MONASH University
Business and Economics

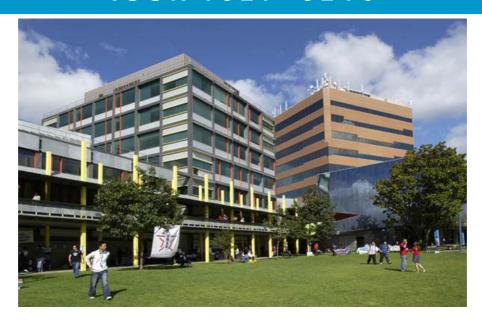# TEAMWORK AND TOTAL QUALITY MANAGEMENT: EXPLORING THE LINKS

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Abstract

This paper examines the durability of teamwork within firms by looking at the relationship between the evolution of quality management programs and the development of teamwork. The paper reports that configurations of team types are durable within the firms studied and that whilst management initiatives may change, the objectives for teamwork seem to remain consistent.

TEAMWORK AND TOTAL QUALITY MANAGEMENT: EXPLORING THE LINKS

INTRODUCTION

There are some well established links between the use of work teams and the development of Total Quality Management (TQM) programs. From the initial infatuation with Quality Circles to the widespread prescription of Self-Managing Work Teams, quality programs and team work programs have been closely linked in theory and practice. Work teams are used as part of TQM programs to facilitate information sharing, problem solving and to develop employee responsibility for managing quality performance (Cordery 1996, Coyle-Shapiro 1995).

There are, however, a great variety of teams that are used in conjunction with TQM and there is seemingly no settled or dominant combination of team types that are used. The attributes of teams that are used in conjunction with TQM may vary greatly. Teams may be temporary, ad hoc or permanent, they may be functional or cross-functional, voluntary or compulsory, have members with multiple skills or complementary skills, and the teams may have a limited scope of responsibility or they may exercise considerable autonomy and self-direction (Osterman 1994, Lawler, Mohrman & Ledford 1995, Tanskanen, Buhanist & Kostama 1998).

Explanations for the diversity of team types currently in use highlight the role of management policy, the history of employment relations at the firm, the type of production system, the nature of technology and the length of time that the firm has been using teams, as factors explaining the diversity (Bacon & Blyton 2000, Cutcher-Gershenfeld et al 1994, Harman, Golhar & Deshpande 2002, Tanskanen, Buhanist & Kostama 1998, Wilkinson, Godfrey and Marchington 1997). One issue of significance in this debate that has not attracted much attention, however, is the question of the durability of the use of teams. Whilst firms may use different types of teams to achieve different strategic objectives, it is unclear whether these objectives and/or the types of teams used to achieve them, change significantly over time. Team work is often perceived as a management fad and it is possible that faddism or continuous experimentation with different types of teams is one explanation for team diversity. Many studies provide only a snapshot of team diversity at a particular point in time and so do not necessarily explain whether forms of teamwork endure.

METHODOLOGY

In order to explore the durability of teamwork, this paper reports the initial results of a longitudinal study of firms using work teams. The study examines the relationship between the development of teamwork and the development of quality management programs and initiatives. Teamwork in these firms was developed in conjunction with quality initiatives and hence it is useful to explore the co-development of teams and quality programs. In so doing we are able to identify changes in the team structure that are influenced by developments in quality programs, especially where these affect employee responsibility for quality. Such responsibility is frequently seen as a key feature of teams, both in their initiation and ongoing development (Sexton 1994).

This study draws upon a purposive sample of Australian manufacturing firms. Firms with a long experience of both TQM and the use of teamwork were sought. Many of these firms were amongst the early adopters of both teams and TQM in Australia. They were firms that had won Australia quality awards, business excellence awards, or who had been involved in the Australian Best Practice program. The study was developed using an embedded case study methodology (Yin 1984). Informants were sought in the firms who had a long experience of either quality management programs or teamwork programs. These informants tended to occupy roles such as Quality Manager, Quality Technician, HR Manager, Team Co-ordinator, Team Facilitator or Team Leader. By seeking out such informants we hoped to tap the organizational memory about the development of teams and TQM. This form of data collection was supplemented by document analysis. Quality Manuals, Enterprise Agreements and Policy Documents, both contemporary and historical, were sought and analysed. By cross-referencing the memory of informants with the document record of the firm, a longitudinal picture of team development was created.

TEAMS AT AUTOMAKERS

AutoMakers is the Australian subsidiary of a North American multi-national vehicle manufacturer. AutoMakers design and manufacture passenger motor vehicles predominately for the Australian market, but they also export some vehicles to other countries in the region. The company operates a number of product development and manufacturing facilities in Australia and currently has a workforce of around 5,000 employees.

The contemporary development of teamwork at AutoMakers has gone hand in hand with the development of quality management programs. AutoMakers introduced Employee Involvement (EI) groups in the late 1980's as a means of enhancing communication with employees and enabling employee participation in a system of continuous improvement activities. These activities were focussed upon improvements to quality, safety, efficiency and the work environment. They entailed employees meeting regularly to identify problems in the workplace and communicate these to management.

The EI groups were permanent groups based in the work area and they involved all employees meeting during regular work hours. These groups developed into Work Area Teams. The work teams were established throughout the company by 1993 and their formation was supported by training (4 hours for team members and 32 hours for team leaders) and the construction of line side team meeting areas. These permanent work teams currently meet weekly for 20-30 minutes in regular work hours to discuss work area problems (e.g. line balancing, supply issues, maintenance issues, health & safety issues) and to progress improvement activities. Each team has up to five activities that they are working on at any one time.

The change in the employee responsibility for quality over the past decade has been to delegate responsibility for the solution of some issues to the team (i.e. quality issues that form part of the five open issues), to introduce structured problem solving activities and to introduce some self-monitoring of quality performance through a policy deployment process. This extension of employee responsibility for quality has not supplanted the initial focus on problem identification and communication but rather has developed along with it. The work area teams are still responsible for identifying and communicating quality problems and this is most evident at new model launch. During the last model launch the work teams were shown computer generated animations and mock-ups of new designs for parts and tooling to solicit their ideas and input to the designs. Issues raised during the build program were logged and referred to systems engineering groups or temporary teams of supervisors and technical staff. These issues were tracked and were not considered closed until signed-off by the work team which had initially raised them. Employees were also encouraged to participate in an overnight drive program of the new vehicles. The ideas generated through these activities are used not only for new model improvements but also for design for manufacture initiatives for future models.

The participatory measures illustrated here continue the tradition of work area teams as mechanisms for communication and employee involvement. These responsibilities for quality have been extended over time but the transition from EI groups to Work Area Teams has not seen managerial objectives for teamwork change greatly. The objectives of teams at Automakers have remained consistent over an extended period. Employee participation and involvement are still emphasised, improved communication with management is emphasised and some limited employee responsibility for quality has been developed. The work teams do now manage some in-plant quality issues (eg through containments) and do undertake some problem solving activities. The firm is moving towards operator inspection but this is not the main focus of quality programs at AutoMakers.

The quality management system at AutoMakers places a greater emphasis upon customer issues than in-plant issues. Customer issues (identified by yard audits, predelivery checks, customer calls, test drive programs, dealer feedback and warrantee data) and in-plant issues (build or craftsmanship issues) are dealt with separately. The developments in quality management at AutoMakers have focussed upon the identification and management of customer issues and most of this work has entailed the use of engineering systems teams and cross-functional problem solving teams. These teams are predominately staffed by professionals, middle managers and

those with middle level skills (e.g. production specialists, quality technicians). These temporary, cross-functional teams involve few direct employees and where such employees are involved it is usually because the temporary team is dealing with an in-plant issue. The 6-sigma teams at AutoMakers, for example, deal with the top 25 identified in-plant issues.

Teamwork at AutoMakers thus consists of a dual structure of temporary teams for those with middle level and professional skills working on customer and in-plant issues and permanent Work Area Teams for direct employees working on in-plant issues. The Work Area Teams represent a development from the Employee Involvement groups at AutoMakers but they consolidate many of the objectives and approaches used to introduce teamwork over a decade ago.

TEAMS AT INSTRUMENTMAKERS

There has been a consistent focus upon teamwork at AutoMakers and the same is true of InstrumentMakers. This manufacturing firm produces high technology scientific instruments for Australian and international customers. The firm is an Australian subsidiary of a North American company and it designs and manufactures instruments for a range of uses from hospitals to the mining industry.

InstrumentMakers introduced teamwork in the mid-1980's to support the development of continuous improvement activities. The firm introduced temporary, cross-functional teams that worked on a project basis in response to management initiatives. Ideas for improvement projects were put to a steering committee within the firm which then allocated resources to support the work of the teams. The teams were focussed upon a particular product rather than process or work area and they involved a sponsoring manager, middle managers, scientists, technicians and direct employees. Extensive training in problem solving methodologies and interpersonal skills was provided to support the establishment of the groups. The Corrective Action Teams (CAT's) as they were called, were initially compulsory for all employees but the failure of some groups and the non-completion of some projects, led the company to make them voluntary. The firm had upwards of 100 teams in operation in the early 1990's but have only around 10 active currently.

In the late 1990's, a second improvement initiative was launched by management this time focussing upon process improvement. Once again temporary, cross-functional teams with a voluntary membership were formed but these were provided with training in a new set of tools to facilitate value stream analysis. These Value Stream Teams (V-Teams) again operate with a management sponsor and work on a project basis. They meet for 3 hours per week in normal work time and have an external facilitator. The teams set improvement goals and targets, map current and future process states and then initiate improvement activities. The firm currently has around 15 V-Teams in operation.

Teams at InstrumentMakers have changed relatively little over the course of nearly two decades. The firm introduced temporary teams to undertake improvement activities and despite changes in the nature of those activities, this is still the focus of teamwork within the firm. The major change to teamwork at InstrumentMakers has been the shift from compulsory to voluntary teams and the concomitant decline in the number of active teams. External training and facilitation has replaced internal training and facilitation, but otherwise there has been little change to the nature of teamwork. The introduction of temporary problem solving groups was not a stepping stone to SMWT's at InstrumentMakers but rather has become the institutionalised form of teamwork at the firm. Employees participate in teams to work on projects and once the project has been completed they do not participate again until another project takes their interest. The development of employee responsibility for quality at InstrumentMakers has thus consistently focussed upon 'as necessary' participation in problem solving and improvement activities.

TEAMS AT AUTOPARTSMAKERS

The use of temporary, cross-functional teams at InstrumentMakers to support a system of continuous improvement stands in subtle contrast to the use of teams at AutopartsMakers. A greater variety of teams are used at AutopartsMakers and there is more emphasis upon internal skill development for participation in teams. Management at AutopartsMakers has more varied objectives for teamwork than management at InstrumentMakers and hence many different types of teams are used.

AutopartsMakers is an Australian subsidiary of a multinational organization and it produces a wide range of automotive products for local car manufacturers and major export customers worldwide. AutopartsMakers employs around 1,800 people with an annual sales revenue amounting to over AU$ 700 million. The company is recognized as a very innovative company being named one of Australia's ten most innovative companies.

The company's journey toward becoming a TQM organization is traced back to the mid-1980s, although the company had developed the basis of a quality system before that time. Teamwork has been a key element of the various initiatives implemented by the company over the past two decades and a variety of work area and cross-functional teams have been used. During the mid-1980s, as part of its quality drive, the firm introduced quality circles. Some of the quality circles were based on a particular work area and dealt with in-plant issues, whilst other quality circles were cross-functional and focused upon product issues. At this time, for example, the company identified and eliminated a major product defect resulting in substantial financial benefits by using teamwork involving individuals from a number of functional areas. Depending upon the nature of the improvement project, different types of teams were used. The work area based quality circles were designed to enhance participation and engage employees in some continuous improvement activities, whilst the cross-functional circles focused upon product improvement alone.

During the 1990s, continuous improvement and employee involvement became the primary activities of the company's quality management programs. The quality circles program led to the adoption of the Continuous Improvement Program (CIP). The Continuous Improvement Program had two major elements, CIP workshops and Continuous Improvement Teams (CIT), with the latter being an improved model of the Quality Circle. The CIP workshops were established to provide employees with a common set of methodologies for making improvements and a common set of tools for problem solving. The CIT program was introduced on the shop floor only and involved employees and staff in one-hour regular meetings to discuss and brainstorm ideas.

By the end of 1996, there were twenty teams (with 3 to 5 members per team) operating in the company. Over the next two years there was little activity under the CIT program as a result of internal problems associated the rewards and recognition program. After modifying the reward system several times, management successfully regained employee participation in the CIT program and by the end of 1999 all teams had again come together and completed a variety of improvement projects. The CIT program is still operating today involving between 12 to 14 teams every year.

In late 1999, the company introduced a new major initiative which was focused on producing excellent business results through improvements in quality, innovation and customer service. Once again teamwork played a central role in this initiative. In 2000, the program tackled 'Customer Focus' initiatives and it involved the conduct of thirty workshops that were held for employees across the company. Twenty of these thirty workshops were departmentally oriented and the other ten workshops were cross-functional and could involve up to ten departments. In 2001, the program tackled Total Innovation Management (TIM). This shift in focus was driven by the recognition that the company needed to have an initiative that could effectively drive cross-functional teamwork and improvement projects as well as developing ownership of the program and its projects by managerial staff. Once again, the form of teamwork and the objectives for teamwork were varied to suit the project.

DISCUSSION

AutopartsMakers uses a variety of functional and cross-functional teams. All of these teams are project focused but the objectives for forming the teams vary. Some have an improvement focus whilst others have an improvement and participation focus. AutopartsMakers devotes significant resources to team training and facilitation and all of this activity is conducted in-house. This stands in subtle contrast to InstrumentMakers where teams are only used for improvement on an as needs basis, and these is less focus on skill development.

Our first case, AutoMakers, employs a different approach to teamworking again, having a mixture of permanent and temporary teams depending upon whether the teams deal with in-plant or customer issues and whether they have an improvement or an improvement and participation focus. AutoMakers, like AutopartsMakers, also devotes significant resources to internal team training and development.

These cases then highlight the fact that different types of teams are used by management to achieve different goals and that these goals vary from firm to firm. Some firms seek simple improvement whilst others seek enhanced employee participation and improvement. The nature of the improvement to be undertaken also seems to influence the type of teams used. Where in-plant and work area issues are identified, functional teams tend to be used whilst product and customer issues tend to be dealt with by cross-functional teams.

The extent of the objectives for the use of teamwork also seem to influence the resources that are devoted to team training and development. Where there are more extensive objectives there is a greater focus upon internal team facilitation and development, where these are limited training is minimal.

CONCLUSION

This paper has examined the long view of teamwork in Australian manufacturing and the studies completed to date suggest that configurations of teamwork practice within organizations are enduring. Our cases report different uses of teamwork - with AutoMakers having more extensive objectives for teams than InstrumentMakers and AutopartsMakers having a variety of objectives depending upon the type of project undertaken – but in each case the chosen form of teamworking has become institutionalised within the firm. This institutionalisation, however, has not led to institutional isomorphism in teamwork arrangements (DiMaggio and Powell 1983). Rather what we observe here is that management objectives for teamwork influence the configuration of team types that are adopted and this configuration, once stabilised, is enduring (Mc Loughlin, Badham and Couchman 2000). Management programs and initiatives may come and go as firms seek innovations and improvements in their production systems, teams may change their composition, mission and title, but the chosen form of teamwork within the firm seems to endure with very minor variations. The objectives for teamwork seem to be consistent and teamworking, in the cases reported here, is far from being a fad. Teamworking has been institutionalised within our case study firms and the form of team work applied has been sustained by a consistent management policy and approach.

The cases reported here are, however, limited to a study of early and successful adopters of TQM and teamwork and it is possible that the experience of team development has been different at other firms. A companion study of firms that have experimented with and then abandoned forms of teamworking may shed greater light on the influence of management policy and approach to teams.

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