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Adaptation of organizational change models to the implementation of quality standard requirements

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Keywords *Quality standards, Organizational change, Change management*

Abstract *Companies pursuing certification to quality standards must apply change methodologies to institutionalize the requirements into the business. Existing change models, such as Burke-Litwin, can serve as the foundation for identifying underlying, predictive variables impacting response variables of a quality management system including quality and delivery performance. The models were selected based on their applicability and similarity in integration of organizational variables with great similarities to those of a typical quality management system. Adaptation of change models specifically to quality management standards provides the conceptual framework in which businesses can operate. The discussion reviews quality management standards, organizational change and models, and change management in pursuit of certification. A conceptual model was developed and serves as the foundation for empirical research efforts. This bridges the gap between organizational change models and quality management systems.*

Introduction

Customers mandate their suppliers to implement a specific standard or system to meet their needs. Many industries require their suppliers to achieve quality standard certification by means of third-party registration. Although the technical system is clearly outlined in the standard's documentation, companies often struggle with the socio-technical systems necessary to adjust to significant organizational changes that are required to support customer's mandated initiatives. There are well-defined and applied organizational change models in existence to assist in formulation of a tailored model specifically for implementation of customer-mandated change such as third-party quality standard registration. These models include Weisbord's Six-Box Model and Burke-Litwin, among others.

There have been numerous studies focusing on the organizational variables associated with implementation of a quality standard to achieve registration. There have been studies focusing on a TQM perspective and not explicitly framing the relationship between organizational variables, organizational change models, and quality management system implementation (Black and Porter, 1996; Ahire *et al.*, 1996; Leonard and McAdam, 2001). Organizational



change is a common theme with a narrow focus on a single or a few variables without consideration for integration of multiple variables. Infrastructure and culture changes are often necessary to create a quality culture (Handfield and Ghosh, 1994) and many serve as the foundation. However, the organizational issue must span beyond these principles. Other authors focus on the challenge of conventional management techniques as a way to successfully implement change (Grant *et al.*, 1994). Dean and Bowen (1994) offer a more comprehensive look at the organizational variables but fail to link these theories and concepts to existing grounded organizational change theories and models. Hill and Collins (2000) utilized a series of cultural and strategic models, which only represent some of the organizational variables companies may need to consider in their implementation of a quality management system to achieve registration. Finally, there is a focus primarily on the techniques and tools associated with quality management systems with some link to organization and infrastructure but no clear link to organizational models (Dale *et al.*, 1998).

Spencer (1994) began to develop some models of organization linking total quality management with focus on mechanistic, organismic, and cultural models. The work of Spencer (1994) provides the foundation for expansion of the application of organizational change concepts and theories in the context of quality standards. This study focuses on the further expanding the body of knowledge linking grounded theory associated with organizational change models and quality standard registration mandated by the customer. The conceptual framework and theory development is used to define a model to serve as a basis for empirical based research. The conceptual framework could be applied to implementation of other customer-mandated initiatives and is not strictly limited to quality standard certification.

Research contribution

There have been multiple studies conducted looking at various organizational variables applied in quality management. However, there has not been a study that has tied all the key organizational variables together. This broadened approach to the application of organizational change models to the implementation of quality standard requirements is more comprehensive than prior studies and contributes to the body of knowledge in the quality management profession.

This study is designed to provide a testable framework for quality standard registration success, business management, and quality performance outcomes upon which both academics and practitioners alike will be able to base future research.

Research method

The study of phenomena is based on evaluating existing theory and applying it to other settings or issues to arrive at new conceptual ideas (Maxwell, 1996).

The basis for evaluating theory is by identifying existing literature in the field and noting any gaps. The gaps serve as the foundation for the discovery or development of new concepts and theories, thereby advancing the knowledge in the field.

In a qualitative study, the primary focus is to understand the behavioral aspects of a particular issue and identify how it affects the participants. In this study, the behavioral aspect relates to the organizational variables and issues associated with implementation of a quality management system to achieve registration. This study is exploratory in nature allowing for the application of existing organizational models to a quality management system and discovery of new relationships and knowledge.

Because qualitative research is also interpretive in nature, it is likely to bring opposing views regarding the application of existing theory. The final conceptual framework is summarized in a diagrammatic representation to allow for tying all the concepts and theories together. The final representation for this study is shown in Figure 1.

This study commences with a thorough literature review focusing on quality management systems, organizational change models, and change management. The final product is a conceptual theoretical framework stated in qualitative terms. The qualitative representation would serve as the basis for

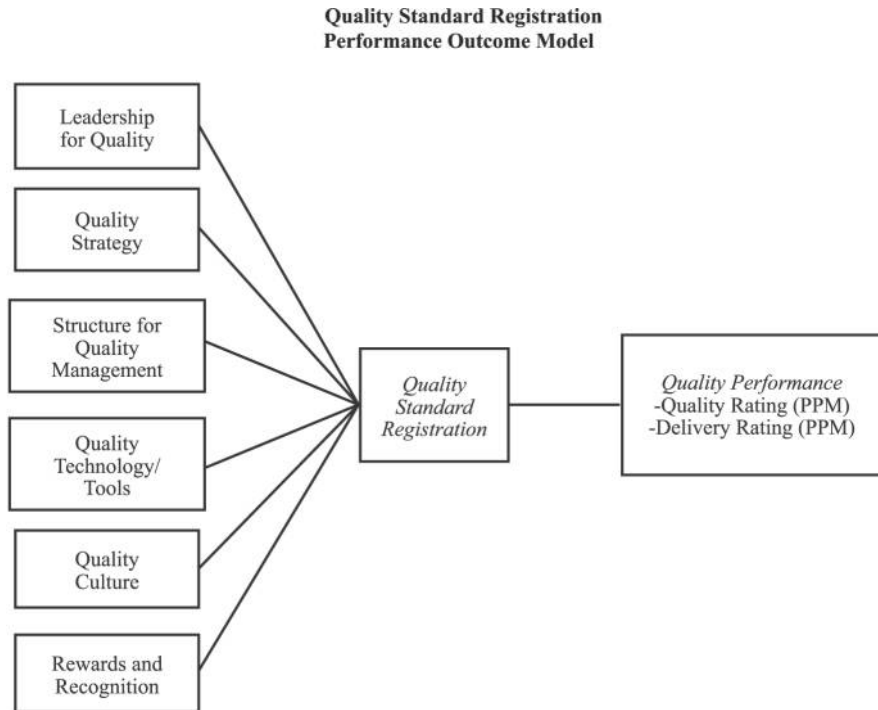


Figure 1.
Conceptual model for
further empirical study

the development of attitudinal questions for future research using empirical methods.

Literature review

Quality standards

There are several quality standards in which a company can obtain third-party registration. There are the international quality standards, ISO 9001:2000 and ISO/TS 16949:2002, with the later specifically geared to the automotive industry. Prior to the inception of ISO/TS 16949: 2002, QS-9000 was considered the quality standard requirement to conduct business in the automotive industry internationally.

The QS-9000 standard defines the rudimentary expectations of the quality system for companies (Brown, 1997). Many suppliers to the original equipment manufacturers (OEM) were receiving quality audits from each of their OEM customers. In 1992, Chrysler Corporation *et al.* (1998), in conjunction with the Automotive Industry Action Group (AIAG), directed the Chrysler/Ford/General Motors supplier quality requirements task force to harmonize the fundamental supplier quality systems manuals and assessment tools (Chrysler Corporation *et al.*, 1998). This reduced the redundancy of having multiple assessments by multiple customers to one standardized quality assessment process known as quality system requirements, QS-9000. ISO 9001:1994 Section 4 has been adopted as the foundation for QS-9000 and is printed in *italic* type. The difference between QS-9000 and ISO 9001 is the addition of the automotive industry specific standards.

This mandated, customer-driven quality certification has some companies in the automotive industry concerned. Some say QS-9000, the auto sectors variation of ISO 9000, may be a preview of trouble to come because of the purchasing clout of the big three automakers they have been able to enforce a standard catering to automaking requirements, virtually locking some companies out (Mullin, 1997). Although there have been interpretations of the QS-9000 standard, there is still not consistent application by each company, and various engineers at each company have their own interpretations (Mullin, 1997; Smith, 1997; Taninecz, 1997). If you are selling a product to the big three, you ought to be QS-9000 certified. The impact would be very high if you are not, because the standard is mandated (Brown, 1997). Ultimately, this is a way for the OEMs to shrink their supply base, and many suppliers are nervous (Bergstrom, 1996). Registration to the QS-9000 standard is becoming an entrance exam for companies interested in supplying to the automotive industry (Kanegsberg, 1996; Handfield and Ghosh, 1994). ISO/TS 16949:2002 is likely to replace QS-9000. Since companies are in transition to the replacement standard, there is not enough history to draw conclusions about the compliance to a new standard or the impact it will have on the organization.

The focus of a quality management system is to bring your suppliers into the decision process using cross-functional teams to increase innovation and cut costs (Lee and Lazarus, 1993). Lee and Lazarus (1993) suggest the use of only the very best, certified suppliers, and the need to work very closely with them. Buyers are looking for evidence of a certified quality system in the source selection process (McFadyen and Walsh, 1992). McFadyen and Walsh (1992) state there is no guarantee of business after completing quality certification, but failure to do so may result in loss of future business opportunities. Supplier quality evaluations systems are not new. Companies like Xerox and Ford have had extensive supplier quality evaluations systems in place for many years prior to the introduction of QS-9000 and ISO 9000 (Ahire *et al.*, 1996). Other industry standards have been imposed on companies who want to supply the military and continue to be imposed. The Department of Defense (Preston, 1995) has evaluated the application of many standards, including the MIL-Q-9858A - Quality Program Requirements for procurement, which was officially cancelled in October 1996. In an earlier memorandum (5 September, 1995) issued by the Air Force, they were pleased to announce the full support of contractors to substitute ISO 9001, ISO 9002, ANSI/ASQ Q9001 or ANSI/ASQ Q9002, or other comparable systems for MIL-Q-9858A (Preston, 1995). Other military standards are following a similar route. So QS-9000 is not the first mandated technical and quality management system requiring conformance by its customers. The original date of the MIL-Q-9858A dates back to December 1959 (Uzumeri, 1997).

Any company that tries to run its business without a quality system, such as ISO 9000, is failing to recognize the importance of quality as a driver to business viability, sustainability, and prosperity (McTeer and Dale, 1995). McTeer and Dale (1995) view quality registration as providing organizational value as well as a distinct marketing benefit, but customers also believe that past performance, price, and delivery are more important. The motivating force for most is the demand from customers to obtain quality certification and the fear associated with losing business (McTeer and Dale, 1995; Davies, 1998). Much has been written about the importance of quality management and continuous improvement in the current climate, but what is not recognized is that it repeatedly fails to provide any solid foundation for sustainable success (McQuater *et al.*, 1996).

The quality management system focuses on planning, organizing, controlling, and human resources processes associated with quality initiatives, and the technical system is comprised of the quality design and performance process, and the quality conformance process (Mandal *et al.*, 1998). Because there is a link in organizational systems, a change in one system will have an impact on the other system.

Quality, as an issue and drive, is now far more horizontal and has taken on most of the parameters of classic best practices: financial performance,

management strategy, human resources deployment implications, manufacturing process control and refinement, quality culture, supplier relations, and so on (Bergstrom, 1996). Since there are many business practices affected, the focus of this study includes:

- leadership for quality;
- quality strategy;
- structure for quality management;
- quality technology/tools;
- quality culture; and
- rewards and recognition.

Many models were evaluated to identify critical components and factors that were relevant to this study. Those organizational change models specifically addressing the key aspects of a quality management system were considered to the exclusion of less relevant models. The next section discusses the different organizational change attributes that assisted in the development of the preliminary model.

Organizational change

When pursuing organizational change, there are several factors that need to be considered: is the change planned or unplanned, intended or unintended, continuous or discontinuous, incremental or quantum leaps, event or program or systemic change, transformational or transitional, and the degree of change? These factors are all important to successful implementation of change.

Planned and unplanned. Change can be divided into two categories: planned and unplanned. Change efforts may be forced on an organization by laws, regulations, customers, or other environmental factors (Finstad, 1998). Finstad (1998) differentiates unplanned and planned change as the idea of “isomorphism” describes a passive or incremental adaptation to “signals” and from structure imposed by the environment to the idea of eruptive changes in relation to the environment based on signals from within. The need for change is often driven by a crisis sense of urgency as a means of business survival, both at the leadership and employee level (Prahalad, 1998).

Other industries have experienced the pressure to change and implement quality management practices as a matter of survival. These changes were implemented by a company in the railroad industry as a matter of survival (Carman, 1993). Carman believes that the failure of Southern Pacific was imminent if they had not selected their quality strategy focusing on new way to manage the business. This change was forced and imposed by management as a matter of survival.

When there is change initiated, it is sometimes difficult to determine whether the change is real, based on a rational paradigm of causal relations between

intention, actions and results that are adopted within the organization (Finstad, 1998). It is possible that the intended change occurred or failed to occur as a result of “noise” within the organization. “Noise” in the organization as it relates to pursuit of quality standard registration and measurement of quality performance outcomes could be a result of product launch activities. The product launch activities could have an impact on quality and delivery performance that is due to special cause variation (product launch) and is not representative of the overall performance of the supplier.

Transformational change. Most organizations today are under severe pressure to proceed with needed organizational transformation in order to cope with increasing rates of environmental change and turbulence (Dervitsiotis, 1998; Kezsbom, 1997). Environmental forces such as the mandated, involuntary, customer-required quality registration have an impact on organizational change. An empirical study conducted by Haveman (1992) looks at the impact of change as a result of environmental shifts in the rules and regulations governing the savings and loan industry in California. This study is relevant to the research being conducted regarding quality standard registration as a transformational organization change driven by mandated, involuntary requirements, and there are some possible striking similarities. Haveman’s findings indicate that most changes enhance financial performance, one is harmful to performance, and three diminish failure rates. A parallel can be drawn between Haveman’s study and quality standard registration in that failure to obtain registration by the customer determined deadline can result in loss of existing and future business, ultimately causing a business to suffer financially and cease to exist.

Transformation may involve radical shifts in the schemas held by the organization (Poole, 1998). To qualify as transformational change, the majority of individuals within an organization must change their behavior (Blumenthal and Haspeslagh, 1994). Blumenthal and Haspeslagh (1994) further explain while the goal of all transformations is to improve performance, many efforts to improve performance are not transformational; creating behavioral change is a difficult and long-term process that requires management’s concerted and persistent effort.

Bureaucratic companies are subject to excessive rigidity in the application of rules and regulations and severely constrain their ability to change in response to environmental shifts or internal organizational growth (Haveman, 1992). Transformational change is frequently identified as the need for companies to change as the environment changes (Munro, 1992). Agility and rapid response are important to meet customer’s demands, but not all organizations are able to make successful transformations (Poole, 1998). Poole (1998) studied the forces and actions at work within an organization transformation and found they tend to include changes to strategy, personnel (particularly at the top), and vision. Poole’s (1998) study was based on grounded research and the qualitative

research methodology employed in the longitudinal study allowed the research to uncover novel and fresh perspectives of the transformational changes occurring within three separate organizations. When the intent of top management is to transform the organization, they must consider the existing set of organization guidelines or knowledge structures (Poole, 1998; Howard, 1994).

Incremental and discontinuous change. The punctuated equilibrium model of organizational transformation has emerged as a prominent theoretical framework for explaining fundamental changes in patterns of organizational study (Romanelli and Tushman, 1994). The supportive results of Romanelli and Tushman's (1994) study showed that a large majority of organizational transformations were:

- accomplished via rapid and discontinuous change (Figure 1) over most or all domains of organizational activity;
- small changes in strategy, structures, and power distributions did not accumulate to produce fundamental transformations; and
- major environmental changes and CEO succession influenced transformations.

This empirical study is relevant in that there is a major environmental change companies are experiencing as their customers mandated that they pursue quality standard registration. Romanelli and Tushman (1994), believe that companies move in a steady state and then experience revolutionary periods (quality system implementation) substantively disrupting established activity patterns and install the basis for new equilibrium periods. After initial quality standard implementation and registration, the company returns to the steady state. Then in preparation for the six-month surveillance audit to maintain quality standard registration, the companies experience another revolutionary period in preparation for the revisit of the audit team (see Figure 2).

It is possible, however, to postulate that a company does not maintain the steady state after achievement of quality standard registration. The company may find that it reverts back to the point of pre-registration levels. Because this study is not longitudinal, it will not attempt to

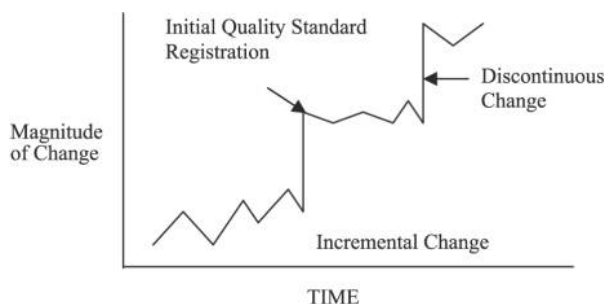


Figure 2.
Patterns of incremental
and discontinuous
change – quality
standard registration

determine whether a company reverts to pre-registration levels. This is graphically represented in Figure 3.

Companies pursuing registration may have quality management systems that are not aligned with the quality standard, and they may be forced into frame-breaking change. Tushman *et al.* (1986) believe that frame-breaking change occurs in response to or in anticipation of major environmental changes and this was validated by their empirical longitudinal study of the minicomputer producers. The major environmental change related to the quality performance outcome model is that companies are required to achieve the customer mandated quality standard registration. This discontinuous change known as frame-breaking change is driven by shifts in business strategy and as strategy shifts so too must structure, people, and organizational processes (Tushman *et al.*, 1986; Tushman and Anderson, 1997; Tyre and Orlikowski, 1993).

This discontinuous change that is experienced by companies pursuing quality standard registration is a non-linear dynamic process, the outcomes of which cannot be ensured even with the best made plans of experienced and professional change agents (Dawson, 1995; Meyer *et al.*, 1990). Failure in the implementation of a quality management system can result from lack of clear goals, unrealistic team expectations, inadequate management support, no implementation strategy, and limited training (Dawson, 1995). In the implementation of a quality management system, it is recommended that management change an organization to a form that is flexible, agile, adaptive, responsive, and value adding (Dervitsiotis, 1998).

As companies undergo periods of continuous (incremental) and discontinuous change, they will experience periods of adaptation and adjustment in response to the external environmental changes (Meyer *et al.*, 1990).

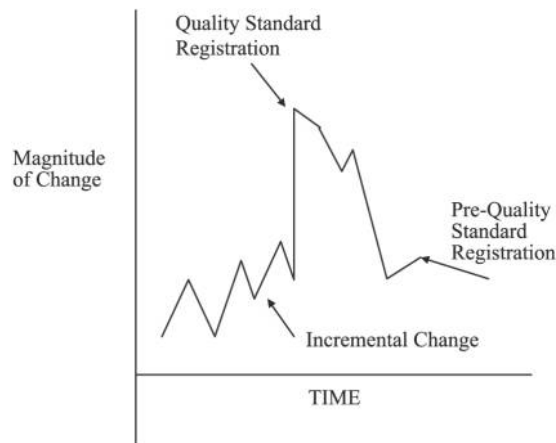


Figure 3.
Revert to pre-quality
standard registration
level

In focusing on the models of change within organizations and industries (Table I), quality standard implementation and registration would fall in the lower right quadrant, meaning that it is a second-order (discontinuous) change focusing on industry level and that it is revolutionary. An environmental jolt such as involuntary, mandated, customer directed quality standard registration forces organizations to change rapidly. Gould (1977) has characterized punctuated equilibria as changes that occur in large leaps. These changes follow a gradual accumulation of stress, which a system resists until it reaches its breaking point, or until a triggering event such as quality standard registration precipitates discontinuous change. Slow and incremental change is a thing of the past that has been replaced with rapid and discontinuous change, not only in business, but also around the world (Gadd and Oakland, 1996).

This is not to say that there should not be any incremental change going on within the organization. Once a quality management system is established, there is a need to constantly improve. An aspect of change known as continuous improvement also needs to be addressed. Quality management systems require continuous, constant improvement to meet ever-changing customer demand and increasing competitor quality levels (Lee and Lazarus, 1993).

Levels of change. In organizational change, there are different levels of change (Figure 4) (Tichy and Cohen, 1998). The focus of the quality standard registration is an event change. It is important to realize that an event change is a part of a much larger scheme of systemic and program changes. Typically, leaders will start out with an event change such as quality standard registration, with the ultimate goal of implementation of a program change such as the quality management system final drive to impact the entire system (Cummings and Worley, 1997). However, what often happens is that the event change occurs without having a lasting impact on the overall system.

	First-order change	Second-order change
Firm level	<p><i>Adaptation</i> Focus: incremental change within organization Mechanism: Incrementalism Resource dependence</p>	<p><i>Metamorphosis</i> Focus: Frame-breaking change within organization Mechanism: Life-cycle stage Configuration transitions</p>
Industry level	<p><i>Evolution</i> Focus: Incremental change within established industries Mechanism: Natural selection Institutional isomorphism</p>	<p><i>Revolution</i> Focus: Emergence, transformation, and decline of industries Mechanism: Punctuated equilibrium Quantum speciation</p>

Source: Meyer *et al.* (1990)

Table I.
Models of change within
organizations and
industries

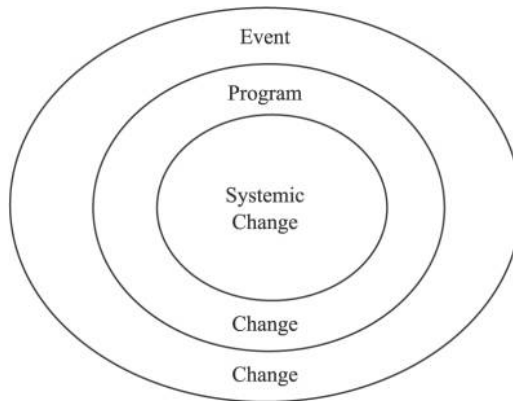


Figure 4.
Levels of change

An empirical study conducted by Benson *et al.* (1991) found that managers' perceptions of actual quality management are influenced by organizational variables. There has been a research challenge in the area of quality management to identify the relationships, which exist between organizational characteristics, quality improvement activities, and business performance indicators (Mann and Kehoe, 1994).

Most people want to understand the “what” and “why” of organizational change but leadership fails to communicate this information throughout the entire organization (Cummings and Worley, 1997). Readiness for change is also a prerequisite to implementation of a quality management system (McNabb and Sepic, 1995).

If the supporting systems are not altered when a company makes organizational changes, the organization probably will fail to make these changes last (Riggs, 1993). In addition to the structure, strategy, and people issues addressed earlier, systems are also important. Systems in this study are referred to as quality technology and tools.

Application of organizational change models

Organizational models serve as a basis for understanding interrelationships of different variables and how they may respond to change. The organizational models were selected because the organizational variables were a close match to what would typically be included in a quality management system. A model was formulated for this research study to enable the researcher to gain a better understanding of key variables associated with quality performance outcomes and quality standard registration. The model was formulated to assist in narrowing the scope of the research and to demonstrate the interaction and relationship between the identified variables. Other models were reviewed in an

attempt to best represent the research questions to be addressed in this study. One of the models was Weisbord's (Burke, 1994) six-box model (Figure 5).

One of the variables of the Weisbord model is the environment. This closely relates to the environmental impact as a result of the mandated quality standard registration, which is external to the organizational system. The environmental impact is implicitly stated in the model under study and focuses on the effects of the organizational variables. In developing the quality standard performance outcome model, several key variables were extrapolated from the Weisbord model to include leadership and structure. The leadership variable has further been narrowed to leadership for quality to be more relevant to this study. It was felt that the purpose of each organization is well known by the stakeholders participating in this study. Although the other variables may be important to organizations in transition, it was determined that these variables were imbedded in other variables. For example, helpful mechanism(s) relate to quality technology and tools, and therefore were not included.

Burke-Litwin's model (Figure 6) proved to be very useful in the development of the quality standard performance outcome model. The Burke-Litwin model focuses on two aspects of change: transformational and transactional factors. External environment, mission and strategy, leadership, organizational culture,

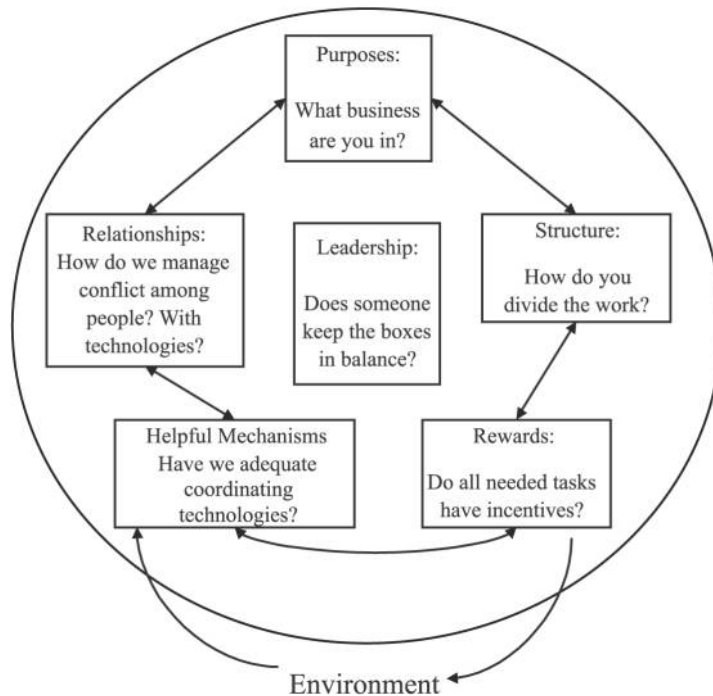


Figure 5.
Weisbord's Six-Box
model

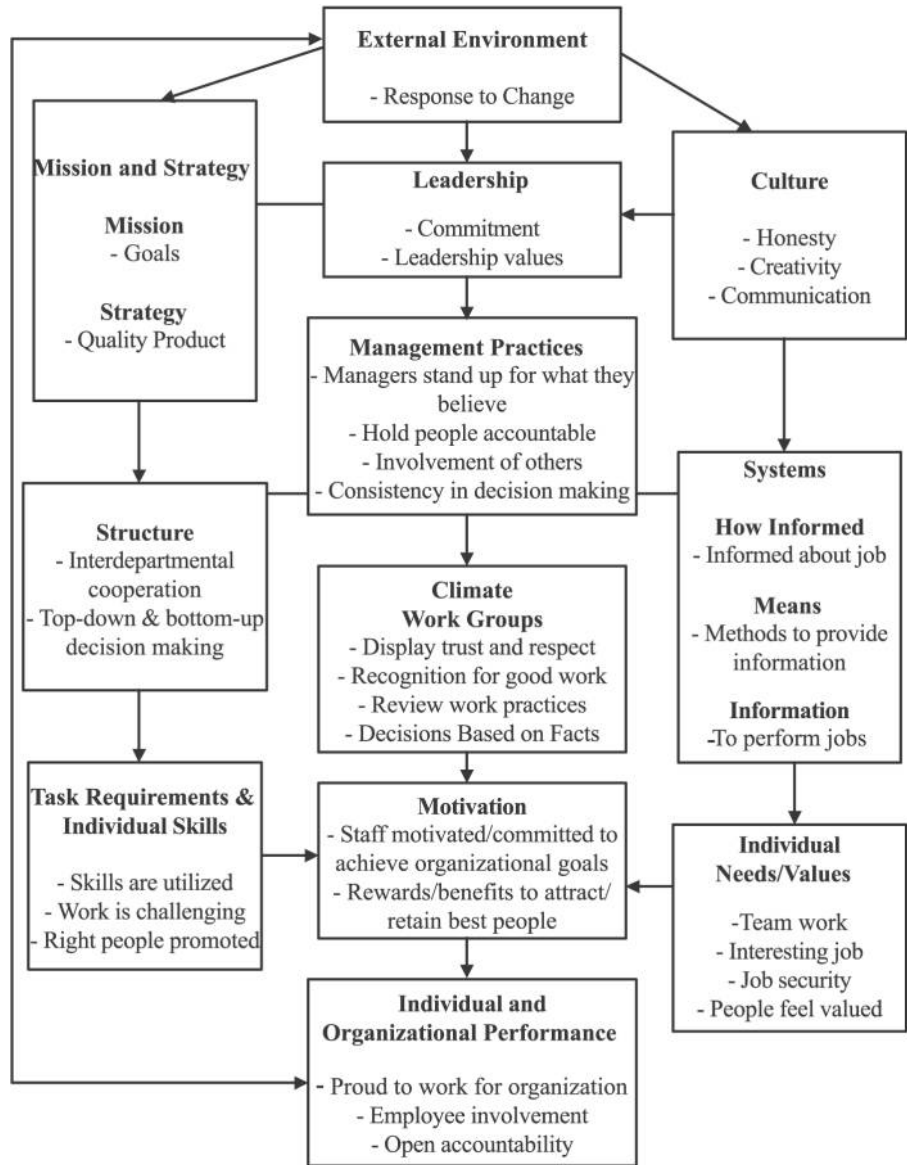


Figure 6.
Burke-Litwin model

and individual and organizational performance are considered the transformational factors (Burke, 1994). The other variables are transactional factors.

This model contributed significantly to the research model by focusing on the transformational factors of external environment – mandated conformance to quality standards, leadership for quality, quality strategy, quality culture,

and key organizational performance measures – quality and delivery ratings. As a part of the transformational organizational change model developed for this study, additional components classified as transactional factors by Burke-Litwin relating to structure and systems have been defined as transformational in nature. Systems has been restated and referred to as quality techniques and tools.

The Burke-Litwin model has been utilized to gather data about both public and private sector firms pursuing major organizational change. One empirical study conducted used a factor analysis of the respondents' answers to 150 items, which categorized into the 12 categories of the model (Burke, 1994). The Burke-Litwin model focuses on both transformational and transactional factors of change. The model in this quality standard study is focused on the transformational factors of change.

These integrated diagnostic models have limitations and barriers. The variety and amount of information needed to gauge the health of an organization is imposing (Howard, 1994). This is why it was necessary to limit the scope of the model for this study. Even in limiting the scope, there is a vast amount of information available on each of the variables in the study. Reger *et al.* (1994) believe characteristics of organizational identity impede the acceptance of fundamental change, which has been static, when a dynamic reframing process is necessary (Figure 7).

The reframing model could also be related to the organismic model because of the dependence on their environment for response to adjust to the appropriate behavior in the achievement of the specific goal of quality standard registration (Gharajedaghi and Ackoff, 1984). Organismic models are based on the premise of organizational survival, such as achieving customer imposed standards or constituent satisfaction of conformance to standards (Spencer, 1994).

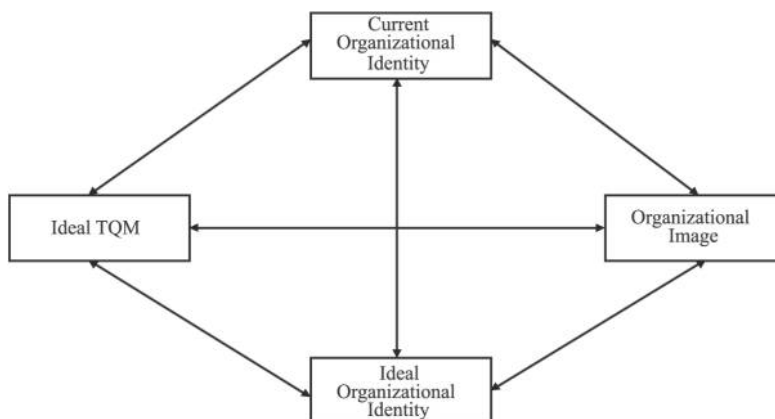


Figure 7.
Dynamic reframing
process

Within a systems model of organizations, strategic change is motivated by the perceptions of the managers and other decision makers as to the gap between the current state and the desired future state (Sanchez and Heene, 1998). Sanchez and Heene (1998) focus on the interdependencies within the systems model and try to identify the least flexible element of the system that acts as a bottleneck and limits the overall organizational change.

Change needs to take the form of “adaptation” to the exogenous shifts in the environment, which should involve the rearranging of the internal organizational structure to ensure survival and organizational effectiveness (Benson *et al.*, 1991). Benson *et al.* (1991) have developed a model to evaluate the external factors such as customer demands (quality standard registration), competitive pressures (competitors quality standard registered), and government regulation, focusing on system-structural view to describe quality management implementation (Figure 8).

Application of change management

Recardo (1995) defines change management as the process an organization uses to design, implement, and evaluate appropriate initiatives to deal with demands placed on them by the external environment. Recardo studied several companies and found that companies that are successful in implementing change realized greater employee commitment to the initiatives, smaller productivity fluctuations during implementation, and significantly shorter implementation timelines. This study is not empirically based, so there may be some question regarding the validity and reliability of the results.

Managing change requires leadership. Harper (1998) states that leading change is about blazing new trails, creating a compelling vision, and quantum advances by creating new realities. In many change efforts, executing change is a crucial source of competitive advantage (Tushman and Anderson, 1997). However, the change efforts associated with QS-9000 registration may not be for competitive advantage but may be an economic necessity. Tushman and

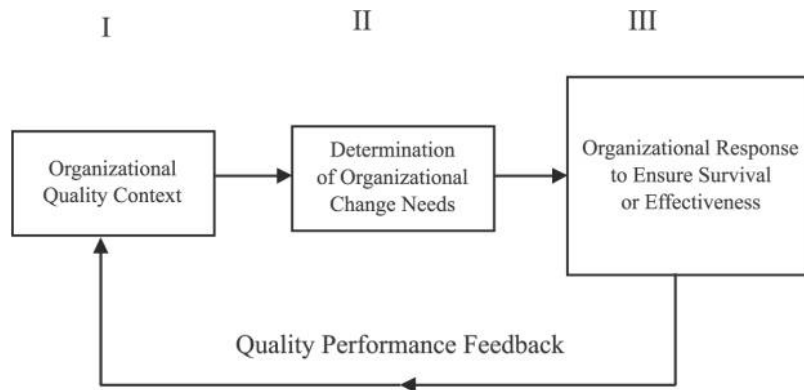


Figure 8.
System-structural view
of quality management

Anderson (1997) state that managing change involves moving an organization from its current state to its desired state through a transition period. For quality standard registration, this may mean moving from a quality management system that is inadequate (current state) to a quality management system that meets quality standard requirements (future state). In managing the change efforts, there needs to be sufficient dissatisfaction with the status quo or current state (Kotter, 1996; Dervitsiotis, 1998), a desire to move to the future state, and the appeal of a well thought out strategy for realizing the vision (Dervitsiotis, 1998; Kotter, 1996, 1997).

Rapid change requires rapid response. Companies achieve real agility only when every function and process – when the person – is able and eager to rise to every challenge (Pascale *et al.*, 1997). Pascale *et al.* (1997), cite numerous examples of companies who are now “revived” as a result of becoming agile and flexible to enable them to change quickly. For example, Sears recently went through a major transformation. This agility also reflects what many manufacturing companies are trying to achieve to be able to respond quickly to the ever-changing demands of their customers (Goldman *et al.*, 1995).

There are several conditions that need to be present when pursuing a major transformational change:

- clear focus;
- driven from the top;
- leaders must commit to systemic, organization-wide change;
- employee involvement; and
- external coaches or change agents to facilitate the change process (Juechter *et al.*, 1998).

Role of change agent

The change agent plays a major role in the management of change. This is the most sought after individual by companies who are pursuing major organizational change (Sherman, 1995). Sherman (1995) goes on to say that one-third of the middle managers should be change agents for a company going through major organizational transformation, and this appears to be where the ball is dropped. Change leaders are generally in the 25-40 year age range and tend to be more flexible, people oriented, able to operate with more than one leadership style, and able to achieve quantum leap changes (Sherman, 1995). Successful implementation of a quality system improvement requires leaders who are cultural change agents, not old-style managers who believe in autocratic controls (McNabb and Sepic, 1995).

Final conceptual model

The final conceptual model was a culmination of different perspectives and components including organizational change focus, change models with

applicability to quality management standards, and change management. The organizational change factors included planned, intended, discontinuous, incremental, systemic, and transformational aspects. The companies in pursuit of QS-9000 planned this change with intent on achieving certification to the standard. It is likely the change was discontinuous and incremental in nature as shown in Figure 3, where the company would make the necessary changes to obtain certification, but may revert back to pre-certification levels. The change was characterized as systemic because it had an impact on the entire organization. Finally, if it did not focus on transformational and institutionalization of the change, it is unlikely that the performance measures of quality and delivery would be impacted for the long term.

Key components from the organizational change models outlined in the discussion and a comparison to quality systems to identify the applicability of each change model to quality management standard was also key in the development of the conceptual model. The key variables include:

- leadership;
- strategy;
- structure;
- technology;
- culture; and
- rewards/recognition.

Because the focus was on quality management standards, each of the key variables was modified (Figure 1).

Because it was desired to be a predictive model, the organizational variables are predictors of successful quality standard registration and change in improvements in quality and delivery performance measurements, as response variables.

Further research and conclusion

Conceptual models serve as the foundation for empirical research studies. The next step would be to translate the theoretical model into survey questionnaire to gather information from informants in the automotive industry. The key informants would be quality managers or coordinators directly involved with the implementation of quality management systems with the goal of achieving quality standard certification.

Another area of research could be to apply this model to other industry specific standards in food production, health care, or other regulated industries. It is likely the key predictor variables would remain the same (without the quality focus), but the type of response variables would likely change.

How do we know that this change has been successful? A successful transformation is one in which management has succeeded in institutionalizing

the behavioral change required for long-term success (Blumenthal and Haspeslagh, 1994; Kotter, 1996). Institutionalization is a difficult factor to measure in a short-term study. Longitudinal studies would aid in the determination of whether a transformational change has been truly institutionalized.

Models serve as a means to an end. Change models allow the research to develop a theoretical and conceptual framework in which to serve as the basis for future empirical research. It is believed that organizational change models and methodologies can provide the foundation for study of any type of change and is not limited to a particular industry. This was demonstrated in this discussion focusing specifically on the application of organizational change models to a specific initiative, quality standard registration, and how they relate to the response variables of quality and delivery performance.

This model adds to the body of knowledge for both academics and practitioners. Often practitioners are focused on achieving the end result, quality management system registration, without realizing the impact on their organization. It is necessary for companies to assess the existing state of their organization and the different aspects of their organization that will be impacted by changes associated with implementing and integrating a quality management system into their mainstream business practices. Failure to recognize the organizational changes required to adapt to a new business approach will hinder the long-term benefits that can be derived.

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