

**LEADING CHANGE IN  
E-COMMERCE**

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**Abstract**

Inevitably the adoption of any new technology brings about change but e-commerce is significantly different in that it completely shifts global business into a fast paced electronic environment. The old notions of management are totally ineffective and a new style, focused on 'leadership', is required - but what style of leadership? The findings of this research indicate that organizations that have successfully integrated e-commerce have exhibited a unique style of leadership. Using a change management matrix, which determines the impact of change versus leadership style within an organisation, 182 Australian managers were surveyed and positioned within this matrix. It was found that within the most successful organisations, leaders had a distinctive style that facilitated the appropriate change and established a conducive e-commerce environment.

## LEADING CHANGE IN E-COMMERCE

### INTRODUCTION

In an environment that is constantly changing, the role of the leader has become vital. Technological developments have enabled the creation of the Internet. Subsequently organisations are now utilising the Internet to conduct business. This has shifted organisations into the dynamic world of technology. Leaders as opposed to managers are creating the vision and taking their organisations through the changes (Vines, 1999; Gray, 1995). The environment created by the Internet and e-commerce is different to what has ever been experienced before.

A wealth of information can be obtained on e-commerce. Most of the literature points towards e-commerce and the Internet being integral parts of business well into the future (Marchetti, 2000; Parry, 2000). Whilst there has been much written on the subject there has been little academic research into this new environment and how to deal with it. E-commerce can be described very broadly as being any business that is done via the Internet. As technology develops e-commerce will become more prevalent forcing organisations to change more rapidly than ever before. Therefore it is of interest to explore how this change is managed. There is little empirical evidence about managing or leading change in this new context and what there is, is of limited use as it is primarily based in America. Therefore this study will take an Australian developed change management model and apply it to the Australian e-commerce environment, specifically looking at the manufacturing sector.

The objective of this study is to bring together leadership and change management in an e-commerce environment. Then to explore if a relationship between the scale of change and the style of change management leadership exists in the new environment. This will be achieved by looking at four specific relationships that cover the continuum of the scale of change and the style of management.

The secondary objective is to identify trends in views of leadership and change management in an e-commerce environment. This will be achieved by exploring personal responses of IT/E-commerce managers in the manufacturing industry.

There is a vast array of literature on leadership, change management and e-commerce. However there is virtually none that combine these in one research project. This study is significant as there is little empirical research of change management in an e-commerce environment, and specifically, this type of study does not appear to have been attempted before. This study could lead to a broad-based study of leadership of change in e-commerce across multiple industries and different organisational levels.

### E-COMMERCE AND CHANGE MANAGEMENT

Radical changes have been taking place in the commercial industry with the advent of the Internet and e-commerce, which have swiftly changed traditional business practices, and are creating numerous avenues for the development of business-to-business and business-to-consumer initiatives. Fuelled initially by rapid business-to-consumer growth, e-commerce is now being seen as a tremendous engine for business-to-business (B2B) growth (Stewart, 2000). B2B commerce is growing rapidly. In the US market alone, Forrester Research expects B2B revenues to reach \$1.3 trillion by 2003 (from a figure of \$43 billion in 1998) (Marchetti 2000; Smith 2000). Two years from now, companies expect e-commerce to bring in an average of 41% of their total revenue, and they will be dedicating an average of \$83 million per year to their e-commerce efforts (Caruso, 2000).

In traditional organisations, managers had time to craft and implement their business strategies knowing what actions competitors might take. In the next millennium, intellectual or knowledge resources will redefine managers' roles and erode traditional boundaries that separate people and organisations. The principal role of the management of the future will be to link competencies and resources that the

organisation possesses to create a sustainable competitive advantage (Oetgen, 1999; Parry, 2000). The Internet and e-commerce have created a global market for ideas and exchange of information.

In relation to corporate views, company goals have had to change over the past few years to align with e-commerce initiatives. In the past company goals have always focused on profitability and the bottom line. This decade the focus has shifted to competitiveness, staff and customer satisfaction with a view to long term success (Schein, 1992). Traditional methods of evaluating corporate success are changing. Striving for profit at the outset is often seen as detrimental to survival (Smith 2000). IT and business executives from all industries surveyed in the Information and Business Week survey agree that generating new sources of revenue isn't the main goal of deploying E-business applications (Caruso, 2000). In fact, this factor ranked well behind creating or maintaining a competitive edge, improving customer satisfaction, and keeping pace with the competition (Dalton 1999).

Another change that is developing is that of management versus the importance of leadership. In the past the Managers role was to organise, delegate and generally get the job done. Now those put in managerial positions are there because of the leadership qualities they display (Burnes, 1996; Handy, 1994). The previous role of managers is now a given. The extra skill sought after is leadership. Executives in these organisations are desperately searching for leaders who can develop cultures and teams that can capitalise on this new channel (Gray, 1995). According to the study these leaders possess three key traits: quick thinking, communication (selling the vision of the Internet internally), and flexibility (coping with constant change) (Marchetti 2000).

The Dunphy and Stace (1990) model provides the most comprehensive method of evaluating all the various different levels and degrees of change and leadership styles. There is increasing pressure for some certainty to be brought back into such a volatile environment (Marchetti, 2000). As such, the simplistic nature of the Dunphy and Stace model would appear to aid in this process. The fact that e-commerce will dramatically change the way business operates is undeniable and one thing is clear, large-scale change requires large-scale leadership. But what's the right leadership model for thriving in today's technocentric world? And tomorrow's?

## RESEARCH FRAMEWORK

The Dunphy and Stace (1990,1994) matrix provides for a large range of relationship that can exist between the scale of change and the style of change leadership in organisations. Therefore in order to address the question, a total of sixteen separate hypotheses would need to be tested (refer Figure I). However, due to the time and word constraints imposed on this study, it was necessary to restrict the investigation to one general hypothesis and four specific hypotheses.

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Insert Figure I Here

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## METHODOLOGY

One hundred and eighty-two participants were gathered from organisations within the Manufacturing Industry. Specific organisations were chosen from the Business Review Weekly magazine's Top 1000 list as these were deemed as being the most successful organisations within the industry in Australia. E-Commerce Managers, IT Managers or persons responsible for the IT department were targeted as being the appropriate staff to respond to the questionnaire. Each organisation was contacted in order to ascertain the name and position of the appropriate person. A database was created listing these details and a subsequent mail out occurred. The response rate for this study was 24.72%. (Given the majority of participants to be contacted were based in Sydney and given the mail out occurred just prior to the Sydney 2000 Olympics, the response rate was affected as business in Sydney ceased during this period.)

As the total number of respondents was 45, advanced statistical techniques could not be performed on the data as it would not provide valid results (Coakes & Steed, 1999; Gravetter & Wallnau, 1996). As such descriptive statistics were analysed to ascertain general trends in the data. Usage Proxy Variables were created to establish more detailed results and to identify the most strongly answered question.

## RESULTS AND GENERAL DESCRIPTIVE STATISTICS

### Personal profiles

Interestingly, out of the 45 respondents only 5 were female. It would appear that positions of IT Manager, E-Commerce Manager and those responsible for e-commerce, are predominantly held by males (88.9%). However given many companies are from the manufacturing industry this is not unexpected. Other details include:

- the age range of respondents was 20 – 58. The average age of respondents was 43 ( $X = 42.98$ ,  $SD = 8.28$ ). The majority of respondents (64.4%) were aged 45 or less.
- the majority of respondents (62.2%) were in positions of middle management. Interestingly only 1 respondent regarded their position as lower management. As the questionnaire was targeted at IT or similar level Managers it is therefore not surprising that 97.8% of respondents were from middle or senior level management positions.
- the average number of years the respondents had been with their respective organisation was 8 years ( $X = 8.09$ ,  $SD = 6.22$ ). The majority of respondents (73.3%) had been with the organisation 10 years or less. Overall, results indicate a large spread in the number of years the respondents had been with their respective organisation (minimum of 1 year to a maximum of 27).
- the majority (55.6%) of respondents had undergraduate degree or TAFE as their highest qualification. This was higher than expected as only 20% of Managers in Australia have tertiary education (Karpin Report, 1995). Only 5 respondents had Year 12 or lower as their highest level of education achieved. Surprisingly more respondents (15) had post graduate qualifications. Given the industry and the job position this result is unusually high.

## ANALYSIS OF THE CONSTRUCTS

There were 8 constructs in total; 4 dependent constructs and 4 independent constructs. Each construct consisted of three questions that were randomly spread throughout the questionnaire. The four dependent constructs included the style leadership styles of Collaborative (Questions 1, 12 and 21), Consultative (Questions 2, 13 and 15), Directive (Questions 4, 16 and 22), and Coercive (Questions 3, 5 and 14). The four independent constructs were the scales of change including Fine Tuning (Questions 7, 8 and 20), Incremental Adjustment (Questions 6, 17 and 23), Modular Transformation (Questions 10, 19 and 24), and Corporate Transformation (Questions 9, 11 and 18).

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Insert Table I Here

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Results in Table I indicate that the majority of the 45 organisations were not utilising a collaborative style of management as illustrated by the average response being 2.82. Similar results were found for both directive and coercive management styles i.e. 2.96 and 2.99 respectively. It would therefore appear that the majority of organisations were utilising the consultative management style for leading change in e-commerce, with an overall average score of 3.56.

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Insert Table II Here

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The results in Table II indicate that the majority of respondents agreed that their organisations were involved in fine-tuning stages of change illustrated by the average score being 3.53. The majority of respondents felt their organisations have not reached the other scales of change in a large way as yet. This result is illustrated by the average scores for the remaining scales of change of incremental adjustment, modular transformation and corporate transformation as being 3.07, 2.59 and 2.40 respectively.

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Insert Table III Here

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Looking at the raw scores, Table III confirms that fine-tuning is the most predominant level of change as indicated by a score of 476. Likewise, the consultative style of change leadership predominates indicated by a score of 481. In addition, when only the predominant score is used the degree to which these are the leading scale of change and style of leadership is clearly emphasised i.e. scores of 385 and 367 respectively.

### **Leadership and Scale of Change Matrix**

The results from the questionnaire was applied to the Dunphy and Stace matrix. This gives a visual 'picture' of the relationships observed in the data. It also acts as a comparison to the expected results from the model.

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Insert Figure II Here

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The above matrix highlights the relationships between the independent and dependent constructs. It is clear to see that whilst there was some relationship between fine-tuning and collaborative as hypothesised, there is a very strong relationship between fine-tuning and consultative. The hypothesised relationship between incremental adjustment and consultative was partially confirmed. However, the hypothesised relationships between modular transformation and directive, and corporate transformation and coercive were not confirmed. Modular transformation did not appear to relate with any style of change leadership whereas, corporate transformation appeared to relate with coercive. It is also interesting to note, that the results appear in the left side of the matrix, whereas Dunphy and Stace (1990) would have predicted the results to appear in the lower right hand section of the matrix.

## **GENERAL DISCUSSION**

### **Scale of Change with E-Commerce**

It was expected that the majority of organisations would have exhibited modular transformation or corporate transformation scales of change based on research by Dunphy and Stace (1990, 1994). However, the majority of organisations indicated that they were in the Fine-tuning level of change with the next highest being incremental adjustment. Very few organisations exhibit modular transformation or corporate transformation scales of change. This indicates that the level of change in the manufacturing industry towards e-commerce is smaller than anticipated. This however, could be explained when looking at the OD theorists that suggest small incremental changes are preferred to large scale changes (Burnes, 1996).

This small level of change is confirmed by the responses given to the open-ended questions in the questionnaire. Very few organisations indicate that they are currently going through a large level of change. Furthermore few organisations indicate that large scale change has previously occurred and as such are now

just tidying up the edges whereas the majority of the responses indicate small changes or "a gradual shift" in preparation for e-commerce. The fact that organisations are predominantly experiencing fine-tuning may indicate that the industry is not as dynamic and unstable as predicted by the literature on e-commerce (Marhcetti, 2000). This is also supported as one of the respondents noted the industry to be "slow moving". It may also indicate that the industry in general has not moved into an e-commerce environment. Therefore not requiring the large-scale change to restructure for e-commerce. Perhaps e-commerce is only just starting to have an impact on the industry therefore there is no need or demand to become e-commerce proficient. Only a few respondents indicated the reasons for change to be e-commerce related.

It is apparent that in the manufacturing industry in Australia, there is currently small incremental changes being made in relation to e-commerce. This could be because that is all that is required and that e-commerce does not require the big changes as indicated by literature (Parry, 2000) or that the industry has not moved into an e-commerce environment and as such a large scale change is still to come.

### **Style of Change Leadership**

By far the majority was consultative with very little collaborative and directive but surprisingly more coercive. Research by Dunphy and Stace (1990, 1994) indicate the more predominant style of management is coercive or top down which is more aligned to the hard approach to change management. Dunphy and Stace observations regarding a coercive style of change leadership were made early last decade. The economy was in recession and many organisations were undergoing large scale restructuring in order to survive (Ashkenas, Hsaffer & Associates, 1994). Therefore a coercive leadership style would have appeared to be necessary. Whereas currently, organisations appear to be looking for ways to stay competitive. One possible way has been to focus on the human resources (Ashkenas, et al, 1994). As job security has slightly increased and technology has advanced, more options are available to employees. The employees appear to be in a position to somewhat demand certain conditions from their employer such as flexible work hours and ability to work from home rather than having to work from a central location. The uncertainty appears to have changed from focusing on job security to having staff spread over numerous locations. In this uncertainty people need someone to follow or look to for direction and there is an increased emphasis on communication as it is becoming more commonplace for staff to be spread over numerous locations (Dalton, 1999). Due to this apparent change, one may assume that the leadership style would also have to adapt to these changing conditions from a coercive, 'Do as I say' type attitude to a more open style of consultative change leadership. This appears to be the trend across the majority of industries (Oetgen, 1999) however whether or not this is apparent in the manufacturing industry can not be clearly determined as it would appear that they are not fully engaged in e-commerce at present.

Therefore it is interesting to observe results that indicate that employees are being consulted on the change. There are two possible explanations, the first being the fact that most organisations are only going through a small level of change therefore it gives the leadership time to consult on the small changes and to accommodate the employees. Secondly, it could be as a result of a shift in organisations to include their staff more in the change process. As more and more people are concerned about what the future holds and how technology is going to impact their jobs, they are wanting to be involved to give them some kind of security (McClenahan, 1999).

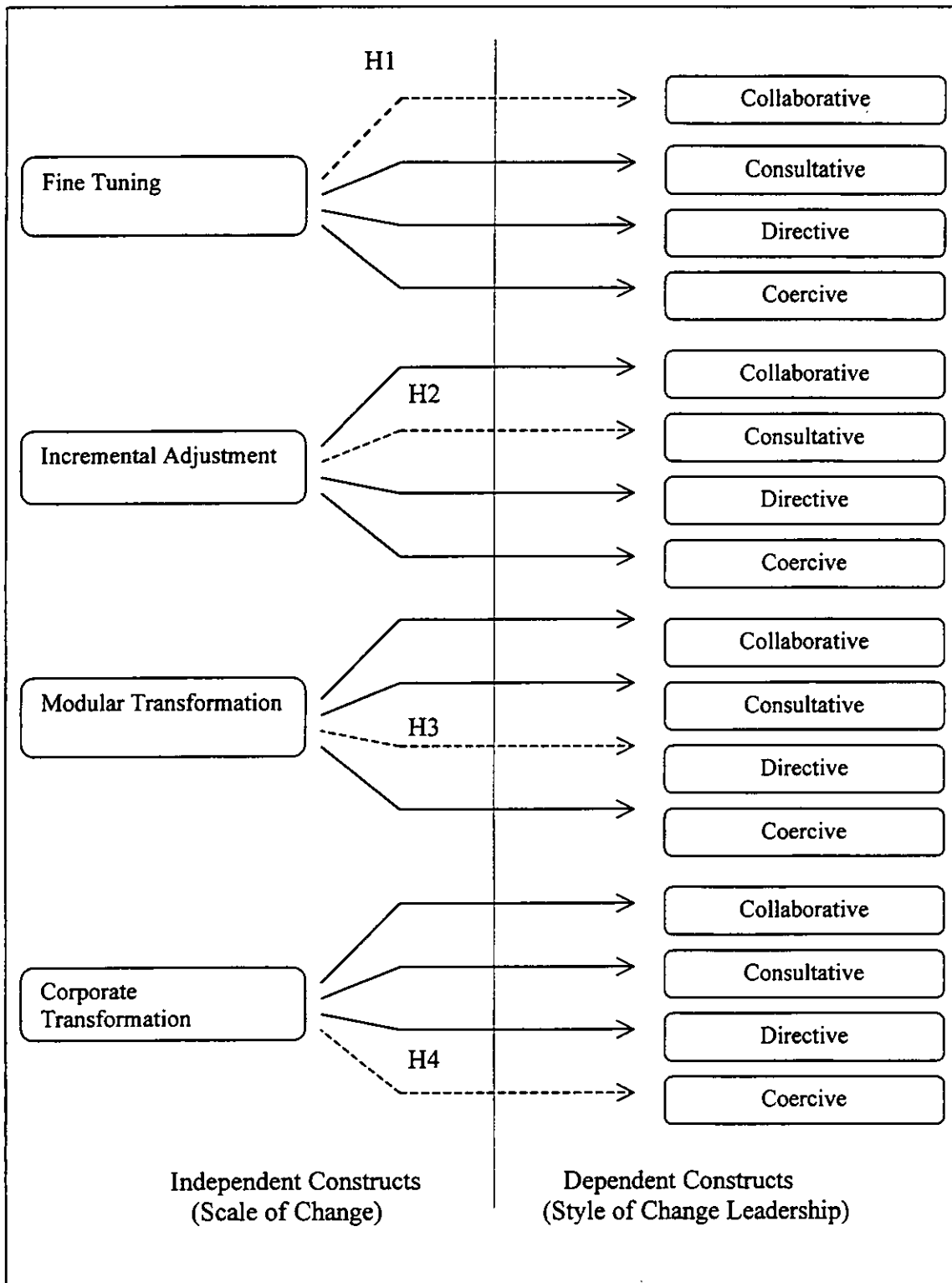
The qualitative information highlights that qualities such as visionary, consultative, ability to listen to others opinions, inclusive, risk taking, approachable, forward thinking, open to change, committed, determined, and the ability to communicate are required in leaders to lead an e-commerce transition. It is also clear from the qualitative data that obtaining employee opinions is important. Comments such as "a supportive and delegating leadership style that emphasises communication" and, "a persistent and patient business person focused on the individual with good people skills" highlights this trend.

This style of change leadership is important, as this is what effects the change. A consultative style of change leadership is the most utilised in the manufacturing industry. As identified, two possible reasons for this are the scale of change that allows the leadership the time to involve employees in the change process. The other reason that is not exclusive to the aforementioned reason is the shift in organisations to focus more on the human element given the changing nature of the work environment.

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**Figure I:** Testable relationships between the research constructs





**Table I: Mean and Overall scores for Dependent Variable Constructs**

<b>Construct</b>	<b>Variable</b>	<b>Mean Score</b>	<b>Overall Score</b>
Collaborative	Employees are involved in widespread participation to consult on important decisions about the organisations future (Q1)	2.82	2.82
	The power that employees have in establishing the goals and means of change in the organisation is significant (Q21)	2.80	
	The final decision on organisational change is determined in collaboration with other employees, not just those in management (Q12)	2.84	
Consultative	Management makes the final decision about changes and goals for the company, only after gaining some feedback from employees (Q15)	3.42	3.56
	Employees with relevant expertise or responsibility are called upon to assist with the decision making process and implementation of any change required (Q2)	3.82	
	The employee's opinion on what the change should involve is relatively important to the management team (Q13)	3.44	
Directive	The management team is well respected and trusted to make appropriate decisions regarding change (Q22)	3.42	2.96
	Issues of organisational change are determined by management and are generally well accepted (Q4)	2.93	
	Change is well received amongst employees even though they are not consulted about the change (Q16)	2.53	
Coercive	Decisions on change strategies are made based solely on the key stakeholders interests (Q5)	2.78	2.99
	Employees are made to accept the changes regardless of their opinions on the issue (Q14)	3.20	
	It is best for management to decide on change strategies as they are the most skilled to secure the survival and effectiveness of the organisation (Q3)	2.98	

**Table II: Mean and Overall Scores for Independent Variable Constructs**

<b>Construct</b>	<b>Variable</b>	<b>Mean Score</b>	<b>Overall Score</b>
Fine-Tuning	In this organisation change is usually an ongoing process with constant 'fine-tuning' occurring in various departments to prepare for e-commerce strategies (Q7)	3.89	3.53
	Personnel are being developed and trained to suit the organisations development into an e-commerce business (Q20)	3.00	
	Specialist units or groups are being formed within the organisation to focus on e-commerce strategies (Q8)	3.69	
Incremental Adjustment	There have been some distinct modifications (not radical change) occur in preparation for e-commerce initiatives (Q6)	3.27	3.07
	The emphasis has shifted (or is shifting) from traditional business to a new technologically defined way of doing business (Q23)	3.11	
	Minor restructuring has occurred across divisions to allow for a more efficient internal business accommodating e-commerce (Q17)	2.84	
Modular Transformation	One or more departments have been re-aligned to accommodate e-commerce strategies (Q24)	2.78	2.59
	Significant managerial changes have occurred as more emphasis is being placed on those employees best positioned to manage e-commerce initiatives for the department (Q10)	2.49	
	Staffing members in particular departments have either increased and/or decreased due to e-commerce changes and demands (Q19)	2.49	
Corporate Transformation	The whole organisation has undergone a radical shift in business strategy to include e-commerce in its operation (Q11)	2.22	2.40
	Many processes and procedures have changed to accommodate the changing focus on e-commerce (Q18)	2.69	
	People outside the organisation have been employed and appointed key managerial positions due to their knowledge and experience in e-commerce (Q9)	2.29	

**Table III: Overall Construct Synopsis**

	<b>Construct</b>	<b>Raw Score</b>	<b>Predominant Construct Score</b>
<b>Independent Variables</b>	Fine Tuning	476	385
	Incremental Adjustment	415	154
	Modular Transformation	349	33
	Corporate Transformation	324	35
<b>Dependent Variables</b>	Collaborative	381	73
	Consultative	481	367
	Directive	400	87
	Coercive	403	135

**Figure II: Leadership in E-Commerce and Scale of Change Matrix**

	<i>Fine Tuning</i>	<i>Incremental Adjustment</i>	<i>Modular Transformation</i>	<i>Corporate Transformation</i>	
<i>Collaborative</i>	6%	1%			7%
<i>Consultative</i>	38%	15%	1%	3%	57%
<i>Directive</i>	7%	5.5%		1%	13.5%
<i>Coercive</i>	13%	5.5%	3%	1%	22.5%
	64%	27%	4%	5%	Total 100%

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