A Management Control Perspective in Quality Management

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Abstract

Many organisations now have to operate in highly uncertain environments. Global competition drives organizations to reduce their capital employed and cut costs through lean manufacturing, outsourcing and extended supply or to grow by entering new markets, introducing new technologies, building unique alliances. And all this is happening at a much faster speed than even ten years ago.

On a journey towards excellence, learning from past performance is always beneficial. However the applicability of the learning rapidly diminishes in a continuously structurally changing environment. One key (implicit) assumption of the theories and practices of TQM and Business Excellence is that the business environment is relatively stable and predictable. However, this is no longer the case and therefore we must also accept that much of our current theory and practice is no longer as effective as in the past. In particular, we need to develop a strategic and practical approach to sustaining Business Excellence to support executives and their organisations that face uncertainty and instability in their particular market environments.

Our approach is an application of well-tested theories of complexity analysis using Simons' Four Levers of Control model. It analyses all the organization's systems and structures which might be driving the behaviour of the people involved and examines the degree to which these systems and structures support or undermine efforts to maintain business excellence. It then considers how this situation can best be managed now; what needs to be changed in which direction in the future; and how and when this can best be achieved, given the operating environment of the company.

We have found that crucial processes in an uncertain environment have to be managed through the use of all four levers of control according to Simon's model, however, the interactive control mechanisms are becoming more important. Quality Management approaches should therefore cover not only the tools and instruments to measure and control performances in order to find deviations from the goals, but should also include methods to stimulate and improve the more interactive management activities in order to be able to cope with the uncertain environments.

Keywords: Management Control; Uncertainty; Simon's Levers of Control, Quality Management

Introduction

The quality management discipline is strongly rooted in business practice. This link with practice has resulted in quality models (like the Business Excellence Models) that appeal to managers and, as a result, have been used widely. Since these quality models make common sense, most people will not question their benefits for improving organisational performance. However, the quality management discipline has not developed any theories about how different organisational contexts may influence the way in which quality models are used. Research has shown that a universalistic approach is inappropriate because quality management is in fact context dependent (1). The management control discipline has acknowledged the importance of the business context already more than a decade ago, and can provide important insights for quality management. In this paper we will discuss these insights and argue why they can benefit quality managers.

A small group of quality experts (most notably Deming, Juran, Feigenbaum, Crosby and Ishikawa) substantially influenced the early development of quality management (2; 3). Although these experts developed implementation plans for quality management they did not develop scientific theories (4; 5; 6). Elements of scientific management theory (7; 8; 9) can be found in their thinking about quality (4, 10).

Following on from the early thinking of the experts, which focussed on problem solving and improvement of products and processes, quality management systems have been developed that have a broader view on quality management and that have a more preventive focus. Quality management thinking has evolved from a narrow focus on statistical process control to a variety of technical and behavioural methods for preventing problems to occur and improve organisational performance. The ISO 9000 series and the Business Excellence Models have proven to be very popular in business practice. These models prescribe certain actions and behaviours that should lead to excellent quality and performance (5). However, these models do so without explicitly stating a theory that underlies these prescriptions. If management models are prescriptive, they tend to be contingent (i.e. sensitive to variation in the organisational context). However, it is generally assumed that quality management recommendations are context independent and therefore implicitly universal (11). The quality management discipline pays little attention to the boundary conditions for the applicability of quality models, nor does it pay attention to how variation in organisational settings might be reflected in quality management implementation (12). Therefore, it seems that a contingency approach is necessary in quality management. Contingency thinking is based on the proposition that an organisation's relationships with other organisations, as well as its relationship with its total environment, depend on the specifics of the situation (13).

Sousa and Voss (1) have shown that quality management is in fact context dependent. Therefore, the quality management discipline is in need of a model that explicitly takes the business context into account when providing directions for the use of quality management. Sitkin et al. (12) argued that it is necessary to search for a model outside the quality field.

Control systems

It can be argued that quality management can be seen as a management control system since it is aiming to control an organisation's processes and to improve these processes in response to all kind of changes and developments (technological; economical, social etcetera).

This view of quality management as a management control system is further strengthened by the conclusion of Merchant and Simons (14) that definitions of management control generally contain two key concepts: “A focus on the behaviour of organizational participants and a concern with the effect of this behaviour on organizational outcomes”. Therefore, a logical place to look for a model is in the field of management control.

Although there currently is a large amount of literature on management control, it has only received serious research attention since the second half of the twentieth century (e.g. 15; 16). However, the concept of control has been around for much longer than that. Control is seen as the central idea of Taylor’s scientific management (17; 18). The strong link between management control and scientific management indicates that the roots of management control and quality management are closely related, since the early thinking on quality management was also similar to many of the scientific management ideas (4, 10). The focus of the early management control research is similar to quality management research as well. Both dealt with real problems, and were aimed at understanding and solving these problems (see 5, 18). However, there is also a major difference between management control and quality management. Research on management control has been contingency-based for a relatively long time, while research on quality management has been dominated by a universalistic approach (5).

One of the most important themes in management control research is the explanation of differences in management control systems between organisations operating in different environments (19; 20). Extensive research has been done on the effects of differences in the nature of the environment, technology, firm size, structure, strategy and national culture on the effectiveness of management controls systems (19, 20;: 21; 22). Most of this research has focused on the effects of the external environment and corporate strategy on management control systems. It is believed that certain management control systems are more suited to certain environments and strategies than others (19). Simons (23; 24; 25; 26) has conducted important research in this area and developed his ‘Four Levers of Control Model’ (27) on the basis of this research. We aim to make use of the long experience with contingency-based research in the management control discipline, by introducing this leading management control model to the field of quality management. The model is accepted in the management control field, however, it has not been used before in the field of quality management. Still, Feldman (28) claims that the model’s adequacy for analysing important real world phenomena means that it is appropriate to use it outside its original field.

Simons’ Four Levers of Control Model is used to balance control mechanisms in an organization in order to realize the business strategy. The model distinguishes four different types of control mechanisms: (1) beliefs systems, (2) boundary systems, (3) diagnostic control systems, and (4) interactive controls systems. Two of these four levers increase individual freedom (i.e. beliefs systems and interactive control systems), and two restrict individual freedom (i.e. boundary systems and diagnostic control systems). The four levers are explained below.

Simons' control model

Simons' Four Levers of Control Model is displayed in Figure 1.

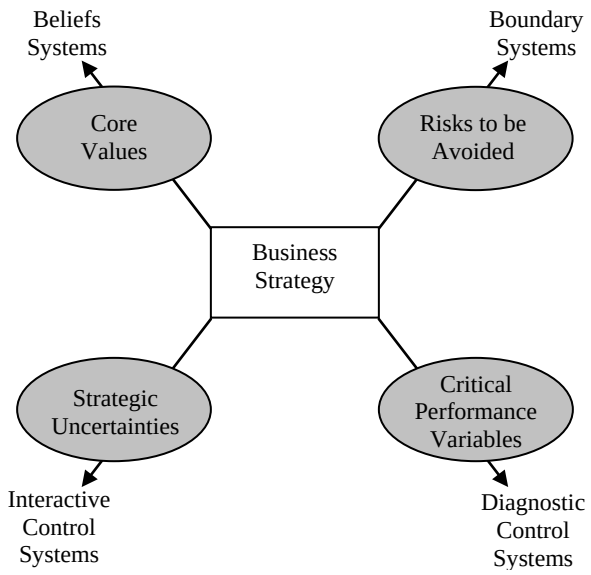

Figure 1. Simons' Four Levers of Control Model (Simons, 1995)

Beliefs systems

Beliefs systems are used to inspire and direct the search for new opportunities. "A beliefs system is the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization" (27, page 34). Managers use beliefs systems to indicate to subordinates in what direction they want the organization to go. A beliefs system is created and communicated through such documents as credos, mission statements, and statements of purpose.

Boundary systems

Boundary systems are used to set limits on opportunity-seeking behaviour. "Boundary systems delineate the acceptable domain of activity for organizational participants" (27, page 39). Boundary systems define the limits within which the management wants employees to operate. These limits are based on defined business risks and strategic choices. Boundary systems are communicated through rules, codes of conduct, limitations, and minimum standards.

Diagnostic control systems

Diagnostic control systems are used to motivate, monitor, and reward achievement of specified goals. "Diagnostic control systems are the formal information systems that managers use to monitor organizational outcomes and correct deviations from preset standards of performance" (27, page 59). Diagnostic control systems are essentially feedback systems, which are fundamental to traditional management control. Diagnostic control systems have three distinguishing features: (a) the outputs of a process can be measured, (b) the existence of predetermined standards against which actual results can be compared, and (c) any deviations

from these standards can be corrected. Because of these three features, they are designed to ensure predictable goal achievement. Diagnostic control systems are communicated through profit plans, budgets, targets, and quotas.

Interactive control systems

Interactive control systems are used to stimulate organizational learning and the emergence of new ideas and strategies (27). Based on the unique strategic uncertainties they perceive, managers use these systems to activate search. Interactive control systems focus attention of employees and force dialogue throughout the organization. They provide frameworks, or agendas, for debate, and motivate information gathering outside of routine channels. These control systems stimulate search and learning, allowing new strategies to emerge as employees throughout the organization respond to perceived opportunities and threats.

Research methodology based on Simons' control model

An analysis of an organisation's quality systems by means of Simons' control model enables managers to look at quality from a different perspective. The model makes it possible to take strategic aspects and characteristics of the business environment into account when assessing an organisation's quality management systems. As such, it helps managers to make the switch from a universalistic approach, towards a context dependent approach to quality management. By determining in which of the four levers each of the existing quality systems fits, an overview of the dominant levers emerges. Management can then assess whether their use of each of the levers fits the environmental uncertainty and complexity. Given the fact that the business environment evolves over time, the dominant focus in terms of the control levers may be out of sync with the business environment. Simons' control model then makes clear which type of quality systems is overrepresented in the quality strategy, and which type of quality systems is underrepresented, and therefore needed for future business success.

Observations

Using the Simons levers of control framework as a paradigm for quality management, has lead to a number of observations. These observations are now summarized.

1. What needs to be controlled has changed

Management control systems have been traditionally concerned with control of the organization's main operational processes; i.e. getting supplies in, using the supplies to produce the goods/service at right costs, and getting finished goods to the customer on time. In stable situations such control of operational processes was regarded as being key for organizational success. Because in stable situations other possibly important processes such as those influencing key relationships with customers, suppliers, investment partners, and employees depend on the organization providing what they say they would, when, where at right price and agreed quality. Well controlled operational processes enabled this to occur.

However, organizational success in unstable or uncertain situations is not just dependent upon good control of operational processes. In unstable environments relationships with customers, suppliers, investment partners and employees become much more important. These relationships no longer just depend on whether you provided what you say you would when and where. Competition, innovation and market instability also influence those relationships. So,

these relationships with customers, suppliers, investment partners and employees are no longer stable.

A technical process can be controlled. There is a discoverable relation between cause and effects. So control can be based on careful rational analysis and logic, like controlling a thermostat. Consequently, the source of research ideas in operational control will be technology and engineering science. A relationship cannot be controlled in such way. It involves people who may at times act rationally and predictably but on other occasions can appear to be driven by totally different motivations. Such a situation cannot be controlled in the same way. It has to be managed rather than controlled. No clear thermostat type approach is possible. So, the source of research ideas in managing relationships will be psychology and sociology. What needs to be controlled for many organizations has expanded from just operational processes to include also the processes involved in forming, developing and maintaining some key relationships.

2. What kind of control systems will be needed to manage key relationships?

There are many different kinds of control systems in the literature. For example Simons has proposed there are four categories: diagnostic, boundary, interactive, beliefs. Traditionally these four have been collapsed into two: hard and soft control systems. Research on organizations in the kinds of uncertain situations as described above, where relationships are important has shown that softer control systems become more important than they are in more stable environments (19). But that all four kinds of systems are still used, even in these uncertain situations. So, all four kinds of control systems will be used in unstable environments.

3. When are control systems powerful?

The aim of a control system is to influence behaviour in the desired direction. It influences behaviour through motivating the individuals involved to act in this way. Psychology tells us that most forms of control systems can be potentially powerful motivators of behaviour. To be potentially powerful they need four attributes: clear goals, measurement systems, feedback, linked rewards (28). And the measurement of progress toward the goal must also be relatively short. Too long a period of time before the amount of progress toward the goal measured will weaken the power of the control system (29).

The control system might have potential power but whether they are actually powerful or not depends on whether motivational triggers are actually used (i.e. are clear goals set up and committed to; can progress be measured in the short term; are such measures of progress in place and used; and are rewards/punishments linked to progress). This setting of goals, measuring of progress, feedback and linking to rewards all requires much management time and effort. Management time and effort is always a scarce resource and this is especially so when management is under pressure in unstable and uncertain situations. So, we could hypothesize that management will only devote their scarce resource of their own time and effort if they are highly motivated to do so. Therefore, in complex and uncertain situations where management time and effort is limited, managers may well use control systems because they have been schooled to do this and it is expected of them by others. But this will only be a formality. Management will only use the potential motivational power of the control systems on the processes they consider really important.

4. What relationship processes will managers regard as important?

Managers will regard as important those relationships which they expect to impact the achievement of their goals the most, and which would be the most difficult and costly to replace (based on switching costs models, see 30).

In uncertain situations, managers will only use the potential power of their control systems on what they perceive to be important relationship processes. On what they perceive to be unimportant relationships, they will use control systems but they will not use them powerfully.

Conclusion

What do leading European companies see as the major challenges they are experiencing in managing quality in their organizations today? Our research findings - based on interviews over a period of three years with three companies: Novaled (Dresden), Trimo (Ljubliana), Dubai World (Dubai) - indicate that uncertainty is a key issue and leading companies realize that they have to be more aware these days of uncertainties in relation to their key processes.

In order to manage the crucial uncertainties it is not enough to measure and control what is going on now. Moreover, management's time and attention, which are scarce, have to be devoted to these uncertainties in interaction with the other players that are involved in those key processes. From a management control perspective, this means that besides the diagnostic control systems that are most of the time well developed in organizations, there is a need to pay attention to the more interactive control systems. The balance between diagnostic and interactive control systems will have to shift in the direction of the interactive systems or the diagnostic systems have to be used in a more interactive way.

Crucial processes in an uncertain environment have to be managed through the use of all four levers of control according to Simon's model, however, the interactive control mechanisms are becoming more important. Quality Management approaches should therefore cover not only the tools and instruments to measure and control performances in order to find deviations from the goals, but should also include methods to stimulate and improve the more interactive management activities in order to be able to cope with the uncertain environments.

Because quality management approaches are build on the plan, do, check, act cycle and imply measurement and control, there is a need to rethink the tools and techniques or to rethink the use of tools and techniques that are in place to measure, monitor and improve activities and processes. In the diagnostic approach we assume that we know what our targets are, how we can define our goals etcetera. However, in an uncertain world our references to judge our performances are becoming less certain and more difficult to define in advance. Communication and interaction with all key players will become more important than to create progress.

References

Sousa, R. and C.A. Voss (2001), "Quality management: Universal or context dependent?", Production and Operations Management, Vol. 10 No. 4, pp. 383-404.

Kruger, V. (2001), "Main schools of TQM: 'the big five'", The TQM Magazine, Vol. 13 No. 3, pp. 146-155.

Sousa, R. and C.A. Voss (2002), "Quality management re-visited: a reflective review and agenda for future research", Journal of Operations Management, Vol. 20 No. 1, pp. 91-109.

Bryce, G.R. (1991), “Quality Management Theories and Their Application”, Quality, January, pp. 15-18.

Dean, J.W. and D.E. Bowen (1994), “Management theory and total quality: Improving research and practice through theory development,” The Academy of Management Review, Vol. 19 No. 3, pp. 392-418.

Dale, B.G., P.Y.-Wu, M. Zairi, A.R.T. Williams and A. van der Wiele (2001), “Total quality management and theory: An exploratory study of contribution”, Total Quality Management, Vol. 12 No. 4, pp. 439-449.

Taylor, F.W. (1911), The principles of scientific management, Norton, New York.

Rogers, R.E. and R.H. McIntire (1983), Organization and Management Theory, John Wiley & Sons, New York.

Shafritz, J.M. and J.S. Ott (2001), Classics of Organization Theory (Fifth Edition), Wadsworth Publishing.

Wilkinson, A., T. Redman, E. Snape and M. Marchington (1998), Managing with Total Quality Management, Theory and Practice, Macmillan Press, London.

Spencer, B.A. (1994), “Models of Organization and Total Quality Management: A Comparison and Critical Evaluation”, The Academy of Management Review, Vol. 19 No. 3, pp. 446-471.

Sitkin, S.B., K.M. Sutcliffe and R.G. Schroeder (1994), “Distinguishing Control From Learning in Total Quality Management: A Contingency Perspective”, The Academy of Management Review, Vol. 19 No. 3, pp. 537-564.

Hodge, B.J. and W.P. Anthony (1988), Organization Theory (Third Edition), Allyn and Bacon, Boston.

Merchant, K.A. and R. Simons (1986), “Research and Control in Complex Organizations: an Overview”, Journal of Accounting Literature, Vol. 5, pp. 183-201.

Arrow, K.J. (1964), “Control in Large Organizations”, Management Science, Vol. 10 No. 3, pp. 397-408.

Anthony, R.N. (1965), Planning and Control Systems: a Framework for Analysis, Division of Research, Harvard Business School, Boston.

Giglioni, G.B. and A.G. Bedeian (1974), “A Conspectus of Management Control Theory: 1900-1972”, Academy of Management Journal, Vol. 17 No. 2, pp. 292-305.

Otley, D., J. Broadbent and A. Berry (1995), “Research in Management Control: an Overview of its Development”, British Journal of Management, Vol. 6 No. S1, pp. S31-S44.

Chenhall, R.H. (2003), “Management control systems design within its organizational context: findings from contingency-based research and directions for the future”, Accounting, Organizations and Society, Vol. 28 No. 2/3, pp. 127-168.

Speklé, R.F. (2001), “Explaining management control structure variety: a transaction cost economics perspective”, Accounting, Organizations and Society, Vol. 26 No. 4/5, pp. 419-441.

Marginson, D.E.W. (2002), “Management control systems and their effects on strategy formation at middle-management levels: evidence from a U.K. organization”, Strategic Management Journal, Vol.23 No.11, pp.1019–1031.

Mundy, J. (2009), “Creating dynamic tensions through a balanced use of management control systems”, Accounting, Organizations and Society, Vol. 35 No. 5, pp. 499-523.

Simons, R. (1987), “Accounting Control Systems and Business Strategy: an Empirical Analysis”, Accounting, Organizations and Society, Vol. 12 No. 4, pp. 357-374.

Simons, R. (1990), “The role of management control systems in creating competitive advantage: new perspectives”, Accounting, Organizations and Society, Vol. 15 No. 1/2, pp. 127-143.

Simons, R. (1991), “Strategic Orientation and Top Management Attention to Control Systems”, Strategic Management Journal, Vol. 12 No. 1, pp. 49-62.

Simons, R. (1994), “How New Top Managers Use Control Systems as Levers of Strategic Renewal”, Strategic Management Journal, Vol. 15 No. 3, pp. 169-189.

Simons, R. (1995), Levers of control: How managers use innovative control systems to drive strategic renewal, Harvard Business School Press, Boston.

Feldman, D.C. (2004), “What are We Talking About When We Talk About Theory?”, Journal of Management, Vol. 30 No. 5, pp. 565-567.

Locke, E.A. and G.P. Latham (2006), “New Directions in Goal-Setting Theory”, Current Directions in Psychological Science, Vol.15 No.5, pp. 265-268.

Jaques, E. (1951), The changing culture of a factory, Tavistock Institute of Human Relations, London.

Klemperer, P. (1987) “Markets with Consumer Switching Costs”, The Quarterly Journal of Economics, Vol. 102 No. 2, pp. 375-394.