his career in Athens where he studied and later taught. In 343 he was appointed by King Philip of Macedon to be tutor of his son Alexander. After Philip's death in 336, Aristotle became head of his own school of 'Peripatetics', the Lyceum at Athens. Because of anti-Macedonian feeling there after Alexander's death in 323, he withdrew to Chalcis in Euboea, where he died in 322. For further details on Aristotle's life and works, see: Christopher John Shields, *Aristotle* (London; New York: Routledge, 2007). p. 17 – 22.

¹⁰³ Michelle Gellrich, "Aristotle's Rhetoric: Theory, Truth and Metarhetoric," in *Cabinet of the Muses: Essays on Classical and Comparative Literature in Honor of Thomas G. Rosenmeyer*, ed. Thomas G. Rosenmeyer, Mark Griffith, and Donald J. Mastrorarde (Atlanta, Ga.: Scholars Press, 1990). p. 241.

*scholarly sect which early attached itself to his teachings. Much of the history of civilisation in the West can be and indeed has been written in the form of a debate in which the triumph of Aristotle in the thirteenth century and the defeat of Aristotle in the Renaissance indifferently herald great intellectual advances’.*¹⁰⁴

As discussed by Buchanan,¹⁰⁵ many of the distinctions established by Aristotle have blurred, as technical innovation brings making and the sciences into close interdependence; Buchanan recognises a rejuvenation of rhetoric as a productive art that not only produces arguments that are architectonic of making and acting, but which also *‘provides an intellectual principle to organise considerations of change and its attendant dissonance in the modern world.’*¹⁰⁶

The context for the development of Aristotle’s philosophy was, as Dilnot described, a metaphysical turn: attempts at the discernment of essential *truths* and the construction of a rational basis for understanding the world was underway, in contrast to an acceptance of reality as governed by the unfathomable whims of the gods.¹⁰⁷

Aristotle sought to develop schemas that described the *‘interrelations among the sciences’*:¹⁰⁸ his framing of the ways in which humans *know* was built on and advanced from the work of others that had preceded him. McKeon describes Aristotle as recognising and paying some due to the philosophers of his time, however he was convinced of his own stature and so was able to propose concepts and frameworks that broke from previous thinking. In particular, he sought to unify the two extremes of method found in the materialism of the Atomists, such as Democritus, and in the formal dialectics of Plato. The Atomists looked to Heraclitus in rejecting the *One* to declare the *Many*¹⁰⁹ as the only reality; Plato took an opposing, Parmenidian position with his *Forms*, where an ordered and unchanging *One* stands as the primary reality, and our experienced realities standing as the *Many*, as inferior copies.¹¹⁰

¹⁰⁴ Aristotle and Richard McKeon, *The Basic Works of Aristotle* (New York: Random House, 1941). p. xi.

¹⁰⁵ See Buchanan’s discussion of Dewey’s argument on the merging of art and science in: Buchanan, "Wicked Problems in Design Thinking."

¹⁰⁶ McKeon and Backman, *Rhetoric : Essays in Invention and Discovery*. p. xxi.

¹⁰⁷ See a discussion of Dilnot’s argument in Section 2.2.3.

¹⁰⁸ Aristotle and Richard McKeon, *Introduction to Aristotle* (New York: Modern Library, 1992). p. xvi.

¹⁰⁹ This is a central concept in the discussion of Social System Design as a relational epistemology, see Chapter 4.4.

¹¹⁰ See discussion on the *One* and the *Many* in 4.4.

Aristotle found that each ‘gave explanations which were inapplicable to the changing things of experience’,¹¹¹ and so sought to create a framework that could treat both our experience of material reality as well as the ‘first principles’ that underlie that reality. Aristotle achieved this unification through the expansion of the two *causes* found with Democritus and Plato to four, and to locate the place of unification through the connection of content and form to experience and consequence. To the **material** and **formal** cause, he added the **efficient** and **final** causes, the *how* and *why*.¹¹² This fourfold schema enables explanation to be developed on any observable phenomena, and therefore able to contribute to the interdependent system of arts, sciences and *praxis*. In this, knowledge, as derived from the discovery of cause in experienced fact, is the connective tissue across the broad system of human inquiry, making and acting. As McKeon states: ‘the possibility of knowledge of any kind, theoretic or practical, depends on the discovery of causes and on the transition of individual things perceived to universals understood.’

Aristotle’s causal schema brought the concept of action and purpose into a philosophic frame, thereby building a bridge from the invariable to the changeable, from the particular to the universal, and so allowing him to ‘isolate particular ... problems from the continuum of nature’.¹¹³ From this Aristotle could develop a differentiated schema of topics and principles that were nonetheless within view of each other. Aristotle placed the *One* and the *Many* into a relational system of knowledge and knowing.

5.4.1. The Structure of Aristotle’s Knowledge System

For Aristotle, *knowing* was far more than simply being in possession of an accumulation of facts; knowledge rested on the ‘possibility of the discovery of causes’, where observed particulars can lead to generalisable elements, patterns and principles from which application back into particular aspects of the world can proceed. This progression from the particular to the universal is captured in Aristotle’s model, ‘tracing the steps from sensation, to memory, to experience (which is developed from repeated memories), to art and science.’¹¹⁴ This connects experience in the world to the facts

¹¹¹ Aristotle and McKeon, *Introduction to Aristotle*. p. xvii.

¹¹² Shields discusses causes at length, and details the fields to which he applied his schema of explanatory causation, in: Shields. p. 36 - 97.

¹¹³ Aristotle and McKeon, *Introduction to Aristotle*. p. xvii.

¹¹⁴ *Ibid.* p. xix.

of existence and on to the causes, or theories, which lie behind and explain those isolated facts within a system of knowledge.

From the perspective of knowing, the arts and sciences are brought together under the schema of the '*sciences*', an ambiguous use of the term that denotes the broader arena of knowledge, and the differentiated domains of art, which supplies the causes for '*the processes of action and production*',¹¹⁵ and of science, which supplies the causes for '*the understanding of being and natural change*.'

It is important to follow McKeon as he draws out and works through Aristotle's potentially confusing shifts in placement, which can lead to differences in the use of terms and concepts across different placements. Without this understanding of the subtle shifts that accompany shifts in placement, it is easy to misinterpret these as contradictions or errors that can lead to characterisations which diminish Aristotle's schema as a whole. As McKeon states: '*the whole classification of the arts and sciences is reduced to confusion and contradiction if a single basis is sought for it*',¹¹⁶ and so the innate capacities, learnt faculties and modes of expression are described using distinct but overlapping terms. Within Aristotle's framework for knowledge, these distinctions are made on a number of levels: four master placements that make different distinctions at different levels of resolution, from a broad overview of all knowledge, down into increasingly fine distinctions between the different forms of knowledge and ways of knowing.

The first level of differentiation is where artifice is '*contrasted to nature as an efficient cause of change*.'¹¹⁷ This draws a distinction between the artful reason of humans and the invariable and '*irrational*' (non-rational) domain of natural causation. This leads to **a second level of differentiation** between the theoretic and artificial sciences, a two-fold distinction that pulls apart an '*activity of the soul*' from actions and expressions in the world.

Within this, then, and of most relevance to this investigation, is **the third level of differentiation** between the theoretic, practical and productive sciences, a three-fold differentiation that distinguishes each of the sciences on the ends that they pursue, the ends of **knowing, acting** and **making**, while understanding that each of these exists within a deep inter-relation with the others.

¹¹⁵ Ibid. p. xvi.

¹¹⁶ Richard McKeon, "Rhetoric and Poetic in the Philosophy of Aristotle," in *Selected Writings of Richard McKeon. Vol. 1, Philosophy, Science, and Culture*, ed. Zahara Karl McKeon and William G. Swenson (Chicago; London: University of Chicago Press, 1998). p. 155.

¹¹⁷ Ibid. p. 155.

The distinction between the practical sciences of *doing* and the productive sciences of *making* can be found both in examining the difference in final cause between an action itself and actions that produce an object, and in the contrast between the actions of an agent based on volition and character and the production of an agent based on knowledge. **The fourth level of differentiation** is where the diverse range of individual arts and sciences are named according to the proper subject matters for which they were constituted to treat.

Whatever level or placement is used to examine the ways in which we know, it is clear that Aristotle meant for all the arts and sciences to be regarded as cognitive activities, as reasoned pursuits based on '*possessions of the mind*', with distinct qualities but integrated into a coherent and complete schema. This is reflected in Aristotle's treatment of these '*intellectual virtues*' in Book VI of the *Nicomachean Ethics*,¹¹⁸ a work focused not on the knowledge about practical action, but of action itself – '*we read the Ethics, according to Aristotle, not in order to know what good men are like, but in order to act as good men act*'¹¹⁹ – in this way, it is not a work of science, but of practice.

Following an examination of the moral virtues, he begins an exploration of the rational part of the soul where he distinguishes between two parts, '*one with which we contemplate those things whose first principles are invariable, and one with which we contemplate things that are variable*',¹²⁰ naming the first as '*scientific*' and the second as '*calculative*'. The calculative part is engaged in the pursuit of practical and productive truths. In this domain, Aristotle identifies the origin of production and action as **choice**, which itself is developed via true reasoning and right desire; '*hence choice is either appetitive intellect or intellectual appetite; and man is a principle of this kind*.'¹²¹

This key distinction between demonstrative knowledge and desiderative calculation frames the five intellectual virtues, the '*five ways in which the soul arrives at truth by affirmation or denial, namely art, science, prudence, wisdom and intuition*' as consistent with and contained within the systematic philosophy of knowledge which Aristotle develops across his works, and correlates with his three-fold schema of *knowing*, *doing* and *making* that remains influential today.

For those sciences with the end in *knowing*, the theoretical sciences, Aristotle made the distinctions among these the deal with '*that which cannot be other than it is, that is, of the necessary rather than*

¹¹⁸ Aristotle and others, *The Nicomachean Ethics* (London: Penguin Books, 2004). p. 144.

¹¹⁹ *Ibid.* p. xvii.

¹²⁰ *Ibid.* p. 1139a 5 – 10.

¹²¹ *Ibid.* p. 1139b 4 – 6.

the contingent'.¹²² This is the domain of the virtue of science, or scientific knowledge (*episteme*), is 'of necessity', where we come to know by either induction or deduction the 'first principles and universals', leading to demonstrative knowledge. The necessary is also the domain of the virtues of intuition and wisdom. Intuition, or just simply intelligence, in part directed towards contemplation (*nous* towards *theoria*) is that faculty where the first principles of scientific truth are grasped and understood, and then is joined with *episteme* to make up the virtue of wisdom, or philosophical wisdom directed towards contemplation (*sophia* towards *theoria*).

In contrast, those sciences with ends in the world, the sciences of *doing* and *making*, where 'things may be other than they are' and having to do with 'potentialities, situations and things which may be modified by human intelligence and volition'.¹²³ Here change is effected through reason and appetite, and where the causes are to be found in the actor and the producer, rather than in the object itself. This is the domain of the virtue of prudence, or practical wisdom, directed towards action (*phronesis* towards *praxis*) and can be correlated to Dilnot's description of the contingent domain of *artifice*. This is a faculty where character and intellect combine in deliberation with its end in good action; that is, action that results in some human good: '[w]e deliberate about things that seem to admit of being otherwise. About things that have been, will be, or are now unable to be other than what they are, no one who takes them to be thus deliberates. For there is no point to it'.¹²⁴

Similarly, art, or technical skill directed towards production (*techne* towards *poiesis*) is also concerned with the variable, but is distinguished from *phronesis* and its end in *acting* in that its end is directed towards *making*, or the 'reasoned state' of 'bringing something into being'.¹²⁵ Importantly this 'habit' is distinguished from, but not placed subordinate to, the virtues described above. For *social system design*, the primary mode of thought is that of the variable, and so the intellectual virtues of *techné* and *phronesis* will be foremost in the development of method. The virtues that bring about demonstrative knowledge are employed but take a secondary, contributory role.

¹²² Aristotle and McKeon, *Introduction to Aristotle*. p. xxiii.

¹²³ *Ibid.* p. xxiv.

¹²⁴ Aristotle and others, *Rhetoric* (New York: Modern Library, 1954). p. 1357a 4 - 7.

¹²⁵ Aristotle and others, *The Nicomachean Ethics*. p. 1140a 10 - 15.

5.4.2. Aristotelian Rhetoric

Aristotle's fundamental distinction between that which can be known through '*scientific proof*', as apart from '*dialectic and from eristic*',¹²⁶ places the related arts of dialectic and rhetoric in a profound relation with other ways of knowing. Aristotle places art as the connective tissue between experience and the theoretical sciences. McKeon then describes rhetoric as the architectonic art of making '*in so far as rhetoric is an art of thought*',¹²⁷ so locating rhetoric as an architectonic art able to encompass a continuum from an experience of the particular towards a contemplation of universals.

McKeon establishes of rhetoric as an ***architectonic productive art***, as an art of fore-thought that locates its material in particular cases, which has no subject matter of its own, but which is able to be applied to any topic, so leading to its conception as a kind of '*universal art*'. This places rhetoric and its counterpart, dialectic, in a special relationship with the other arts and sciences. Its method is not determined by its subject matter, but is dealt with on its own terms, and so is able to operate alongside of, be applied to, organise and be generative of other domains of knowledge, practice and art.

Gellrich, however, notes an ironic inversion that has echoes in modernity, to which Dilnot also alluded, namely that while rhetoric, among the other arts, is positioned hierarchically below *theoria*, it plays a formative role in the broad system of philosophy. As she argues of Aristotle:

*'... his argument for a rhetorical field, hierarchically subordinate to other philosophical disciplines, is necessitated by the unspoken imperative to maintain order in the general system of philosophy. Yet this system cannot effectively distribute rights to logos. By a reversal that Aristotle can hardly control, logos distributes rights to the system. It names, defines, and investigates philosophy, and it articulates a hegemony, which it supposedly merely serves as a sort of belated helper.'*¹²⁸

This paradox illustrates the complex and ambiguous relationship between rhetoric and the other arts and sciences but reveals that, in the end, an art that is constitutive in language can occupy an architectonic place with respect to other disciplines - an art of invention in language '*cannot simply be contained as a field within philosophy because it is that through which philosophy engenders*

¹²⁶ Aristotle and McKeon, *Introduction to Aristotle*. p. xviii.

¹²⁷ McKeon, "Uses of Rhetoric in a Technological Age." p. 4.

¹²⁸ Gellrich. p. 246.

itself.¹²⁹ Rhetoric is positioned as an artful bridging of the particular and the universal that is at once a describable method within the realm of productive sciences and an art of thought universal in scope and on equal footing with demonstrative proof and dialectic as the ways we think, reason and act in the world.

Drawing on Aristotle's broader system of what is to be known, knowing and knowledge establishes that rhetoric was not developed to be dealt with as isolated stylistic dimensions of speech, nor confined to any single subject matter. This, however, has often been the manner in which modern authors¹³⁰ have approached rhetoric, seeing it as a static subject available for dry categorisation that overlooks the sophisticated and dynamic interrelations implicit in the original articulations.

It is clear that Aristotle's knowledge framework afforded a special place to rhetoric and its counterpart dialectic: *'It is clear then, that rhetoric is not bound up with a single definite class of subjects, but is as universal as dialectic.'*¹³¹ Backman outlines how McKeon places this recovered perspective of rhetoric into the context of the challenges faced by modern technological organisations:

*'In business, architectonic rhetoric organises work among technologies isolated by their different languages, methods, and ends ... rhetoric informs the conduct of commercial enterprise in all its phases. Modern business suffers from the fragmentation of internal processes and external audiences because the historic dialogue between specialised knowledge and common opinion in the technological age lacks an appropriate structure for its conduct. Communities of knowledge form around discrete and incommunicative special interests while control of rapid change, which spreads beyond the boundaries of its origin, is the product of chance, not art, in our time.'*¹³²

As Backman goes on to summarise, rhetoric operating as an architectonic productive art works against the *'modern technological sophistries'* that *'destroys the integrated perception modern life requires'*¹³³ and our acceptance of the breakdown between potentially integrating language and the things of artifice. McKeon's development of a new rhetoric outlines an integrated art of thought and expression that provides a tool ***'... that anticipate a renaissance of rhetorical theory and practice***

¹²⁹ Ibid. p. 246.

¹³⁰ Roland Barthes provides such an erudite categorisation however his analytical approach diminishes rhetoric to a catalogue of techniques and tricks, eliminating the dynamic and adaptive qualities of the topical art.

¹³¹ Aristotle and McKeon, *The Basic Works of Aristotle*. p. 1355b.

¹³² McKeon and Backman, *Rhetoric: Essays in Invention and Discovery*. p. xxvii.

¹³³ Ibid. p. xxxi.

which promises to discover new uses for rhetoric in contemporary problems of community, communication, and action.¹³⁴

McKeon's renewed rhetoric is a form of unifying and relational epistemology. Following Aristotle's innovation in expanding the range of possible causes, it structures its architectonic role from the place of human experience and purpose. Following his schema of knowledge domains, it occupies a special place with the capacity to organise and integrate other forms of knowing and knowledge for the purpose of coherent and effective making and acting.

McKeon is arguing for rhetoric to form the basis of an art that is influential and instrumental at every level of modern, technological society and social endeavour, taking inspiration from Cicero's ambition for a broad '*civic philosophy*'. This perspective is a parallel to Buchanan's view of design as potentially a '*liberal art of technological culture*', and Dilnot's argument of the importance of design to knowledge within the context of the dominant modality of the artificial in modern life.

It is within this context that Buchanan's claim for design as a modern corollary for ancient rhetoric is supported, and validates the argument sustained in this thesis for drawing on the structures, concepts, and methods of rhetoric, as articulated by Aristotle among others, to develop a contemporary form of design: *social system design*.

As McKeon eloquently states:

*'If rhetoric is to be used to contribute to the formation of the culture of the modern world, it should function productively in the resolution of new problems and architectonically in the formation of new inclusive communities. Rhetoric can be used to produce a new rhetoric constructed as a productive art and schematised as an architectonic art ... to guide the uses of the productive arts in transforming circumstances.'*¹³⁵

¹³⁴ Ibid. p. xxxii. *My emphasis*.

¹³⁵ McKeon, "Uses of Rhetoric in a Technological Age."; McKeon and Backman, *Rhetoric : Essays in Invention and Discovery*. p. 2.

5.5. Conclusion

The renewal of rhetoric, in which McKeon plays a pivotal role, reconnects the challenges of modernity with ancient rhetoric; however it must be re-emphasised that the project of developing a *new rhetoric* is not simply a reconstitution of these old forms. While the principles of a dynamic, innovative and pragmatic civic art are recovered, there are aspects that require renovation and innovation, as there are distinct differences between cultures separated by a gulf of some 2000 years. A primary example is McKeon's realignment of the architecture of rhetoric from differentiation based on time, to one based on a spatial orientation that is integrative of the three horizons of time. This reflects Kompridis' development of the time consciousness of modern society, where the present serves as a point of confluence of the past and future, and Dilnot's redirection of theory to be located within history, via design.

By way of further example, the ideals of democracy that existed at the time certainly called for active participation in civic affairs, however this was limited to a male elite with a strict and inflexible sense of social hierarchy. This has been superseded by McKeon in his embrace of **plurality**, not only with respect to the diversity in participants in the rhetorical construction of our artificial world, but also in the intermingling of rhetoric and philosophy, of old and new. Buchanan observed that *'McKeon was an antimetaphysician – in current language, an antifoundationalist – deeply committed to pluralism and to the diversity of changing philosophic and practical perspectives whose interrelationship constitutes the ecology of culture.'*¹³⁶

Further, McKeon rescued Aristotle from his own prejudice, who, despite locating a special and architectonic place for rhetoric in his schema of knowledge, elevated the contemplation of *sophia* as the highest of all human pursuits. McKeon's pragmatic perspective brought the **relative** and **relational** into the frame:

'... he developed a philosophy of process and change directed toward invention and inquiry apparently displaying more concern for truths than for truth. The combination of objectivity and process found expression in one of the most important ideas of McKeon's philosophy. "The objectivity of facts and values is not discovered or achieved in a structure of fixities but in an

¹³⁶ Buchanan, "The Ecology of Culture: Pluralism and Circumstantial Metaphysics." p. 137.

ongoing development of achievement and invention which is compounded of advancements of science, society, and art in the creation and expression of truths and values."¹³⁷

This resonates with the trinitarian resolution of the problem of the One and the Many explored in Chapter 4, enabling a dynamic stability to emerge between absolutist models of the Truth, and the countervailing nihilistic rejection of truth. This philosophy emphasises the place of socially located and local truths in developing innovative resolutions to the problems of modernity and resonates with naming *social system design* as a relational epistemology. The focus of Chapter 6 and 7 turns to articulating methods and dimensions of practice for *social system design* drawn from the model of rhetoric as recovered and renewed by McKeon and others.

¹³⁷ Ibid. p. 137.

Chapter 6

Fundamentals of Method

6.1. Outline

The aim of this chapter, and the one that follows, is to lay out the fundamentals of method¹ for *social system design*. This argument cannot be exhaustive, nor is it intended to serve as a catalogue of detailed procedures for practice. It is intended as a unifying middle ground between the theoretical foundations for *social system design*, as argued for in Chapters 2, 3 and 4, and the diverse expressions observable in current practice, a number of which were outlined in Chapter 1. The methods and techniques developed from this point forward are done so from the perspective of the argument for a dynamic and knowledge-oriented rhetoric as developed in Chapter 5. Wayne Booth summarises the range of rhetoric and its purpose:

*'In short, rhetoric will be seen as the entire range of resources that human beings share for producing effects on one another: effects ethical (including everything about character), practical (including political), emotional (including aesthetic), and intellectual (including every academic field). It is the entire range of our use of "signs" for communicating, effectively or sloppily, ethically or immorally. At its worst, it is our most harmful miseducator – except for violence. But at its best – when we learn to listen to the "other," then listen to ourselves and thus manage to respond in a way that produces genuine dialogue – it is our primary resource for avoiding violence and **building community**.'*²

Booth's insight, albeit one skewed to a communicative modality, lies with the role rhetoric plays in the relational construction of the artificial structures that allow us to *live well together*.³ This chapter will first establish the particular disposition towards, and approach to, the use of language in the design of immaterial artefacts. Following this, a frame for *placements*, which lie at the core of effective design thinking and the emerging practice of *social system design*, is proposed. There are three themes that will be pursued in order to propose a methodological frame for *social system design*. Firstly, the principles and foundational structures that were developed in Chapter 4 will be

¹ It should be noted that use of method as a term is deliberate, as it is anchored in classical Greek etymology, where this term arose from a composite of the terms *meta*, *hodos* and *logos*: developing a meaning of the pursuit of an end via the application of an artful way, 'a shared quest for the way to truth': Dvora Yanow and Peregrine Schwartz-Shea, *Interpretation and Method: Empirical Research Methods and the Interpretive Turn* (M.E. Sharpe, 2006). p. 28.

² Wayne C. Booth, *The Rhetoric of Rhetoric: The Quest for Effective Communication*, Blackwell Manifestos (Malden, MA: Blackwell Publishers, 2004). p. xi-xii. *My emphasis*.

³ This paraphrases the title of Eugene Garver's book on Aristotle's *Politics*: Eugene Garver, *Aristotle's Politics: Living Well and Living Together* (Chicago: University of Chicago Press, 2011).

briefly summarised and will serve as a backdrop to the articulation of the essential elements of method. Secondly, insights drawn from rhetoric that are consistent with McKeon's philosophic renovation and renewal of the art are used to inform design. The perspectives of Kenneth Burke and Richard Lanham serve as the basis for an approach to language that constructs a means by which there can be deep engagement with a social situation and its constituents that enables socially useful interpretations to be made, for the purpose of shaping design arguments. The third theme to be developed in this chapter looks to the central and essential role of the concept of **placement**, positioned as a significant pillar of design thinking within *social system design*.

Chapter 7 will then examine methodological elements that are consistent with the frames developed here in Chapter 6. This will bring into focus the trajectory of practice, i.e., how to begin to engage with a socially located design venture.

During 2009, I was involved with a commercial project commissioned to assist a Queensland-based tertiary educational institution to substantially re-design its overall future direction. The issue the executive team faced was that, with de-regulation of the tertiary education sector, increasing competition amongst existing entities and the emergence of new structures for the delivery of education gave rise to the risk that, without significant change, their institution faced irrelevance within a number of years. Our firm was engaged to help shape the direction of this change using a design approach, even though they had only an intuitive understanding of the merits of this approach to creating strategy and development themes. Our brief was to guide the group through a design project that would synthesise market research they had commissioned but failed to make sense of, provide context for this information, and their aspirations, through immersive user research and, finally, use the insights generated by these activities to design a new experience pathway for students and other participants in their system.

*So what was our **product**? This became a point of contention within the co-design team as our designers and participating client employees struggled to understand what they were ultimately striving to provide for the client. All accepted that the graphic artefact, while an outstanding piece of design in itself, was not the primary product. While some members of the co-design team felt that a high quality experience pathway was our primary product, there was a broad realisation that that was not the primary product either. What the client was seeking was a new way of seeing and naming themselves, of understanding the shape of their desired future and how different this was*

from their past. The purpose of the pathway was not the same as for a set of architectural plans. It serves as a critical perspective, a place from which they could reflect on the overall intent, and understand the inter-related parts of their world — the infrastructure, processes, systems and cultures that defined who they were. In short, they were seeking to design a new idea of themselves.

*The **product**, built over many conversations amongst the designers and the executives, was nothing less than an expression of this new idea of themselves, a new way to name their system and new ways to speak to each other about how to interpret their shared past, how to imagine their desired future, and how to shape interventions to bring about requisite change. The ‘product’ we helped them design was an engaging and cohering idea held between them in language. This was represented by their concept of ‘**transitions**’, with their purpose expressed as guiding people through the vocational transitions that recur through life, as distinct from seeing gaining a qualification as a one-off occurrence. This ‘master design’, which will undergo continual re-design itself, will be used to organise and inform the design and implementation of many cycles of change to material systems, administrative processes and domains of knowledge and culture.*

This example illustrates the purpose and the challenge of *social system design*. It is primarily concerned with bringing conscious attention and creative energies to bear on the architecting ideas and ways that organise our social systems and inform many of our subsequent actions and activities, without supplanting or diminishing any of the disciplines employed in that work. Its primary modality is in the interplay of thought and language. It both uses thought and language to operate, an aspect it shares with every other human undertaking, but it also builds its designs, its products, in thought and language. Further, the design itself cannot be considered as complete until the governing idea, concept or hypothesis takes on an observable form, capable of description and evaluation, when activated within the human system. The design has no practical existence other than the one constructed by the interpretations, decisions and actions of the people participating in the human system. In this way, the design is inherently social: it owes its existence not only to designers, but also to those who have accepted the design and chosen to integrate it into their system. As our involvement in the project concluded, the design was substantially incomplete, and left in the hands of the constituents of the institution itself.

6.2. A Disposition of Language

The previous section provides insight into the general disposition required for practice in *social system design*. Focus must now turn to the central challenge for a method of this art, to take the identification of this art as primarily a design art of language and so to first and foremost craft a disposition towards, and a methodological ground in, language that serves a central role as instrument, product and civic outcome.

As a precursor to developing method, it is worthwhile bringing to the fore the characteristics of language as developed by Winograd and Flores,⁴ where the use of language is approached not as a process of symbolic manipulation, but as an intensely relational and mutually orienting '*form of human social action*'. In contrast to a tradition where words as symbols that stand directly and denotatively for the things in the world, fixed '*without reference to the context in which they appear*',⁵ language is understood as **constitutive, constructive and performative**. To paraphrase Winograd and Flores, it is through language that we **know, make and act upon** the world. In summary:

*'Knowledge and understanding do not result from formal operations on mental representations of an objectively existing world. Rather, they arise from the individual's committed participation in mutually oriented patterns of behaviour that are embedded in a socially shared background of concerns, actions and beliefs. This shift ... allows language and cognition to merge.'*⁶

To reiterate, it is this orientation towards language that underpins the primary disposition, and therefore methodological development, in *social system design*. This orientation recognises the deep reflexivity between cognition, language and concerned social orientation and action. As Wittgenstein remarked, '*the limits of language means the limits of my world.*'⁷

Designing in the indeterminate and immaterial realm of social systems requires a method for building representations of the world in thought and language, in a way that strives for the preservation, and even amplification, of the social and human dimensions of the system.

⁴ This is outlined in Chapter 4.4.

⁵ Winograd and Flores. p. 19.

⁶ Ibid. p. 78.

⁷ Ludwig Wittgenstein, Bertrand Russell, and C.K. Ogden, *Tractatus Logico-Philosophicus* (Cosimo, 2010). p. 89.

In challenging the perspective of '*naive realism*',⁸ making apt representations of the world becomes problematic. As Margolin described, whatever one makes of the deconstructionist *corpus*, the awareness that the construction of any representation of the *real* as problematic is a valuable insight, as it results in a questioning of how any reality is best represented with respect to a particular purpose. Clearly, any valid approach can neither assume that the representation is intrinsically a direct correlative for the real, nor stray towards creating representations that are wholly self-referential, those *simulacra* where there is no possibility of its ground being located anywhere other than in itself.

For *social system design*, the question of an apt approach to representation can be explored via a middle way, where the criteria for aptness calls for constructs capable of carrying over significant and substantive aspects of an indeterminate situation, standing for the real, but understood in itself as an artifice. In this, it operates as an interpretation, open to be challenged and changed for the purpose of striving not for accuracy, but for utility; for a representation that provides *insight* towards new knowledge, and *leverage* towards new making and acting.

6.2.1. Poetic vs. Scientific Realism

Kenneth Burke, the noted American philosopher and rhetorician, provides an effective frame through which such an articulation can be developed. Burke has proved to be highly influential in many fields, with a journal dedicated to his work,⁹ a significant number of books published on his philosophy¹⁰ and innumerable papers. Although his broader impact is important, one aspect in particular has relevance for constructing the foundations of *social system design* method. The argument, presented in an essay titled 'Four Master Tropes',¹¹ appears as an appendix to *A Grammar of Motives*, a work developed in conjunction with *A Rhetoric of Motives* to explore Burke's theory of *dramatism*. This essay explored the tension between two distinct approaches to

⁸ This term was coined by Winograd and Flores, see: Winograd and Flores. p. 69.

⁹ See: "K.B. Journal", The Kenneth Burke Society <http://kbjournal.org/node> (accessed 26 August 2012).

¹⁰ See for example: Kenneth Burke, Herbert W. Simons, and Trevor Melia, *The Legacy of Kenneth Burke* (Madison, Wis.: University of Wisconsin Press, 1989).; Stephen Bygrave, *Kenneth Burke: Rhetoric and Ideology* (Taylor & Francis, 2012).; Robert Wess, *Kenneth Burke: Rhetoric, Subjectivity, Postmodernism* (Cambridge University Press, 1996).

¹¹ Kenneth Burke, *A Grammar of Motives* (Berkeley: University of California Press, 1969). p. 503. Also located at: Kenneth Burke, "Four Master Tropes," *The Kenyon Review* 3, no. 4 (1941). This concept is generally regarded to have originated with Vico: Giambattista Vico, *The New Science of Giambattista Vico: Unabridged Translation of the 3rd Ed. (1744) with the Addition Of "Practic of the New Science"* (Cornell University Press, 1984). p. 129 – 131.

discovering or generating knowledge of *'the truth'*.¹² David Tell describes the essay as exploring the *'epistemic functions of four tropes'* and noted that Hebert Simon *'has spoken for many by stating that "Four Master Tropes" is a "highly provocative essay" ... capable of re-animating the inherited rhetorical tradition of the Greeks and Romans'*.¹³ Tell notes how authors have interpreted the essay from different perspectives, but reinforced the significance of the piece: *"Four Master Tropes" is, in Worsham's words, "essential to Burke's system"*.

In the essay, Burke contrast two forms of dealing with the real, *'scientific realism'* and *'poetic realism'*, which stand as two primary methods by which representations of *reality* are created. The key distinction made between these two forms is in the primary focus of each approach. Burke describes *'scientific realism'* as that concerned with *'processing'*, the systematic approach to extracting quantifiable data from a situation for the purposes of developing accurate descriptions and correlations, through statistically verifiable coverage.¹⁴ Burke notes that this approach *'need not be concerned with motivation ... all it need know is correlation'* employed for the purposes of discovering cause and effect: *'the limits of science qua science, do not go beyond the statement that, when certain conditions are met, certain new conditions are expected to follow.'*¹⁵ Importantly, this approach is aimed at developing a representation that is real in and of itself, developing a simplified reality that stands for and is able to supplant reality itself in order to uncover and explicate discoverable correlations.¹⁶

In contrast to *'scientific realism'*, Burke develops an approach described as *'poetic realism'*,¹⁷ an *'older theory of realism'*, that is primarily concerned not with **correlation**, but with matters of **substance**. Burke states that *'human relationships must be substantial'* where one seeks to *'place the motives of action, as with the relation between the seminal (potential) and the growing (actual).'* This primary concern with *being*, with the human dimensions of any social situation — motive, intent, ethics, invention and judgement — clearly marks this poetic approach from the analysis of extant material conditions that forms the primary focus of the approach of scientific realism.¹⁸

¹² Burke, *A Grammar of Motives*. p. 503.

¹³ David Tell, "Burke's Encounter with Ransom: Rhetoric and Epistemology In "Four Master Tropes"," *Rhetoric Society Quarterly* 34, no. 4 (2004). p. 33.

¹⁴ Burke, *A Grammar of Motives*. p. 505.

¹⁵ Ibid. p. 505.

¹⁶ *This should not be taken as a general critique of this approach to reality, but as establishing a basis for differentiating between approaches apt for the intent behind inquiry, in short, for appropriately selecting between a method to discover and a method to design.*

¹⁷ Burke, *A Grammar of Motives*. p. 505.

¹⁸ *This resonates with Dilnot's argument for ontology being inseparable from epistemology.*

Regarding scientific realism, Burke emphasises the reduction of a situation to data, which can be regarded as real in and of itself, and which permits the discovery of generalisable information about the situation, while the poetic approach seeks to connect to the unique humanness of the situation, as Vickers, in turn, sought to do. The goal is not to accurately describe aspects of system, but to use active, performative language to create particular insights, local *truths* or relational knowledge. This locates perspectives that provide leverage towards the goals of a civic *design*: ways of *knowing*, *making* and *acting* that are effective with respect to the particulars of the situation-at-hand.

This leads to the core of Burke's development, where he draws on rhetoric as the primary means by which the relational and substantive poetic perspective is pursued and developed. In this, the substance of human relations and social situations is accessed and understood through the application of the rhetorical devices of **four master tropes**.¹⁹

Burke's key move is to recover the possibility of employing tropes of language for a far broader use, for the 'discovery and description of "the truth".'²⁰ The Greek root of *tropos* is etymologically related to ideas of turning, changing or altering. In this sense, these tropes and, by extension, a wider range of rhetorical principles and devices, become a key means by which design and innovation can proceed in a way that accesses the *substance* of a social situation.

Burke's perspective on '*poetic*' representation — the selection or omission of characteristics for the purpose of interpreting and understanding the useful '*truths*' of a situation — is developed through these four primary lenses. To accomplish this, he draws a connection between the **four master tropes**, devices of inquiry and of invention, and the general, or '*scientifically realist*', operation with which they are associated:

'The "literal" or "realistic" applications of the four tropes usually go by a different set of names.

Thus:

*For **metaphor** we could substitute perspective;*

*For **metonymy** we could substitute reduction;*

*For **synecdoche** we could substitute representation;*

*For **irony** we could substitute dialectic.'*²¹

¹⁹ The term *trope* is commonly understood as a figurative device where a word or a phrase is employed in a different sense than would be expected, or from the literal meaning.

²⁰ Burke, *A Grammar of Motives*. p. 503.

²¹ *Ibid.* p. 503. *My emphasis.*

This juxtaposition provides directions in which the poetic, or design-based, use of these tropes can be explored. Burke notes that the lines between each of these tropes are not clear, that they *'merge into one another'*, and that given one, the others can be uncovered.

6.2.2. What the Master Tropes give to *Social System Design*

It is worthwhile to explore the character of the four tropes, as Burke's discussion of each illuminates different dimensions of this approach, upon which methods of language in *social system design* are based. Burke brings to the fore the central methodological elements of a requisite disposition towards language, and the extensive use of placements in inquiry, invention and communication.

Burke describes **metaphor** as *'a device for seeing something in terms of something else'*, bringing out the *'thisness of a that, or the thatness of a this,'* an approach that builds a **perspective** of one thing from the viewpoint and in terms of another. This allows aspects of the character of an intangible or complex thing to be accessed. Burke then makes the critical point for employing not just metaphor, but other tropes of language:

*'It is customary to think that objective reality is dissolved by such relativity of terms as we get through the shifting of perspectives (the perception of one character in terms of many diverse characters). **But on the contrary**, it is by the approach through a variety of perspectives that we establish a character's reality. If we are in doubt as to what an object is, for instance, we deliberately try to consider it in as many different terms as its nature permits: lifting, smelling, tasting, tapping, holding in different lights, subjecting to different pressures, dividing, matching, contrasting, etc.'*²²

This capacity to investigate character from many different, and often incongruent perspectives, and for building up layers of interpretation, is regarded by Burke not as a weakness, i.e., an imprecision or a prevarication, but as the singular strength of this approach. Effectively representing complex situations and the complexity of humans and their relations demands that many characters and characteristics be examined from a variety of perspectives, *'considered tentatively, in terms of other*

²² Ibid. p. 504. *My emphasis.*

*characters, for experimental or heuristic purposes.*²³ This is directly akin to Buchanan's description of the *quasi-subject matters* that designers use in order to provisionally query an indeterminate situation.²⁴

Metaphor is fundamental to the way we think and speak. Burke notes that language itself develops by '*metaphorical extension*',²⁵ where words are borrowed from familiar, corporeal or tangible situations in order to apply them to an unfamiliar, immaterial or intangible one, so as to develop understanding and knowledge of the new and strange. Alongside the power of metaphor to build sophisticated and multi-layered perspectives on a complex social situation, Burke goes on to consider the methodological role of *synecdoche* and *metonymy*, the latter being positioned as a special application of the former.

Firstly, *metonymy* is a device of scale-manipulation in both time and space. Richard Lanham notes that, for this reason, metonymy is a fundamental figure of postmodern critical thought.²⁶ Specifically, metonymy refers to the reduction of a thing through its being named by a characteristic or something closely associated, for instance, the US Government being referred to as 'the White House'.

The insight developed through Burke's exploration of metonymy relates to the nature of reduction in rhetorical terms. In contrast to the '*real reduction*' of scientific realism, the poetic use of this device leads to a '*terminological reduction*', representations as naming that are only meaningful with respect to, and in relation with, the particular situation from which they are developed, and to which a relationship is maintained. In a similar way to metaphor, employing metonymy allows for those features of a situation regarded as significant to be efficiently reduced and represented for the purpose of shaping interpretative and inventive thought. The particular tangible term is carefully chosen in order to capture and characterise distinct dimensions and where that pertinent characteristic of the complex whole of the situation is taken to provide useful insight into it.

Burke continues with an exploration of synecdoche, where representation operates via a substitution of '*part for the whole, whole for the part, container for the contained, sign for the thing*

²³ Burke offers an example where human motivation could be considered in terms of neural responses, conditioned behaviour, the movement of the planets, class struggle, or a love of God, each consideration would bring some insight into the character of motivation.

²⁴ See Buchanan's discussion in: Buchanan, "Wicked Problems in Design Thinking."

²⁵ Burke, *A Grammar of Motives*. p. 506.

²⁶ Richard A. Lanham, *A Handlist of Rhetorical Terms* (Berkeley: University of California Press, 1991). p. 102.

*signified, material for the thing made, cause for effect, effect for cause, genus for species, species for genus, etc. All such conversions imply an integral relationship, a relationship of convertibility, between the two terms.*²⁷ A simple example of synecdoche is referring to sailors as ‘hands’, as in ‘all hands on deck’.

Burke’s insight into synecdochic representation emphasises the necessary connectedness between the situation and its image:

*‘... we might say that representation (synecdoche) stresses a **relationship or connectedness** between two sides of an equation, a connectedness that, like a road, extends in either direction, from quantity to quality or from quality to quantity; but (scientific) reduction follows along this road in only one direction, from quality to quantity.’*²⁸

Burke emphasises that substantive representation cannot operate, as scientific realism does, in only one direction. While metonymy provides insights into reduction, invoking a structural synecdoche ensures that a reflexive rhythm is established between a situation and its representation, that reduction to image is counterpointed by amplification towards enactment.²⁹ To reinforce the systemic role of synecdoche, Burke identifies political representation, sensory perception and art as fundamentally synecdochic.³⁰

Indeed, the necessity to consider the relationship of various parts to a whole marks synecdoche as a form of systems thinking, and vice versa. Further, it is not difficult to see the central role that metonymy and synecdoche play in a designer’s capacity to be immersed in and interact with the complexities of social systems and yet locate those few significant elements that allow designers and constituents, in their finitude, method, or pathways, to effectively make impactful determinations; to interpret, invent, argue, judge and act, with respect to indeterminate reality. These tropes shape reduction and representation in a way that effectively accounts for relationality and so they operate as critical methodological frames for *social system design*.

²⁷ Burke, *A Grammar of Motives*. p 508.

²⁸ Ibid. p. 509.

²⁹ *‘... every art, in its nature as a medium, reduces a state of consciousness to a "corresponding" sensory body (so material that it can be reproduced, bought and sold). But the aim of such embodiment is to produce in the observer a corresponding state of consciousness (that is, the artist proceeds from "mind" to "body" that his representative reduction may induce the audience to proceed from "body" to "mind"’* Ibid. p. 509.

³⁰ Ibid. p. 508.

Burke goes on to position *irony* as the master of the master tropes, a '*perspective of perspectives*', or a *place of places*. To obtain a sense of how irony operates as a structuring trope, Burke equates dramatic irony to its '*literal*' counterpart, namely dialectic: '*Where the ideas are in action, we have drama; where the agents are in ideation, we have dialectic ... You might state all this another way by saying that you cannot have ideas without persons or persons without ideas.*'³¹

Burke's treatment of irony provides two broad insights for *social system design*. Firstly, there is an insight as to how ideation, or the generation and application of knowledge, operates in a systemic and social context. It proceeds via the active juxtaposition and interaction of an array of perspectives and characters, and where a resolution, a new idea, concept or design hypothesis emerges not from the selection of one view, but the combinatorial outworking of many views, hence:

*'Irony arises when one tries, by the interaction of terms upon one another, to produce a development which uses all the terms.'*³² Noting that people usually confuse the dialectic with the relativistic, Burke argues that relativism, akin to Thayer-Bacon's *vulgar relativism*, occurs via the '*fragmentation of either drama or dialectic*', where an agent's view is isolated and the whole is seen entirely in terms of this one position. As Gunton noted, Burke highlights the interchangeability of extremes of absolutism and relativism: '*the greater the absolutism of the statements, the greater the subjectivity and relativity in the position of the agent making the statements.*'³³

This trope underpins the multi-perspectival and conversational dynamic of a rhetorical model of design. This device accords to the foundational perspective of *social system design* as a form of relational epistemology: proceeding via ironic juxtaposition is certainly relational, and of course relative in a qualified sense. Of particular importance is Burke's observations that none of the participating sub-perspectives can be treated as either precisely right or precisely wrong, i.e., that each of these voices integrally affects one another and that '*humility is the proper partner of irony*'; or '*irony is never Pharisaic*'.

Further, each perspective is to be considered as *contributory*, and the '*character*' chosen to carry forward the development of the whole, the design, must not only adjectivally embody one of the

³¹ Ibid. p. 512.

³² Ibid. p. 512.

³³ Ibid. p. 512.

qualifications contributory towards the whole, but must also be “*substantial*”, *embodying the conclusion of the development as a whole*.³⁴

The second insight is into the requisite nature of the appropriate ‘*information anecdote*’, or, in other words, the analogical base, for the effective representation of social substance. This is important to *social system design* practice, because a reduction of the embodied design of a constituency to an ***anecdote*** that is ***not representative***, such as a crude model or a simplistic analogy, will undermine the human qualities of a design. While such artefacts are valuable elements that can hold ideas, or aid in the communication and integration of concept and structures, the more representative character is the synecdochic community of constituents itself, often named in 2nd Road practice as the *co-design team*. The design is embodied in this constituency as a radical attitudinal change, the acquisition of new, socially useful knowledge and a renewed will towards a particular form of construction or action.

6.2.3. On Selection and Omission

As noted, representation operates by way of a careful selection and omission of the innumerable possible characteristics of a situation or system.

Peter Turchi pursues this challenge of invention via the metaphor of maps and cartography. Turchi recognises that, in building representations, the core question is that of what to include or omit, where any ‘*map*’ is ‘*but one of an indefinitely large number of maps that might be produced from the same data*’.³⁵ The ‘*blanks*’, that which is omitted, can be as important as what is included: ‘*silences and utterances are not alternatives but constituent parts of map language, each necessary for the understanding of the other*’.³⁶

Omissions refer not necessarily to that which is unknown; the conscious act of omission is a choice to elevate in significance some aspects of a situation above others, along with the counter move of choosing to eliminate from view those aspects considered insignificant. In dealing with indeterminacy, this is an essential strategy for enabling finite humans to usefully interpret, design

³⁴ Ibid. p. 516.

³⁵ Peter Turchi, *Maps of the Imagination : The Writer as Cartographer* (San Antonio, Texas: Trinity University Press, 2004). p. 73.

³⁶ Ibid. p. 57.

and intervene in complex social situations. Too much information can be as damaging as too little, in that there is a risk of overwhelming effective, nimble and inventive thought. A torrent of minutiae can destroy any sense of the relational whole, forcing focus into analysing atomised detail and away from inventing themes that seek connection and coherence.

More importantly, though, Turchi identifies that '*blanks*'³⁷ provoke imagination, it is the whitespaces that create the opportunity and possibility of generating new and useful knowledge. For a representation to be useful, it needs to leave much behind. That which is included provides a rich language to provoke mental creation and construction, connotative terms that create shared conceptual territories for a thinking group in conversation. For *social system design*, it is exactly this connotative quality of language that provides the rich creative fuel for design in complex social systems. In suggesting and sustaining multiple meanings, it provides a way for us to experiment with characters, associations, combinations and juxtapositions, while maintaining a common and cohering overarching systemic theme.

6.2.4. Disposition and Tropic Method

Burke's argument with respect to the value of these *master tropes* is a pertinent example of how drawing imaginatively on rhetoric, understood as a complete art of civic invention, can serve to structure *social system design*. The insights gained through an examination of Burke's work contribute on three levels.

Firstly, and most profoundly, this locates the particular **disposition** towards language required for the effective practice of socially oriented design, providing the methodological principles by which words can be employed not simply to describe but to create the human-made world.

Secondly, it demonstrates the way in which a **poetic** frame of language enables designers to work via '*terminological reduction*' to maintain a relation to a situation and its constituents. The structure of these tropes ensures that the representation remains connected and related to the situation, and where emphasis can be placed on qualities that highlight aspects significant to *citizens-as-designers*. The apt reduction of the situation to the cognitive working surface of designers enables human-scale interaction with and design of human systems in a way that, through the construction of actionable

³⁷ Ibid. p. 47.

knowledge, opens the way to large scale expressions of agency and therefore potentially transformative design and change.

Thirdly, this lays out the key rhetorical/designerly representative strategies. The first strategy is to seek out multiple perspectives in terms of a wide array of characters. The second is to seek relational *terminological* reduction and representation and, finally, to place perspectives in active and tensional juxtaposition with other perspectives for the purpose of the '*development that uses all the terms*'.³⁸ In other words, design takes place at a whole of system level.

The tropes are also among many such devices that can be employed at the level of on-the-ground generative practice, informing the *techné* of a rhetorical design.

Burke's argument on rhetorical tropes provides clear examples of how arts more generally associated with rhetoric, and narrowly applied in modernity to matters of adornment, can be radically repositioned, landing the methods of rhetoric firmly into the territory of design. Placing Burke's argument at the centre of the methodological frame for *social system design* sets the scene for the next section of this chapter. Placements, of which the tropes discussed above are a subset, are developed as significant elements of *social system design* method.

6.3. The Method of Placements

Burke's insight into an engaged and inventive orientation towards language, structured by his investigation of four significant devices of rhetoric, provides *social system design* with the basis for developing the requisite disposition for a relational design. It further opens the way to investigating the wider implications of *tropic* method. It is clear from Burke's argument that the place of rhetorical tropes at the heart of his poetic approach is no contrivance: the essential character of these devices is such that they enable design in and of fully human situations.

This section will focus on developing a methodological frame for the application of such rhetorical devices for *social system design*. The term **placements** is used as a general conceptual tag for a diverse range of techniques and devices, as it carries a connotation of spatial quality,³⁹ which is vital

³⁸ Burke, *A Grammar of Motives*. p. 512.

³⁹ Refer to discussion on the origins of the concept of placements in Chapter 6.3.1.

to the successful use of this approach. Within 2nd Road, this is often alternatively referred to as *heuristic practice*.⁴⁰

Buchanan's four master placements can be applied, in the way of placements, in a recursive manner.⁴¹ While the schema serves as an architecture for design in general, the distinction between the visual, the material and the immaterial dimensions of design can also be used to inform and structure design activity.

To focus on placements does not diminish the role that visual representations, such as maps and diagrams, or material objects play in the process of shaping individual thought and relational interactions, for engendering '*new and meaningful relationships amongst otherwise disparate parts*', where '*[t]he resultant relational structure is not something already 'out-there', but rather something constructed, bodied forth.*'⁴² These three: placements, visualisations and objects, are not categorically distinct with respect to their roles in creation, mediation and embodiment in design. Indeed, while this thesis is focused on exploring 'figures of thought', or placements, from the perspective of rhetoric, each of the other two dimensions have also been tackled from a rhetorical perspective.⁴³ However, the boundaries between each are fluid and in practice there is significant interplay between these places in any design activity. It would be an error, however, to conflate these dimensions of practice. The rationale for a deeper treatment of *placements*, or *heuristics*,⁴⁴ in this thesis is that it is both a relatively unexplored topic with respect to an art of design and is a vital and central methodological element for *social system design*, as it was for ancient forms of

⁴⁰ See for example: Brad Graham and Tony Golsby-Smith, "High Performance Thinking," (Sydney, Australia: 2nd Road, 2008). High Performance Thinking manual ... unpublished client training material 2009.

⁴¹ Refer to discussion in Chapter 2.2.4 and 4.2.3 on the four orders schema.

⁴² James Corner, "The Agency of Mapping: Speculation, Critique and Invention," in *Mappings*, ed. Denis E. Cosgrove (London: Reaktion Books, 1999). p. 229.

⁴³ Buchanan has examined designed objects from the perspective of rhetoric in: Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice." *Visual rhetoric is a well established field in both theory and practice*, see, for example: Roland Barthes, "The Rhetoric of the Image," in *Image, Music, Text*, ed. Stephen Heath (New York: Hill and Wang, 1977). and Sonja K Foss, "Theory of Visual Rhetoric," in *Handbook of Visual Communication: Theory, Methods, and Media*, ed. Kenneth L. Smith et al. (Lawrence Erlbaum Associates Mahwah, NJ, 2005). Victoria Gallagher and others have noted the role of image and word in a rhetorical context in developing vivid representations, through reference to the rhetorical figure of enargeia. They propose that an 'argument can be made for the interrelatedness of rhetoric and the visual arts, particularly in the field of design.' See: Victoria J. Gallagher, Kelly Norris Martin, and Magdy Ma, "Visual Wellbeing: Intersections of Rhetorical Theory and Design," *Design Issues* 27, no. 2 (2011). p. 27.

⁴⁴ For an example of the use of the term heuristic in a design context, see: Seda Yilmaz and Colleen M. Seifert, "Creativity through Design Heuristics: A Case Study of Expert Product Design," *Design Studies* 32, no. 4 (2011).

rhetoric.⁴⁵ On the other hand, the visual dimensions of practice have been extensively developed in literature,⁴⁶ and the pervasive focus on the material dimensions of designing is beyond question.⁴⁷

Placing the other dimensions to one side allows a more detailed exploration of the characteristics of rhetorical placements and a development of the potential role that it can play in *social system design*. Bonsiepe and Lupton *et. al.*⁴⁸ were among the earliest to gain insight into design from the perspective of rhetoric, however Buchanan has gone further in explicitly juxtaposed placements and design practice:

*'In actual practice the designer begins with what should be called a quasi-subject matter, tenuously existing within the problems and issues of specific circumstances. Out of the specific possibilities of a concrete situation, the designer must conceive a design that will lead to this or that particular product ... this is where **placements** take on special significance as tools of design thinking. They allow the designer to position and reposition problems and issues at hand. Placements are the tools by which a designer intuitively or deliberately shapes a design situation ...'*⁴⁹

As Buchanan indicates, a primary concern with respect to method is the capacity to provisionally grapple with the particulars of a social situation, to be able to explore the situation through multiple perspectives and to be able to propose and test interpretations with respect to the significant aspects of a situation, the relationships between them and the insights that can be developed to drive invention.

Buchanan further notes that practicing designers often apply placements intuitively, including Jay Doblin's use of the tensional '*intrinsic/extrinsic*'⁵⁰ placement, and Ezio Manzini's argument that designers require '*two mental instruments with opposite qualities to examine a design situation: a*

⁴⁵ 'Despite the contemporary revival of interest in topical invention among rhetoricians and informal logicians, the 'commonplaces' (*loci communes*) of classical rhetoric have received little attention. When considered at all, they are typically dismissed as sterile or mechanistic substitutes for genuine argumentative invention' *however classical rhetoricians believed 'that the commonplaces have an important heuristic function' and should be of 'interest to contemporary students of argumentation.'*, in: Michael Leff, "Commonplaces and Argumentation in Cicero and Quintilian," *Argumentation* 10, no. 4 (1996). p. 445.

⁴⁶ See for example: Zafer Bilda, John S. Gero, and Terry Purcell, "To Sketch or Not to Sketch? That Is the Question," *Design Studies* 27, no. 5 (2006). and Goldschmidt; Gabriela Goldschmidt, "Visual Analogy - a Strategy for Design Reasoning and Learning," in *Design Knowing and Learning: Cognition in Design Education* ed. C. Eastman, W. Newstetter, and M. McCracken (Oxford, UK: Elsevier Science, 2001).

⁴⁷ Refer to discussions in Chapter 4.3.3. Within 2nd Road practice we found it valuable in communicating our approach to design with practitioners and clients to hold apart the heuristic, visual and other dimensions of designing.

⁴⁸ Lupton and Ehses.

⁴⁹ Buchanan, "Wicked Problems in Design Thinking." p. 17. *My emphasis.*

⁵⁰ *Ibid.* p. 13.

microscope and a macroscope'.⁵¹ Bryan Lawson, in analysing interactions between experienced designers, in this case architects, noted the use of words that served as compact references to a complex set of ideas:

*'I spent some time in MacCormac's design office and in the space of one day I heard three members of the practice use the word 'belvedere'. Of course, this is a perfectly acceptable architectural term but hardly common parlance even in a contemporary practice. This suggested that this word represented a complex set of ideas that were common ground within the practice.'*⁵²

Recognising the form as a 'schema', Lawson goes on to describe the way in which this *place* was used in this instance of practice:

'... the schema of 'belvedere' was not restricted to the commonly shared idea of a viewing tower. For them, it was not a matter of a building typology at all but rather a whole series of devices for organising space vertically in order to afford dramatic views that helped building users to build mental maps of their surroundings. They collectively delight in these ideas and have studied them and exploited them in previous designs.'

He goes onto identify, from within this one practice, the use of 'gambits' and 'precedents'; the designer has: *'many geometric precedents that he relies on. These 'tricks' or gambits are actually patterns known to have certain properties and to offer certain capabilities. These are applied as appropriate.'*⁵³

Lawson's research provides useful insight into the development of tacit knowledge in experienced designers, and the intuitive way that the devices and techniques he describes are developed through the interactions of designers and a design task. However, the devices and techniques he describes are tacit examples of rhetorical *topoi*, yet this is seemingly not understood, and so an opportunity to explore the use, entirely tacit as it is, of recognisable aspects and elements of rhetoric in design practice was missed.

Placements are of particular and central importance to *social system design*. It is necessary to move from instances of tacit practice towards an explicit methodological frame. This will enable ongoing

⁵¹ This placement is similar to the device 'Zoom In/Zoom Out' used in 2nd Road practice.

⁵² Bryan Lawson, "Schemata, Gambits and Precedent: Some Factors in Design Expertise," *Design Studies* 25, no. 5 (2004). p. 446.

⁵³ Ibid. p. 449.

development within the art: articulation and education for practitioners and will serve as the basis for communal and collaborative design practice.

6.3.1. Describing *Placements*

As an approach individual techniques and devices, **placements** or '**places**' — *topoi*⁵⁴ in Greek and *loci* in Latin — are central in both the inventive and communicative parts of rhetoric. They serve as an effective means by which issues can be grappled with, and the unknown and ambiguous explored and structured for the purpose of insight, innovation and presentation.

Although the subject of *topoi* generates significant controversy and contestation in rhetorical scholarship, the central role of a topical method in the invention and communication of arguments is widely accepted. Lanham describes them as '*both the stuff of which arguments are made and the form of those arguments*'.⁵⁵ Rubinelli states that: '*(i)n classical logic and rhetoric the strategies of argumentation known as topoi played a crucial role.*'⁵⁶

Much of the contestation with respect to *topoi* can be traced to the complicated and, at times, contradictory treatment of this subject by Aristotle, Cicero and later scholars. Firstly, Aristotle used topical schemes in both his treatment of logic, as well as for the dialectic and rhetoric.⁵⁷ Then, within the *Rhetoric*, Aristotle makes many references to *topoi* throughout the work, with different roles and operations ascribed for different aspects of rhetorical practice.⁵⁸ This does not appear to be problematic for Aristotle, who, as described in Chapter 5, did not insist on exclusive and singular definitions of concepts and methods. He could allow for a degree of flexibility in the definition and application of a concept and its associated methodological elements, such for the *topos*, to fit the requirements of the particular situation to which it was to be applied.

'But, for the most part, the classical authors displayed little interest in theoretical issues; sometimes they modified or rearranged categories in the system, and occasionally they quarreled about small

⁵⁴ The origin of the concept of *topoi* is credited to the orator Simonides of Ceos, who used a mental image of the physical layout of seating in order to recall the names of those who perished after a banquet hall had collapsed.

⁵⁵ Lanham, *A Handlist of Rhetorical Terms*. p. 152.

⁵⁶ Sara Rubinelli, "The Ancient Argumentative Game: *Topoi* and *Loci* in Action," *Argumentation* 20, no. 3 (2006). p. 253.

⁵⁷ See for example: Aristotle and others, *The Organon* (Cambridge, Mass.; London: Harvard university press; W. Heinemann ltd., 1938).

⁵⁸ Refer to Sara Rubinelli's treatment of the different application of *topoi* in Section 6.3.3.

*issues of classification, but mainly they treated the topics like so many tools on a shelf—as long the rhetor knew how to get hold of a topic and use it, there was not much need to fuss about abstract considerations.*⁵⁹

Following the post-Roman decline of rhetoric as a dynamic civic art, and its shift in emphasis from conceptual invention to eloquent oration, developments with respect to *topoi* were often focused on categorisation and analysis. During the twentieth-century revival of rhetoric, the prominent contributions of Toulmin⁶⁰ and Perelman, and Olbrechts-Tyteca's *New Rhetoric*,⁶¹ took a rational and analytical approach to the categorisation and description of the *topoi*. Although these works have played a part in the modern revival of rhetoric, they have pursued an extensive cataloguing of the techniques of argumentation '*provides no direct aid to invention*',⁶² giving way to the '*virtue of copiousness*'.⁶³ In doing so, the dynamic and situated qualities of *topoi*, so essential to exploration and invention in the unique particulars of social settings, have been overlooked.

In contrast to the traditions of the analytical approach, there are scholars who have sought to recover *topoi* in a way that does not require '*subordinating rhetorical invention to an abstractly conceived system of dialectical argument*'.⁶⁴ They instead focus on the inventive, pragmatic and practical interpretation of rhetoric, where the tradition aims to '*promote the faculty of doing things with language*'.⁶⁵

While originally concerned with the development of civic discourse and argumentation, mnemo-technique, the concept of *placement* has profound implications for constructing useful perspectives on how thought and language operate in invention and design, in the context of the relational and immaterial systems and structures. It is important to recognise that methods of *placement* are not arbitrary or contrived, but should instead be seen as an emergent outworking of an often under-recognised characteristic of human thought.

⁵⁹ Leff, "Up from Theory: Or I Fought the Topoi and the Topoi Won." p. 205.

⁶⁰ See, for example: Stephen Toulmin, *The Uses of Argument* (Cambridge [Eng.: University Press, 1958).

⁶¹ Chaim Perelman and Lucie Olbrechts-Tyteca, *The New Rhetoric: A Treatise on Argumentation* (Notre Dame: U.P., 1969).

⁶² James Crosswhite, "Awakening the Topoi: Sources of Invention in New Rhetoric's Argument Model," *Argumentation & Advocacy* 44, no. 4 (2008). p. 169.

⁶³ *Ibid.* p. 175.

⁶⁴ Leff, "Up from Theory: Or I Fought the Topoi and the Topoi Won." p. 206.

⁶⁵ *Ibid.* p. 209.

6.3.2. The Embodied Nature of Conceptual Thought

It is worthwhile examining this claim, as it cements the relationship of *place* to socially connected and active cognition, and so provides a strong argument of locating *placements* at the heart of *social system design* method and reinforcing the role that design thinking occupies within the art.

John Searle has noted that few recent philosophers of language '*attempt to treat language as a natural extension of non-linguistic biological capacities. Language is not seen as continuous with, nor as an extension of, the rest of our specifically human biological inheritance.*'⁶⁶ His views the philosophy of language as intertwined with the development of symbolic logic.

As Winograd and Flores demonstrated, being, social action, language and cognition are intertwined and mutually reflexive. Mark Johnson has continued in this vein and developed an extensive theory of cognition, which seeks to challenge the hold that analytical philosophy has on how we think about human thinking and how we come to meaning, and so to meaningful and actionable knowledge.

Johnson looks to overturn the '*harmful misconceptions*' of these traditions; that '*(1) the mind is disembodied, (2) thinking transcends feeling, (3) feelings are not part of meaning and knowledge*' and '*(4) aesthetics concerns matters of mere subjective taste.*'⁶⁷

Leading on from the groundbreaking work developed with George Lakoff⁶⁸ on the role of conceptual metaphor in thought, he has further explored the essentially metaphorical nature of cognition and the fundamental role that embodiment and our inextricable coupling with the experienced world has with regard to how we make meaning and meaningful knowledge. Johnson critiques those philosophers that neglect '*notions like quality, emotion and feeling*' and '*their mistaken view of these as nothing but subjective mental states that are "merely aesthetic" matters of subjective judgement and taste.*'

Johnson establishes as a fundamental premise that his approach creates an alternative to '*mind/body dualism*', and the pervasive perspective of the disembodied mind, exemplified by the radical dualism of Rene Descartes and his elevation of pure thought above and distinct from body. As Johnson notes, this is not a recent phenomenon, as there are clear echoes of Platonic thought in

⁶⁶ John R. Searle, "What Is Language? Some Preliminary Remarks," *Etica & Politica / Ethics & Politics* XI, no. 1 (2009). p. 174

⁶⁷ Mark Johnson, *The Meaning of the Body : Aesthetics of Human Understanding* (Chicago: University of Chicago Press, 2007). p. xi.

⁶⁸ Lakoff and Johnson.

Descartes' writing, and similarly in the Kantian '*pure reason*'. He goes on to argue that these forms of reasoning '*generate formal structures that are... not based on anything empirical and thus are in no way dependant on our embodied, phenomenal selves*'.⁶⁹ This primary dualism then creates an '*ontological divide*', giving rise to further dichotomies present in our culture, such as the exclusionary relationship between cognition and emotion.

Noting the tendency for the body to '*hide itself*', in that our body schema is held and operates unconsciously or pre-cognitively, Johnson instead argues that mind and body must be seen as one, and that our theories of cognition, and by extension methods of thinking, speaking and meaningful acting, must be founded on this basis. Rather than aesthetics being external and subjective, qualities of form are central, and underpin our unique capacities for abstract and conceptual thought (and design).

Abstract thinking and **conceptual propositions** are **embodied processes**; we have evolved only one '*logical and inferential system*' where our capacities for abstract reasoning are not distinct from, but arise from our bodily experiences. For Dewey, this meant that '*we must be able to move without any ontological or epistemological rupture from body-based meaning ... all the way up to abstract conceptualisation*'.⁷⁰ Johnson proposes that the very basis of our capability to create concepts, propositions and meaning lies in movement. These capabilities originate from the '*felt qualities and patterns of our bodily movements and interactions with objects*'.⁷¹ This imbues our thinking with an inextricably **spatial** and **temporal** quality; Johnson and Lakoff have developed extensive sets of *image schemas* that demonstrate the very natural and instinctive recourse to experiences of space and time to build our sense of difficult and abstract notions.

Johnson identifies four qualitative dimensions of movement: tension, linearity (or direction), amplitude and projection (or velocity). These qualities are essential to our being and our cognition, and so provide structure for thinking, both individual and shared. Time is similarly experienced and conceptualised '*via deep, systemic spatial-movement metaphors in which the passage of time is understood as relative motion in space*'.⁷²

⁶⁹ Johnson, *The Meaning of the Body : Aesthetics of Human Understanding*. p. 7.

⁷⁰ Ibid. p. 176.

⁷¹ Ibid. p. 19.

⁷² Ibid. p. 28.

Having established his argument for *embodied cognition and meaning*, Johnson turns to examine the implications of the intertwining of body, emotion and intellect. His exploration of the means by which abstract conceptualisation can arise from embodiment turns to the same structures that Burke used for his exploration of realism, to tropes and in particular the conceptual metaphor.⁷³ Building on ‘*second generation cognitive science*’, Johnson makes the case that metaphor has a central role in reflective and creative thought, and that ‘*nearly all abstract conceptualisation works via conceptual metaphor ... metonymy and ... other principles of imaginative extension*’,⁷⁴ and where complex, systemic metaphors are a combination of ‘*primary metaphors*’, grounded in a particular sensorimotor domain.

The fundamental operation is the use of the known and familiar, the most profound of which is our essential embodiment, and allows us to ‘*appropriate the semantics and knowledge structures of a sensorimotor source domain to understand an abstract target domain*’.⁷⁵ The spatial qualities as described by Johnson can be recognised in both the classical topoi of rhetoric, and many of the proprietary placements, or heuristics that 2nd Road uses in practice and others have developed in their own practices.⁷⁶

Johnson’s work provides a place for *placement*, locating for *topoi*, particularly the active intentional devices, rooted in the essential nature of our cognition, our selves, and our *situatedness*.

Placements are grounded in visible and felt experience, but constitutive of conceptual structures and governing ideas. This account provides insight into the fundamentally embodied and situated nature of our cognition, and how our relation to our physical bodies, each other and our environments is implicated in the generation of knowledge. It is a significant foundation for an art of *social system design*, and connects the ideas of relational epistemology with practice.

6.3.3. Understanding the Role and Structure of Placements

As developed through Burke, the cognitive operation of topoi such as metaphor is transformative and purposive, not simply figurative: ‘*It is precisely through metaphor that our perspectives, or*

⁷³ See for example: Lakoff and Johnson.

⁷⁴ Johnson, *The Meaning of the Body : Aesthetics of Human Understanding*. p. 178.

⁷⁵ Ibid. p. 179

⁷⁶ See for example the popular application of heuristic techniques in: Michael Michalko, *Thinkertoys : A Handbook of Creative-Thinking Techniques* (Berkeley, Calif.: Ten Speed Press, 2006).

*analogical extensions, are made – a world without metaphor would be a world without purpose.*⁷⁷

This reflects Aristotle's description of the role of such devices in enabling our grasp of new ideas and novel configurations, the keys to effective design thinking:

*'We all naturally find it agreeable to get hold of new ideas easily: words express ideas, and therefore those words are the most agreeable that enable us to get hold of new ideas. Now strange words simply puzzle us; ordinary words convey only what we know already; it is from metaphor that we can best get hold of something fresh.'*⁷⁸

Lanham also explores the transformative capability of metaphor noting that the device operates not simply by the juxtaposition of two things, but by the creation of '*a third, new meaning*';⁷⁹ the transformative qualities lies in the oscillation between the familiar and the unknown and abstract. '*To appreciate the metaphoricality of a metaphor we must posit a non-metaphorical, normative 'reality' against which to project the metaphorical transformation*'; metaphor is essentially inventive, extending from a norm to a new, transformed perspective.

Enos and Lauer have extended these treatments on metaphor to include the wider application of rhetorical topoi to the creation of knowledge, recognising the inventive and so potentially transformative. Noting that in contrast to the '*traditional*' treatment where invention is restricted to categorising and transmitting pre-existing ideas, *heuristic* (or the Latin *inventio*) should instead be understood as '*...the way meaning is co-created between rhetor and audience and how, through this process of interaction, participatory meaning is shared.*' The place of heuristic in a dynamic rhetoric is how it operates '*between rhetor and audience in constructing probable knowledge*'.⁸⁰

Enos and Lauer's interpretation of '*Aristotle's notion of heuristic as an epistemic process*' liberates the *topoi* to operate in a way that energises '*ideas through the socially shared understanding of such modes of relational thought.*'⁸¹ They describe this relational co-creation of new socially relevant knowledge as '*a reciprocal action of mutual needs and values between the rhetor and audience motivate the epistemic act*'⁸² that rests on the *heurein*⁸³ – in other words, the *topoi*, or *heuristics* of

⁷⁷ Kenneth Burke, *Permanence and Change : An Anatomy of Purpose* (Berkeley u.a.: Univ. of California Press, 1984). p. 194.

⁷⁸ Aristotle and others, *Rhetoric*. p. 1410b.

⁷⁹ Lanham, *A Handlist of Rhetorical Terms*. p. 100.

⁸⁰ Richard Leo Enos and Janice M Lauer, "The Meaning of Heuristic in Aristotle's Rhetoric and Its Implications for Contemporary Rhetorical Theory," in *Landmark Essays on Aristotelian Rhetoric*, ed. Richard Leo Enos and Lois Peters Agnew (Mahwah, N.J.: Lawrence Erlbaum Associates, 1998). p. 203.

⁸¹ *Ibid.* p. 205.

⁸² *Ibid.* p. 208.

an inventional art. In this incarnation, '*Aristotelian invention [is] a complex social act*' focused on '*guiding rhetors and audiences to problematize experience, cultural beliefs, and current theories to co-create new meanings*'.⁸⁴

McKeon also explored the transformative potential of placements, but noting the challenge of differentiating a method of placements which '*preserves a productive systematic ambiguity from which new insights may be derived and new consequences constructed*'⁸⁵ from the familiar commonplaces that the products of such design becomes. He notes that the placements which '*innovate and transform, invent and discover, may be detected in their effective use but can never be stated univocally, clearly or distinctly.*' The *topoi* of design dissolve into the product they structure, and the heuristic art is a '*commonplace of commonplaces*', the place in which the '*certainties of the familiar are brought into contact with the transformations of innovation*',⁸⁶ echoing the role of irony in Burke's design schema.

It is instructive to build an interpretation of the different kinds of *topoi* as developed by Aristotle, as this has served as the basis for many subsequent developments of *topoi* and topological systems, and provides the basis for differentiating between different kinds and applications of *topoi* for *social system design*. As Cicero recognised, the formalisation of the topical arts can be traced to the works of Aristotle. Extensively developed in his *Topics*, Aristotle saw that *topoi* had application in any venture in human inquiry and invention: '*Aristotle ... originally developed the method of topoi to enable speakers to argue in dialectical debates. Yet, in [Topics A 2, 101a 25 – 101b4] he explicitly admits that the treatise has a value outside the context of dialectical debates*'.⁸⁷

For Aristotle, the apprehension of the truth was of critical importance, and the topical methods of rhetoric were aimed at uncovering truth via reasoned argumentation and sound judgement '*... in order that we may see clearly what the facts are, and that, if another man argues unfairly ... we may be able to confute him ...*'.⁸⁸ The *topoi* are a primary tool for practitioners in the invention and

⁸³ Heuristic as a term operates as a placement for both the acts of invention and the devices through which invention can occur.

⁸⁴ Enos and Lauer. p. 209.

⁸⁵ Richard McKeon, "Creativity and the Commonplace," *Philosophy & Rhetoric* 6, no. 4 (1973). p. 208.

⁸⁶ Ibid. p. 34.

⁸⁷ Sara Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero," (Dordrecht: Springer, 2009). <http://dx.doi.org/10.1007/978-1-4020-9549-8>. p. 43.

⁸⁸ Aristotle and others, *Rhetoric*. p. 1355a 31 – 33.

construction of arguments, which operate as the central medium for *social system design*.⁸⁹ Gross highlights that when *topoi* are regarded as a part of arguments, their generative use is traded for a structural one. Aristotle's spatial metaphor emphasises the idea of a place or container where new combinations of concepts can occur in order to make new connections between propositions and audiences: '[t]he *topos* is like a cauldron in which form and substance are brought together, where *hylê* and *eidos* interact to create material shaped for argument and persuasion.'⁹⁰ Placements are that from which arguments are made and '[w]ith the *topoi*, one becomes familiar with the most common types of possible arguments and, consequently, acquire the ability to recognise the most appropriate schemes to be used in each situation'.⁹¹

There is no definitive frame for different kinds of *topoi*, however Sara Rubinelli develops that there can be distinguished **four** distinct uses of the concept. These are:

1. the *idioi topoi*, which structure disciplinary knowledge,
2. the *koina topoi*, which are used as architectural structures for arguments in general,
3. the *topoi*, which operate to structure the content of argument and
4. the *atechnic placements*, or commonplaces that operate as structures of situational knowledge.

It is beyond the scope and concern of this thesis to conduct an extended examination of the figures of traditional rhetoric with respect to their value to modern genres of design. However, the structures and particular examples of *topoi* described below are intended to serve as a foundation for potential ongoing development of the concept of placements as a method within *social system design*.

Firstly, there are the special topics, *idioi topoi*,⁹² which are applicable to structuring specialised and particular domains of knowledge or expertise for the purpose of invention and argumentation. Rubinelli, however, argues from her investigation of Aristotle's works that these are not strictly *topoi*, but are instead '*premises*', *protaseis*, or content contributing to the invention and construction of concept and argument. Thus Aristotle '*speaks of idia that are the protaseis that put forward the specific contents of specific disciplines ... the topoi, being abstract schemes of*

⁸⁹ The central place of argument for carrying the designs of Social System Design is developed in Chapter 7.3.

⁹⁰ Gross and Walzer, eds. p. 136.

⁹¹ Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 44.

⁹² Lanham, *A Handlist of Rhetorical Terms*. p. 167.

*arguments, require material for their practical application.*⁹³ *Idia* can be understood as principles and structured content that serves as a contribution from whichever particular disciplines⁹⁴ are engaged in invention and design, and are distinct from the general structuring tasks that the *topoi* perform. By way of example, an *idia* for deliberative argument concerns the differentiation between the advantageous and the disadvantageous.

The **second** class are the *common topics*: the *koinoi topoi*, which are widely agreed to be those abstract structures that can be universally applied to any subject matter for the development of reasoned argument. *'Aristotle notes that in addition to the contents that relate to each single rhetorical genre, orators should also know other contents which can be used to construct arguments generally. There are some propositions which orators can use for any argument and which are named as koina (literally 'the common things')*.⁹⁵

Rubinelli challenges the common conflation of *koina* and *topoi*, noting that in the *Rhetoric* these terms do not occur together: *'What Aristotle calls the koina are still protaseis – and not argument schemes – concerning the possible and impossible ..., the past and future... and amplification and depreciation'*. Aristotle distinguished these *koina* as a kind of *'universal content'*, the things that are commonly and universally used as contributing forms of premise to the development of argument; for instance, concerning the *koina* of the possible/impossible, he declares: *'[i]f it is possible for the opposite of something to exist or to have happened, the opposite would also seem to be possible'*,⁹⁶ or in dealing with more/less: *'If not even the gods know everything, human beings can hardly do so.'*⁹⁷

In contemporary practice, there are devices that operate as *koina topoi*. One such device drawn from 2nd Road is a device that orients and shapes the overall trajectory of design effort relative to the situation at hand and the organisational context in which it is located. The *Thinking Wave*⁹⁸ is a

⁹³ Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 65.

⁹⁴ *An example of accessing multiple disciplines for the purpose of design are the ATO Product Families, where the main disciplines that contributed to tax administration, such as legal, information technology, education, marketing, and operations were formally recognised as those knowledge domains that had to be part of any Integrated Tax Design project, with each bringing the particular discipline knowledge required to contribute to any emergent design. See: The Guide: Applying an Integrated Approach to Tax Design.*

⁹⁵ Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 67.

⁹⁶ Aristotle and others, *Rhetoric*. p. 1392a 9 – 10.

⁹⁷ *Ibid.* p. 1397b 12 – 13; *the topos of Past Fact/Future Fact is another example of koina.*

⁹⁸ *This is a proprietary device invented and owned by 2nd Road, see: Graham and Golsby-Smith.*

simple visual model that illustrates some of the key characteristics of conceptual and generative thinking, as well as providing a shared means of navigating and marking the trajectory of design.

Imagery of a wave was chosen as the metaphorical substrate in order to draw a parallel between the swell and motion of waves and the changing and adaptive energy of thinking in design – the energy of dilemma, challenging events and personal motivations. The *lifting* of the wave above the background *surface* of operational life is used to represent a conscious move into a sphere of reflective thought, with the amplitude of the wave then used to represent the ensuing energy and inventiveness of design thinking. To continue with the metaphor, the wave of design shaped by thought then *breaks* back onto the surface, creating disruption and change. In working with groups tackling design challenges, this device can help the group diagnose where they are on the design trajectory, for instance: *is the wave still building or should it be breaking, is the wave flat or an unmanageable tsunami?*

It is often coupled with the *Levels of Work Model*, a heuristic adaptation of an aspect of the extensive theory developed by Elliot Jacques⁹⁹ regarding *requisite organization*, drawn from his *Stratified Systems Theory*. The *Levels of Work* concept was based on Jacques' insight that in effective organisations, differentiated layers of management focus and work are in place, with the differences based on the complexity and time-span of tasks.¹⁰⁰

Differentiated from the *koina topoi*, the **third** approach identified in Rubinelli's four-place topical schema is named by Lanham as the 'valid topics', but these Rubinelli names simply as 'the *topoi*'. A representative set can be found in a section of the *Rhetoric* (B23) and have invited much debate, however Rubinelli argues that Aristotle meant them to operate as devices for structuring the content of invented argument. This class of *topoi* are of particular relevance to developing method for *social system design*. It is with this class that a diverse array of devices can be found for locating and shaping any particular challenge and to shape both the design situation, the contributing content of design, and the overall form of a design itself.

⁹⁹ This is developed from: Elliott Jaques, *Requisite Organization* (Arlington: Cason Hall & Co. Publishers, 1996).

¹⁰⁰ Michael Raynor argues that this is one of the most under recognised management theories of the 20th Century, in: Michael E. Raynor, *The Strategy Paradox : Why Committing to Success Leads to Failure, and What to Do About It* (New York: Currency Doubleday, 2007).

Such a schema has been outlined by Corbett and Connors,¹⁰¹ with a very similar resource developed at *Silva Rhetorica*.¹⁰² The schema outlined below follows the one outlined in these references. This representative set of *topoi* can be identified as *entechnic*, or artistic, meaning that it is located in the domain of conception and invention by those constitutive of a design argument. In this schema, the range of devices are organised by three themes:

1. *Topoi* of Definition
2. *Topoi* of Comparison
3. *Topoi* of Relationship¹⁰³

It should be noted that, as Burke described for the four master tropes, these are not sharp, categorical boundaries. These themes are themselves places, where there is no definitive classification of devices, and these themes cannot be regarded as exhaustive. The themes are explored at greater length below.

The first group within the *topoi*, those of **definition**, are those devices that take a range of approaches to building the description of a thing or phenomenon, either directly or in relation to something else. Focused description can take the approach offered by the classical device *horismus*: a clear, brief and sharp description. There can also be an indirect approach, as with *systrophe*, where something is described via a series of qualities or characteristics.

Definition also includes those *topoi* that offer a description via inclusion in a larger class of things, or by reference to like things. The *topoi* of *genus* and *species*, or *division* in Corbett and Connor's scheme, are of this kind, with *genus* used to identify a thing with a broader class of things, while *species* operates by breaking a thing into constituent parts, or identifying it with like things, or things that share a common theme.¹⁰⁴ The *topoi* of description can extend from orthodox definitional forms such as description, specification or etymology, to those devices described by Burke in his argument on realism, namely metonymy, synonym and synecdoche, although these can also be understood as *topoi* of comparison.

¹⁰¹ Edward P. J. Corbett and Robert J. Connors, *Classical Rhetoric for the Modern Student* (New York: Oxford University Press, 1999). p. 97 – 132.

¹⁰² Gideon O. Burton, "Silva Rhetoricae", Brigham Young University www.rhetoric.byu.edu (accessed 28\07\2011 2011).

¹⁰³ *Adapted from list in*: Corbett and Connors. p. 97.

¹⁰⁴ 'I pass with relief from the tossing sea of Cause and Theory to the firm ground of Result and Fact': Lanham, *A Handlist of Rhetorical Terms*. p. 60.

In contemporary practice, one of the most commonly employed placement structures is named in 2nd Road parlance as **Circling** or **Peering**, where a group is invited to shift their perspectives around and across a situation, in order to expand the range of inquiry. This is done by selecting a coherent set of nodes, of places within a place, that act as a perceptual filter onto the situation. These are an adaptation of the journalistic commonplace of *Why?, What?, How?, Who?, Where?, When?*, playfully named as the *Kipling Map* after Rudyard Kipling's poem '*I Keep Six Honest Serving Men...*'. These can be configured to explore the material conditions and arrangements within a social system; heuristic adaptations of the well-known *McKinsey 7 S Model* (*structure, strategy, systems, skills, style, staff* and *shared values*), or Jay Galbraith's *Star Model* (*strategy, structure, business processes, reward systems* and *people management*). The thinking technique of the Six Thinking Hats developed by Edward de Bono is an extended example of this class of placement devices.¹⁰⁵

For human systems, though, the critical perspectives are those that explore a diversity of perspective and experience, such as the lens of different roles: *Owners, Employees, Customers, Community*. Different dimensions of engagement and experience can be accessed through the device *Think Feel Do*. The set of nodes is commonly drawn from characteristics of the situation itself, with the only qualification being that different, tensional and even provocative angles can be explored.

In a simple heuristic application of Burke's and Lanham's recognition of the central role of metonymic scale change, of reduction and enlargement, perspectives of exploration can not only shift around a situation, but also **Zoom In** and **Zoom Out**. This becomes particularly useful for a group that is stuck exploring granular detail at too great a length, or which is caught in a narrow perspective, where the relational whole is obscured by an account of parts. The group can be encouraged to *Zoom Out* to see the situation at a broader conceptual scale, or to consider a wider view of the situation in focus, and even its juxtaposition with adjacent systems. In the converse, where a group is caught exploring vague generalities or unhelpful abstractions that provide little insight into the particulars of the situation-at-hand, they can be encouraged to *Zoom In* to consider experiences and examples.

The *topoi* of **comparison** are a **second** set of the operational *topoi* that establish a tensional relation between two or more aspects or dimensions of a situation, person, phenomenon or thing. There are three broad approaches to comparison:

¹⁰⁵ See: Edward De Bono, *Six Thinking Hats* (Penguin Group, 2008).

1. Similarity, the likeness of two or more things – ‘*similarity is the basic principle behind all inductive arguments and analogy*’¹⁰⁶ – where the characteristics of one thing can be extended to the other;
2. Difference, a placement tactic of identifying contrasting characteristics;
3. Degree, identifying difference or similarity in **degree**, not in **kind**. Aristotle refers to this placement of More and Less. This provides the opportunity for relative rather than absolute comparison, and so allows for more nuanced differentiation of the aspects of a situation.¹⁰⁷

The devices of *metaphor*, *analogy* and *homoeosis*, or *simile* in the Latin form, are important examples of the placement tactics of comparison. In contemporary practice, comparison can take the form of simple and neutral tensions, such as *Is/Is Not*, *From/To*, *Inside/Outside*, or, the *intrinsic/extrinsic* tension Buchanan ascribed to Jay Doblin. *Topoi* of comparison allow for the exploration of a situation from the perspective of juxtaposition with another situation or system, where concepts identified within a system are levelled with respect to their level of abstraction, or the system is compared and contrasted to an analogous situation or system.¹⁰⁸ The use of such placements can be revelatory for clients – gaining skills in conscious and deliberate shifts on how the mind sees a situation, either in perspective or scale, allows them to break their habits of perception, to see anew, and so to think and speak anew. These are the necessary antecedents of invention.

Topoi of comparison also aid in the synthesis of inventive ideas. In practice, employing simple *Geometries* can be highly effective. Here the placement structure consists of two points at either end of a line, 3 points at the apices of a triangle, 4 points at the end points of a cross, or 5 or 6 points at the apices of a star.¹⁰⁹ The significant tensions inherent in the situation can be simply and spatially represented, allowing a group to play with these in combination with other aspects of the situation. More sophisticated cohering substrates can be used in the form of models and analogies, as well as the more abstract form of metaphor itself.

The **third** approach that operating placements can take is to draw out the **relationship** between different aspects of a thing, a person, a phenomenon or a situation. The different approaches are:

¹⁰⁶ Corbett and Connors. p. 103.

¹⁰⁷ Adapted from: Ibid. p. 108.

¹⁰⁸ *The method of process mapping some dimension of a human system using the grammar and imagery of computing flowcharts or engineering process flow diagrams is a prominent example of this approach.*

¹⁰⁹ *Although included as topoi of definition, the McKinsey 7S or Galbraith’s Star model use geometric structure to create a tensional frame across the different dimensions of an organisational landscape.*

1. Cause and Effect: identifying and naming, within a situation, the particular cause of particular effects, or vice versa.
2. Antecedent and Consequence: the flow of events visible in a situation, in that given 'this', 'that' follows. For example, 'if this person is a citizen then they have the right to vote'.
3. Contraries: like difference, but identifies opposite or incompatible things of the same kind, e.g., slavery is the opposite of freedom.
4. Contradictions: rather than opposition, this identifies and names possession and privation, where one part denies the other.¹¹⁰

In classical rhetoric, devices such as *antithesis*, *oxymoron* or *synoeciosis* juxtapose contraries, in order to produce an argumentative effect.¹¹¹ The common management devices of *7 Whys*, *Fishbone Diagram*, or *Ishikawa Diagram*, *Tree Diagrams* and *Affinity Diagrams* are devices for graphically representing a flow of cause and effect, or antecedent and consequence in a social system or situation.¹¹² Employing *semantic differentials* is a similar contemporary method for graphically representing contraries and contradictions, but in combination with the topical tactic of identifying difference.

Returning to the schema of topoi developed by Rubinelli, of the *idia*, *koina*, *topoi* and *the atechnic* placements, the **fourth** common application of the broad concept of the *atechnic*, appeals to knowledge that is not a part of invention but is found within the situation itself. The first of these is appeals to Authority, or *endoxa*, which Aristotle described as '*those opinions which are generally accepted by everyone or by the majority or by the philosophers – that is, by all, or by the majority, or by the most notable and illustrious of them*'.¹¹³ These are perspectives and observations that are widely held to have truth, and are to be distinguished from mere *doxa* – opinion, hearsay and unsupported claims. These kinds of placements are often distinguished by the name *commonplace* and are developed as a form of cultural and social shorthand to bring into the invention of argument those things that do not necessarily require examination, but which can be used to strengthen argument. At times, as McKeon has outlined, when rhetoric ceased to be about invention, commonplaces held sway as the dominant form of the art.

¹¹⁰ Adapted from: Corbett and Connors. p. 111 - 119.

¹¹¹ 'No light, but rather darkness visible, Served only to discover sights of woe.': Lanham, *A Handlist of Rhetorical Terms*. p. 40.

¹¹² See for example: Thomas Pyzdek and Paul A. Keller, *Quality Engineering Handbook* (Marcel Dekker, 2003). p. 386 – 394.

¹¹³ Aristotle and McKeon, *The Basic Works of Aristotle*. p. 188. This quote is in *Topics 100b 20 -25*.

Examples of commonplace can be highly local, such as the use of the term *'belvedere'* in the architectural practice described by Lawson, through to the near-universal, such as the modern acceptance of democracy as the most desirable form of government. Corbett and Connors also included in their list of *topoi*, under the heading of **Testimony**, along with Authority, other placements that Aristotle referred to as *atechnic*, i.e., external to the inventional art of the rhetor, but which are nevertheless important aspects of interpretation and invention in rhetorical and design situations. The different approaches are:

1. Testimonial — this is related to authority, but can take the form of appeals or perspective from someone with *ethos* and not necessarily authority;
2. Statistics;
3. Maxims;
4. Laws; and
5. Precedents.¹¹⁴

The structures of *topoi* described above issue from the foundations of an extensive art of situational inquiry and exploration, where the characteristics of a situation can be explored from the perspectives of hierarchies of definition (*genus/species*), comparisons such as difference and degree, and the important tensional aspects of differentiation, such as contraries, contradictions, possession and private, cause and effect.

Rubinelli's analysis provides the basis for positioning *social system design* method as integrative of the diverse array of placements required for the effective resolution of complex social challenges. It creates a frame where the placements of technical disciplines can be juxtaposed with those *'universal'* placements used to structure arguments, and the *atechnic* placements and *endoxa* of constituents and their situations. These are then managed and shaped via the generalist *topoi*, a central aspect of method for the social system designer. The continuing exploration of the practical application of placements will focus on these methodological elements as they belong to *social system design*, specifically the *koina topoi* and the common *topoi*.

The elevation of placements as central to inquiry and design in social systems does not displace or diminish the value of data, of quantitative evidence, as can be seen by the inclusion of this class of information as *atechnic* places. Indeed, the balancing tension between these classes, or places, of placements can contribute to the invention and construction of robust civic propositions. The

¹¹⁴ Adapted from: Corbett and Connors. p. 124 - 132.

tension between the living experience of situated *endoxa* brings the general and abstract nature of *topoi* into the frame of a particular, while *topoi* can find order in apparent chaos. The *koina topoi* and disciplinary knowledge of *idioi topoi* can balance the risk of prejudice, folly or manipulated perception in *endoxa*, while *endoxa* – relational, practical civic knowing¹¹⁵ – counterpoints the limited reach of quantitative measures in indeterminate social systems, as Burke recognised.

To conclude, a method for which placement becomes central recognises that it is only via language, via the stories, anecdotes and descriptions of constituents, that ‘*substance*’ and motivation can be accessed. It is only via a poetic road that the intentional, ethical and actional fabric of a *human* system can be understood and shaped, even as the technological content of such systems are growing.

6.3.4. Applying Placements

In continuing to develop placement methodology for *social system design*, attention can now turn to outlining aspects of application, as informed by commercial practice. Three aspects are explored: the way placements operate, the rhythms of practice and the manner in which practitioners employ placements. Placements in application can operate in the background of design deliberations, employed subtly and fading from view once their structuring work has been completed. In other cases, they can take on a prominent and enduring role, the particular way placements operate in particular situations is entirely unpredictable. An example illustrates this point.

*Simple placements can take on significant stature. In a long-running project with an Australian banking and insurance company, the tensional placement of **Inside-Outside** figured prominently in their efforts to both redesign the organisational disposition with respect to customers as well as their efforts to introduce design thinking into the fabric of their work-a-day culture.*

Although nominally a service organisation, like many large technocracies, they had become internally focused, where satisfying those higher in the hierarchy of management and the development of technology as its own end had become normative practice. In an instructive case, a design colleague

¹¹⁵ This is a parallel to de Certeau’s argument for the importance of ‘everyday practice’ to the emergent design a civic fabric discussed in Chapter 5.2.

insisted that a group of software developers, much to their chagrin, spend a morning with a group of users before beginning to develop code. Even though the exercise was not onerous — the users in question were internal call centre operators and the developers were asked to spend only three hours with them — the developers could not understand how this could serve any purpose.

The placement began to operate at a series of conceptual level. Firstly, it influenced a fundamental service disposition, i.e., simply considering that the perspective of customers is part of any operational or design decision. It served as a simple placeholder for the conversations that dealt with managing the tensional relation between internal requirements and external requirements. In terms of broader organisational posture and strategy, it stood for their intent for moving customer and community interests to the centre of their management, project and operational cultures.

The operational place of placements is a path that is located between highly structured approaches based on prior and prescribed process, and those intuitive and entirely tacit practices that Dilnot described as the domain the '*design guru*'.

Placements operate by serving as mediating forms located between designers and a situation, as structures in thought and as perceptual filters that, if held lightly and provisionally, provide ways by which an overwhelming volume of information within a situation can be tentatively and experimentally considered and parsed, in order to shape attention and appreciation. In this way, practitioners can hover over a situation and the experiences that situations create for constituents, seeking instances and patterns of significance and allowing particular aspects of the situation to be held, shaped and tested.

Selections, and attendant omissions, are made in order that elements of significance are pulled onto the cognitive and conversational *working surface* of the design community, and so that these elements can be drawn into a combinatorial play with other elements, discarded if necessary, but, all in all, used to form new patterns, ideas, concepts, and hypotheses for the situation at hand. As any design emerges and becomes ready to be engaged with by a wider constituency, placements can operate to arrange and amplify these concepts, to scaffold clear and coherent articulations that can be interpreted and evaluated, towards the possibility of adherence as a precursor to structuring agency.

Deploying placements is not a matter of linear and sequential application. Instead, and in common with design in general, placements are most effective when used in an iterative, or cyclical, rhythm. In this, essential and generative tensions can be established; such a fundamental tension originated with dialectic and rhetoric and is described by Burke through a passage from Plato's *Phaedrus*. The tension between 'merger and division',¹¹⁶ a fundamental rhythm of design, captures the reflexive relation between the exploratory work of differentiation within a topic, and the counterpoint of inventive synthesis, or generalisation. In *Phaedrus*, the character of Socrates describes these two principles in response to a question from Phaedrus:

Phaedrus: What are they?

Socrates: First, the comprehension of scattered particulars in one idea;

Phaedrus: What is the other principle, Socrates?

Socrates: The second principle is that of division into species according to the natural formation, where the joint is, not breaking any part as a bad carver might.'

Socrates goes on to summarise: *'I am myself a great lover of these processes of division and generalization; they help me to speak and to think. And if I find any man who is able to see "a One and Many" in nature, him I follow ...'*¹¹⁷

This passage highlights this primary rhythm, the fundamental tension between disordering and reordering, or un-framing and reframing. It also points to a methodological feature of the use of placements in general, where tensional patterns across the potential connections and relations of a system are considered for their provocative and generative potential. It can be understood as a form of relational thinking, in the sense that thoughts and concepts are given spatial qualities in order to juxtapose aspects of a situation and oscillate between these perspectives. As discussed above, the tensional placements of the *koina topoi*, and those placements that operate with contraries, contradictions, cause and effect, or antecedent or consequence, use this quality. Using placements via a tensional rhythm enables a practitioner to be able to rapidly and nimbly consider the nature of their connection and relation with respect to the situation at hand, and to be able to invent new connective patterns is the essence of placements operating in *social system design*.

Having described the role of placements as mediating structures between a practitioner and a situation, and the dynamics of use, where tensional rhythms are a primary tactic for exploring and

¹¹⁶ Kenneth Burke, *A Grammar of Motives, and a Rhetoric of Motives* (Cleveland: World Pub. Co., 1962). p. 403.

¹¹⁷ Plato and Benjamin Jowett, *Phaedrus* (Stillwell, Kan.: Digireads.com Publishing, 2005). p. 69 – 70.

parsing a situation in the search for significance in problem or solution, focus can now turn to a discussion of how placements are used in practice situations.

Social system design proceeds in relational settings, with a design practitioner focused in guiding and aiding a representative group of constituents, who form a design community, towards the invention of a design outcome.¹¹⁸ As discussed above, the central role for language, confluent with the social nature of designing, brings **conversation**¹¹⁹ or dialogue to the fore as a primary means by which design proceeds. This has important implications for the way the placements are deployed. Because design emerges from the interaction of a group in conversation, but because the nature of emergence is unpredictable, placements must be available in memory for rapid retrieval, adaption and use.

Within the 2nd Road practice, there exist dozens of heuristics¹²⁰ that serve a wide array of purposes. A commonality across all these devices is their compact and often visual character. This achieves two ends. Firstly, they are memorable, capable of being held in memory and thus available for rapid recall, adaptation and use, as the situation demands. Secondly, these shorthand visual forms allow for fast and efficient display or sharing across a design group, or across a community of practice.

The particular form of the icon used to represent a device often has instructional value. For example, the icon for the *Thinking Wave* device discussed above is an arced line, connected to a cloud to the left and an arrow to the right. Within this form lie clues as to the purpose and function of this device. An explanation of how this device works can accompany the icon, but, once understood by the group, the icon can serve as visual shorthand for the overall design approach, or it can serve a navigational role by indicating passage across the metaphorical wave.

The second dimension relates to how these compact, memorial forms operate in conditions of indeterminacy. Dealing with multiple perspectives, interpretations and ideas requires of a practitioner a capability to manage multiple places at once,¹²¹ in parallel or in creative juxtaposition and combination.

¹¹⁸ *The relational quality of design in Social System Design was developed in Chapter 4.*

¹¹⁹ *Conversation and dialogue is well developed elsewhere, see: Martin Buber, I and Thou (New York: Scribner, 1958), David Bohm and Lee Nichol, On Dialogue, Routledge Classics (London: Routledge, 2004), William Isaacs, Dialogue and the Art of Thinking Together : A Pioneering Approach to Communicating in Business and in Life (New York: Currency, 1999).*

¹²⁰ *These devices are a selection the proprietary methods developed by 2nd Road. The devices described in this section are described in training reference manuals, see: Graham and Golsby-Smith.*

¹²¹ *The poet Keats' insight into dealing with ambiguity, his theory of negative capability, dealt with the capacity for being, thinking and acting within complexity all the while understanding that not everything can be known and resolved, and his*

6.4. Conclusion

In a recent engagement, the CEO of a client organisation that is responsible for a major port facility recognised that, in order to expand the strategic landscape — to use a spatial metaphor — over which they sought to operate, they needed to first discover a new language from which new, expansive thinking could develop. In a past design conversation, the term *gateway* had entered the conversation as a description of their physical location within a broader transportation system. In one pivotal conversation, this term took on strategic significance, as it underwent a shift from being a descriptor to serving as a commonplace that could shape their future intent and suggest new directions for design, via explorations of the connotations of this term. The connotations of this term have shaped the nature and scope of their new organisational strategic plan. The CEO had recognised the deep interdependence of language and thought, and the role these play in profoundly shaping the way we know, make and act in relational settings.

This chapter has developed two primary theoretical and methodological foundations for *social system design*. Firstly, via Burke's poetic realism and his development of the *master tropes*, a disposition towards human systems was described that has the capacity to engage with, design and shape such situations in a way that accesses '*substance*', i.e., the experiences, motivations and intents of people.

The second aspect developed was the role that rhetorical *placements* can play in supporting the interplay of thought, language and situation in the tasks of the invention and articulation of novel design arguments. As stated above, the particular devices and examples of practice described are not intended to stand for the entirety of *social system design*, but I have described a suite of devices that has met success in commercial application, and which therefore demonstrate that coherent combinations of disposition, frame and device are in fact possible and, moreover, valuable to organisations seeking systemic innovation.

concern that 'consecutive reasoning' without imagination or intuition cannot lead to truth: '... several things dovetailed in my mind, and at once it struck me, what quality went to form a Man of Achievement ... I mean Negative Capability, that is when man is capable of being in uncertainties, Mysteries, doubts without any irritable reaching after fact & reason ...'
Duncan Wu, *Romanticism an Anthology* (Oxford: Blackwell, 2005). p.1351. *The development of trained inventional memory is noted in the Conclusion for future development in social system design method.*

So far, the multifaceted and socially epistemic rhetoric, as drawn from the works of Aristotle and renewed by Richard McKeon, has been shown to be a valuable theoretical frame of reference for developing the fundamentals of *social system design*. This perspective lends support to the argument for this emergent field of design activity, which is understood as a form of **relational epistemology**. In this light, *social system design* can be developed as a field concerned with the invention and production of knowledge relevant to the ongoing construction of the artificial in ways that address human concern and realise human aspirations.

McKeon's interpretation and reinvention of rhetoric provide the basis for positioning *social system design* as **architectonic**, because it is concerned with the design of governing concepts, systemic arrangements and the social structures of human systems, and because it provides a coherent impetus for antecedents of expressions of social agency, which may include expressions of technical design. Through rhetoric, **language** can be legitimately positioned as central in both invention and expression, and this has provided important insights into the dispositions and methodological frames required for the successful practice of *social system design*.

Within method, rhetorical **placements**, developed via an exploration of Burke's *master tropes*, can be understood as a primary technology, a primary means by which *social system design* operates. Johnson's insights illustrate that the spatial and temporal qualities of these devices are not accidental, but that they are consistent with the embodied and situated nature of our cognitive processes, and are essential strategies in our capacities for abstract thought and conceptualisation.

Placements are proposed as the methodological centre for *social system design*. They are framed here in relation to Aristotle's rhetoric, and with an understanding that this approach is not an arbitrary conceit but one that which arises from a recognition of the embodied and situated nature of how we think and speak. The examples of this method in practice are intended to illustrate the ways in which a diverse array of heuristic devices allows the participants to engage successfully with the infinitude of complex social situations.

To summarise, these devices mediate between the indeterminacy and immateriality of complex social situations, and the designed forms of thought and language that serve as antecedents to our continuing interventions into the made world. Multiple and diverse perspectives, experiences and expertises, and the descriptions of material conditions, can be brought into provisional and fluid juxtaposition for the purpose of experimentation and for combinatorial play in word, image and idea. These devices can similarly be employed towards making synthetic unities and attaining

actionable coherence in idea, concept, and proposition. This enables a community to make useful judgements towards collective civic action. This creative play in thought and language is at the heart of practical and effective design thinking, and it forms the central pillar of method for *social system design*.

The coming chapter moves on to investigating the development of method for *social system design* from the perspective of how method would unfold in a design situation, specifically how any particular design would begin, and how it would crystallise in an argument and then conclude within the distinct environment of a complex social situation.

Chapter 7

Method in Action

7.1. Outline

This chapter aims to build on the distinctive fundamentals for *social system design* method developed in Chapter 6, namely the requisite disposition in language and the centrality of *placements*. This chapter proceeds via an examination of three distinctive methodological elements that directly relate to the dynamics of practice: (1) designing an effective design challenge, (2) inventing the design argument, and (3) seeking community adherence as a precursor to social action.

I have proposed, like other authors before me, that social systems are essentially and intrinsically indeterminate or ‘wicked’ in nature, and I have argued for a type of design practice that focuses on social and civic outcomes in the face of complexity and immateriality. The particular disposition required for successful engagement with social systems was investigated via Burke’s poetic realism in Chapter 6, which structures an approach to language that makes substantive use of the ‘*four master tropes*’ of rhetoric. This allows a connection to ‘*substance*’ in human concern and affairs to be developed, in resonance with Vickers’ conditions for maintaining the ‘humanness’ of human systems. This requisite disposition leads to the consequent importance of *placements* to *social system design*.

In building a proposition for method for the application of relational forms of design in thought and language, directed towards the challenges of complex social systems, three distinctive elements are of central concern. Focusing on just three elements may appear overly simple, however it is intended that *social system design* should avoid complicated structures¹ that have the appearance of sophisticated technique, but which might in fact constrain effective engagement with the situation-at-hand. The three elements are informed by the tension that inheres between the interdependent places of means and ends. Two of the elements are firmly located in the domain of means, of the method by which practice proceeds and ends are produced. These are the critical work of ***structuring attention*** and the ***invention and construction of argument***. The third describes the distinctive end of relational design, which can be simply described as a ***persuaded constituency***.

These elements should be approached as placements themselves, such that the boundaries between them are not understood to exist prior, but that they are negotiated and adapted to situations-at-

¹ A relevant quote on the value of simplicity in the face of complexity is one attributed to Oliver Wendell Holmes Sr.: ‘For the simplicity on this side of complexity, I wouldn’t give you a fig. But for the simplicity on the other side of complexity, for that I would give you anything I have.’

hand. In application, each placement should be held in a generative juxtaposition with other placements: the whole is always in view from each of the parts. In contrast to the perspective of a sequential application of process, such a reflexive interdependence permits the necessary iterations of *social system design* to proceed. This section is not intended to provide descriptions of detailed procedures, but rather it identifies and investigates the distinctive and central elements of *social system design* method.

The first place, described as **structuring attention**, brings focus to the task of creating useful design challenges within the conditions of indeterminacy that are relevant to the circumstances of a situation and the concerns of its constituency. Given that there is no rational or analytical means to determine the ideal problem or challenge in a situation characterised by social indeterminacy, challenges are formulated through the relational deliberations and judgements of a community.

The second place of **inventing and constructing argument** operates as a device that enables a tensional juxtaposition between invented propositions in relation to a disclosed context, e.g., the experience of breakdown in systemic integrity in tension with aspiration and intent. Such an argument is central to Aristotle's rhetoric, and the particular form developed in this section resonates with McKeon's organisation of *New Rhetoric* around space as opposed to time. Argument as a form operates as a place for the invention, contestation and judgement of emergent design propositions.

The third place of **seeking adherence** marks the most critical distinction for *social system design* that focuses upon ends over means. Whilst not strictly an instrumental method, it operates interdependently and strongly shapes the other two places. The *telos* of the *techné* of *social system design* lies not in a made thing, but in the constituents of a human system coming to agreement with, and adherence to, an argument concerning their system in focus. This adherence creates the opportunity for expressions of collective agency towards the transformation of the artificial of their situation, both material and immaterial.

The three sections of this chapter will deal with each of these places in turn, and will proceed under the headings of 'Structuring Attention', 'Inventing Arguments', and 'Seeking Adherence'.

7.2. Structuring Attention

The indeterminacy, or wickedness, inherent in a situation has critical implications for how any design inquiry is initiated. While the issue of ‘*ill-defined*’ or ‘*ill-structured*’ design problems has been discussed elsewhere,² these contributions are founded on an assumption that a problem under examination self-exists – this approach may be adequate when tackling material design challenges, but it is substantially inadequate in the indeterminate and immaterial reality of social situations.

Rittel, Webber and Vickers all recognised the implications of indeterminacy for establishing design challenges.³ Vickers brought focus on the under-recognised dimension of orientation, or appreciation, in constructing interpretations within human systems, and observed that these interpretations were products of judgements regarding both facts and values. Rittel and Webber provide the most concise insight into the issue of coming to a *good* design problem in their principles describing the characteristics of wicked problems. In particular, their declaration that ‘*there is no definitive formulation of a wicked problem*’⁴ frames the critical importance of the ‘*fuzzy front end*’⁵ of design.

The critical task of *designing good design problems* will be approached by way of the concept of **attention structures**, as developed by Richard Lanham,⁶ but, in the main, this will be pursued through an examination of two important elements of the methods of ancient rhetoric, those of *kairos* and *stasis*.⁷ These elements of method are useful because they elegantly structure the significant dimensions of both creating an orientation towards a situation, and constructing high quality and productive foci for design. We are dealing with the domain captured in a broader application of Janice Lauer’s description of ‘*the inventional art of beginning well*.’⁸

It is clear that, within social situations, there are innumerable potentially problematic aspects, but a particular *problem, issue or challenge* does not substantially exist until it is spoken into being and

² See, for example: Goldschmidt, "Capturing Indeterminism: Representation in the Design Problem Space." and Dorst, "The Problem of Design Problems."

³ *The arguments of Rittel and Webber and Vickers as to the distinct character of human or social systems have been investigated at length in Chapter 3.*

⁴ Rittel and Webber. p. 161.

⁵ Darrel Rhea, "Bring Clarity to The "Fuzzy Front End"," in *Design Research : Methods and Perspectives*, ed. Brenda Laurel(Cambridge, Mass.: MIT Press, 2003). p. 145.

⁶ See the essay on attention structures in: Lanham, *The Electronic Word: Democracy, Technology, and the Arts*. p. 227.

⁷ These concepts are discussed at length in Sections 7.2.2 and 7.2.3.

⁸ Lauer. p. 127.

attended to by a committed and capable community of system constituents. The implication, then, is this: **the first and arguably the most significant act of design is the design of the problem itself.** This is a profound and often challenging choice, a substantial act of authorship of human intent.

Adding to the importance of this earliest place of design is the characteristic that '*any formulation [of a problem] corresponds to the formulation of a solution*',⁹ revealing the interdependent coupling of problem and resolution. These elements co-emerge: as the perception of the problem emerges, it begins to direct a path towards a particular tenor of solution, and as possible elements of a solution are entertained, the perception of the problem will shift. As Rittel and Webber note, '*problem understanding and problem resolution are concomitant to each other.*'¹⁰

Designing problems cannot be an exercise of objective analysis, the problem must be built on interpretations and insights into perceived *breakdowns* within an indeterminate situation, constructed and contested by designers who are themselves immersed and entrained in the situation. This dimension appears to be little recognised in design literature, and experience in consulting to executive teams across many different industries with 2nd Road suggests that this concept is also significantly under-recognised in the domains of organisational strategy and innovation. It is, however, well developed within rhetoric.

7.2.1. Lanham's Attention Structures

Richard Lanham has introduced a modern framing of the value of rhetoric, inspired by Deirdre McCloskey's *The Rhetoric of Economics*,¹¹ in which rhetoric, economics and information are juxtaposed to make the point that rhetoric can be '*considered as an information system that functions economically, that allocates emphasis and attention*'¹² and operates in a dynamic, non-linear way to make sense of the '*confusion of everyday experience*'. Lanham's work exploring the intersection of the written word and digital media has been extensively cited by authors exploring issues that arise when literacy and the management of information converges with digital technologies, in particular relevance to this thesis where the concept of the attention economy is

⁹ Buchanan, "Wicked Problems in Design Thinking." p. 16.

¹⁰ Rittel and Webber. p. 161.

¹¹ McCloskey.

¹² Lanham, *The Electronic Word: Democracy, Technology, and the Arts*. p. 61.

used to explore the application of rhetoric to the challenges of making digital information accessible and meaningful.¹³

Lanham builds the argument that it is **human attention**, and not information, which is the defining theme of a '*digital society*', as the rise of information technologies marks a:

*'... fundamental shift in operating system: from fixed and silent printed word to volatile signal of digital display ... in a society based on information, the chief scarce commodity would presumably be information, not goods. But we are drowning in information, not suffering a dearth of it ... in such a society, the scarcest commodity turns out to be not information but the human attention needed to cope with it.'*¹⁴

Rhetorical arts, named as the '*economics of human attention-structures*'¹⁵ operate as a primary method for conceiving, creating and allocating human attention-structures. In the indeterminate, wicked milieu of social and civic situations, where practically incalculable volumes of information are available, any attempt to objectively account for it all are futile and misguided. As Lanham observes: '*... the rhetoricians took human society as it was, messy with conflicting interests and attention structures, and tried through ... two sided argument to bring some order – always temporary and shifting – to the human barnyard.*'¹⁶

In exploring attention structures Lanham finds correspondence with Burke's approach to poetic realism. Rhetoric provides a frame for operating effectively in conditions of social indeterminacy, because rather than succumbing to the Enlightenment instinct for peering THROUGH¹⁷ language to get to the pure and uncorrupted information behind it, it becomes essential to also step back and look AT language, to examine the '*notational system*' we use to access and interpret the information of the world. Working effectively becomes a matter of establishing a dynamic oscillation between word and world, evoking Lanham's favourite device of '*oscillatio*'. As he states: '*clean information is*

¹³ See for example: Catherine Hobbs, "The Architectonics of Information: Ancient Topical Thought and Postmodern Cognition," in *Proceedings of the 10th Mid-America Symposium on Emerging Computer Technologies '96, October 28-29, 1996, Oklahoma Center for Continuing Education, University of Oklahoma* ed. J.Y. Cheung (Norman, Oklahoma: Oklahoma Center for Continuing Education, University of Oklahoma, 1996). Dianne Juby, "Rhetoric in the Age of the World Wide Web," in *Proceedings of the 10th Mid-America Symposium on Emerging Computer Technologies '96, October 28-29, 1996, Oklahoma Center for Continuing Education, University of Oklahoma* ed. J.Y. Cheung (Norman, Oklahoma: Oklahoma Center for Continuing Education, University of Oklahoma, 1996).

¹⁴ Lanham, *The Electronic Word: Democracy, Technology, and the Arts*. p. 227.

¹⁵ Ibid. p. 227.

¹⁶ Ibid. p. 248.

¹⁷ The capitalisation of AT\THROUGH follows Lanham's development of this device, see his explanation in: Ibid. p. 5.

not the destiny of humankind. Clean information is unnatural and unuseful. Information always comes charged with emotion ... full of purpose'.¹⁸ So 'the only way to make it useful is to filter it. Filtering becomes central', and the method of filtering is the application of the devices of rhetoric.

Lanham's concept of attention structures leads to an important inversion of the often-assumed relationship between us and our information. If human attention is the pivotal commodity, and if good social design outcomes are therefore entirely dependent upon sustained attention, then structuring and directing attention towards the situation in order to generate the highest potential for good design is the first and most important focus in *beginning well*. The centre of gravity shifts from securing objective information towards harnessing subjective concern, and locating apt *structures of human attention* is therefore the primary aim for the beginning of *social system design*.

Two interrelated concepts are found in ancient rhetoric with respect to the concept of beginning well, i.e., to the first moments of securing and structuring human attention. These are *kairos* and *stasis*. While these aspects have long and complex histories that span the early development of the arts of rhetoric, they have been overlooked by many recent scholars of rhetoric, where the need to appreciate situational context is not recognised – '[a]fter all, classical rhetoric has the reputation of being narrow, mechanistic, and individualistic'.¹⁹

Kairos is focused on what can be considered the dispositional and contextual dimensions of 'beginning well', and can be defined 'provisionally as the "right or opportune time to do some thing, or right measure in doing some thing" ... it may be understood as situational context, a more modern term, which can be used critically in discussing the Rhetoric'.²⁰

Stasis is concerned with establishing a working formulation of the *issue in question*, for the purpose of argumentation directed towards 'specific actions',²¹ and it can be positioned as the structural counterpart of *kairos*. The codification of a formal '*stasis theory*', as applied to forensic or judicial situations in Roman oratory, is generally credited to the Hellenistic rhetorician Hermagoras, and this

¹⁸ Richard A. Lanham, *The Economics of Attention : Style and Substance in the Age of Information* (Chicago: University of Chicago Press, 2006). p. 19.

¹⁹ Michael Carter, "Stasis and Kairos: Principles of Social Construction in Classical Rhetoric," *Rhetoric Review* 7, no. 1 (1988). p. 97.

²⁰ James L. Kinneavy and Catherine R. Eskin, "Kairos in Aristotle's Rhetoric," *Written Communication* 17, no. 3 (2000). p. 433.

²¹ Christian Kock, "Choice Is Not True or False: The Domain of Rhetorical Argumentation," *Argumentation* 23, no. 1 (2009). p. 65.

has contributed to the view of stasis as being confined only to legal matters. The concept, however, has far broader treatment in earlier developments of rhetoric.²²

There is a growing recognition amongst scholars of the '*social constructionist foundation of classical rhetoric*',²³ in that rhetoric was from its beginning concerned with creating knowledge within the context of contingent and indeterminate social situations. This development provides support for drawing on these revived concepts for informing *social system design* method.

7.2.2. *Kairos*

Beginning well starts with a cultivated sensitivity to the ebbs and flows of context, concern and capacity within any social situation in which *social system design* is to be deployed. Given that a design problem is first to be created, it follows that the creation of a useful and relevant problem or challenge must be done within the particular social and material fabric of the situation-at-hand.

The idea of *kairos* establishes the critical and central role, exactly at the moment that any design inquiry begins, of the historical and social dimensions of the particulars of time and place, and the necessity for the social system designer to cultivate a thoughtful disposition towards, and methods for dealing with these matters. Sipiiorra notes that the concept of *kairos* has historically included such terms as occasion, proportion, right timing, propriety, due measure, and wise moderation, which alongside the notion of '*the opportune moment*' captures some of the aspects to which one must attend: the development of '*an intense awareness of occasion, audience, and situational context. Such is a life based on kairos*'.²⁴

Although it fundamentally relates to *time*, the concept of *kairos* offers many insights relevant to *social system design*. It encompasses more than just a concept of *good timing*. It serves to bring

²² A third concept related to *beginning well* should be noted although it appears relatively unproblematic and so will not be explored in this thesis. **To prepon**, or *decorum* in its Latin form, refers to the need to cultivate an appropriate demeanour in correspondence to the situation at hand: '[a] complement to the notion of *kairos*, *to prepon* points out that situations have formal characteristics, and demands that speaking as a response to a situation be suitable to those very characteristics. Both notions are concerned with the rhetor's response; but while the former is interested in the when, the latter is concerned with the what of speaking. *To prepon* requires that speech must take into account and be guided by the formal structure of the situation it addresses. Like *kairos*, *to prepon* constitutes not only a guide to what must be said but also a standard of the value of speech. In distinction to *kairos*, which focuses on man's sense of time, *to prepon* emphasizes his sense of propriety.' In: John Poulakos, "Toward a Sophistic Definition of Rhetoric," *Philosophy & Rhetoric* 16, no. 1 (1983). p. 41.

²³ Carter. p. 98.

²⁴ Phillip Sipiiorra, "Introduction: The Ancient Concept of *Kairos*," in *Rhetoric and Kairos: Essays in History, Theory, and Praxis*, ed. Phillip Sipiiorra and James S. Baumlin (Albany, NY: State University of New York Press, 2002). p. 15. *My emphasis*.

focus to the critical issue of how a particular orientation towards, and focus on, a particular design challenge both emerges from within a situation and can be shaped by the constituents of that situation.

Scholars of rhetoric have emphasised the ethical and epistemological dimensions of this concept. Carter notes that '*James S. Baumlin says that kairos "offers a classically-based epistemology for modern rhetoric — a rhetoric that recognizes the contingent nature of reality and the way man constitutes his world through language"*',²⁵ and goes on to comment on the social qualities of this concept: '*[v]ery early in Greek thought, kairos had distinctly ethical connotations*'.²⁶ Blitefield similarly observes that '*kairos is more than a vital rhetorical term: it is quintessentially a term of ethical agency ... kairos situates the rhetor in time and place at the point of social action*'.²⁷ For a designer, this brings critical attention to the issue raised by Rittel and Webber as to the real consequences of any intervention into a social situation, and reinforces the identification of *social system design* as a relational epistemology.

The epistemic dimension can be seen in the role ascribed to *kairos* for enabling a generative potential in the harmonious outworking of opposing perspectives. Founded on Pythagorean notions of a dualistic universe, this idea became an important part of the rhetoric of the Sophist Gorgias as '*the idea of conflict and resolution combined with the idea of the opportune or propitious moment*'.²⁸

Although not explicitly developed by Aristotle, Kinneavy argues that the concept was well established in Greek culture and that Aristotle's art was '*to be applied at a particular kairos*'.²⁹ This extends to Aristotle's treatment of ethics, where '*equity (epieikeia), then, can be viewed as kairic law. Aristotle stated, "And it is equitable to pardon human weaknesses, and to look, not to the letter of the law but to the intention of the legislator; not to the action itself, but to the moral purpose; not to the part, but to the whole" (pp. 1374b12-17)*'.³⁰ In Plato's system, '*rhetorical thought becomes effective only at the moment of kairos*'.³¹

²⁵ Carter. p. 98.

²⁶ Ibid. p. 101.

²⁷ Jerry Blitefield, "Kairos and the Rhetorical Place," in *Rhetoric Society of America Conference*, ed. F.J. Antczak, C. Coggins, and G.D. Klinger (Lawrence Erlbaum Associates, 2002). p. 70.

²⁸ Carter. p. 104.

²⁹ James L. Kinneavy, "Kairos in Classical and Modern Rhetorical Theory," in *Rhetoric and Kairos: Essays in History, Theory, and Praxis*, ed. Phillip Sipiora and James S. Baumlin (Albany: State University of New York Press, 2002). p. 67.

³⁰ Kinneavy and Eskin, "Kairos in Aristotle's Rhetoric." p. 436.

³¹ Kinneavy, "Kairos in Classical and Modern Rhetorical Theory." p. 63.

John E. Smith has noted the distinction between sequential time, *chronos* and particular qualities of time held with the term *kairos*: '[i]n *chronos* we have the fundamental conception of time as measure, the quantity of duration, the length of periodicity ... The questions relevant to this aspect of time are: "How fast?," "How frequent?," "How old?"'³² In contrast, the concept of *kairos* 'points to a qualitative character of time, to the special position an event or action occupies in a series, to a season when something appropriately happens that cannot happen just at "any time," but only at that time, to a time that marks an opportunity which may not recur. The question especially relevant to *kairos* is "When?" "At what time?"'³³

While *chronos* underlies *kairos*, it is the latter that brings to attention the 'specifically historical interpretations or those processes of nature and human experience where the *chronos* aspect reaches certain critical points at which a qualitative character begins to emerge, and when there are junctures of opportunity calling for human ingenuity in apprehending when the time is "right."³⁴

Smith identifies for *kairos* three useful interrelated characteristics that provide a sense of methodological progression:³⁵

1. 'There is, first, the idea of the "right time" for something to happen in contrast to "any time," a sense that is captured nicely in the word "timing".'
2. 'Second, *kairos* means a time of tension and conflict, a time of crisis implying that the course of events poses a problem that calls for a decision at that time', highlighting the particularity of structuring design problems.
3. 'Third, *kairos* means that the problem or crisis has brought with it a time of opportunity for accomplishing some purpose which could not be carried out at some other time', thus providing impetus for inquiry and design.

In support, Amelie Frost Benedikt contrasts *kairos* with *chronos*, describing the former as 'interpretive, situational, and thus, subjective'³⁶ and the latter as dealing with notions of 'absolute,

³² John E. Smith, "Time and Qualitative Time," in *Rhetoric and Kairos: Essays in History, Theory, and Praxis*, ed. Phillip Sipiora and James S. Baumlin (Albany, NY: State University of New York Press, 2002). p 47.

³³ Ibid. p. 47.

³⁴ Ibid. p. 51. Jacques also evokes *kairos* in his theory on levels of work, where he uses it to characterise the 'time span of discretion' not as the passage of *chronos* time, but as *kairotic* time, a construct, grounded in the present, that defines the time over which intention can be attained. See: Elliott Jaques, *The Form of Time* (New York: Crane, Russak, 1982). p. 14.

³⁵ Smith. p. 53.

³⁶ Amélie Frost Benedikt, "On Doing the Right Thing at the Right Time: Toward an Ethics of Kairos," in *Rhetoric and Kairos Essays in History, Theory, and Praxis*, ed. Phillip Sipiora and James S. Baumlin (Albany: State University of New York Press, 2002). p. 227.

universal, and objective' time but establishes a relationship between the two by noting that '*failure to grasp how the objective qualities of a moment shape interpretive judgment can lead to ethically bad results.*'

Kairos brings to *social system design* a well established, explored and articulated idea that brings to the fore the importance of constructing a *place* for careful reflection and orientation right at the moment of conscious engagement with a situation, for the purpose of design and intervention. Understanding the earliest moments of a design venture through the lens of *kairos* helps shape the dispositional quality required of practitioners of *social system design*.

The design of an effective design problem begins with immersion in the context of the situation and a cultivated appreciation of the history, politics and relational dimensions of the community involved. This goes beyond observations of material configurations. For a practitioner, this requires the cultivation of an ability to 'hover over' a situation, and to rapidly appreciate and absorb the social context. This capability must be augmented by an ability to fluidly interpret, frame and re-frame perspectives on the situation, so that potential formulations of the *design problem* can be provisionally articulated and tested for aptness by those involved. Thus, placements play a critical role in allowing a practitioner to come to astute and useful insights, and to develop patterns and possible courses of practical and productive action, so that shared interpretations of a situation can be constructed in partnership with its constituents:

*'A rhetoric that privileges kairos as a principle of invention cannot present a list of rules for finding arguments, but it can rather encourage a kind of ready stance, in which rhetors are not only attuned to the history of an issue (chronos) but are also aware of the more precise turns taken by arguments about it and when the arguments took these turns.'*³⁷

Moving beyond an understanding of *kairos* as simply the '*opportune moment*' highlights the epistemological qualities of *social system design*; this conception of *kairos* brings to the fore the context-dependent, time-bound, relational and contingent character of socially designed and applied knowledge. The quality and tenor of any knowledge gained during the *kairotic* engagement with a situation is central to the possibility of harnessing the opportunity present in tension, conflict

³⁷ Sharon Crowley and Debra Hawhee, *Ancient Rhetorics for Contemporary Students* (Boston: Allyn and Bacon, 1999). p. 48.

or crisis, and focuses the potentially chaotic energy present in such circumstances through the design of a good design challenge towards the realisation of good and productive resolutions.³⁸

For practitioners of *social system design*, *kairos* emerges as a place that informs a requisite disposition, and marks a place where the past and the future converge to shape action in the present. The concept of *stasis* then provides a structural counterpart, a methodological place that provides forms for articulating a challenge and structuring apt arrangements for tackling that challenge.

7.2.3. *Stasis*

Intimately related to *kairos*, the characteristics of *stasis* can be employed to deal with the structural dimension of creating and constructing social design challenges. *Stasis* is often understood in narrow terms within rhetorical scholarship, characterised as a formal, highly structured and technical process for rhetoricians to find the issue on which a judicial case was to be argued. The most 'influential source of development of the formal stasiastic procedure'³⁹ is generally traced to Hermagoras, as Alan Gross noted: '*[i]n Ad Herennium, with which the history of stasis begins, Hermagoras outlines four questions that need to be answered in order to determine the issue in a forensic debate: (1) the question of fact ... (2) the question of definition ... (3) The question of quality ... and (4) the question of jurisdiction.*'⁴⁰

Taken on this basis *stasis theory* would appear to have little to offer a genre of design drawing on interpretations of a tradition of generative and deliberative rhetoric. However, scholars of rhetoric have identified the presence of less technical and narrow applications of rhetoric in earlier incarnations. As Dimock notes:

'Stasis theory is nearly as old as rhetoric itself ... the concept was referenced by both Plato and Aristotle ... and is also fundamental to Aristotle's conceptions in the physical sciences ...more importantly though, the concept of stasis represents a fundamental means of understanding the

³⁸ *The concept of kairos clearly brings a methodological dimension to the arguments of Kompridis and Dilnot for theory and knowledge to be returned to be within time.*

³⁹ Carter. p. 98.

⁴⁰ Alan G. Gross, "Why Hermagoras Still Matters: The Fourth Stasis and Interdisciplinarity," *Rhetoric Review* 23, no. 2 (2004). p. 141.

*nature of argument, generating effective discourse, understanding conflict, and coming to judgment.*⁴¹

Prelli notes that even for the formalised rhetoric of Cicero there is recognition of the wider implications for this concept where in his writing he states '*legal stases points to the general usefulness of guided inquiry into recurrent kinds of situated ambiguity as a method of judgment and discovery.*'⁴²

Drawing on interpretations of the broad application of stasis provides a useful grounding for how, within *social system design*, a particular design challenge can be created and tackled. In a metaphorical use of the Greek prefix *sta* – meaning *to stand* – *stasis* refers to the place where an argument is forged, where potentially oppositional forces are brought together into a relationship that allows interaction, progression and resolution.

While the oppositional aspect is often emphasised due to the nature of judicial debate, to which stasis is most strongly associated, the co-operative and relational dimensions are often overlooked. Dimock draws on Kline to contend that the point of conflict is enveloped in a cooperative field, arguing that:

*'... if there is conflict over a point, there must also be a point of agreement, such as a basic agreement on the meanings of the language used, upon which the disagreement may be founded. Research on the structure of argumentative interaction has also demonstrated that stasis is fundamental to language and entails the aspects of meeting point, conflicting point, and turning point.'*⁴³

Yameng Lui observes that *stasis* was present in the thinking of Aristotle, but was not developed as explicitly as it came to be with later rhetoricians:

'Modern scholars who have studied the classical concept of stasis in relation to Aristotle's theory of invention generally agree that there is an "early" or "incomplete" treatment of the stasiastic

⁴¹ Aaron Dimock, "Creating Sites for Reasonable Discourse: Stasis in Public Deliberation," *Speaker & Gavel* 46, no. (2009). p. 39.

⁴² Lawrence J. Prelli, "Stasis and the Problem of Incommensurable Communication," in *Rhetoric and Incommensurability*, ed. Randy Allen Harris (West Lafayette, Ind.: Parlor Press, 2005). p. 301.

⁴³ Dimock. p. 40

*doctrine in the Aristotelian corpus, which justifies identifying Aristotle as one of its major pre-Hermagorean "antecedents."*⁴⁴

This incomplete treatment was not for a lack of understanding of the concept: *'[t]hat Aristotle had already a thorough knowledge of the stasiastic procedure or scheme seems to be something beyond dispute'*. However, as the deliberative genre was a primary focus for Aristotle, there was a diminished need for highly formalised disputational structures: *'that accusation and defence are related to deliberative oratory only as accidents, and that it is "absurd" to suggest that there should be "a refutation" in epideictic or deliberative speech.'*⁴⁵

Stasis emerges as a place that gives shape to a *'multi-dimensional, heteroglot interplay of ethos, pathos, logos and topoi'*,⁴⁶ an essential quality of deliberative invention and generative thinking. The categories of *stasis* can be drawn upon to be applied in an adaptive and heuristic fashion suited to the task of creation: *'... a stasis procedure's heuristic effectiveness depends on its strengths as a category system.'*⁴⁷

For McKeon, *stasis* was central to his re-interpretation of rhetoric in modernity, in that the *'issue of cause or action in the philosophy of culture is based on the problems that individuals and communities seek to address'*,⁴⁸ positioning the concept as an architectonic guide to structuring the *'sequence of fundamental problems'* of the human-made world.

Productive design challenges are founded in situations of conflict and concern. Indeed, the intensity of concern and conflict is an important barometer as to the likely significance of the issues at hand. The degree of intensity of concern and conflict indicates the importance of a matter to a community and the degree of perceptible *breakdown*. *Stasis* provides a useful methodological frame for structuring good design challenges and the communities capable of resolving them. Prelli remarks on McKeon's development of *stasis* as a placement useful for *'addressing the problem of incommensurate communication under conditions of pluralism'*, where *'perspectival diversity'* can be established *'as a potentially productive resource rather than a problem'*⁴⁹ that has to be overcome.

⁴⁴ Liu Yameng, "Aristotle and the Stasis Theory: A Reexamination," *RSQ: Rhetoric Society Quarterly* 21, no. 1 (1991). p. 53.

⁴⁵ *Ibid.* p. 57.

⁴⁶ *Ibid.* p. 58.

⁴⁷ Prelli. p. 301.

⁴⁸ Buchanan, "Design and the New Rhetoric: Productive Arts in the Philosophy of Culture." p. 200.

⁴⁹ Prelli. p. 303.

Carter develops *stasis* as situational, as it addresses the particularity of the situation, an account of the surrounding circumstances, or '*pereistaseis*', as '*the things which surround, envelop, or are involved in the ... contrary movement are the things likewise which are involved the intervening staseis*'.⁵⁰ This establishes the basis for providing a community with the means to identify, within a social context, the significant points of conflict and breakdown that can serve as antecedents to design.

In terms of methodological progression, Carter finds that *stasis* '*grows out of opposing forces*',⁵¹ or, quoting John Gage, it establishes '*what the rhetor needed to discover, not by his own choice but by virtue of a conflict between what he already knew and the knowledge of others*'. It importantly highlights that this does not induce paralysis; instead, the tensional juxtaposition of multi-perspectival *dynameis* is generative, directing energy towards creation and action. This structures the first *place of social system design* as one that requires this conflict, neither avoiding it nor allowing it to descend into discord,⁵² shaping it as an opportunity to locate for design those issues that are, for a community, of the greatest significance and highest potential benefit.

Carter then describes the primary characteristic of *stasis* as a '*doctrine of inquiry*'; where the application of the general and neutral questions of a *stasiastic* heuristic that can identify the '*kinds of ambiguities susceptible to controversy without presupposing*' how the particular topic should be framed and resolved. This frame provides a reference point where constituents can, as Prelli describes, '*enter each other's perspective and ... discern their similarities and differences*'.⁵³ This sets up the formulation of a focusing question; in 2nd Road practice, this takes the form of the *Focusing Question* heuristic, described at length below. Use of this device defines the range of inquiry appropriate to any particular problematic situation. This operates as a placement where, after Prelli, controversy can be transformed into collaboration and where common ground is constructed upon which design can proceed.

Gross introduces an important distinction with respect to incommensurability, a consequence of the indeterminacy of social situations. He distinguishes the first three *staseis*; those of conjecture, definition and quality, from the fourth *stasis*, that of jurisdiction. Recognising that no single

⁵⁰ Carter. p. 100.

⁵¹ Ibid. p. 99.

⁵² Vickers developed a seven level scale for describing the degree of shared appreciation in a social system, in: Vickers, *Human Systems Are Different*. p. 42.

⁵³ Prelli. p. 303.

perspective, discipline or authority has it within their capabilities to develop adequate responses to complex challenges, he invokes interdisciplinarity as a necessary strategy.⁵⁴ He recognises the priority of dealing with the fourth stasis in conditions of incommensurability, where the identification of the most apt forum, or accountable group must be resolved in conjunction with the satisfying the first three *staseis*. Gross notes that the lower order '*Hermagorian staseis are operative, the fourth stasis, that of jurisdiction, is importantly prior*';⁵⁵ that is only '*in the intellectual space formed by the intersection*' of multiple disciplines that the questions posed by *stasis* can be successfully addressed.

Applying *stasis* in practice for *social system design* then involves creating, in a tensional juxtaposition, **three** primary places critical for beginning the relational production of socially relevant knowledge. *Stasis* structures the relational and collaborative *space* where issues of ambiguity, contestation and conflict can be framed, addressed and resolved.

The **first place** is where an effective accountable community of design can be identified, operating in conjunction with a second place where active controversies can be transformed into productive design challenges. The relationship between a requisite community and topics of significance can be summed up by two questions, posed from one of the two places: "What particular group of people, their character, knowledge and capacities, is best placed to tackle this topic?" or "What particular topic (size, shape and ambition) is appropriate given this particular design community?"

At this point it should be noted that particular practices of 2nd Road will be used to illustrate and exemplify application of the methodological elements proposed in this thesis. This is consistent with Schön's development of the role of reflection in professional knowledge.⁵⁶ This mode of reflection brings the general developments of theory and method into the practice context, where this approach to research seeks not to supplant but enrich professional knowledge. Adopting this stance is also important in order to guard against *social system design* as being practiced from the standpoint of the expert; where techniques of '*selective inattention, junk categories, and situational control*' dominate.⁵⁷ Bringing reflection in and on practice into discussion of theory and method encourages adaptive knowledge development in the face of the unique particulars of social situations.

⁵⁴ Refer to the principles developed in Chapter 4.3.

⁵⁵ Gross, "Why Hermagoras Still Matters: The Fourth Stasis and Interdisciplinarity." p. 143.

⁵⁶ Schön.

⁵⁷ Ibid. p. 69.

In 2nd Road, this proceeds via the *Voices of Change*⁵⁸ heuristic. This device serves as a counterpoint to management hierarchy by structuring a design community not by formal role but by potential contribution. Three voices that provide essential but tensional perspectives on a human system are identified, namely those of *Intent*, *Experience* and *Design*. These can bring together a productive synecdochic working group, drawn from the broader system community.

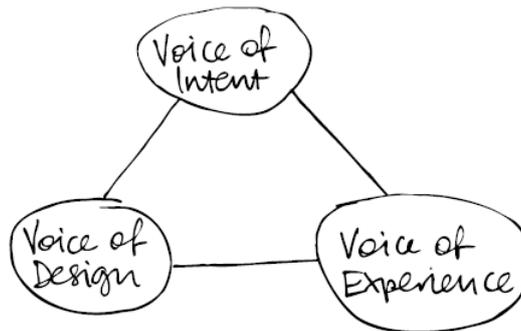


Figure 1: The *Voices of Change* Visual Heuristic (adapted from 2nd Road training presentations)

While the fourth, relational *stasis* question operates to structure an effective interdisciplinary design community, the first three operational *staseis* provide the basis for an approach to exploration that can be employed to tease out the dimensions of context, situation and emergent design topic.

The **second place** then operates via techniques of exploratory inquiry that use the three operational questions cyclically to engage with a situation and begin the work of conceptual parsing and sorting for the purpose of differentiating significance from minutiae. These resolve to simple heuristic cycles of questioning, such as can be found in the triplet of: *Is it/What is it?*, *How is it?*, and *Why is it?*

The **third place** leads on from the application of the general form of a *stasiastic* heuristic, with the application of the **Focusing Question**⁵⁹ heuristic, used to create a particular question that will structure subsequent inquiry, design and action.

'For argumentation to exist, an effective community of minds must be realised at a given moment. There must first of all be agreement, in principle, on the formation of this intellectual community,

⁵⁸ This is a trademarked 2nd Road propriety heuristic device.

⁵⁹ This is a 2nd Road propriety heuristic device.

and, after that, on the fact of debating a specific question together; now this does not come automatically.⁶⁰

Within any complex social situation, there are potentially innumerable problem formulations. It is extremely challenging for a group to not only perceive the range of available problems but to come to an agreement regarding the one that is most apt to tackle. The **Funnel of Scope** heuristic assists in bringing clarity to this critical task.

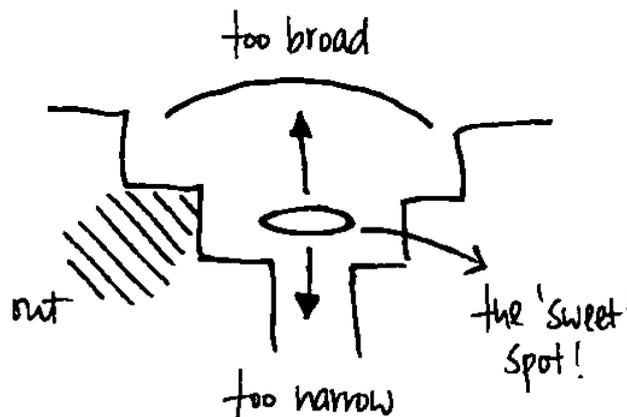


Figure 2: The *Funnel of Scope* Visual Heuristic (adapted from 2nd Road training presentations)

This placement operates in accordance with Rittel and Webber’s principle that every design problem is a symptom of a higher order problem. Firstly, a spatial quality is attributed to the size and complexity of the range of significant problems. The visual form of a stepped funnel enables the placement to be used to array a range of potential *problem spaces*, to be provisionally described and their inter-relationships visualised. This allows a group to begin the work of designing a particular problem formulation.

The spatial structure of the *Funnel of Scope* is augmented in practice with the narrative structure of a *Focusing Question*. The particular form is derived from a compression of Burke’s systematic *Dramatism* to a simple heuristic form. In practice, designers use the form of the *Focusing Question* at the commencement of any design venture to drive cycles of refinement until a satisfying formulation can be derived.⁶¹ In teaching this device we often use a simple example: “How can we bake cakes for our customers to enjoy?” In this it can be seen that the elements of Dramatism – Act,

⁶⁰ Perelman and Olbrechts-Tyteca, *The New Rhetoric : A Treatise on Argumentation*. p. 14.

⁶¹ See: Burke, *A Grammar of Motives*.

Scene, Agent, Agency and Purpose – are compressed into this accessible form. A group can then rapidly understand, interpret and judge the aptness of the question with respect to their motivations, intents and capacities.

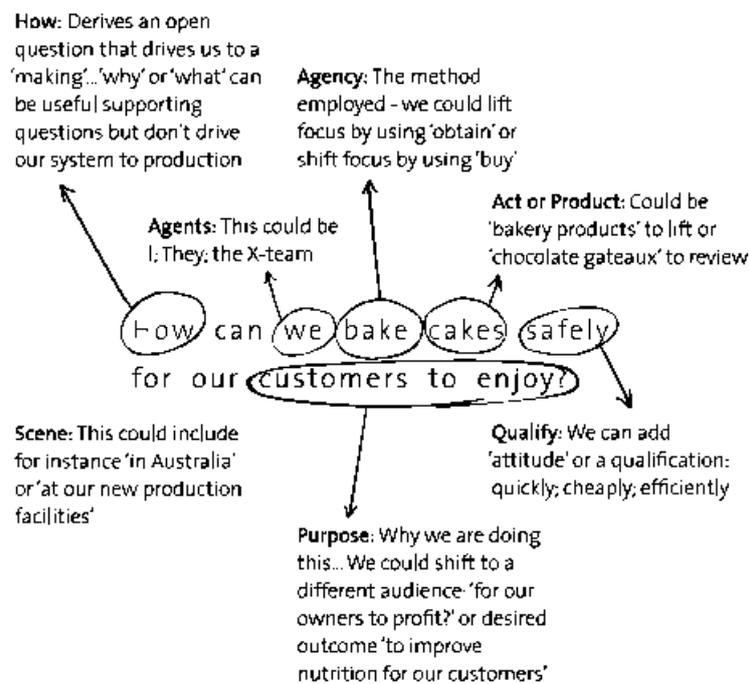


Figure 3: The Elements of the Focusing Question Heuristic (adapted from 2nd Road training presentations)

A *Focusing Question* shapes the scale, scope and direction of design effort, allowing a group to tentatively articulate and test a range of design problems and iterate towards what is judged as the best possible formulation. This then gives a group a clear sense of what the trajectories of inquiry and invention need to be, and, importantly, what can be excluded from consideration so as maintain the simplicity requisite for effective thinking and acting.

In many of the training sessions I provide for clients on the importance of carefully creating topics not only for design but for the expenditure of any organisational energy, I often turn to a simple example. I ask the group to consider the situation of a child playing truant, or 'wagging' school. I then ask them to consider the aspects of solution that emerge for them from considering two different characterisations of the problem: the first being 'how can I get that rotten kid on the school bus this morning?'; while the second is 'how can we encourage Jane's love of learning so she wants to go to school every day?' Clearly simplistic, but the point is rarely missed by a group: entertaining one or the other of these formulations propels them towards a particular tenor of solution. Following this, there are nearly always instructive anecdotes regarding missed opportunities and misguided

ventures in their organisations that have arisen from the careless formulation of solutions to wicked problems.

7.2.4. Kairos and Stasis in Social System Design

In developing the concept of *attention structuring* and the methodological structures of *kairos* and *stasis*, this section has highlighted two significant aspects of *social system design*. The first is that *beginning well* is as much a matter of invention and judgement as any subsequent design activity, either immaterial or material.⁶² The second is that initiation of this upfront design focus occurs right at the moment where a particular *breakdown* generates sufficient attention, concern and controversy amongst the constituents of a social system.

The concept of structuring attention serves a useful commonplace that captures the essence of the task at hand. *Kairos* is an effective means for providing insight into the requisite disposition for designing good problems in indeterminate social situations, while *stasis* provides forms for bringing forth structure from ambiguity and for developing the language by which such problems can be articulated. Together, *kairos* and *stasis* further create a place where controversy and conflict can be harnessed towards generative inquiry and designed resolutions; effective relational production of knowledge cannot proceed without this occurring. For *social system design*, which might serve an architectonic function with respect to other disciplines in tackling social and civic challenges, it is clear that sound theory and effective and proven methods for beginning well are essential and central.

7.3. Inventing Arguments

Investigating *social system design* in action is structured simply through three places that operate within the creative tension of means interacting with ends. Focus now shifts from the first placement of ***structuring attention*** on a particular design challenge to the place of a design venture

⁶² *This is consistent with Rittel and Webber's identification of the difficulty and importance of the formulation of design problems in conditions of indeterminacy; refer to Section 3.3.*

where insight, invention and judgement combine to produce synthetic propositions that lay claim to resolving problematic aspects of a situation-at-hand.

The intangible quality of knowledge produced by *social system design*, and the essentially propositional nature of these designed ideas, concepts and structures, means that the archetypal products this new field of design activity can be effectively understood in terms of ***inventing argument*** in the tradition of rhetoric. The form of argument serves as a placement, where the intangible constructs that are potentially architectonic to human systems: governing ideas, organising concepts and system designs, can be invented, developed and submitted to the judgement of a broad community of constituents of the system-in-focus.

The language, form and method of argument can provide a basis for developing how the products of immaterial, social design take shape. By drawing on the knowledge of argumentation from within rhetoric, a structured master placement and a detailed methodological frame shaping the convergence and synthesis of reasoned propositions can be developed for *social system design*. Adopting the orientation of argument is an important choice. It acknowledges the probable and particular nature of knowledge in human systems, the aptness of this form can be understood via examining three dimensions.

Firstly, employing the form of an argument is recognition of the inherent unpredictability of the future in indeterminate situations, and that any projections into that picture can only ever be provisional and propositional. This serves as an important counterpoint to the aspect of many corporate cultures, where the language of certainty and control conveys inevitability to things that should instead be examined and contested.

Secondly, the form of an argument establishes a basis for dialogic interaction, where controversies, diverse perspectives and elements of knowledge can enter into tensional juxtapositions and combinatorial play. It invites wide participation in both invention and judgement towards socially located productive thought and production; as opposed to more authoritarian or conflictual modes observable in organisational settings. Thirdly, there is inherent in the idea of *argument* the openness to choice. A constituency to whom an argument is being made has the choice to accept, modify or reject this argument, either through direct contestation, or through other modes such as prototyping. This is an essential aspect of igniting social or civic agency; such a capacity can only be sustainable if acceptance and adherence is willingly given and sustained.

The concept of argument appears to have received little attention within design literature, understood as the generative forms and placeholders for the process by which people reason with themselves and each other in the domain of probable knowledge. Horst Rittel is one author who has explored the relationship between design and argument. The complex and ambiguous nature of the social situations and the contingent nature of the *design problem* requires an ongoing juxtaposition and interplay between the situation, the formulation of a *problem* and the development of *design propositions*; the approach to reasoning and the shape of the problem itself do not adhere to the processes of formal logic. Recognising this, Rittel notes that the '*designer's reasoning is ... disorderly ... not due to intellectual sloppiness, but rather the nature of design problems*', and that a '*design problem keeps changing while it is treated, because the understanding of what ought to be accomplished, and how it might be accomplished is continually shifting. Learning what the problem is is the problem.*'⁶³

This approach is interpreted by Rittel as falling into the domain of **argument**: '*the designer's reasoning appears as a process of argumentation*', where competing positions are created in response to perceived issues, and modified and assessed as to their suitability. '*The process appears as one of formation of judgement, alternating with the search for ideas.*'⁶⁴ Rittel notes the at times disconcerting '*epistemic freedom*' this creates for designers; there are few constraints on, and no algorithms that can be deployed for, the process of designing. Echoing Aristotle's remarks that in the domain of the contingent '*things can be other*', Rittel notes that '*nothing has to be or to remain as it is or appears to be*' other than what a designer creates through iterative cycles of proposition and judgement, in short, of *argumentation*.

Richard Buchanan has explored the design of artefacts as a form of demonstrative rhetoric. He introduces the idea of argument as a way of understanding the interrelation between designer, user and product. '*Most important ... is the idea of argument, which connects all the elements of design and becomes an active engagement between designer and user*'.⁶⁵ The designer, '*instead of simply making an object or thing, is actually creating a persuasive argument that comes to life whenever a user considers or uses a product as a means to an end.*' Buchanan builds his argument around the three primary elements of argument; the '*interrelated qualities of technological reasoning, character*

⁶³ Horst W. J. Rittel, "The Reasoning of Designers," in *International Congress on Planning and Design Theory* (Boston: IGP, 1988). p. 2.

⁶⁴ Ibid. p. 4.

⁶⁵ Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice." p 8.

and emotion, all of which provide the substance and form of design communication' and which designers 'draw on to some degree in every design argument.'⁶⁶

While underdeveloped in design, the concept and practice of *argument* is central in rhetoric, and many dispositional and methodological aspects can be drawn on and adapted for *social systems design*. There is however not a uniform approach to argument within rhetoric. Aristotle's *Rhetoric* is fundamentally a treatise on argumentation for contingent topics and for social or civic situations:

*'... for Aristotle argumentation becomes the central and essential issue of an art of rhetoric. By approaching rhetoric from this perspective, Aristotle sees that its essence is to explore the available means of persuasion on any given subject, although in practice he limits the field of rhetoric to questions concerned with human actions, characters, motives and feelings.'*⁶⁷

7.3.1. Argumentative Proofs in Rhetoric

For Aristotle, the means of persuasion were centred on the proofs, or *pisteis*, that secured for an argument its persuasive force. 'Generally speaking, the main focus of the *Rhetoric* is on the means of persuasion (the Greek *pistis* ...; plural: *pisteis* ...) that Grimaldi well defines as "evidentiary material of a specifically probative character with respect to the subject matter"⁶⁸.

The difference in the kind of argument adapted for *social system design* from those of logical demonstration are based on the tripartite nature of rhetorical proof, the use of multi-inferential means of reasoning – including that of abduction – and the role that invention plays in argument formation. Grimaldi noted that the term *pisteis* was employed in two senses; firstly, to 'represent the state of mind, namely, conviction or belief, at which the auditor arrives when the correctly chosen aspects of the subject-matter are placed before him in an effective manner',⁶⁹ and secondly, in reference to the method by which the elements of an argument are developed and placed in tension with other elements.

Aristotle's treatise develops different forms, of which the *topoi* form an important and instrumental subset. He made a distinction between two classes of *pisteis* similar to that made for the *topoi*,

⁶⁶ Ibid. p. 9. *These are named as logos, pathos and ethos in rhetoric and are discussed in Section 7.2.1.*

⁶⁷ Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 52.

⁶⁸ Ibid. p. 52.

⁶⁹ Grimaldi. p. 71.

between those that are pre-existing and those that must be invented for the purpose of constructing an argument: '[o]f the *pisteis*, some are *atechnic* ["nonartistic"], some *entechnic* ["embodied in art, artistic"]. I call *atechnic* those that are not provided by "us" [i.e. potential speakers] but are pre-existing and artistic whatever can be prepared by method by "us". (*Rhetoric A 2, 1355b 35–39*).⁷⁰

The *atechnic* class of proofs⁷¹ are not treated to any great degree in *The Rhetoric*; it is an obvious point that where available these forms are to be drawn upon in argumentation. Aristotle's primary focus is on the *entechnic*, or artistic, proofs, those that have been, or must be, invented for the particular topic at hand and used where *atechnic* proofs are not available, or are insufficient to developing effective argument. These *entechnic* proofs provide the basis for synthesising what would otherwise be a collection of *atechnic* elements into a coherent and potentially compelling argument. Within the class of *entechnic pisteis*, Aristotle used his construct of social argumentation; the interplay between a *speaker*, an audience and a *topic*, to draw out further distinctions for proof: '[o]f the *pisteis* provided through speech there are three species: for some are in the character of the speaker and some in disposing the listener in some way, and some in the argument itself, by showing or seeming to show something. (*Rhetoric A 2, 1356a 1–4*)'.⁷²

Aristotle developed his theory of argument on the basis of these three *pistis*, noting that all three were required for the creation of an effective socially relevant argument. Alongside **logos**, there was the stature and credibility of an interlocutor and the argument itself, or **ethos**, and those appeals designed to elicit a positive emotional response from an audience, or **pathos**.

Aristotle's development of rhetoric placed *technical* reasoning, or *logos*, as central, as evidenced by his description of rhetoric as the counterpart to dialectic, the more formal mode of probable reasoning. His belief in the essentially rational nature of truth led him to note that ideally the *logos* of an argument should be sufficient to persuade. As a practitioner, however, he was aware that such reasoning was often insufficient to cohere a community in judgement, and that recourse to wider means of persuasion was essential in civic questions and in social situations. For this reason there is explicit recognition that in social argumentation, reasoning must be understood and developed as tripartite. The character and standing, or *ethos*, of those 'speaking' and the disposition of a constituency, or *pathos*, must be accounted for in order for a designed argument to be accepted and acted upon.

⁷⁰ Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 52.

⁷¹ Refer to the discussion of *atechnic proofs* in Chapter 6.3.3.

⁷² Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 53.

These proofs operate as master and interdependent placements in the invention and construction of social arguments. They cannot be sensibly separated in practice; however for the purpose of investigation it is necessary to view these elements as distinct. While always developed in terms of the human dimensions of the *ethos* and *pathos* of a social situation, the core of method for argumentation will be explored through the lens of *logos*.

7.3.2. Reasoned Invention

In order to explore a method for a productive *logos* in *social system design*, it is necessary to explore the modes of reasoning that can be employed towards the invention of arguments that hold in place novel, innovative propositions for the resolution of challenges and tensions evident in social situations. Addressing three such modes of reasoning provides a diversity of means by which argumentation can proceed in response the particulars of the situation-at-hand and towards the creation of socially relevant knowledge.

The first two modes to be considered are the relational forms of *induction* and *deduction* as described in Aristotle's *Rhetoric*; the third is the more recent innovation of *abduction*, although this method of reasoning also has roots in the work of Aristotle.

The notion of reasoning by way of either deduction or induction is not controversial and is extensively developed elsewhere.⁷³ What is worthy of attention is the relational perspective on these forms that are developed within rhetoric. The models of reasoning that are more commonly employed in modern settings owe their origins to the '*rationalistic tradition*' and the procedures of formal logic. Aristotle's developments are a reminder that formal logic is a subset of reasoning, rather than its synonym.

With respect to inductive reasoning, Aristotle described the *example*, or *paradigmea*, as the rhetorical counterpart of reasoning from the particular to the general. Rather than the exhaustive citing of all possible instances of a class of particulars, the use of *example* in rhetorical argumentation rests on the choice of a few, well represented examples to establish a premise.

⁷³ See, for example: Keith J. Holyoak and Robert G. Morrison, *The Cambridge Handbook of Thinking and Reasoning* (New York: Cambridge University Press, 2005).

Argument by *example* has been referred to as '*imperfect induction*'⁷⁴ reflecting a perspective that assumes the superiority of formal logical reasoning. However, as Burke and Winograd and Flores argued, this approach in fact does not reveal the substantive human dimensions of a situation, where the employment of poetic insight may.

For deductive reasoning, Aristotle described the *enthymeme* as the rhetorical version of the *sylogism* of demonstrative logic and dialectic. In a similar way to the diminishment of *paradigmea*, the *enthymeme* is described as an '*imperfect syllogism*', thereby diminishing the relational power of this structure. The form of the *enthymeme*, rather than being a diminished version of the syllogism, can be understood instead as an argumentative form well designed for generating knowledge in relational settings. This is reflected in the etymology of the term, derived as it was from *thymos*, which translates to soul or spirit. As Corbett⁷⁵ developed, the Aristotelian enthymeme achieves this in three ways.

Firstly, this device admits premises that are probable, rather than demonstrable and as such allows for conclusions that are particularly, rather than universally, true. As Rubinelli notes:

*'... while a scientific syllogism is constructed on the basis of premises which are true and primary, the enthymeme is based on premises which, in terms of their truth value, may be either universally true or, more often, true only for the most part... what usually or generally happens but also on what people believe to be true.'*⁷⁶

Secondly, although centred in logos, the *enthymeme* allows for the '*ethical and emotional dimensions of argument as well as for logical*'.⁷⁷ Grimaldi similarly remarks that the formal structure of enthymemes incorporates or embodies the three modes of proof: '*one must seek out sources to convince not only the rational explanation of the subject (pragma) but also the emotive elements in the subject (ethos and pathos)*'.⁷⁸ Walker further develops that *enthymemes* comprise the '*inference-making of the heart*', strategic intentionality of making plans, and the audience's sense '*not simply that the speaker's claims are true or probable, but that both speaker and claims are good*

⁷⁴ See: Otfried Höffe, *Aristotle* (State University of New York Press, 2003). p. 58. Höffe introduces the notion of *exemplary induction* instead.

⁷⁵ Edward P. J. Corbett, "Introduction," in *The Rhetoric and the Poetics of Aristotle*, ed. W. R. Roberts and I. Bywater (New York: Random House, 1984).

⁷⁶ Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 55.

⁷⁷ Corbett, "Introduction." p. xviii.

⁷⁸ William M. A. Grimaldi, *Aristotle. Rhetoric I: A Commentary* (New York: Fordham UP, 1980). p. 82.

and admirable.'⁷⁹ As noted above, *logos*, *ethos*, and *pathos* are not separate kinds of 'proof but simultaneous dimensions of the enthymeme', thus reflecting the interdependence of these three places.

Thirdly and central for relational inquiry, the absence of a premise in the *enthymeme* is not a weakness. Asking for such a premise to be provided by an 'audience' allows for participation and identification to occur: '*the enthymeme is an argument stated in a particular way, specifically with one premise suppressed ... in presenting enthymemes speakers may omit to state one of its premises since hearers will supply it*'.⁸⁰ The enthymeme could be framed as a *relationally perfect syllogism*.

Aristotle adhered to the view that truth is inherent in any situation, and rational argument is the preferred way to bring this to the fore. His development of the *enthymeme*, or rhetorical *deduction*, as the '*substance of persuasion*' and of *paradigmea*, or rhetorical *induction*, provides a disposition towards and a means to pursue sound reasoning in the invention of arguments in the relational settings. Distinct from the procedures that provide demonstrable truth, or the more formal and exacting approach of dialectic, these argumentation structures are well designed and adapted for the purpose of the creation of probable knowledge.

Within design literature the approach to understanding the reasoning employed by designers often takes an empirical path. For example, Goldschmidt takes such an approach to observing the interplay between the '*content*', or material aspects of a possible design solution, and the '*structure*' of the connections and patterns made by designers. These observations of the '*cognitive processes*' offer extensive analysis but modest insight: '*[w]e believe that in reasoning, the relationship between the two is not hierarchical; rather, contents and structure concurrently describe the state of a system at any given point and, in effective reasoning, they are apparently extremely well coordinated*',⁸¹ revealing little in the way of a constructive and useful approach as to how reasoning proceeds.

Where there is a focus on generating insight into how reasoning operates in design it is often developed from an instrumental perspective internal to the processes of design. While not problematic in itself, this approach does not encompass the situation or the community of constituents central to methods of *social system design*. There is however, useful insight to be

⁷⁹ Jeffrey Walker, "The Body of Persuasion: A Theory of the Enthymeme," *College English* 56, no. 1 (1994). p. 49.

⁸⁰ Rubinelli, "Ars Topica the Classical Technique of Constructing Arguments from Aristotle to Cicero." p. 55.

⁸¹ Gabriela Goldschmidt and Maya Weil, "Contents and Structure in Design Reasoning," *Design Issues* 14, no. 3 (1998). p. 100.

gained into reasoning within indeterminacy from exploring the third significant mode of reasoning, that of *abduction*.⁸²

Abduction is developed as a mode of reasoning where an incomplete understanding of either cause, effect or rule are present, as would be commonly found in the surprising ambiguity and complexity of a social situation. From a design perspective, Roozenburg describes abduction as central to the creative process; *'(m)uch of the reasoning in design belongs to the category of plausible reasoning, in particular the reasoning that generates or produces tentative descriptions for solutions to design problems'*.⁸³ He goes on to distinguish the type of *'explanatory abduction'* ascribed to the discovery process in the sciences and counterpointed by the formal logical processes of deduction and induction, and Habermas' concept of *'innovative abduction'*, which he identified as a distinct form of reasoning as proposed by Peirce. In this case:

*'Starting from a surprising, not yet explainable, fact (the result), we try to conceive of a new rule (a principle, law, or theory) that allows us to infer the cause (the case); the rule itself, therefore, is not yet assumed to be true. The conclusion of this inference is a hypothesis, still to be tested by deduction and induction, for a new rule with explaining power.'*⁸⁴

Abduction leads from a particular observation towards a best possible explanation. As an approach it emphasises creative patterning over logical certainty. As such it can build novel hypotheses in ambiguous situations. Peirce's early work, and many of the descriptions of abduction in wider literature, focuses on the evidence based, explanatory form of abduction. His later work expanded to develop abduction in terms of the creation of new hypotheses; or innovative abduction. This resonates with the commonly held maxim that new knowledge comes *'through making "a logical leap of the mind" or an "inference to the best explanation" to imagine a heuristic for understanding the mystery.'*⁸⁵

⁸² *The theoretical underpinnings for abductive reasoning were developed by introduced by Charles Sanders Peirce, who was in turn working from a description of apagogical reasoning as described by Aristotle in Book 2 of his Posterior Analytics: 'The whole operation of reasoning begins with Abduction, which is now to be described. Its occasion is a surprise. That is, some belief, active or passive, formulated or unformulated, has just been broken up. ... The mind seeks to bring the facts, as modified by the new discovery, into order; that is, to form a general conception embracing them... This synthesis suggesting a new conception or hypothesis is the Abduction. ... This conclusion, which is the Interpretant of the Abduction, represents the Abduction to be a Symbol, - to convey a general concept of the truth, - but not to assert it in any measure.'* in: Charles Sanders Peirce, "Syllabus of Certain Topics of Logic," in *The Essential Peirce : Selected Philosophical Writings*, ed. Nathan Houser and Christian J. W. Kloesel (Bloomington: Indiana University Press, 1992). p. 287.

⁸³ Norbert F. M. Roozenburg, "On the Pattern of Reasoning in Innovative Design," *Design Studies* 14, no. 1 (1993). p. 4.

⁸⁴ *Ibid.* p. 10.

⁸⁵ Martin, *The Design of Business : Why Design Thinking Is the Next Competitive Advantage*. p. 25.

Roozenburg cites Davis in locating the importance of abduction: *'If abduction is the only operation which introduces any new idea, then it seems one ought to say that it is the only truly synthetic operation. This is what we have always meant by synthetic reasoning. Induction, on this view becomes really only a form of what Peirce calls 'probable deduction''*.⁸⁶

Chow finds that abduction is *'the central "logical" and social "mechanism" of knowledge generation in general, applicable to everyday life, design, and the sciences'*,⁸⁷ but notes that both inductive and deductive modes of reasoning are important and present in any design enterprise. Tomiyama et. al. find abduction as both *'crucial for design in general'* and as having a role in the integration of knowledge: *'based on Schurz's classification of abductive reasoning, the paper identifies that abduction for integrating theories can be performed by a special type of abduction called second order existential abduction.'*⁸⁸ Kolko investigates design synthesis, which he describes as *'magical'* to a range of observers, and notes *'synthesis is an abductive sensemaking process. Through efforts of data manipulation, organization, pruning, and filtering, designers produce information and knowledge'*,⁸⁹ where synthesis is framed as involving initial prioritisation of data, judgement as to significance of certain data, and the forging of productive connections and insights from that data.

Innovative abduction can stand as a counterpoint to the *explanatory abductive reasoning* of scientific inquiry, as Peirce⁹⁰ and others have noted, Einstein's approach to his development of his theories were innovative in nature. It can be placed next to rhetorical deduction and induction as a form of probable knowledge creation, providing an avenue to reason in the face of ambiguity and surprise, and a means to integrate diverse perspectives and knowledge from a relational milieu.

The three modes of reasoning described above can operate together. That abduction can be seen in a rhetorical light, and so constructed as a placement alongside of and intertwined with *enthymemic* and *paradigmatic* reasoning in the creation of relational knowledge is supported in literature. For example, Bybee argues that *'abduction has persuasive force and is thus a rhetorical pattern on a par with but distinct from the enthymeme and the paradigm'* and in using the classic example of syllogistic logic involving the mortality of Socrates he notes that the:

⁸⁶ Roozenburg. p. 9.

⁸⁷ Rosan Chow, Wolfgang Jonas, and Nadja Schaeffer, "Peircean Abduction, Signs & Design Transfer," in *8th European Academy of Design Conference* (The Robert Gordon University, Aberdeen, Scotland: 2009). p. 1.

⁸⁸ Tetsuo Tomiyama and others, "Abduction for Creative Design" <http://www-kasm.nii.ac.jp/papers/takeda/02/SSS203TTomiyama.pdf> (accessed 12 August 2011). p. 1.

⁸⁹ Jon Kolko, "Abductive Thinking and Sensemaking: The Drivers of Design Synthesis," *Design Issues* 26, no. 1 (2010). p. 17.

⁹⁰ Roozenburg. p. 10.

*'... other premise of the argument ("Socrates is a person") almost certainly results from an abductive argument. Moreover, as our experience shows, abductive arguments can be as conclusive as either deductive or inductive arguments. Thus, "speculative" or "exploratory" discourse is not peripheral to rhetoric, a concern on the fringe of our discipline, but instead is (or ought to be) a central concern, for abduction's inferential and persuasive patterns pervade discourse as thoroughly as deduction (the enthymeme) and induction (the paradigm).'*⁹¹

Furthermore, one investigation acknowledges the possibility of *'inference switching'*, where modes of interpretation of poetry can shift amongst the three forms of inference making. For example, a shift from a deductive approach, where the general rules are an appropriate perspective for valid interpretation, may give way to an abductive frame of reasoning in a situation where novel use of syntactic structures is required. As Van Zoest and Van der Lubbe note of abduction: *'as long as our interpretation keeps a character of potentiality, possibility, openness, as long as it stays implied, hypothetical and undecided, it is mainly based on abductive inference.'*⁹²

It should be noted that ongoing development of methods of constructing *argument as product for social system design* must extend to incorporating ways of determining both valid and invalid argumentation strategies. This follows from Aristotle's inclusion in the *Rhetoric* a list of 28 valid and 10 invalid strategies of argumentation.⁹³ For example, it is valid to argue from plain induction, argue from the circumstances of a past time or allow an apparent improbability by pointing to a greater one that is true. It is, however, invalid to make a statement about a whole that is true only of a part, take the accidental as essential or use a single, unrepresentative example.

If a sophisticated method of inventing architectonic social arguments is to flourish, then a capability that enables practitioners to reason well and construct good arguments will be critical. This involves an explicit focus on developing the three available methods of inference making: deduction, induction and abduction, and the ways in which reasoned invention proceeds through combinatorial interplay of these three modes. Future development of method must also focus on the valid means by which arguments can be formed, guard against the easy road of appeals constructed from invalid means, and ensure the good reasoning is formed into sound argument.

⁹¹ Michael D. Bybee, "Abduction and Rhetorical Theory," *Philosophy & Rhetoric* 24, no. 4 (1991). p. 297.

⁹² A. J. A. Van Zoest and Jan C. Aart Van der Lubbe, "Inference Switching in Interpretation of Poetry," *Approaches To Semiotics* 126, no. (1996). p. 493.

⁹³ Lanham, *A Handlist of Rhetorical Terms*. p. 167.

Personal experience shows that there is a desire to eject emotion from decision making in organisational and civic settings, one which persists and is evident in the predominance of management methods that are founded on analytics and rational decision making.⁹⁴ For *social system design*, what is required is not the naive rejection of emotion from inventive reasoning and argumentation, but the thoughtful incorporation of this most fundamental aspect of human and social being. Emotion in social argumentation is inescapable; the question of method turns not on exclusion, but on determining the most appropriate way of inclusion with full acknowledgement of, and reflection, on the power, imperfections and risks of truly relational knowing.

7.3.3. Emotion in Argument

Eugene Garver enters an investigation of the problematic of emotion in argument via the terms of *phronesis* on one hand and cleverness on the other. He notes that it is a simpler matter to incite purely emotional reactions in an audience than to gain adherence by way of wise and well reasoned argument. Aristotle was aware of this tension, however warned in the opening passage of the *Rhetoric* that the possibility of the misuse of the methods of rhetoric was no excuse for not employing it in its proper form in the pursuit of truth and justice. This brings back into view the places of ethos and pathos in argumentation, and therefore in the production methods of *social system design*.

Wayne Booth marks Garver's *Aristotle's Rhetoric: an Art of Character* as 'one of the fullest and most responsible encounters ever with philosophical, political, and ethical issues raised by the theory and practice of rhetoric.'⁹⁵ He places Garver alongside Burke and McKeon as those who have mastered the complexities of rhetoric as viewed from the perspectives and challenges of modernity. Kirby notes that this may be the only full length book dedicated to investigating Aristotelian rhetoric in the 20th Century. Citations of this work are largely limited to works dealing with the intersection of matters of politics and argumentation. For example Garsten⁹⁶ uses Garver's development of emotion as constitutive of social argumentation as part of his own argument for a recovered role for

⁹⁴ See, for example, the propriety Kepner-Tregoe rational management processes, in: Charles Higgins Kepner and Benjamin B. Tregoe, *The New Rational Manager* (Princeton, N.J. (P.O. Box 704, Research Rd., Princeton 08540): Princeton Research Press, 1981).

⁹⁵ Wayne C. Booth, "Our Best Rhetorologist," *Philosophy and Literature* 19, no. 1 (1995). p. 116.

⁹⁶ Bryan Garsten, *Saving Persuasion: A Defense of Rhetoric and Judgment* (Harvard University Press, 2009). p. 238.

artful persuasion in democratic politics, against models of rational consensus making.⁹⁷ Garver's work has not been widely accessed for developments outside of rhetorical studies, however in this thesis, where a particular focus on ancient rhetoric as it pertains to social design and action is developed, it is legitimate that such an authoritative reference be drawn on in some detail.

Treating the question of *ethos* and *pathos* in this section should not be taken to imply that these places are secondary to *logos*; that they are applied as a veneer to an argument already invented via *logos* alone. As has been emphasised,⁹⁸ in relational settings and in the face of indeterminacy, the three proofs are concomitant. This arrangement instead reflects that *logos* can be understood as the primary place of instrumental reasoning, where *ethos* and *pathos* are outward looking, attending to the circumstances of a constituency, and the particulars of their situation. It is important that these places remain distinct in their relation, and are not allowed to collapse into each other, nor for one to occlude the others.

Garver's treatment of Aristotle's rhetoric brings to the fore a surprising role for the emotions in the development of persuasive reasoning. Where the three social proofs are required, as will occur in any rhetorical situation, *'emotions will have a constitutive role ... the need for rhetoric comes not from the weakness of audiences but from the complexity and indeterminacy of the world.'*⁹⁹ In examining rhetoric from the perspective of connecting relational knowing to civic action, Garver constructs for appropriate emotion the place of bridging between instrumental reasoning and good action in the world, noting that *'Knowing what is good does not by itself tell us what to do.'*¹⁰⁰ Garver works through Aristotle's ambivalent attitude towards the emotions, where he appears to dismiss them early in the Rhetoric, claiming the sufficiency of *logos*, and then develops extensive treatments of the role of emotion in later passages. Garver himself acknowledges the ambiguity of the role of emotion, in that they *'sometimes make practical judgments wise and determinate by considering the particularities of a case, and they sometimes corrupt judgement by making it partial, using those same particularities to overcome justice.'*¹⁰¹

This problematic relation of *logos* and emotion gives rise to the core of Garver's thesis: that although problematic, and unlike determinant situations where syllogistic logic, or pure *logos*, are sufficient

⁹⁷ Garsten's argument resonates with the political theory of Chantal Mouffe as noted in the Introduction to this thesis.

⁹⁸ Refer to the discussions in 7.3.2.

⁹⁹ Eugene Garver, *Aristotle's Rhetoric: An Art of Character* (Chicago: University of Chicago Press, 1994), p. 109.

¹⁰⁰ Ibid. p. 66.

¹⁰¹ Ibid. p. 106.

for constructing demonstrative proof, relational and situated judgements are rendered operable by the inclusion of emotion. Rather than a useful tactic, they are **central** to and **constitutive** of relational argumentation and the construction of civic knowledge and action.

Aristotle is careful to exclude irrelevant passions, focusing on the emotions and following their ‘*constitutive role in good praxis and good character*’.¹⁰² He establishes emotion as the means by which we become receptive to the relevant and practical particulars of a situation and so provide the basis for practical decision making: ‘*the emotions can be constitutive of particular judgements because they are constitutive of the enterprise of judging and deliberating*’¹⁰³ by carrying normative and therefore ethical, frames for judging the appropriateness of a particular proposition.

Garver notes the means by which the emotions operate with respect to *ethos*. Aristotle develops three conditions by which a positive judgement of the character of the speaker is made, those of practical wisdom, or *phronesis*,¹⁰⁴ excellence, or *arête*, and importantly, goodwill, or *eunoia*. While the first two are clearly necessary for good and wise relational design, it is goodwill that builds a relational bond between speaker and audience, between designers and constituents. As Crosswhite notes, argumentation is an intensely cooperative act.¹⁰⁵ Goodwill serves as a basis to the necessary conditions for successful argumentation; a meeting of minds and commonality of language, agreement on the rules and both a reason to argue and goal for any particular argument.

The quality of *eunoia* is generated through an understanding of the emotional disposition of a constituency which structures *pathos* as constitutive of *ethos*. Goodwill and trustworthiness are demonstrated where the ‘*pleasures and pains, and so the expectations and evaluations*’¹⁰⁶ are evident in an argument. This can be achieved through sleight of hand, or through a genuine

¹⁰² Ibid. p. 108.

¹⁰³ Ibid. p. 109.

¹⁰⁴ *Distinguished from expertise or technical knowhow, it is the capability to judge wise courses of action in each particular situation. It can be characterised as a form of leadership, which enables the designer to guide design in prudent directions. This is not a call for an uncritical reconstruction of ancient models of virtue but a call to recognise that in the political and ethical thought of Aristotle there are propositions that are compelling in their own right and still persuasive today. By way of example Nonaka and Toyama have framed effective strategic management in organisations as ‘distributed phronesis’, focused towards the pursuit of ‘common goodness’ in each particular situation, distributed amongst organisational constituents and where knowledge can be created and refined to become wisdom, see: Ikujiro Nonaka and Ryoko Toyama, "Strategic Management as Distributed Practical Wisdom (Phronesis)," Industrial and Corporate Change 16, no. 3 (2007). p. 371. Schwartz and Sharpe have revived the concept of phronesis as ‘the master virtue essential to solving problems of specificity, relevance, and conflict that inevitably arise whenever character strengths must be translated into action in concrete situations.’ They note that cultivating practical wisdom in contemporary society is increasingly difficult and call for a reshaping of social institutions so as to encourage the nurturing and use of this architectonic political virtue, see: Barry Schwartz and Kenneth E. Sharpe, "Practical Wisdom: Aristotle Meets Positive Psychology," Journal of Happiness Studies Volume 7, no. Number 3 (2006). p. 377.*

¹⁰⁵ See: Crosswhite. p. 171.

¹⁰⁶ Garver, *Aristotle's Rhetoric : An Art of Character*. p. 111.

commitment to knowing the other, to construct relational knowledge on the ground of knowing each other. As well as building relational bonds of goodwill, this quality enables *'deliberators and judges'* the capacity to *'apprehend the relevant particulars for sound ethical decision and phronesis.'*¹⁰⁷

'Without emotion, Aristotle tells us, judgement is incomplete'; completion is derived in two senses. Firstly, they enable a determination as to when an argument is sufficiently developed, when the form is aesthetically satisfying. More importantly though is the second sense, where emotion brings the particulars of the situation into reasoning such that it *'completes reasoning by making it particular enough to have something definite to do.'*¹⁰⁸ Practical empathy anchors conceptual and abstract reasoning to the real world; to ethical knowledge, action and its consequences.

In conjunction with the ethical quality of *eunoia*, Garver goes on to build a case for *thymos* as the essential emotion in instances of rhetoric that are aimed towards civic action, defined as the *'emotion of citizens'*. The etymology of this term suggests a quality of anger, or aggression, however its application in rhetoric, and by extension *social system design*, is broader than this, where it is used to differentiate between *'mine and thine'*, between those towards whom we identify and develop affection, and those and that which we must oppose. Garver argues that it is *thymos* that makes *eunoia* possible, which in turn is necessary for *phronesis*. In terms of civic action, this takes the form not of somatic pleasure or pain, but of the *'pleasure and pain of fulfilled or frustrated expectation'*¹⁰⁹ which produces a corresponding and consequent desire towards action.

It is clear that the emotions play multiple roles in social argumentation. *'The emotions that fortify the bonds of goodwill... are the very emotions that enable the perception of particulars required for wise decisions'*¹¹⁰ and those same emotions of expectation connect judgement to action.

Furthermore, it is the emotions that Aristotle selects for inclusion in the methods of relational argumentation that give rise to the *'kind of public, political decision making he assigns to rhetoric. These emotions serve to integrate distinct individuals into deliberative or judging body, or demos.'*¹¹¹ This integration is not simply intellectual, as the quality of a *eunoia* creates a unity between designer and constituency, so the constituents come to identify with each other, creating *homonoia*, or

¹⁰⁷ Ibid. p. 111.

¹⁰⁸ Ibid. p. 116.

¹⁰⁹ Ibid. p. 129.

¹¹⁰ Ibid. p. 130.

¹¹¹ Ibid. p. 131.

concord, between them. Garver stresses that this is not simply unanimity on premises, but on agreement and accord on what to do.

The argument so far establishes the constitutive role for the emotions in relational argumentation and design. As Burke discovered, the substance of a social situation is accessed through employing poetic, emotion rich language, so Garver's insight reveals the constitutive, designerly role for emotions in argument, in connecting invention of conceptual propositions to judgement apt for a particular situation and so the potential for enactment and change. This methodological aspect can then be placed within the context of the broader function of the relational argument. Practical and inventive reasoning, embedded in the form of the argument, is pursued in design not for its own end, but towards the end of providing a community with a form, a kind of attention structure, that provides the means and the opportunity by which to deliberate, judge and move to collective action.

7.3.4. The New Argument

Richard McKeon's renewal of an architectonic rhetoric was founded on a turn away from the temporal orientations of classical rhetoric; structured as it was on forensic, epideictic, and deliberative genres, towards a spatial orientation structured by the systemic challenges of the human made world, which must be tackled under conditions of incommensurability within diverse pluralities. As he notes, we *'make subject-matters to fit the examination and resolution of problems, and the solution of problems brings to our attention further consequent problems'* and that in modernity this is structured by a *'recognition of the consequences of what [people] say and do.'*¹¹² This echoes Dilnot's argument for a turn in the primary focus for knowledge from the metaphysical towards the humanistic, where knowledge is focused on human concerns and situations, becoming *'interested and immanent'*.

In this setting, the creation and construction of knowledge is no longer primarily structured by whether it focused on matters of the past, the present or the future, but on interpreting and inventing resolutions for problematic relations amongst people and our made things, in Dilnot's domain of the artificial. This requires an approach to inventing arguments that reflects this shift from divisions of time, toward differentiation in space and relation. The 2nd Road **ABCD Model** fulfils such a role.

¹¹² McKeon, "Uses of Rhetoric in a Technological Age." p. 17.

The *ABCD Model* is visual in character and provides a simple but complete intellectual architecture for structuring transformative arguments with a group engaged in a design conversation; whether the topic is strategy for an organisation or the configuration of a major system. In practice, the model is centred on a design challenge articulated via a *Focusing Question*,¹¹³ with one particular challenge delineated from amongst the innumerable potential formulations possible in an indeterminate situation. Having located the challenge, an identification of the relative size, nature and scope of the 'system in focus' within which the challenge is located is made. It is from this point that an argument can proceed.

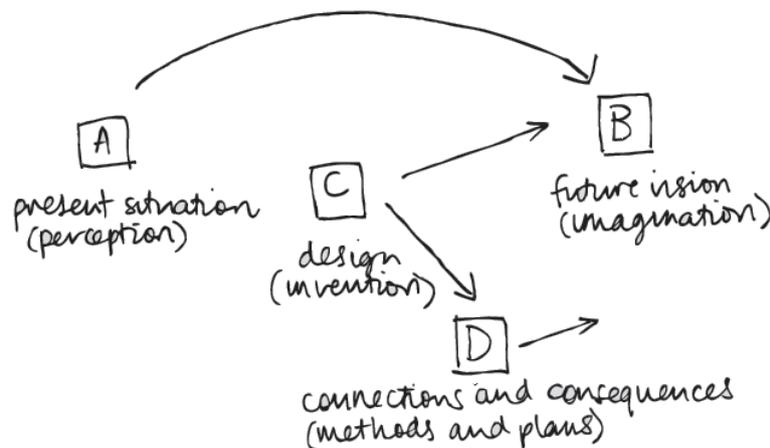


Figure 4: The ABCD Model (adapted from 2nd Road training presentations)

The *ABCD Model* then uses the relationship between four places, each represented by a letter, that bring into a single tensional frame perspectives of the past, future and present, thereby creating a visual juxtaposition of the key elements of a condensed argument: intent, design and enactment.¹¹⁴ This heuristic approach has been used for over 20 years and has been applied to an extraordinarily diverse range of situations. The approach, often commercially delivered as part of a consulting service named *Strategic Conversation*,¹¹⁵ has been used to design the long term strategic arguments for major international organisations from a wide range of industries and sectors, and been used to structure significant organisational design ventures. On the other end of the scale, and to the significant satisfaction of those involved with the project, it has been adapted to provide a simple

¹¹³ Refer to the discussion in Chapter 7.2.3.

¹¹⁴ The four places are structured as questions to access perspectives on the past, future and present into the argument:

A: Where Are We\Have We Been?

B: Where Do We Want to Be?

C and D: What Can We Do and How Do We Make This Happen?

¹¹⁵ *Strategic Conversation* is a 2nd Road proprietary description of one of its commercial services.

structure for Indigenous families in parts of Northern Australia to develop one page arguments for these families to attain greater degrees of financial independence towards realising their dreams and aspirations.

The device is used to navigate a group in conversation through the four perspectives, where they can inquire into the different dimensions of an indeterminate challenge in order to make interpretations for each of the four places. Importantly, this multi-perspectival approach to inquiry invokes different modes of being and knowing: cognitive, social and volitional. While these topics are intrinsically abstract, this approach enables engaged and embodied thinking: '*... we need to dream, invent, get motivated, convince others, visualise unknowns, cover risks, and make decisions without conclusive data.*'¹¹⁶

Characterising the *ABCD Model* heuristic as a placement cannot be allowed to obscure the significant methodological depth to the approach. Buchanan has named it as a master placement, a '*place of places*',¹¹⁷ where it serves the invention of architectonic arguments through itself functioning in an architectonic way with respect to a wide array of secondary places and procedures. Within the master place of the *ABCD Model* a diverse array of placements, as described in Chapter 6, can be deployed to enable knowledge creation. Structuring this methodological element as a placement ensures the emphasis for practitioners is firmly on ensuring utility via adaption to the creative task at hand and the situation in which this takes place is elevated, and to diminish the possibility of its use as a mechanistic procedure. The approach relies on the placing of a series of perspectival elements in tensional relation; within the deceptively simple structure are five key themes that contribute to successfully structuring a design argument.

Firstly, is this approaches resonance with the emerging '*time consciousness*' of modernity, as recognised by Kompridis.¹¹⁸ As discussed, in juxtaposing the four places of the *ABCD Model* perspectives on the past, future and present are integrated into the argument in a single tensional frame, and as such this approach is a manifestation of McKeon's structure of his *New Rhetoric*. The time horizons are not separated, but are brought into one frame for the purpose of '*examination and resolution of problems*' in our social systems. In a similar vein, this approach to argumentation echoes Dilnot's recognition of the centrality of designed knowledge for the artificial, taking place

¹¹⁶ This quote is taken from the 2nd Road Thinking Tools training resource.

¹¹⁷ Richard Buchanan, pers. comm.

¹¹⁸ Refer to the discussion of Kompridis' evocation of the Habermas' concept of time consciousness in his renewal of critical theory in the Introduction.

within time, within the realm of the '*mutable and perishable*'. The present is constructed as the confluence between interpretations of the historical past and designs for transformed futures.

The second quality of the *ABCD Model* approach that exemplifies design argumentation relates to the **systemic** focus it encourages. In practice, the construction of an argument begins from the identification of a particular whole *system-in-focus* to which a focusing question pertains. This artifice orients and directs inquiry and interpretation towards that system and the relation among parts located within the named system. The chosen boundary is understood as an artifice, and those parts and systems that lie outside the chosen system boundary are established as context for the system in focus. This approach enables systemically relational inquiry and invention.

Thirdly is the **socially relational** nature of this practice. Structured by the *ABCD Model* heuristic, the argument is invented and designed in a *conversational* setting amongst a group of constituents who are representative of a wider system community. This group is organised synecdochically via the *Voices of Change* placement,¹¹⁹ and where the experiences, insights and ideas of those present are the basis for knowledge creation. This establishes an epistemically relational situation, where the co-emergence of the three rhetorical proofs is enabled by the fluid interaction of multiple speakers and multiple audiences, within the one setting.¹²⁰ The fluid nature of conversation further enables the group to assimilate multiple modes of inference, and ensure that multiple perspectives on the system can be integrated into the reasoning process. Rhetorical deduction, induction and abduction can bring into frame the voices of analysis and the expert, experience and reflection, integration and design.

The fourth theme is that the *ABCD Model* operates, as discussed above, as a **place of placements**. Within the place of the design hypothesis, there is the opportunity to bring into play an adaptive use of a range of heuristic forms that can enable fast and useful synthesis. Apart from the general placements for guiding synthesis, there are available general forms that can scaffold a hypothesis. Depending on what is required this may take the form of a *Business Model*,¹²¹ an *Organisational Strategy*,¹²² or some model of *organisational structure*.¹²³

¹¹⁹ Refer to the discussions in 7.2.

¹²⁰ The concept of multiple publics emerging with regard to a single issue is discussed by: DiSalvo, "Design and the Construction of Publics." p. 50.

¹²¹ See for example: Alexander Osterwalder, Yves Pigneur, and Tim Clark, *Business Model Generation : A Handbook for Visionaries, Game Changers, and Challengers* (Hoboken, NJ: Wiley, 2010).

¹²² See for example: Roger Martin, *The Responsibility Virus : How Control Freaks, Shrinking Violets-and the Rest of Us-Can Harness the Power of True Partnership* (New York, NY: Basic Books, 2002).

Finally, the visual organisation of the placement gives shape to Dilnot's claim for design with respect to knowledge, for a new socially significant epistemology. The *ABCD Model* structures a tension between conceptual governing ideas and practical resolutions towards realisation. This answers Dilnot's appeal to reorient our relationship to technology and to place human concern as central to technological design. This is structured through juxtaposing the declared intent for the system, the criterion that would, in the judgement of constituents, mark the ethical attainment of human and civic good, with design propositions, or hypotheses, as to the interventions that may deliver such intent, and the planned actions that will lead to the realisation of such interventions. In this there is a practical outworking of Vickers' themes of intent, ethics and agency.

The method of inventing argument as represented by the *ABCD Model* provides a sophisticated example of a method of inventing and expressing arguments with respect to complex social systems. The leadership and facilitation of these ventures is a challenging and sophisticated art, however the approach can serve as a starting point and foundational element for providing a useable and useful form for social knowledge creation. This provides a centre for this aspect of *social system design* method and contributes to understanding this discipline as a pragmatic form of relational epistemology.

7.4. Seeking Adherence

Attention now turns to investigating the distinctive end of *social system design* as structured on rhetoric – that of a persuaded community. This third place in the tripartite structure chosen to present the trajectory of design thought and action focuses attention on the question of **adherence**. This term, adapted from Perelman and Olbrechts-Tyteca,¹²⁴ serves as a commonplace naming for this part of a design venture, where the provisional design argument must be turned outwards to the wider community for their engagement and judgement, towards the possibility of enactment. Garver points out the problematic nature of the connection between reasoning and persuasion,

¹²³ See for example: Henry Mintzberg and Ludo Van der Heyden, "Organigraphs: Drawing How Companies Really Work," *Harvard Business Review* 77, no. 5 (1999).

¹²⁴ 'For all argumentation aims at gaining the adherence of minds, and, by this very fact, assumes the existence of an intellectual contact. For argumentation to exist, an effective community of minds must be realised at a given moment. There must first of all be agreement, in principle, on the formation of this intellectual community, and, after that, on the fact of debating a specific question together; now this does not come automatically', in: Perelman and Olbrechts-Tyteca, *The New Rhetoric : A Treatise on Argumentation*. p. 14.

noting that such reasoning holds the possibility of being persuasive beyond any simple transmission of a proof for evaluation. Garver argues that '*reasoning persuades because reasoning has a function*' in that deliberation follows the connection between means and ends. Reasoning towards probable knowledge is carried out in order to know *what to do* in order to bring about some advantage or desired state. Reasoning in this instance is persuasive because it provides a path from '*moving in thought from an end to means, and therefore move in action from means to ends.*'¹²⁵

In *social system design*, for a design argument to meet the conditions required for adherence, and to position this argument in order to serve as a rallying point for shaping community agency and resultant action, it must have ethical, or moral, as well as intellectual force. It is clear from Garver's development that the inclusion of appropriate emotions in argumentation, ensuring that the tripartite placements of *ethos*, *pathos* and *logos* are always in balance,¹²⁶ is constitutive towards a community's capability for wise judgement connected to good civic action.

In the traditional canons of rhetoric, as set out by Cicero and employed thereafter, the later parts of rhetoric were given over to the stylistic dressing of an argument, its commitment to memory and rote delivery to an audience. However, as Crosswhite¹²⁷ notes, this diminishes the inventive possibilities of making an argument to a community. If instead of the delivery of a fixed oration to a passive audience, this phase is understood as the (re-)creation or (re-)construction of an emergent, provisional argument with a wider constituency, then the possibility of further invention and refinement become clear.

The correlative in rhetoric is described by Enos and Lauer as the operation of *heuristic*, or invention, described in Aristotle's application as '*the way meaning is co-created between rhetor and audience and how, through the process of interaction, participatory meaning is shared.*'¹²⁸ This frame establishes the methodological approach for design in a social setting. This is interpreted within the context of *social system design* to represent the interaction between a representative group accountable for carrying forward a design and the wider community whose interests design is addressing. It would be extraordinarily inefficient to seek to construct arguments for innovation across an entire community and so the method must be built on a model of cyclic engagement.

¹²⁵ Garver, *Aristotle's Rhetoric : An Art of Character*. p. 144.

¹²⁶ *The balance across the three proofs is effectively addressed through Booth's Rhetorical Stance*, in: Wayne C. Booth, *Now Don't Try to Reason with Me; Essays and Ironies for a Credulous Age* (Chicago: University of Chicago Press, 1970). p. 26.

¹²⁷ Crosswhite. p. 169.

¹²⁸ Enos and Lauer. p. 203.

The invention and construction of a provisional design argument is held as a placement around which those accountable for advancing a design construct ongoing cycles of engagement¹²⁹ with the other members of a social system. The general place of design operates in terms of and on behalf of the particular concerns and desires of the constituents of the social, indeterminate situation.

In *Seeking Adherence*, there exists symmetry with the first place described for *social system design* practice, *Structuring Attention*, where the particulars of a situation and the particular experiences of its constituents are pivotal to the design and formulation of an apt design challenge. Interpretations and judgements with respect to a design argument are not found in universals but in the particulars of the situation and circumstances of the community for whom the argument has been formed.

7.4.1. Beyond Rhetoric as *Techné*

While the question of method is important and has been central in this thesis, there are problems for *social system design* if it is understood only as a simple *techné*, as confined to technical and productive knowledge. At one level it is *techné*, but must be understood in relation to other domains of knowledge in order to be successfully practiced within complex social settings. This is prefigured by the propositions of authors highlighted throughout this work, such as Buchanan's description of design as a liberal art of technological culture, and Dilnot's claim for the centrality of design to knowledge with respect to the artificial.

In the first instance, although Aristotle clearly contrasts the purity of *episteme* with the pragmatic concerns of *techné* in association with matters of praxis, the general *telos* of *techné* is developed to be not *phronesis*, practical wisdom, but *sophia*. While *techné* is directed to seeking disclosure of truths, and of the pursuit of knowledge of changeable things, it nevertheless has its consummation in pure theory, tying it closely to *episteme*.¹³⁰ This poses clear problems for a kind of design that seeks an end not in the perfection of knowledge but in practical social action.

Rhetoric, however, was marked out by Aristotle as occupying a special place; while certainly understood as a productive art, it could also be applied universally. It is this positioning that allows

¹²⁹ This evokes Richard Lanham's use of the heuristic of *oscillatio*.

¹³⁰ Richard Rojcewicz, *The Gods and Technology: A Reading of Heidegger* (Albany: State University of New York Press, 2006). p. 64.

McKeon¹³¹ to develop rhetoric as an art capable of operating as architectonic of other arts and sciences, to structure matters both determinate and, importantly, indeterminate.¹³²

The tension between rhetoric as a determinate *techné* and its end in indeterminacy creates a difficult challenge for interpreting the ultimate positioning of rhetoric; however it is this apparent paradox that Garver uses to develop his argument for rhetoric as a civic art. The path Garver takes in building his argument is important to trace, as his interpretation has significant implications for how *social system design* is positioned and practiced in the context of organisational life.¹³³ Rather than simply treating rhetoric as an isolated *techné*, Garver explores rhetoric at length from a broader perspective; he positions his investigation with respect to Aristotle's writing in *Nicomachean Ethics* and *Politics*. The central theme of Garver's innovative development of rhetoric is his focus on the integration of rational intelligence and character; his stated aim is to signal '*the way his practical civic art of rhetoric lies between the activities of practical reason, for which moral character is enough, and instrumental activities that can be bought sold and taught*'.¹³⁴

Garver claims that Aristotle did not develop *The Rhetoric* for the benefit of rhetorical practitioners, but for legislators to reflect on the place of rhetoric in the *polis* and in the work of civic deliberation. For Aristotle, successful practice in rhetoric is inextricably linked to matters of citizenship and collective human well being, and is bound to *phronesis*, or prudence, as much as technical knowledge.¹³⁵ A principal device that Garver uses to explore rhetoric is the distinction between guiding and given ends, or those ends focused on the internal operation of the art and those on external goals.

The internal, or guiding, end of rhetoric can be understood as its function: '*not to persuade but to see the available means of persuasion in each case*',¹³⁶ and the practitioner's role is to do everything in one's power to accomplish this end. The term '*available*' becomes important to Garver's development. He argues that the distinction between guiding and given ends is critical for a rhetoric considered from the perspective of *praxis*, as it constructs a distinction between two kinds of rhetoric, which Garver names as professional and civic rhetoric.

¹³¹ See outline in Chapter 5.4.

¹³² This aspect of rhetoric is developed at length in Chapter 5.4.

¹³³ Richard Buchanan, "Introduction: Design and Organizational Change," *Design Issues* 24, no. 1 (2008). p. 2.

¹³⁴ Garver, *Aristotle's Rhetoric: An Art of Character*. p. 6.

¹³⁵ James Wang has noted the break between the domains of *techné* and *praxis* in design, see: James Wang, "The Importance of Aristotle to Design Thinking," *Design Issues* 29, no. 2 (2013).

¹³⁶ Garver, *Aristotle's Rhetoric: An Art of Character*. p. 24.

In the case of professional rhetoric the external end dominates. This form of rhetoric lends itself to specialisation requiring only knowledge, the practice of which can be delegated or outsourced. Furthermore, the successful achievement of the external goal is *'the only measure of value.'*¹³⁷ There are no *'inferences from rhetoric to virtue'*; professionalisation of rhetoric actually has the effect of expanding the available means to include those which may be questionable in terms of ethics or integrity. Achieving the external end will justify any means that can be employed. Garver notes that in history when rhetoric becomes *kinesis* that aims at ends outside itself, it becomes a universal technical art as opposed to a civic and practical one, expanded in terms of productive capacity but diminished in terms of wise civic action.

Garver contrasts this to a situation where internal or guiding end dominates, particularly with respect to a kind of rhetoric framed from the perspective of *praxis*, or practical civic deliberation. He states that *'a civic rhetoric is one where more than the external good is at stake'*, where the internal ends are, perhaps paradoxically, constrained. The restriction does not stem necessarily from lack of knowledge, but on the constraints provided by the virtue of constituents of a social system: *'[o]nly a restricted rhetoric depends on virtue and citizenship and is thus a political activity.'*¹³⁸ This connects to the three characteristics of persuasive argument developed in Chapter 7.3; *phronesis*, virtue and good will.

*'Aristotle's political project is to maximize the active -- energeia -- side of rhetoric and so civilize the activity of influencing beliefs and judgments and convert into a minor irritant the role played by disreputable tactics such as playing on irrelevant emotions in the hearers, which so scandalised the ... conservative opponents of the sophists.'*¹³⁹

Garver goes on to highlight that excessive precision is not persuasive, and that professional rhetoric is one that focuses on precision. In the civic form *'being overexact does not just make speakers less persuasive; it is a failure of ethos, a fault in character.'*

Rhetoric constructed instead as a civic art is framed by the character of those engaged in argument, and the art of rhetoric is subordinate to that of politics. Indeed McKeon argues that it is problematic when rhetoric substitutes for politics. There is, however, a deep interdependence: *'character (ethos) and emotion (pathos) are constitutive features of the process of phronetic practical deliberation: in*

¹³⁷ Ibid. p. 46.

¹³⁸ Ibid. p. 47.

¹³⁹ Ibid. p. 40.

order to render a determinate action-specific judgment, practical deliberation cannot be simply reduced to logical demonstration (apodeixis).¹⁴⁰

The aim for Aristotle is to *'construct a civic relation between argument and ethos, so between techné and phronesis.'*¹⁴¹ Here Garver locates deliberation and rhetorical argument at the centre of civic rhetoric, and states that *'rhetorical argumentation differs from argument in general in that rhetorical argument is essentially ethical.'* Argument must serve ethos, and ethos is revealed through the process of argumentation. This distinction extends to reasoning, the enthymeme and the example contrast to syllogism and induction in that *'they are ethical throughout'*.¹⁴²

For Garver, *Rhetoric* is a political inquiry and rhetoric as a civic art combines *'properties of techné and citizenship'*, of technical knowledge and practical wisdom. It provides method for arguing in situations of incommensurability and where there are contrasting ideas of what constitutes good, where for matters of human affairs expertise cannot substitute for the judgement of citizens.

The concept of a civic form of rhetoric has been explored elsewhere. Simmons and Grabill note that designing and building a technological culture is necessarily a deeply collaborative venture, and that *'rhetoric is no longer the terrain of the individual rhetor speaking or writing to "the public"'*.¹⁴³ They recognise that *'the public decision-making processes that we have experienced and can imagine are framed by various institutional structures and mediated by "expert" technologies, epistemologies, and rhetorical practices'* require a robust civic rhetoric that can *'enable both analytical and productive possibilities within such contexts.'*¹⁴⁴

Gellrich also notes the central role of a constituency in highlighting that Aristotle identifies the audience, *'which he names with the terms kritês ... as the telos of rhetoric'*¹⁴⁵ and explores his thinking on the conditions for truth in social situations. Aristotle frames the attainment of rhetorical truth by employing the term *krisis*; meaning *'judgment, discrimination, decision-making through*

¹⁴⁰ Arash Abizadeh, "The Passions of the Wise: Phronesis, Rhetoric, and Aristotle's Passionate Practical Deliberation," *The Review of Metaphysics* 56, no. 2 (2002). p. 267.

¹⁴¹ Garver, *Aristotle's Rhetoric: An Art of Character*. p. 77.

¹⁴² Ibid. p. 81.

¹⁴³ W. Michele Simmons and Jeffrey T. Grabill, "Toward a Civic Rhetoric for Technologically and Scientifically Complex Places: Invention, Performance, and Participation," *College Composition and Communication* 58, no. 3 (2007). p. 442.

¹⁴⁴ Ibid. p. 442.

¹⁴⁵ Gellrich. p. 247.

separating out and dividing up; but also, dilemma, turning point, crisis',¹⁴⁶ and noting that this is the arena where language is submitted to the judgement of an audience:

*'... the construction of ta hupokeimena [the underlying essence] clearly depends upon the telos to which language is directed: the krisis or judgment of an audience. The one speaking must have a rough foreknowledge of the occasion of discourse, the character of the audience, and its emotional resonances in shaping the "possible or impossible," "the has-been or will-be," and "the greater or the less." Only thus can logos be probative and convincing.'*¹⁴⁷

There are clear parallels from Garver's investigation into the distinction between professional and civic rhetoric and the broader discipline of design. There are clearly questions for design-in-general however they lie outside the scope of this investigation. What is significant for this thesis is the implications of Garver's argument for *social system design*. It must first be practiced in a way that embraces the political dimension of organisational and broader life. Practice in general, and any project in particular, must be conceived and conducted first and foremost in terms of the community it is intended to serve. This requirement to structure design fully in terms of an engaged community is consistent with Vickers' development of human systems, and acknowledges that developing a form of social design only as a *techné* diminishes the possibility of preserving the humanness of a human system.

It has been a prominent theme developed within this thesis that the focus of *social system design* is the challenges of indeterminacy. Garver's developments show conclusively that in tackling these challenges the specialised knowledge of experts is insufficient. What is required is the juxtaposition and integration of multiple strands of technical knowledge, but more importantly, that those who come together to tackle these challenges as part of a design team must be present and engaged in their capacity as constituents of the social system in focus. As Garver notes, in resonance with Rittel and Webber, arguments *entechnically* constructed from the experience, creativity and judgement of constituents, along with their *atechnic* know how, are arguments that have the possibility of attaining sufficient ethos to be persuasive. It is only through this path that there exists the potential for a truly persuaded community, for true *adherence* rather than just acceptance or compliance.

While inventive acts are essential to design, the ongoing construction of a design argument through the critical engagement of a *kritês*, self-constituted as a community of action, is the central and

¹⁴⁶ Ibid. p. 249.

¹⁴⁷ Ibid. p. 255.

pivotal *place for social system design*. It is at this point that a design can find its fullest form, where the argument, having been developed on behalf of and in terms of a broader community by a representative group, is passed onto the wider community for interpretation, judgement and further development. This transfer of accountability is an essential condition to maintaining the integrity of the human system, and informs the method by which a design argument moves towards the possibility of enactment.

The argument cannot be understood as a finished product in any orthodox sense; the accountability of a designer extends to only creating, on behalf of a wider community, an attention structure, a form, that in articulating the formulation of a design challenge and attendant propositions for its resolution provides a focus point for ongoing deliberation. This is an organisationally efficient means by which a diverse array of propositions for invention and change, for innovation, can be developed on behalf of and for evaluation by the constituency at large.

The description of *social system design* as a particularly political form of design brings the argument developed in this thesis full circle, back to the evocation of *Political Design* described DiSalvo.¹⁴⁸ The distinctive end of a persuaded community perhaps does more than any other aspect of *social system design* to position this kind of design as truly relational, and frames the architectonic role of a design shaped by the interpretations of rhetoric by McKeon, Burke and Garver, in terms of service, rather than domination and control. This serves as an important counterpoint to the impulses of *Total Design* as described in the Introduction and discussed by Wigley. This final development further positions *social system design* within view of Simon's claim for the centrality of design to the life of educated citizens, and goes some way to fulfilling Buchanan's description of a design capable of operating as a '*liberal art of technological culture*.'

7.4.2. Practical Adherence

In 2011, 2nd Road was deeply engaged in a large scale strategic redesign project with an international civil engineering, mining and technical services company. The primary client was the CEO, a brilliant and in many ways visionary man, who was determined to substantially grow the business through extending beyond a solid but conservative technical footing by building capabilities for entrepreneurial, innovative, outward and future oriented thinking. He was convinced that the fusion

¹⁴⁸ Refer to discussions in the Introduction section of this thesis.

of design and business approaches that 2nd Road held was important to this program, and engaged the firm to work with his management to bring new ways of thinking into their management and operational cultures.

His vision was far reaching and compelling, and the logos of the emergent strategic argument, co-designed between the CEO and 2nd Road's best minds was solid. Some twelve months later the CEO had lost the confidence of the board and was terminated, and the project was cancelled on very short notice. While there are no doubt many contributing factors in such a large and complex setting, it was clear that the comparative strength of the logos of this proposition could not overcome the shortfall in the social proofs. My diagnosis was that for all his brilliance, the CEO had failed to build his ethos with his senior executives, leaving this pivotal group fragmented and dysfunctional, with little appetite or ability to engage with the challenging argument placed before them, regardless of the solidity of its logos.

Similarly, his strong abilities for abstract thought and rapid, very strategic, syntheses led to his expectation of being able to rapidly inculcate entrepreneurial and innovative practices in the middle management of this business. This did not account for the conservative, sceptical and expert oriented culture of these technical professionals. The pathetic dimensions of the social system were not adequately developed, there existed little trust and goodwill towards the key 'speaker' in this social system. The collapse of this project is an instructive case study in the risks of not attending to all three proofs of creating and constructing arguments for action in relational systems, and to elevating the intellectual at the expense of the phronetic.

The requirements for adherence have practical implications for the way *social system design* operates. The central need to create a deep interdependence between the place of design and the place of a system constituency leads to a number of particulars of practice.

Firstly, a design team is largely drawn from the client organisation and supported only by one or two professional designers, with the majority of design work carried out where the client's work is done. Furthermore, the principal mode of interaction is conversation, which is a highly effective and compact means by which not just information, but the emotive dimensions of experience, perception, aspiration and creativity can be accessed and integrated into potentially persuasive propositions. It further creates opportunities for the development of, in rhetorical terms, *eunoia* and *homonoia*, both antecedents for a cohesive community capable of manifestations of collective agency.

As an example, a recent project for redesigning the middle and long term strategy for an iconic Australian mining organisation involved a *Co-Design Team* made up of two 2nd Road design consultants and a rotation of four and six client employees, all of whom received training in the fundamentals of conversation and design. The work was principally conducted between the head office and the mine site and regional office, with several weeks taken to conduct deep conversations with a wide cross section of employees. The strategy was developed via a nested set of design arguments, one for the business as a whole, framing more detailed arguments for significant parts of the business and so on. In each case, these were developed in conversation and with people representative of the aspect of the business in focus.

This brings to the fore one of the difficult tensions with respect to *social system design*. In orthodox forms of making and production the presumed end point for a designer is a polished and refined whole. This is not the case for the *social system design*, or the design community. The iteration of focused design must hold off completing a design, with the product as argument generally left provisional and unresolved in order to create the opportunity for wider engagement and co-creation.

For a designer, this requires that any instinct to control, to shape a product through to its final form must be resisted, allowing the provisional argument\conceptual product to go to judgement in a form that is whole enough to enable wise interpretation, but not so resolved that it excludes the wider community from ongoing design, acceptance and enactment. In this the designer can still maintain involvement but shift in role from a facilitator of design to a mentor for the community, and an advisor with respect to the reasoning inherent in the argument.

This requires one to guard against the frustration at one's own expectations remaining unfulfilled, either in failure of the concept, idea or argument to take hold, or as is likely to be the case that its enactment runs contrary to the way in which you expected. This can be difficult, however, perhaps not so different from instances of material design. Here the career of the product may take unexpected turns or the product may be subject to use, or misuse, in contexts unimagined by the designer, for example, the use of garage door openers intended for the suburban West used to trigger IEDs on the streets of Iraq.

In this sense the approach here is to not have a fixed approach, or more precisely, the method for *social system design* is actually not to be wedded to a particular methodology for change, to look to the system in focus itself for the way into action. This is not to fall to the tactic of co-opting

indigenous methods, but instead to yield to the structures, capability and will of the community in their efforts to realise the immaterial design in the substantive innovative change to their situation.

In this the ideas of *eunoia*, *homonoia* and *ethos* works both ways; that the designer must trust the character of the wider community to judge the argument wisely, to conduct ongoing design and move to action in a way that their collective agency honours the intent and ethics carried forward in the evolving design argument.

7.5. Conclusion

Richard McKeon's reanimation of a new rhetoric, along with the contribution of his colleague Kenneth Burke, has paved the way for new interpretations of this ancient art from researchers such as Richard Buchanan and Eugene Garver, which have challenged the orthodox construction of rhetoric as a mechanical trade art with respect to clever speech. These investigations have re-discovered in ancient rhetoric a rich repository of frameworks and methods concerned with invention of relationally found, and socially relevant, '*probable knowledge*'.

These re-interpretations have formed the basis for the description of and argument for the fundamentals of an emergent discipline of design, modelled on the observable applications of the dispositions and capacities of designers in tackling immaterial complex social challenges faced by organisations and the civic context in which they operate. *Social system design* is proposed as a means by which innovative resolutions to such challenges can be created.

This chapter has focused on describing a series of methodological elements that could serve as foundations for such an emergent discipline. Building on the central dispositional and methodological feature for *social system design* of **placements** described in Chapter 6, the elements described in Chapter 7 operate as places, taking their generative power from the tensions established through fluid and experimental juxtapositions across a diverse range of methodological elements: between the social situation, its context and the emergent design proposition; between design facilitator, a design team and the broader system constituency; between the beginning, middle and end places of a design trajectory; between the three social proofs required for adherence to social reasoning.

This describes the essence of a relational means of design with social epistemic ends, in other words a discipline concerned with invention of socially relevant probable knowledge through relational means. Proficiency in these approaches, as manifest in the pioneering work of the management consulting firm, 2nd Road, are able to bring about substantial shifts in the disposition, priorities and processes of organisations, resulting in changes in the way these entities approach strategy, interact with their stakeholders, and remodel their innovation work practices.

There are difficulties that must be acknowledged. The nature of indeterminacy challenges our ability to control social outcomes, and the organisational world is awash with concepts, ideas and techniques competing for the attention of leaders seeking the next competitive edge for their institutions. Not every consulting intervention is successful; many fail to ignite the imagination of a constituency, or arrive at propositions that are judged not to be apt for the situation-at-hand. This thesis however takes an optimistic stance, and offers an argument for a way of tackling complex organisational and civic challenges and creating innovative propositions for resolution in relational settings.

Chapter 8

The Future of *Social System Design*

*'The polis, properly speaking, is not the city-state in its physical location; it is the organization of the people as it arises out of acting and speaking together, and its true space lies between people living together for this purpose, no matter where they happen to be.'*¹

8.1. Developing Social System Design

As the horizon of the artificial becomes the dominant modality for contemporary life, and grows both in complexity and power, the challenges that arise are both more complex and consequential. A mode of design practice adapted to these circumstances may contribute in significant ways to the resolution of these challenges. This thesis aims to contribute to such a field of design, i.e., to what is named here as *social system design*.

The central question addressed in this thesis was: *'can we develop methods of design and design thinking that are focused on tackling the challenges of complex social systems?'* The primary means by which this inquiry was pursued was through the development of method drawn from an interpretation of classical rhetoric.

8.1.1. The Approach

The approach adopted to tackle this question, aligned to critical theory, was to propose a type of design practice that might be especially applied to the challenges presented by organisations, including strategy and human system design, along with experiences gained during a commercial consulting career that sought to integrate methods of design with those of the liberal arts, in order to direct inquiry towards relevant and useful areas of scholarship from the fields of management, design, systems studies and rhetoric.

The aim was not to catalogue and describe accumulations of practice, but to build theoretically grounded arguments for a potential set of organising concepts, methodological frames and practical elements for *social system design*, in order to contribute to theoretical foundations of this new field

¹ Hannah Arendt, *The Human Condition* ([Chicago: University of Chicago Press, 1958). p. 198.

of design activity. The proposed methods were supported by examples and illustrations drawn from examples of current practice. The technical arguments regarding methods for *social system design* were then contrasted with the essentially political nature of this field of design, its end being found in practical and relational action.

8.1.2. The Argument

It is clear that a new field of design activity is emerging where the efforts, skills and attributes of designers are being applied outside the traditional areas of design, such as visual communication, material products and built environments. This new focus for design encompasses the challenges of diverse organisations, where complex, immaterial and social systems and governing concepts are themselves the *objects of design*. This new design activity has yet to be the subject of substantial research and examination, there is yet to emerge a cohering framework for these activities, and propositions for appropriate methodological frames to provide guidance for future practical applications have not yet been developed.

Within design literature, there are extended arguments for an understanding design as sufficiently expansive to accommodate new fields of design activity, even those in which the objects of design are the immaterial structures of thought and language. These arguments create a picture of design not just as an encompassing discipline, but a discipline that is cognitive in nature, where invention in thought and language have primacy, and which may therefore play a central role in contemporary civic and social affairs. As Buchanan states, design can be recognised as a '*new liberal art of technological culture.*' The conception of *social system design* that I have proposed takes shape from an interweaving of these perspectives on design with arguments for a recognition of the *social* character of many systems – this developed in opposition to the scientific hegemony in systems studies, and sought to differentiate and develop understandings of the unique characteristics of human systems.

The picture of *social system design* that is developed from these backgrounds is a field of design where design thinking is a core aspect of practice, where method is centred on thought and language, and where word, image and idea are the means, media and ends. Further, *social system design* not only focuses on social systems, it is irreducibly relational in principle, method and practice. These attributes underpin my argument that *social system design* be understood as concerned primarily with relationally found and created knowledge, i.e., a form of relational

epistemology. Developing *social system design* in this light resonates with Richard Buchanan's argument for seeing design as a modern expression of classical rhetoric, and this perspective, in turn, underpins the development of method for social system design drawn from the field of rhetorical theory and method.

This enables the significant elements of *social system design* method to be developed and articulated. The foundations of these methods are located firstly in Kenneth Burke's argument that a rhetorical orientation towards language is essential in order to engage with social situations in a substantive and ethical way. This serves as the precursor for locating an *art of placements* as the methodological form which most significantly shapes *social system design*, and which marks it off from other design fields. This foundation is built upon with other elements that are essential to practice. The first of these is a capacity to structure attention in the most appropriate way and towards the most productive formulations of a design challenge. The second is the capacity to construct multi-perspectival, multi-inferential arguments that persuade both on a rational as well as a relational level. The third element here is the capacity to develop and employ argument within the relational settings of communities of system constituents in a way that provides the best opportunity for good arguments to emerge for the purpose of igniting and directing collective social agency towards good social and civic ends. This culminates in recognition that this field of design must embrace the political dimensions of organisational life, as Garver developed at length with his arguments for the interdependence of Aristotelian rhetoric and politics.²

While Richard Buchanan brought rhetoric into a relationship with design and developed theoretical aspects of this over a series of important contributions to the literature, he did not pursue any practice-oriented development of this potentially transformative juxtaposition. This thesis has sought to explore this connection in greater depth and in greater detail, in order to develop an understanding of the ways in which the arts of classical rhetoric might shape and inform contemporary *social system design* methods.

² Refer to the discussion in Chapter 7.4.

8.2. Future Developments

In order to continue the development of *social system design* as a coherent field of theory and practice, there are three directions that could be pursued as topics for future research. This thesis has focused upon building a unified theoretical grounding and an outline of methods for *social system design* but this work might be developed in the direction of extending the development of method, developing a curriculum for social system practitioners and attending to the development of oral culture in organisations and other social institutions.

The first of these directions would involve a series of projects focused on further developing and infilling method and technique for *social system design*. Adhering to the tenets of Schön's reflective practice, these projects would involve bringing sharp focus on particular aspects of a design venture. The aim would be to test the validity of the broad arguments for method developed here, and additionally to develop the detailed techniques and field knowledge that is required for an effective and sustainable design practice.

The second direction would focus on articulating the requisite attributes, skills and knowledge of the social system designer. The term design facilitator has been introduced but not extensively developed: it stands to mark a distinction between designer as direct producer, and designer as facilitative of the invention and production of others. *Social system design* is intrinsically relational, both in principle and in practice: its design activity takes place in social settings, where insights, inventions and judgements are developed in conversation. This requires of a designer the capability to shape topics, attention and design activity *ex tempore*, to manage the flow of design thought and conversation on the fly and with others. One important element of this future development is the need for a revival of a memorial craft,³ which was central to the practice of rhetoric in ancient times. The trained organisation of memory was done so as to allow a form of random access, the rapid recall from any part and in any order to enable that combinatorial play which is so critical to invention: the '*goal of rhetorical mnemotechnical craft was not to give students a prodigious memory for all the information they might be asked to repeat*'⁴ but to give the rhetorician '*the means and wherewithal to invent his material ... on the spot*'. This memorial capability has been lost

³ *Memoria*, or *mneme* from Greek, meant '*trained memory, educated and disciplined ... that was part of the elementary language arts*', see: Mary J. Carruthers, *The Book of Memory : A Study of Memory in Medieval Culture*, Cambridge Studies in Medieval Literature, 10 (Cambridge [England] ;; New York: Cambridge University Press, 1990). p. 7.

⁴ Mary J. Carruthers, *The Craft of Thought : Meditation, Rhetoric, and the Making of Images, 400-1200*, Cambridge Studies in Medieval Literature, 34 (New York: Cambridge University Press, 1998). p. 9.

as documentation has become the prime means of holding and working with information, and the model of memory has been reduced to that of the storage device for rote recall. While *memoria verborum* was recognised it was not prized; instead the classical perspective held intentional memory to be ‘*central feature of knowledge*’,⁵ with texts serving as memorial cues and aids. It was locational; heuristic in nature, with the mnemonic organisational structure specifically designed to foster inventive thought. It is this capability that must be recovered and adapted for facilitation of relational design to be truly successful.

The third direction would involve further developing the theory and method of practical relational engagement. This would examine the institutional and cultural context that inhibits or nurtures the development of *oral culture*.⁶ This is not aimed at displacing any expressions of literate culture, but rather to loosen the grip that documentation has on organisational life, and bring a renewed focus to organisational arrangements that enable challenges facing the relational systems of an organisation to be tackled, first and foremost, by fostering innovation by relational means. This would involve building on the elements of method outlined in this thesis and developing practical means of dialogue in social settings that are not simply for communication but which are for interpretation, invention, argumentation and judgement – in short, for design. This would involve the cultivation of a capacity not only to lead, facilitate and usefully participate in conversation, but also to build effective means for displayed thinking, and for the spatial representation of abstract concepts.

8.2.1. Personal Observations

Conducting this research has had a profound impact on my own practice. First and foremost, establishing a detailed argument for connecting the foundations of *social system design* to deep and long lived intellectual traditions underpins the sense that I am participating in the development and practice of an emerging design field. This in turn provides a sense of confidence for continuing to argue for the place of this design approach in shaping with forethought the conceptual and social structures so critical to contemporary enterprises and the challenges they face.

⁵ Carruthers, *The Book of Memory : A Study of Memory in Medieval Culture*. p. 16. Carruthers notes that this does represent a tension between pre-literate and literate culture, the practitioners of these arts were highly literate but held oral culture in high esteem.

⁶ This is a reference to Walter J. Ong’s primary orality, in: Walter J. Ong, *Orality and Literacy : The Technologizing of the Word* (London; New York: Methuen, 1982).

This is currently being tested through my engagement with a start up enterprise that employs design as part of its methodology in assisting other start up social enterprises to develop innovative models for being commercially sustainable while delivering positive social outcomes for the communities they serve. This is an opportunity to use design in shaping both the overarching intent of the emerging enterprises as well as, initially, the key conceptual and commercial structures that will guide the subsequent development of products and services and the operational structures that will deliver them. This is an opportunity to design and prototype a whole enterprise; innovation at the scale of whole, albeit small, organisations.

It further provides clear directions in which the development of this field can proceed, which, rather than being shaped only opportunistically by encounters in practice, can also draw on philosophical and intellectual foundations from liberal arts traditions such as rhetoric and dialectic. This translates into a determination to draw a wider range of rhetorical devices in to practice, to focus on the development of memorial practice and to search for ways to practically realise the models of civic argumentation as developed in Chapter 7. A starting point for this is the exploration of design as rhetoric and its relationship with the original sense of *praxis*, the *ethos* of primary actors and the structural ethics of the social situation. Further reflections on the application of ideas that emerge from social system design practice will be the stuff of future research and writing.

In the longer term, and given the arguments developed for *social system design* as a relational epistemology, dedicating effort to investigating the role that design thinking can play in improving productivity in enterprises that rely on knowledge creation and value in use will be pursued. Further widening the potential sphere of focus, there is opportunity to develop explicit models and methods of design thinking across other fields of design. This provides the possibility of bringing attention to, and being able to teach, modes of thinking that can develop alongside, rather than in the shadow of, the craft dimension of design. The discourse within *social system design* can also make contributions to the broader academic discourse in related design fields. For example, a number of authors have expressed a desire for Participatory Design to broaden to find ways to better include participants in designing or to take better account of the sphere of social relations.⁷ Further, there is an intriguing possibility of investigating the intersection of social system design and urban design, where the concerns for the relational and epistemic structures of polis can intertwine with the spatial and material configurations of the built environments increasing numbers of us inhabit. This

⁷ See, for example: DiSalvo, Clement, and Pipek, "Communities: Participatory Design for, with and by Communities." p. 204, and Robertson and Wagner, "Ethics: Engagement, Representation and Politics-in-Action." p. 83.

could possibly be extended to other forms of professional practice where rapid invention of new knowledge is becoming a typical requirement of practice.

8.3. Close

The intent of this thesis has been to develop and propose effective methods of design that might be effective in tackling innovation in social systems, organisations and civic institutions, carried out in truly plural and relational communities. In sharing Richard McKeon's commitment to plurality, I express my conviction that relational approaches to the invention of knowledge will be an essential part of finding our way successfully through the complex systemic challenges that arise from the interaction of the artificial and modern life, and its impact on human experience and natural environments.

Rhetoric has occupied a significant place in the arguments developed in this dissertation, and has much to offer the ongoing development of *social system design*, along with the broader mission of enabling citizenry to productively engage and act within the civic realm. This is no simple matter. As discussed above, the struggle to maintain rhetoric as a complete art has been a long one, and that rhetoric can be turned to damaging ends has been well canvassed,⁸ as has the potentially damaging ends to which design can be directed.⁹ The dividend from renewing and employing rhetoric cannot be guaranteed, and this problem is behind Garver's warning, as discussed in Chapter 7.4, to couple the argumentative *logos* of technical knowhow with a nurtured *ethos*, the character and wisdom, of leaders in design.

Garver's resistance to the professionalisation of rhetoric requires an alternative approach to knowledge. The requisite direction is provided by Elisabeth Coleman:

'Over the past century the expert has dethroned the educated generalist to become the role model of intellectual accomplishment. While expertise has had its moments, the price of its dominance is

⁸ *From either end of the history of rhetoric the question of the misuse of rhetoric has been considered. Quintilian stated that 'if the powers of eloquence only serve to lend arms to crime, then there can be nothing more pernicious than eloquence to public and private welfare', in: Quintilian and Harold Edgeworth Butler, The Institutio Oratoria of Quintilian (Cambridge, Mass.: Harvard University Press, 1989). . p. 1. In the 20th Century, Wayne Booth similarly discussed 'rhetrickery', 'the art of making the worse seem the better cause', in: Booth, The Rhetoric of Rhetoric: The Quest for Effective Communication. p. 11.*

⁹ *Refer to the discussions on Victor Papanek's declaration in Chapter 1.*

enormous. . . . Questions such as “What kind of a world are we making? What kind of world should we be making? What kind of world can we be making?” move off the table as beyond our ken.’¹⁰

While this dominance of the technical expert has generated extraordinary advances in our technologies, this position has constructed new problems in the displacement of human concern as central to civic making and acting, and the loss of perspective on the overall trajectories of our social systems.¹¹ The generalist spirit discussed by Coleman is at the heart of *social system design* practice, as developed in this thesis. The role of designer shifts from technical expert towards locating questions that are significant to whole systems. These questions then enable the designer to facilitate social interactions centred on the named design challenge, and to be integrative, or synthetic, of the relational knowledge that emerges from this setting.

This commitment to a shift towards engaging constituents as ‘*active co-producers and co-designers*’,¹² not only brings economic benefit for an organisation but, more importantly, can serve as a pathway for widened civic participation, for effective expressions of civic agency that tackles real problems and generates useful outcomes. This can only serve to enliven democratic society and contribute to our *partnership in living well*.

¹⁰ Elizabeth Coleman, "Education: Agent and Architect of Democracy," *Teacher-Scholar: The Journal of the State Comprehensive University* 2, no. 1 (2010).. p. 43 – 44. *Coleman’s perspective on the broadening of design and the attendant role of rhetoric was discussed in Chapter 1.*

¹¹ *This is discussed in detail in Section 2.2.1.*

¹² Nicola Morelli, "Social Innovation and New Industrial Contexts: Can Designers “Industrialize” Socially Responsible Solutions?," *Design Issues* 23, no. 4 (2007). p. 18.

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