Innovation and Change Management

in Small and Medium-Sized

Manufacturing Companies

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1.0 Executive Summary

The National Institute of Standards and Technology (NIST) contracted with The Smeal College of Business at The Pennsylvania State University to conduct a review of literature relevant to change management in small and medium-sized enterprises (SMEs). Our research team conducted extensive reviews of secondary literature and also interviewed successful SMEs with the ultimate goal of supporting NIST's Manufacturing Extension Partnership's (MEP) mission to help American SME manufacturers to become more competitive.

The result of our work is the following guide that is designed to enhance the ability of SMEs to successfully plan and implement change. The specific focus of this guide is to help SME leadership manage change that results in innovation and growth, with particular emphasis on successfully introducing new products and services. This guide can be used by MEP professionals seeking increased knowledge to help their SME clientele to manage change and innovation, or it could be given directly to SME managers.

We introduce a framework that includes concepts for an idealization of a highly innovative company capable of successfully introducing new products and services. The idealization starts with the company's competitive strategy and its desire for innovation. The focus shifts to the environment, where research suggests that the most innovative and successful companies regularly scan their environment and proactively identify problems and opportunities before they are a threat. Inside these companies, research suggests that they configure their formal organization, work, people and informal organization to mutually reinforce each other in the interest of generating and capturing ideas for product development and commercialization.

The best companies are managed and organized to fully utilize all of their human and technical resources to respond promptly to issues they have identified. Full utilization includes harnessing the analytical skill and imagination of all company personnel to develop and introduce new products and services. Change can be triggered by events internal or external to the company; but SME managers will only initiate change if they experience sufficient discomfort with the status quo.

Next we introduce a sequence of five steps that make up a change strategy. The firm's competitive strategy and leadership shape this sequence and the content of each step. The steps are generating urgency, creating a vision, developing political support, managing the transition and sustaining momentum. Finally, we address the measurement of change. Measurement plans should be made early in the change process to assure that baselines are captured before any change is undertaken. Process measures, including the energy that employees devote to the change process, and their awareness, understanding and commitment to it, are important metrics, especially during large-scale change. Finally, it is important to measure bottom line results, both in terms of company profitability and individual change-supportive behavior.

This guide reflects a compilation of both time-tested and emergent thinking about change in SMEs. Regardless of the type of change being pursued, the recommendations in this guide can help SMEs to successfully manage change and innovation within their firms, and develop their capability to learn quickly to recognize the need for change and respond appropriately to it.

2.0 Introduction

This guide was prepared for the Manufacturing Extension Partnership (MEP) of the National Institute of Standards and Technology (NIST). The MEP was created to help manufacturing-based small and medium-sized enterprises (SMEs) improve their business conditions. Traditionally, MEP consultants have helped many manufacturing companies successfully implement operational-based efficiency programs, such as lean manufacturing. However, it is becoming clear that such programs only provide SMEs with "table stakes" to get into the competitive game. As more and more companies gain requisite knowledge of lean manufacturing, the focus on competition will shift from cost reduction to revenue enhancement, mainly by offering new and existing customers new products and services that can generate higher profit margins. SMEs will need assistance in implementing the type of change necessary to make this shift. Introducing new cross-functional product development teams is a start, but they will not be introduced successfully unless accompanied by major organizational and cultural-based change, which is perhaps the most challenging type of change to implement.

Although much has been written about managing change in large private and public companies, very little has been written about managing change in the unique context of SMEs. Concerns particular to SMEs include their relative lack of control over their environment, commingling of business and personal priorities, and lack of resources to carry out the magnitude of change that is appropriate to meet accurately diagnosed problems or recognized opportunities. When change is undertaken, it is often carried out unsystematically without use of a comprehensive strategic framework for guidance. Critical change steps are omitted or not performed in a logical sequence. This guide is intended to remedy these all too frequent occurrences.

The guide that follows focuses on senior SME managers and addresses the issues that are associated with change, proposing a framework and tools for these managers to use when identifying and implementing change in their own companies. Founding managers are no strangers to managing change. They have already transformed a fledging start-up into an operational company. However, non-founding managers may be less familiar with the change process, and not all change looks and feels like start-ups, thus both types of managers can learn much from the ideas presented in this guide. In addition, the routines that are ingrained in SMEs helped generate their success and provide often hard-won stability, but it is important to know when change is appropriate. Specifically, the guide discusses the triggers for change, types of change, diagnosis of problems, recognition of opportunities, implementation of change activities, measurement of outcomes, and rewards for progress toward goal attainment. In addition, the guide focuses on many issues that are unique to small businesses, such as limited resources, risk averseness, etc.

The guide was developed through the use of the research team's own consulting, teaching and research experiences as well as knowledge gained from secondary sources such as ProQuest and Harvard Business Online. The information gained from secondary sources helped the team to refine the framework that was developed from its own experiences and ensure the applicability of the information to small and medium-sized manufacturing companies.

Our focus in this guide is on making companies more innovative generally, and able to introduce more successful new products and services specifically. The change process that we discuss here can be equally effective in change efforts to reduce cost or enhance quality in the factory or supply-chain, but the emphasis in this guide is more on revenue growth than operational efficiency. Being innovative means being open to ideas about new products and processes, and having the capability to develop and introduce them successfully. These ideas may come from new and unexpected sources, such as collaboration across traditional company boundaries with customers, suppliers, and even competitors. Collaborating with these groups in addition to tapping into the creativity of your employees can generate new products and services that serve or enhance all interests.

3.0 Innovation and Change Management Framework

Each section in this guide is accompanied by one or more figures that graphically capture the relationship between concepts that are introduced or summarize the major points covered in the section. We first introduce concepts and terminology associated with change (Section 3.1). We then examine a company's relationship with its external environment (Section 3.2) before turning to the firm's key organizational elements (Section 3.3). All of this sets the stage for our broader goals: designing for innovation (Section 3.4), identifying change triggers (Section 3.5), and effectively implementing change (Section 3.6). We include a section on an important topic associated with change – measurement - in Section 3.7. Finally, Section 4.0 provides a summary of key points and managerial action items.

3.1 Change Arena

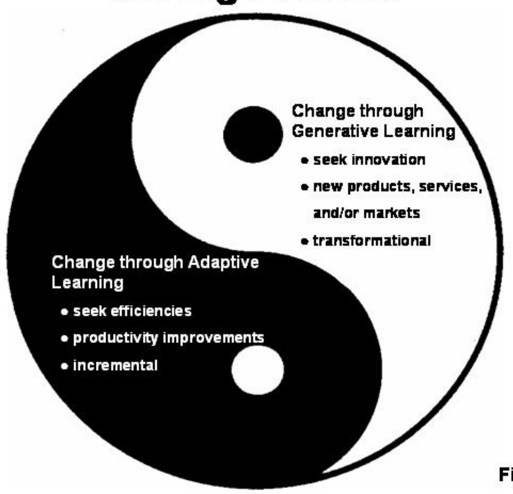


Figure 1

The change arena describes the triggers, targets, and types of change that occur in companies. Change is always occurring in companies. Companies usually benefit more from change they are prepared for versus change that is imposed on them. In addition to preparing for change, companies should also learn how to identify the need to change and to manage it successfully. This learning capability will allow companies to address future problems and take advantage of opportunities more quickly and effectively than their competitors.

What internal and external triggers might prompt a company to seek change? Examples include lackluster or even declining sales or profits. A company's competitors may have done something recently that is eroding its market share, or state or federal government may have mandated compliance with new regulations. On the positive side, senior managers may have a vision of how the company could perform much better than it does now, and want to lead the company toward its realization.

Companies can engage in two general types of change. Change can result from generative learning and/or adaptive learning. Generative learning is more difficult to master, but has more profound and far-reaching consequences for a company. Generative learning seeks deeper meaning and multiple connections in the phenomena that are studied (Wittrock, 1974). It is often conducted best in a team setting in which participants can review collective memories, archival and new data, and by discovery, experimentation, and reflection find solutions to current problems or develop plans to seek newly recognized opportunities. One way to learn how to be a generative learner is to always ask the question "why?" instead of just accepting the status quo. Change that results from generative learning tends to be profound and long-lasting, and transforms the learner through the learning process.

When generative learning is applied to business, it involves examining the company's most basic assumptions about itself and how it does business. For example, who are your customers, how do your products and services create value for them, what is the best way to deliver value to your customers, and what are your beliefs about how to treat your customers, suppliers and employees? Managers assume that they know the answers to these questions, but seldom re-examine them to see if their current practices are consistent with their assumptions. Correcting such inconsistencies can profoundly impact a company's structure, processes, products and services.

Adaptive learning is highly valuable too. However, it takes for granted assumptions like those mentioned above and focuses instead on how to more efficiently and effectively deliver value to current customers. Many companies are already clear about their assumptions and act consistently with them. They also may be just plain lucky that their unexamined assumptions are not out of synch with their customers' perceptions of value and with their environment. These companies can focus on making better and perhaps less expensive products and services, and delivering them to their customers in a more timely manner. The dilemma is that most companies would be better off examining their assumptions by engaging in generative learning. However, it is a time-consuming process, and many companies are not prepared to act appropriately on what they learn from this process.

You may have a natural affinity for engaging in generative learning, but should you decide to go this route you are more likely to need guidance from a consultant, at least initially. A properly trained consultant will make sure that you (probably as part of a team) are an active participant in the learning process so that you discover solutions to problems yourself rather than have them presented to you. Once you learn how to engage in this process, you'll find that it becomes a natural way of engaging in inquiry. Generative learning tends to be continuous, while adaptive learning is more episodic. Most importantly, generative learning develops your capability to diagnose future problems and opportunities, plan and implement change, and evaluate outcomes. How companies learn to carry out the change process is as important as the content of change and its outcomes. We focus on both aspects of change in this guide.

Pursuing change through generative learning requires companies to look at the world in new ways. This new perspective will change the way the company views and understands its customers, as well as enable better business management (Senge, 1990). A company that is pursuing change through generative learning will see things and begin to transform its structures and processes to allow it to take advantage of previously unforeseen opportunities. If you observe signals like those mentioned above, e.g., declining market share, revenue or profits, it's a reasonably safe bet that change utilizing generative learning is in order.

Adaptive learning and generative learning are complementary processes. You need both of them. The use of the yin/yang symbol from Chinese philosophy in Figure 1 suggests the ability to embrace both types of change simultaneously. Generative learning may lead the company to identify new customers and markets to serve and new products and services to offer to them and existing customers. Adaptive learning may lead the company to identify ways to deliver these new products and services to all customers more efficiently and effectively. Change via generative learning may be an enormous leap for many SMEs. SMEs often face both financial and human capital constraints that limit how much they can change. Also, the managers of some SMEs are risk averse, especially as their companies mature, and they become unwilling to introduce major changes because of preferred life-style and family considerations (Gray, 2002). Another consideration is that generative learning often leads to change that is company-wide, especially for SMEs. When a department or activity is initially targeted, the consequences of change probably cannot be contained locally, but will reverberate throughout the entire company.

Change occurs frequently in most large and small companies. The problem is that it isn't always well planned, deliberately executed, and successful. It is also often reactive to events rather than proactive in anticipating or even creating them. The typical SME has not invested much in planning, pursues change haphazardly, and adopts generic or packaged change initiatives (Smart et al., 2004).

In summary, owners and managers of SMEs should engage their company and its environment in a proactive manner, which means they cause something to happen rather than wait to respond to it after it happens. Owners and managers are more likely to engage in generative learning when they are proactive because they have time to explore potential problems and opportunities. SMEs that are reactive do not have adequate time to explore problems and even less, if any, time to explore opportunities. Learning under these conditions tends to be adaptive. Problems can be solved in this manner, but this may not contribute to long-term survival or prosperity.

3.2 The External Environment

Figure 2

The events that happen inside or outside of a company are potential triggers for change (O'Regan and Ghobadian, 2005; Khan and Manopichetwattana, 1989). This section focuses on the organizational arena, which includes the company and what happens outside of it, i.e., in its environment. The company's environment includes potentially everything outside of its boundaries. A company's competitive strategy, i.e., a long-term plan to achieve and sustain a competitive advantage, influences its structures and processes (see section 3.3), the importance of environmental elements (i.e., customers, suppliers, competitors, and government), and the relevance of their attributes and behaviors. If the strategy changes, then so does the importance of these elements and how to deal with them. That's why it's important for the company's top management to articulate and communicate the company's competitive strategy clearly and consistently.

Small companies often have less control over key environmental elements than do their larger counterparts. Therefore small companies must be especially vigilant in spotting potential problems and opportunities. They may have less control over these key elements, but they can still respond quickly to meaningful changes in them (Hansson and Klefsjo, 2003). Managers should be watching their competition for new product introductions, new advertising campaigns, or new plant construction. What do demographics suggest about consumer trends or the availability of labor? Is there pending legislation that may favorably or unfavorably affect labor or energy costs or require modifications to current operations? Managers should also be alert to how their competition performs critical activities and learn to perform them better by benchmarking them. Even studying seemingly unrelated firms may yield ideas on enhanced operational efficiency or new product development. For example, Xerox benchmarked L.L. Bean, the mail-order clothing store, to find out how they filled orders so quickly (Camp, 1989). Many small companies often look inward more than outward towards their environment, focusing more on improving internal operations than enhancing customer value. As a result, they often succeed in improving upon their past performance but fail to learn more from watching what other firms do and listening to their customers.

No company is self-sufficient. This is especially so for small firms, which often have limited human, physical, and financial resources (Hansson and Klefsjo, 2003). They need to collaborate with other firms and institutions in order to generate ideas and gain access to complementary resources. Small firms can leverage their limited resources by being open to their environment. Suppliers and customers may be among the best sources of ideas for improved operational efficiency and new products and services (Gebauer, et al., 2005; Hartlaub, 1994; Royal, 2005). Suppliers can offer ideas on how their products (e.g., equipment or software) can be used more efficiently in your production process or how their components can be designed to fit optimally into your products. Customers can offer ideas on what new products or services to develop and sell. Customers and suppliers can make these kinds of contributions as invited guests or even as part-time or full-time members of cross-functional teams. Collaborating with firms outside your region or country can diversify the pool of ideas from which you can draw. The Internet allows small companies to compensate for the size advantages of large companies and makes collaboration easier by reducing the need for regular face-to-face interaction (Etemad, Forthcoming).

Small firms often can not afford to conduct their own research, but universities and government agencies may offer low-cost or free research, or advice on how to commercialize research that the firm or the university has patented (Swamidass and Vulasa, Forthcoming). Firms may need to conduct some in-house research or employ or train technical personnel so that they can recognize or appreciate research findings or transform them into products or services.

Partnering with other companies, even competitors, for access to their complementary resources can allow you to offer products or services that you could not otherwise offer. Partnering successfully requires development of negotiation and collaboration skills, and probably some shared decision-making. While doing this is challenging and may cause apprehension about loss of independence, self-sufficiency can foster stagnation, which ultimately may be riskier to long-term survival than partnering to pursue opportunities for growth and innovation.

3.3 The Organization

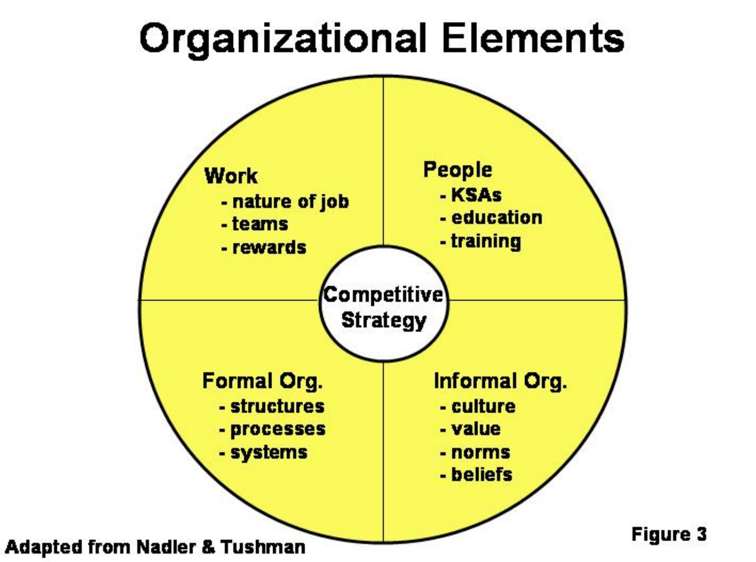


Figure 3

This section focuses on what happens inside the company. Figure 3 shows a circle that is divided into quadrants. These quadrants represent four major organizational elements that mutually influence each other. We used the same labels for the four elements that Nadler and Tushman (1989) used in their organization model. However, we located competitive strategy at the center of our model because of its critical role in giving purpose to the design of the four organizational elements. A vision guides the overall strategy of the firm and provides the company with a realistic, credible, and attractive future (Kotter and Cohen, 2002). The strategy is a long-term plan to bring the company closer to its vision through pursuit and achievement of a set of coordinated operational goals. The vision should indicate who all of your customers are, what customers find valuable in your products, which specific customers will be served, and in what markets. Also, why will sales to these customers lead to sustainable profits? The vision should inspire and motivate employees even if it is never reached. It should be based on the firm's competitive strategy as well as the four organizational elements depicted above. Firms should beware of writing vision statements that contain only abstract statements of good intentions, but offer no guidance for action. More attention will be given to forming vision statements in section 3.6.2.

All four organizational elements should be designed to be aligned with each other and aligned with the company's competitive strategy, a point we will come back to in the next section. It's easier to get a grasp on changing the formal organization and work, but no matter where you start, changes in the other elements will likely be required also. The formal organization is shown in the lower left quadrant in Figure 3. Small companies are likely to be organized by functions. For example, the first level below top management includes manufacturing, marketing, and (perhaps) research. These structures tend to emphasize low cost over rapid response. Efficiency is gained from full utilization of functions across multiple products, but decision-making is centralized at the top. Function-based structures are probably adequate for most small companies, but as companies grow, especially if by product or geographical diversification, they tend to reorganize around products, territories or customers served. Such structures allow more rapid response to specific customer needs, but at the expense of less efficient utilization of functions. The timing of a structural change is a matter of judgment. Symptoms of a need to change are excessive red-tape and delayed decision-making in a function-based structure. As we shall see, cross-functional teams allow retention of the advantages of function-based structures, but offset its main disadvantages.

Systems and processes should support structure. Processes include conversion of raw materials into products (by fabrication and assembly) and organization of data into useful information or the performance of services. Processes also include movement of materials/information between departments, and decision-making to coordinate or allocate activities or resources. The company's organizational structure influences how many departmental boundaries such processes must cross. For example, processes must cross more departmental boundaries in function-based structures than in product-based structures, and generally require more complex coordination mechanisms. Related boundary management issues apply to companies that outsource processes or collaborate in performing processes with partners. Systems are designed to plan (e.g., what and how much to produce) and control (e.g., assure that plans are met or corrected mid-course). For example, accounting and human resources systems help senior management to meet its planning and control responsibilities.

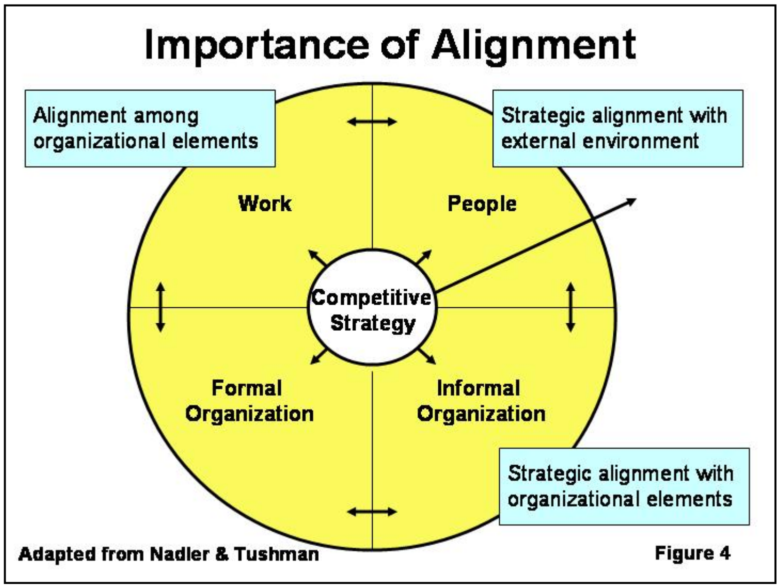
Work is shown in the upper left quadrant in Figure 3. Work can be performed by shop-floor and technical/professional employees as individuals or members of teams. Individual employees may be members of the same department because they perform similar tasks or perform a common function. Teams may be a better unit for organizing work if their members perform a highly interdependent set of tasks or produce a common output. Managers coordinate the work of individuals or teams through schedules or real-time adjustments and by rewarding employees for performing tasks according to instructions, such as who does what and when, and for cooperating with others in achievement of common goals.

People (upper right quadrant on Figure 3) possess varying degrees of knowledge, skills, and abilities (KSAs) when they are hired. Even with the utmost care in selecting the most qualified people, companies still need to devote considerable time for education and training and socialization of employees. Education, training and on-the-job experience, as well as the formal and informal organization tend to reduce some of the variation that people bring with them when they are hired and encourage them to internalize company norms, values and beliefs that will lead them to act consistently on the company's behalf.

The informal organization (lower left quadrant on Figure 3) potentially includes everything that is not formally designed as work or organization structure or specified as work for people to perform (Kotter and Cohen, 2002). There is always some need for elaboration in structure and work beyond what is initially specified formally. Sometimes people improvise to compensate for what has been left unspecified, but they also may improvise to get around ineffective or poorly designed structures. Companies vary considerably in the freedom or discretion that permits employees to elaborate beyond what is specified. Companies that produce mature products in stable environments tend to specify more formal structure and process than do companies that produce new products in dynamic environments. The latter companies allow managers and employees to improvise actions within a set of general guidelines or values.

Top management can significantly influence the company's culture by frequently communicating and promoting norms, values and beliefs that are consistent with the company's vision and strategy, and by acting in accordance with them. This will encourage employee behavior that is consistent with the vision and strategy. Examples of such norms, values and beliefs include how customers are to be treated (fairly, promptly, courteously), as well as employees (honestly, opportunities for growth, career development, complete and candid communication of plans). However, norms, values and beliefs can develop spontaneously similar to structures and processes. If top management's behavior is inconsistent with the norms, values and beliefs it promotes, then a culture of cynicism will develop that may encourage counterproductive employee behavior.

3.4 Alignment and Innovation



In this section, we offer a vision of what an innovative company looks like so that an SME manager knows what has to be done if his or her company is going to become more innovative than it is now. Becoming more innovative means increasing the rate at which new products and services that customers value are successfully brought to market each year. Success means bringing them to market on time, within budget, and at prices that make them profitable within an acceptable period of time. We build on the four key elements of an organization (formal organization, work, people, and informal organization) introduced in the last section, but here we focus on how they must be aligned with the company's strategy and with each other. An important question to ask is *What kind of formal organization, work, people, and informal organization would be required for alignment with a competitive strategy that emphasizes innovation*?

In the figure above, we show arrows describing three forms of alignment. First, is what can be called horizontal alignment (Baird and Meshoulam, 1988) – the extent to which the four organizational elements are mutually supportive and work together (the outer arrows). For example, does the company's culture support the formal structure and are employee skills aligned with the tasks performed? The second form of alignment has been called vertical alignment (Baird and Meshoulam, 1988) – the extent to which the four organizational elements are aligned with the company's competitive strategy (the inner arrows in the figure). Finally, the third form of alignment is represented by the single vector arrow in the figure and represents the alignment between the company's competitive strategy and the external environment (discussed in Section 3.2). The fact that there are so many types of alignment is a strong indication of just what an important role alignment plays in innovation and change, and how challenging it is to achieve and maintain it (Wright and Snell, 1998).

3.4.1 Competitive Strategy

As alluded to previously, a change in competitive strategy is likely if the firm faces stagnant or shrinking profit margins, no pricing power, loss of customers, etc. In response to such signals, the firm may adopt a competitive strategy that includes increasing the number of new products successfully introduced, entering more markets, and finding new revenue sources. Being more innovative in this way requires being open to ideas from previously untapped sources inside and outside of the company, and designing a firm that responds quickly and flexibly to the ideas that represent opportunities for potential revenue growth (Blumentritt, 2004).

Strategy is about making choices, and top management needs to be as clear as possible about the rationale for making them. Firms can compete on price or differentiation (Porter, 1980; 1985). In the latter case, firms differentiate their products in order to avoid competing solely on price. Non-price attributes include reputation, brand, superior product performance, and service. Top management also must choose what products, customers, and market segments to serve. Innovation should reinforce the basis on which the firm chooses to compete, i.e., price or differentiation. Ideally, innovation enhances a core competence that permits the firm to surpass its competition on dimensions that its customers value.

Many SMEs have difficulty competing on price alone. Even if they can match the prices of their foreign or domestic competitors, operating margins may be razor thin. Using innovation to improve operational efficiency can help firms that choose to compete on price, but we believe that innovation will serve firms better if they focus on the development and introduction of new products and services, especially if they can earn a price premium and higher margins (Weerawardena and McColl-Kennedy, 2002). Innovation is essential to prevent erosion of strategic assets, market position, and product commoditization.

Top management is responsible for articulating the company's competitive strategy and how innovation will serve this strategy. Companies can focus innovation on products, processes and markets (e.g., new ways to serve customers). They also can focus on incremental or radical innovation (McAdam et al., 2000; Weerawardena and McColl-Kennedy, 2002). Incremental innovation modestly improves a firm's products or processes or fine-tunes its business model, e.g., how it creates value for its customers. Radical innovation significantly improves existing products and services or replaces them with new ones. Radical innovation occurs less frequently than incremental innovation in part because most firms don't have the technical and human resources required for radical innovation, and don't accept or aren't prepared for the risks and uncertainty associated with it. The magnitude of change required to foster radical innovation in companies with little experience in being innovative is probably beyond what they can handle in a relatively short time, e.g., one to three years. The type of change discussed in this guide is similar to what Nadler and Tushman (1989) call "frame bending". Change of this type is proactive so there is sufficient time for generative learning. It may require major changes in elements of all four quadrants, but still emphasizes continuity of leadership and building on existing strengths. A change strategy is essential so that companies can judge how far they have to move and what degree of change is realistic, given their current capabilities. Section 3.6 offers guidance on development of a change strategy.

Top management is also responsible for other decisions that affect the nature of innovation within the firm. For example, what sources of new revenue should the firm pursue in the next five years? What is an appropriate mix or portfolio of innovation projects? Will the firm be a technology leader or follower? What type of innovation will the firm do in-house versus partner or outsource? Each of these decisions and those mentioned above affect the configuration of formal organization, work, people, and informal organization that supports them most effectively.

Innovation is not a competitive strategy in itself, but can enhance any competitive strategy once the strategy has been articulated. If the strategy involves increasing the rate at which new products or services are introduced, then innovation can impact the firm in multiple ways. Innovation can enhance how a firm conducts day-to-day operations, increase the rate at which all employees generate ideas for new products and services, and facilitate quick and efficient commercialization of new products.

3.4.2 Designing for Innovation

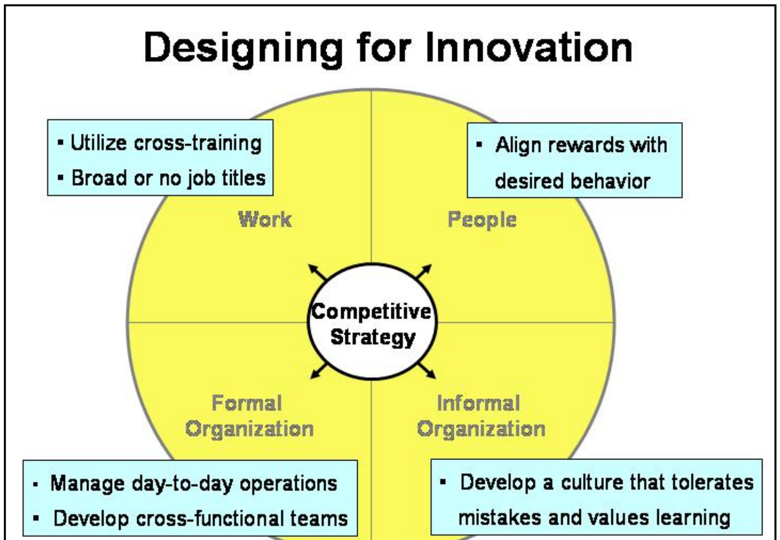


Figure 5

The first principle for designing an organization is to assure that the four essential elements of the firm are aligned with its competitive strategy. Alignment means that each element consistently supports the competitive strategy and mutually reinforces other elements (Porter, 1996). For example, a firm that wants to differentiate itself from competitors by regularly refreshing its product line needs to align all elements to support this capability. All four elements discussed below should be designed to encourage all employees to generate ideas for product and process improvement and for new products and services. The sub-section on formal organization focuses on the design of an organization to manage day-to-day operations as well as the design of cross-functional product development teams, which are temporary structures that are created to manage the design and development of new products and services. The remaining three elements, work, people, and the informal organization, should be designed to facilitate operation of both of these types of formal organization structures.

3.4.3 Formal Organization

No structure is optimal for all firms; it depends on the firm's strategy and its products. Guidelines to assure the best fit between a specific strategy, products, and structure are beyond the scope of this report. For more information on this subject, we suggest readers look at Mintzberg (1992) or Nadler and Tushman (1997). However, we can offer guidelines to encourage the maximum generation of ideas from all employees at every organizational level within a company. Guidelines for the design of the formal organization to maximize generation of ideas are presented below. Similar guidelines for other elements are covered in later sub-sections.

First of all, reduce the number of levels in the company by broadening the responsibility of employees at each level. Flat structures allow employees to see "the big picture" and minimize distortion by reducing the levels through which communications must pass. Flat structures also encourage an "open door policy" where employees have easy access to top management. This helps employees to be able to contact people in other functions directly without going through and/or clogging other channels. It should be noted that the individuals with the most formal authority aren't necessarily the most knowledgeable on a certain subject. Employees should be permitted to seek advice from those who have authority based on knowledge as well as position.

Second, share information with employees at all levels (e.g., financial, marketing, production) by publishing newsletters or using other communication channels. Make sure that everyone is on the same page. Also, minimize symbols or signals of status differences so that some employees don't feel less valued than others. In order to encourage teamwork and idea sharing, it is important that employees feel equal with their peers.

Third, create ad hoc collateral structures for brainstorming or problem-solving. These structures include task forces, forums, retreats, etc. The more diverse the membership, the greater the chances are for creative idea generation. Representatives of different functions can generate ideas for new products and services by filling in the "white spaces" between functions (Prahalad and Hamel, 1994). Internal (within the firm) networks among creative personnel for idea or information sharing can be created formally or allowed to develop informally. External networks between the firm and its customers and suppliers, or members of other firms can be supported financially or membership in them encouraged, e.g., Open Source software.

Next, codify and capture learning generated from ad hoc collateral structures and from product development teams. This can be done by devoting time at the end of major project milestones or at project completion to reflect on what has been learned, taking notes, storing them in digitized format and organizing information for easy retrieval when similar problems arise in the same or future teams. Also, teams that recently completed projects can meet with teams that are just starting projects to share lessons learned. Activities like these assure that learning is not lost, and mistakes are not repeated.

Next, develop a measurement system that tracks critical project activities and valued outcomes. As the adage goes, management tends to gets what it measures. It also gets what it rewards. Thus, develop a reward system that is linked to what is measured and valued by management.

Rewards and incentives can be tangible in the form of monetary bonuses, or they can be less tangible in the form of recognition, promotions, or empowerment. The objective is to make sure that rewards are linked to behaviors that you'd like to see increase. For example, engineering, manufacturing and marketing personnel have little incentive to cooperate on product development projects if the reward system is based only on achieving function-based goals. Similarly, if the reward system is based only on achieving short-term goals, then project personnel will not act in the long-term best interest of the project. (See section 3.6.4 for more information on rewards and incentives.) Tools such as 360º performance reviews can be used to measure and track employees' performance in relation to strategic goals (Curtis, 1996). 360º performance reviews evaluate employee performance from all perspectives including bosses, peers, subordinates, customers, etc. This type of review gives managers a more accurate picture of the employee's progress towards goals and also helps to determine how the employee should be rewarded, or reprimanded.

Day-to-day operations. The formal organization should be structured to receive orders from customers, and produce and deliver products and services to them in the most efficient and effective manner. This requires assigning tasks to functions, and determining relationships between functions so that products and information follow the shortest, least ambiguous and non-redundant path, and decision-making is made by persons who are closest to relevant information and required response (Nadler and Tushman, 1997).

If your company is small, then perhaps every employee knows all of your customers and can identify unmet or emerging needs. If not, and you have a function-based structure, you already know some of the risks of organizing this way (i.e., functions promote efficiency, but often at the cost of flexibility, see section 3.3). A customer- or product-based structure may encourage greater customer focus, but it may not be realistic for SMEs because too few customers or products generate enough sales volume to justify this type of structure (Mosey, 2005). In function-based structures, personnel in marketing, manufacturing, engineering, etc. often have difficulty thinking beyond their own function. Cross-functional teams can help overcome this myopia. They are better at identifying customer needs, especially if they visit customers and observe how they use the firm's current products or services and gather ideas on what new or improved products or services might better serve their needs.

Specialization within functions is necessary in any company, but it has a potential downside. It can foster inertia, myopic thinking, divergent interests, turf battles, etc. Cross-functional teams are an effective way to overcome these risks. They focus energy and shorten lines of communication during their relatively brief existence. If managed properly, cross-functional teams can use divergence as a source of creativity, thereby transforming a potential liability into a valuable asset. Managing teams properly includes assigning the right mix of people, giving the team leader enough authority to deal effectively with function managers, and using appropriate metrics to measure and reward performance (Duck, 1993). Depending on the urgency, strategic importance, and technical challenges of the product, some or all team members may need to be assigned full-time to the team. They also may need to be assigned some physical space for collaboration.

Product development. Innovation in terms of new product or service development (NPD/NSD) requires a different structure than one designed for day-to-day operations (Oliva and Kallenberg, 2003; Tushman and Nadler, 1986). Information flows and decision-making are very different for these two types of activities. Cross-functional teams are important supplements to the firm's structure (de Jong and Vermeulen, 2003; Mosey, 2005; Rangaswamy and Lilien, 1997). Such teams are created to design and develop a new product or service and are disbanded when that task is completed. Because these two structures are designed for such different purposes, their leaders may face potential conflict. Leaders of traditional functions are usually more influential than leaders of cross-functional teams, especially when the latter are developing incremental product improvements. However, leaders of cross-functional teams may (should) have greater influence than leaders of functions when radical products are being developed. The latter may have considerable difficulty adjusting to this situation.

Product complexity, type of innovation, or urgency (e.g., narrow window of opportunity) also affects the need for some or all team members to be dedicated full-time to NPD/NSD projects. These projects require high enough frequency and intensity of interaction among members to justify full-time dedication. This high level of interaction may also justify co-locating team members, i.e., common work space. This may not be an issue for SMEs that have only a single facility. Even then, it's surprising how rapidly interaction among personnel from key functions declines when they are out of sight or sound of each other (Allen, 1977). Further, research indicates that projects that are staffed full-time by a few members are completed much sooner than those without full-time members (de Jong and Vermeulen, 2003).

If the firm already uses the idea generation practices discussed in the previous section, employees who are assigned to cross-functional teams will bring these practices with them. These practices will be useful for identifying ideas for new products and processes. However, the primary purpose of cross-functional teams is to select the most promising ideas (screen them against business criteria), and commercialize them (meet product performance, budget and time targets).

Even in small companies, top management can easily lose touch with other managers and workers. These employees can offer a rich pool of ideas for new products. This pool can be tapped, however, through one- or two-day special purpose retreats at which junior people are given an opportunity to present their ideas directly to senior managers. Product development teams can generate ideas too, of course, by visiting customer sites and watching how customers use the company's products or, in general, how they perform their work (Gebauer, et al., 2005; Hartlaub, 1994; Royal, 2005). Product development teams are primarily used for transforming ideas into commercial products. This process includes developing working prototypes, cost estimates (machinery, tools, ramp-up), sourcing decisions, market tests, etc. Early involvement of people who are responsible for these activities assures they will be allies rather than adversaries.

The NPD process can be divided into stage-gates (Cooper, 1995). A typical set of stages includes idea generation, preliminary investigation (market testing), business case (pay-back criteria), development, test, and launch. Gates are screens and reviews that include articulated milestones and exit criteria that products must successfully pass before moving on to the next gate. Following all stage-gates conscientiously increases the success of new product introductions from about 50% to 80% (Griffin, 1997).

3.4.4 Work

Work refers to activities that add value to a company's products and services. These activities may be physical (doing) or mental (e.g., planning, deciding, problem-solving). They can be bundled and assigned to individuals or teams. There are a number of ways that managers can design work so that employees both "grow" in their jobs and, at the same time, help the company to reach its goals. One assumption we make, based on past research, is that employees who are satisfied, engaged, and committed will be much more valuable to the company.

One of the first goals when designing jobs should be to give people broad responsibilities that expose them to a variety of areas within the company (i.e., cross-training). Having open job boundaries can also help employees to help coworkers and to see the interrelatedness of tasks. Exposing employees to a broad variety of duties and jobs gives them the opportunity to learn from one another and be creative, coming up with totally new ideas, or even better ways of doing the same job.

Jobs need to be challenging enough so that people are stimulated to think about their connectedness to other jobs and are willing to improvise when useful. Similar to the formal organization, work can also be divided into day-to-day and product development activities.

Whether you are talking about shop floor or professional employees, there are certain job characteristics that can make jobs more satisfying to employees, which in turn leads to higher employee productivity and customer satisfaction (Vogt, 2005). These characteristics include skill variety, task identity and significance, autonomy and feedback (Hackman and Oldham, 1976; Katz, 2005). The following table describes each of these characteristics.

Characteristic	Description
Skill variety	The breadth of knowledge, skills and abilities needed to complete the job.
Task identity	The extent to which the employee sees a whole job through from start to finish.
Task significance	The employee's appreciation of the job's importance and interrelatedness to the rest of the company.
Autonomy	The employee's freedom to perform the job independently within certain rules and guidelines.
Feedback	Constructive information about the employee's performance on the job, intended to help the employee learn from past experiences and improve their performance.

On the level of day-to-day operating activities, the above-mentioned characteristics can help shop floor employees to improve operational efficiency. For instance, skill variety and task significance can be achieved through job rotation in which employees are moved from job-to-job in order for them to better understand each task. This can help to develop employees' knowledge about the tasks being performed, which can stimulate idea generation and can also help improve efficiency because employees will be able to fill-in for others when they are absent from work. Further, research shows that employees who see the importance of their work within the company are more likely to help promote the company's strategy and goals (Boswell and Boudreau, 2001).

Similarly, for product development activities, the above-mentioned characteristics can help members of cross-functional development teams to work better together. The development of cross-functional teams brings together people from different specialties in order to solve problems. The interaction required between functions in order to solve problems challenges all team members to learn more about each function, stimulating skill variety. The conglomeration of different knowledge, skills and abilities fosters idea generation among the team. Once ideas are generated and the decision is made to develop them, the employees who are best equipped to handle the given issue (such as engineering, marketing, finance, etc.) should be given the autonomy to creatively solve the problem within boundaries. It may be helpful to eliminate titles so that all team members are on a level playing field based on knowledge rather than formal rank. It is also possible to give all team members very general titles to imply broad and shared responsibilities. Timely feedback should be given in order to help team members learn from mistakes and improve their performance.

3.4.5 People

People often get channeled by their own specialties and have a myopic vision of work done by others in the company. As mentioned above, however, it is important that employees see the importance and interrelatedness of their tasks compared with the tasks of others. Managers must ask themselves whether all their employees understand and appreciate what other people do. If not, there can be unnecessary conflicts, inefficiencies, etc. For example, manufacturing and design people often conflict because of status differences (design usually has higher status). Status parity helps to bridge the gap in their communication and unite them for a common purpose (Susman and Dean 1992).

Further, does the company have enough specialized and well-trained personnel to perform the required duties? It is important that employees are well-trained and able to perform their tasks properly. When hiring new employees, you must make sure that they “fit” with the culture of the firm. For instance, if your firm is focusing on becoming more innovative, new and current employees should believe that innovation is beneficial and be willing to contribute to NPD/NSD efforts (see section 3.6.3 for more details). Further, is your firm able to participate in research and development (R&D)? If you do not possess or cannot hire enough of such people full-time, some of them may be contracted to serve temporarily as consultants.

One way of thinking of the necessary knowledge and skill sets held by your employees is by considering the concept of human capital. Human capital is composed of the knowledge, skills and abilities that people possess at hiring and then build-up over time through education, training, experience, etc. (Becker, 1993). Thus, a firm's reserves of human capital are largely determined by the individual characteristics of its employees. Managers can enhance the human capital in their company via two broad means: by hiring practices for new employees and with training of current employees.

Because employees differ in their technical skills and work-related experience, they will have differing capacities to contribute to a firm's innovation and growth. Those who can’t contribute or are unwilling to learn how to contribute must leave the company. Without sufficient human capital the company will be unable to effectively leverage the physical capital (e.g., plant and equipment) that it commands. SME managers should carefully consider whether their company’s human capital has the requisite knowledge, skills and ability to be competitive and to achieve the levels of growth desired.

Human capital can be enhanced by education and training programs that focus on developing growth paths for employees. One way to do this is to introduce a pay-for-knowledge system (pay employees for what they know and contribute rather than only for performing a fixed set of tasks). Employees can learn a variety of tasks (breadth) or learn one task in great depth. The most valuable employees develop a "T-shaped" profile, e.g., breadth across a variety of areas and depth in one area (Leonard-Barton, 1995). Education and training sessions also can focus on promoting the value of inquiry, i.e., suspend judgment, experiment, collect data and let the data speak for itself (Thomke, 2003). Another way to promote inquiry is to encourage employees to confront problems with root cause analysis. Root cause analysis (i.e., the five whys) consists of asking the question “why?” at least five times (Senge et al., 1994), which should be sufficient to discover the root cause of most problems. Education and training sessions are ideal settings for promoting values and strengthening an innovation culture. The problem is that most SMEs don't have the in-house staff or time to devote to education and training that large companies have; nevertheless they can rely on consultants and local colleges and universities for this purpose. Many states have programs to subsidize all or most of the cost of training SME employees, e.g., Pennsylvania has WEDNetPA (http://www.wednetpa.com/).

3.4.6 Informal Organization

Perhaps the most important component of the informal organization is the firm's culture. Organizational culture includes the norms, values and beliefs that organizational members share (Schneider, 1990), and is shaped by opinion leaders, history, and by work that is valued and rewarded in the company. It is also cognitive in nature, and serves to give employees a sense of identity about themselves, their coworkers, and the company. Research has shown that a strong corporate culture can give a company a powerful advantage over its competitors, especially in highly competitive and commodity-like markets (Kotter and Heskett, 1992; Burt et al., 1994).

Culture pervades every level of a company, including the shared beliefs held by top managers regarding how they should manage themselves, their subordinates, and the company (Lorsch, 1986). Culture may stem from the strong influence of a company's founder(s) (Herb Keller at Southwest Airlines is a good example), but may also be influenced by its relationship and experiences with the firm's external environment, e.g., needs of key customers, competitive environment, etc. (Greenberg and Baron, 2000). SME managers should note that some of these elements can be used to consciously shape a culture that will reinforce innovation.

In order for innovative efforts to succeed, the firm's culture should be supportive of innovation. An innovation-supportive culture is one that values creativity and cooperation. There is a focus on teamwork, but individual initiative is also valued. An innovative culture supports idea generation and fairly evaluates each idea, no matter how outlandish it seems on the surface. Further, this type of culture also tolerates errors and even celebrates failures as long as lessons are learned. Thus, if an employee took the initiative to be innovative and failed, the person would still be rewarded for his or her efforts according to the formal rewards policy, as long as the employee (and the firm) learns from mistakes. Often times this means that adjustments will have to be made to the existing formal reward system that typically punishes failures and only rewards short-term performance. The reward system of an innovative firm should be based on innovative effort and evaluated on the basis of project milestones instead of a set period of time such as every three months.

Having heroes to emulate and success stories to share can encourage people to take innovative steps. In the words of Albert Einstein, one of the world's greatest minds, "Anyone who has never made a mistake has never tried anything new." An innovative culture should value experimentation and should understand that sometimes you'll need to "Fail early and often to succeed sooner" (Kelley, 2001). Employees should understand that learning from failures is often a key to success.

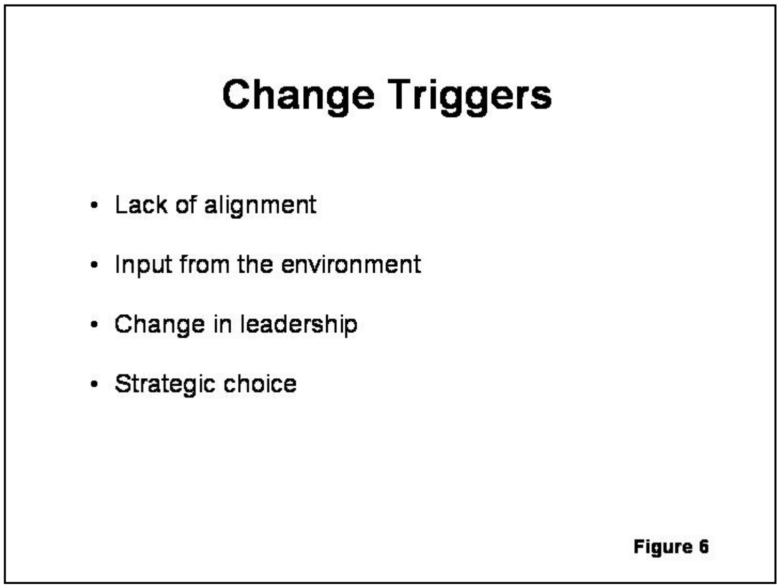
Further, an innovative culture should seek to conquer barriers to innovation. Firms need to overcome "organizational antibodies" (Davila et al., 2006) that encapsulate and reject new ideas because of the "not-invented here" (NIH) syndrome and the "we've always done it that way" perspective. Moreover, people's perceptions can be barriers to innovation and must be overcome. Research shows that valence, expectancy and instrumentality often create a barrier to innovation (Gebauer et al., 2005). According to Vroom's (1964) expectancy theory, how much a person desires a reward (valence), the person's estimation of being able to achieve the reward (expectancy) and the person's belief that they will be rewarded (instrumentality) motivate a person to perform a certain activity. In terms of innovation, many managers don't want to pursue innovation (low valence), believe that they will not be able to develop successful new products (low expectancy) and believe that even if they do develop successful new products they won't make enough money for the initiative to be worthwhile (low instrumentality). These beliefs provide a barrier to innovation because they convince managers that innovation is not worthwhile. These beliefs can be overcome by training in new product development methods, by successful innovation efforts even if modest, and by rewarding desired activities and outcomes.

Becoming innovative almost inevitably requires companies to change all four organizational elements. Prior to initiating change, the company's leaders should address "…the importance of making sure the cultural soil had been made ready before planting the seeds of change" (Garvin and Roberto, 2005: 112). This is because if they've created a culture that is generally receptive to change, then employees are more likely to understand why any new change is necessary, will be more emotionally committed to something new, and are more likely to faithfully execute the necessary steps (Garvin and Roberto, 2005). Also, employees in change-receptive environments are better able to let go of the competing, unsubstantiated views of the nature and extent of the problems facing their organization (Garvin and Roberto 2005).

This last statement illustrates one of the challenges posed by having a strong culture; that is, if a strategic change requires new ways of doing business, new attitudes, and new behaviors from employees, then it may be very difficult to change an existing culture to match the new strategy. Also, Lorsch (1986) notes that managers can suffer from a type of "strategic myopia" that can inhibit strategic change. This myopia is related to the long-standing corporate culture and serves to guide decision-making based on the old ways of doing business. Hence, Lorsch (1986) calls culture the "invisible barrier to strategic change" since managers may not realize that their firm's culture is inhibiting their ability to successfully change.

Culture is especially difficult to change when the other three organizational elements are aligned with it. Alignment among the four elements is desirable for sustainable change, but once alignment has been achieved, future change is less likely even when change triggers suggest that it is warranted. Mutual reinforcement has positive and negative implications for change. Tushman and Nadler (1986) point out this paradox. Opinions vary as to which element should be changed first (Beer and Nohria, 2000), but there is consensus that no matter where you start, change in the other elements must follow quickly.

3.5 Change Triggers



Events occurring both inside and outside your firm can create the need for change. First, legal, technological, and competitive changes in the external environment often necessitate some adaptation on the part of the firm to maintain fit with the environment. As we discussed in sections 3.2 and 3.3, lack of alignment with the environment in which your firm operates may necessitate change in order to reestablish alignment. In those sections, we also highlighted the importance of being open to ideas and opportunities presented by partners, suppliers, or customers. This important input from the environment may generate initiatives requiring change (i.e., new products or services).

In addition to those triggers we discussed in earlier sections, change is often a byproduct of a change in leadership. Beckhard and Dyer (1983) point out that the entry or exit of a key family member is a trigger for change unique to family owned firms. A new leader may have different priorities than the previous leader. He or she may also have different strategic goals and unique perspectives that set the wheels of change in motion.

But, an existing leader can also shift priorities or be inspired to make changes. Another important change trigger, then, is simply strategic choice on the part of existing leaders. Some ways this may occur are through strategic planning, interaction with customers, competitors, etc., and gut instinct that a new market or product is worth pursuing. This type of trigger is much more generative and proactive than reacting to the environment or working to maintain alignment.

Regardless of which of these many triggers initiate the change process, there are several key activities that can facilitate a successful change implementation. We have organized these activities into a five-step change process that is discussed in the next section.

3.6 Implementing Change

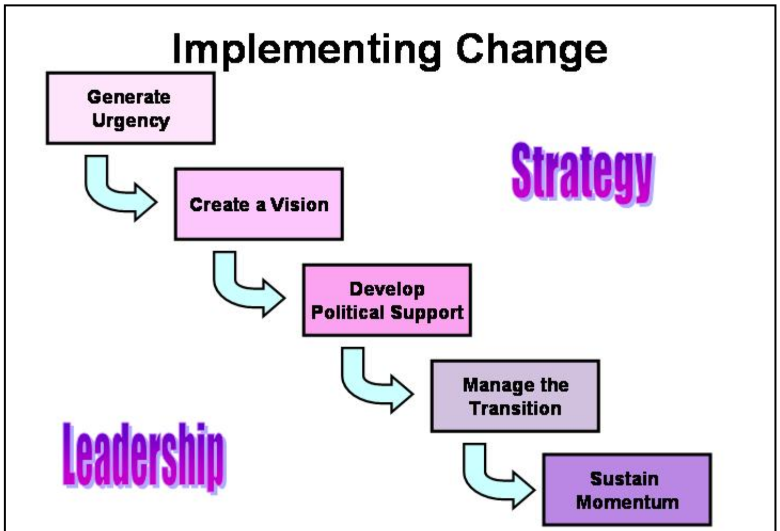
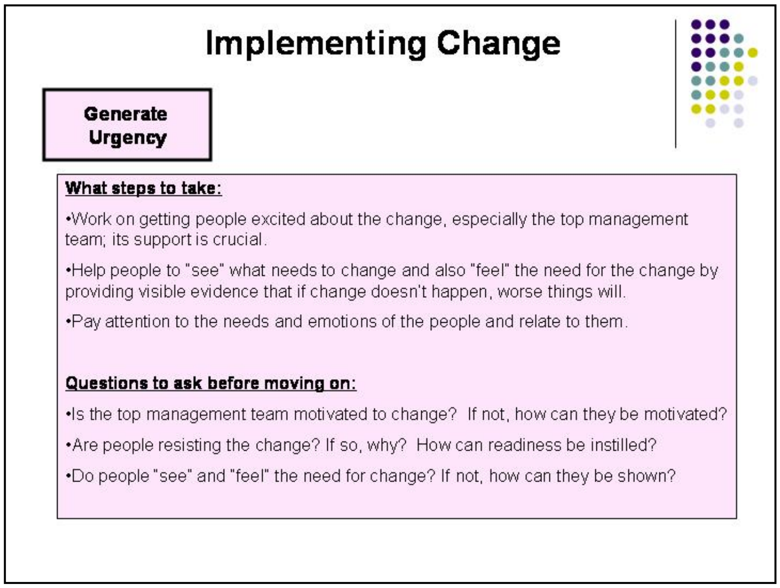


Figure 7

Now that we've explained the reasons for change as well as what an innovative firm should look like, it's time to discuss how to implement change in your own company. Today's literature is overflowing with research and practical wisdom regarding successful initiation and management of organizational change efforts. Much of this research applies specifically to large organizational settings. Since there are many known differences between large and small companies, we find it unacceptable to believe that strategies for change management are identical for small and large firms alike (Gudmundson et al., 2003). Therefore, we draw from information about both large and small firms, and, where possible, translate large-scale change practices into a smaller setting more applicable to SMEs.

The change process is often divided into logical steps or phases (Kotter and Cohen, 2002). These step-wise models provide a useful organizing framework, even if all steps are not necessary or if the order varies depending on the firm or the change initiative. We have analyzed many of these stage models and have generated a synthesized five-step change process applicable to SMEs (Figure 7). This process is a strategy for change, outlining the tasks and activities required for effective implementation. We have positioned this change process within the broader organizational context by highlighting two critical elements that influence the change strategy. First, the approach to change is heavily influenced by the broader strategic goals of the company. It is important that the approach for implementing change be aligned with, and contribute to, these broader strategic goals. Second, leadership is critical throughout the change process. The person who defines the firm's mission and values and articulates the firm's strategy (usually the CEO or president in an SME) must take ultimate responsibility for endorsing and communicating the change strategy to the rest of the company and ensuring that the steps in the process are accomplished.

3.6.1 Generate Urgency



According to Nadler and Tushman (1989) effective change seems to be backed by created energy. This means that the people who are leading the change focus on developing a sense of excitement in others, encouraging them to embrace change. Urgency helps to get people excited about embarking on change as it often shows them that change is essential. Generating urgency involves recognizing the need for change, establishing a common view of its necessity, overcoming resistance to change, and fostering readiness.

Generating urgency begins with recognizing the need for change. As we discussed earlier, there are many different ways that the need for change can be recognized (See section 3.2 and 3.4). After it is recognized, the creation of urgency helps to instill energy and initial momentum for a change effort (Jansen, 2004). Research shows that managers play a very important part in generating urgency. This urgency is often first recognized and communicated as a manager weighs the importance of various projects and assigns priorities and timelines to different initiatives (Dutton and Duncan, 1987; Ginsberg and Venkatraman, 1995). Although change is often undertaken on many fronts, SMEs might not be able to tackle more than one change initiative at a time because of their lack of resources. In this case, it is important that managers choose carefully which project or projects to undertake. Even then, it is possible that some projects may need to be taken on sequentially rather than simultaneously. Urgency, then, is often communicated to employees indirectly based on which project is getting the manager's attention and commitment of resources.

Once senior management has created the initial urgency, it is important to establish a common view that the change is needed, which often includes rallying support among members of the top management team (TMT). In this guide the TMT is defined as the team formally charged with managing and leading the firm, such as the president, vice-president, etc. Support from the TMT is critical because its endorsement is needed not only for the initiative to continue, but also for its credibility. There must be substantial compelling evidence for change in order to gather TMT backing for the initiative. It is necessary to show both financial and non-financial evidence for change including current pain or pain that will occur if the change is not made. Kotter (1995b) suggests that at least 75% of the TMT must be in support of the change before moving on to generate urgency among the rest of the employees.

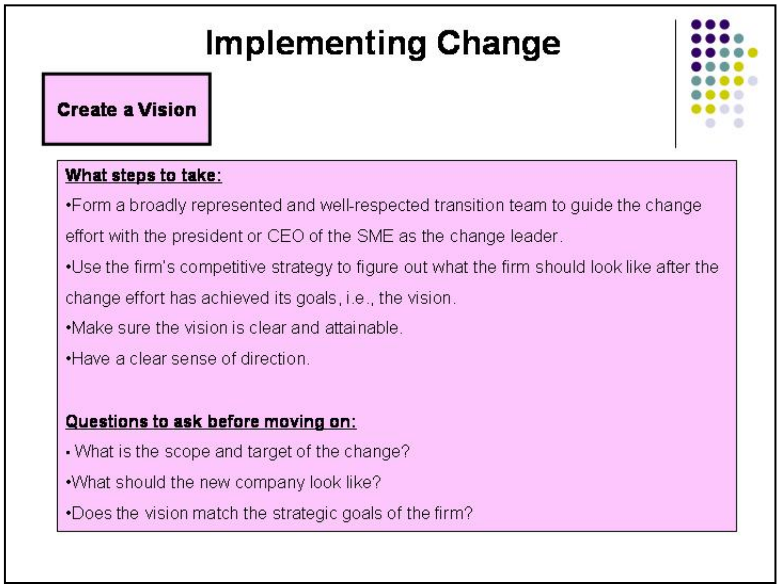
Nadler and Tushman (1989) point out that urgency and energy are emotional issues. Similarly, according to Kotter and Cohen (2002) people need to both see and feel the requirement for change before they are willing to accept it. Urgency is generated when people conclude that the status quo is worse than the time, energy and risk involved in changing (Kotter, 1995a). Energy can be created via participating in data collection and planning activities that alert workers to the firm's current circumstances (Nadler and Tushman, 1989) or by making some initial progress toward the change or generating a "buzz", even if participants have not yet fully endorsed the change (Jansen, 2004). Initial progress toward the change can instill a sense of attainability as well as the vigor to continue pursuing the change.

Resistance to change can be a barrier to organizational change attempts. It encompasses a wide range of behaviors from passive resistance to active or even aggressive resistance. Determining the source of resistance (firm or individual) will help determine the appropriate course of action. At the firm level, Kotter (1995b) suggests that obstacles to change more often reside in the firm's structure such as in its performance appraisal or compensation system, which are not yet aligned with the desired new behaviors.

At the individual level, Dent and Goldberg (1999) suggest that people do not necessarily resist change, but instead resist the loss of status, pay, or comfort associated with the status quo. Kotter and Cohen (2002) suggest that leaders should pay attention to the needs of the employees and meet them at their level. This means that leaders will have to address the topics of complacency, self-protection, anger and pessimism in a very open and honest way that will not discourage employees from buying into the change. Reassuring statements should be made to employees to help them feel some level of security in the midst of change. However, it is important that management makes only promises that it can keep, such as providing training for new positions, doing its best to maintain employees, etc.

Resistance to change, however, can be minimized. For example, more and more, change agents are shifting from an emphasis on resistance to one of readiness for change (Armenakis et al., 1993; Jansen, 2000). Readiness considers the firm's capacity for making change and the extent to which individuals perceive the change as needed. They argue that change agents should be coaches and champions for change rather than monitors who expect, or react to signs of resistance. Creating readiness involves proactive attempts to influence employee beliefs, attitudes, and behavior. It focuses on establishing shared meaning of events and interpretation of circumstances.

3.6.2 Create a Vision



Creating a vision includes using the competitive strategy (discussed in section 3.4) to visualize what the company should look like after the change, and aligning the four organizational elements with the strategy. The vision should include how the firm should organize and manage for competitiveness (Beer et al., 1990), and should specifically address its customers and strategic goals. Visions are very complex, take time to develop, and may require some background reading or information gathering before they are adequately articulated. This is serious work and may require help from a consultant. The vision should outline a realistic, credible and attractive future for the firm, including the results of the proposed change.

A good vision has certain characteristics. Fernald et al., (2005) propose that visions should be challenging and encourage firms to grow. Similarly, Nadler and Tushman (1989) maintain that visions should be rational, include stakeholders and value performance objectives, organizational structures and operating style. The vision should take into account the alignment of the four organizational elements of the formal organization, work, people and the informal organization (See section 3.4). Other important characteristics of good visions include clarity and attainability. A good vision should be able to be communicated in five minutes or less in order to keep it both meaningful and understandable (Kotter, 1995a).

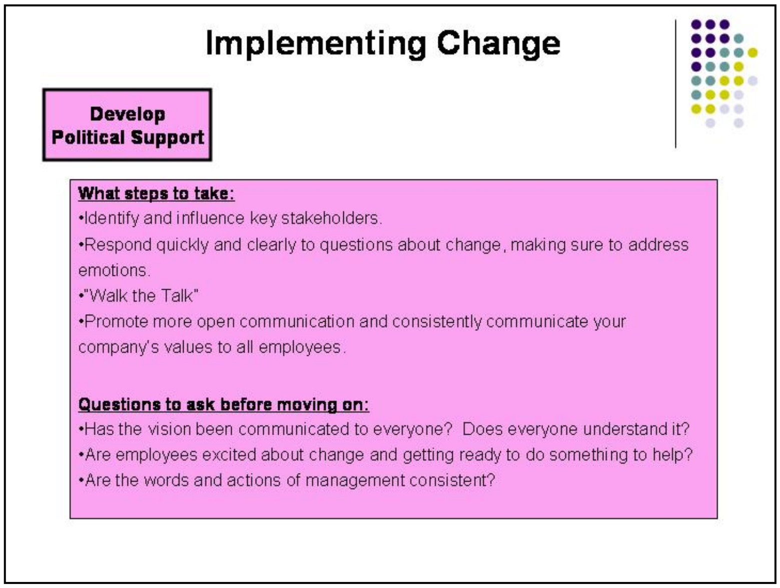
In order to facilitate creating a vision, Kotter and Cohen (2002) and Tushman and Nadler (1986) suggest forming a transition team. This is not to be confused with the TMT (See section 3.6.1). The transition team is formed specifically for the task of planning and implementing change, while the TMT is formally charged with running the firm. The TMT and transition team may overlap substantially in membership, with the president or CEO leading the change effort as the "change leader". However, the transition team is often broader in representation, including managers of different functions and levels. Although everyone can't be a member of the transition team, many employees can be assigned to "action teams" to carry out change initiatives in their own work areas or departments. These action teams can include first-line supervisors and shop-floor employees. Broad participation in the change process is desirable; subject to the company's resource limitations.

Although many names for transition teams exist, such as the transition management team, the steering committee and the guiding coalition, the goal of the team is the same—to successfully lead and manage the change effort. The transition team is composed of people who feel urgency for the change, are committed to the process and are widely respected for their knowledge and judgment. Team members should represent a broad cross-section of the company, be well-respected and have either authority based on position or knowledge or both. Since team quality directly impacts the success of the change initiatives, it is imperative that the best employees are given the opportunity to participate (Sirkin et al., 2005). The transition team should carry out its mission in a manner that is consistent with the values that it desires to see practiced in its vision of the future company.

The transition team charged with creating a vision for the future must fully understand the firm's capabilities, be realistic in creating its vision, and yet inspire everyone to stretch these capabilities (Boswell and Boudreau, 2001). Similarly, the team should not begin to implement change until the change is considered in light of the firm's competitive strategy. As mentioned in section 3.4, it is imperative that the firm's competitive strategy be aligned with its external environment and organizational elements (O'Regan and Ghobadian, 2005).

Kotter and Cohen (2002) also suggest a brainstorming session for teams that are having difficulty creating a vision. The suggestion is this: think about the firm from the perspective of the future — what is likely to change in the next few years? Tushman and Nadler (1986) assert that innovation requires change leaders who are not only visionary, but also able to make their visions become a reality. A change leader isn't the source of every good idea, but he or she quickly recognizes good ideas, endorses them, and provides adequate resources for their implementation.

3.6.3 Develop Political Support



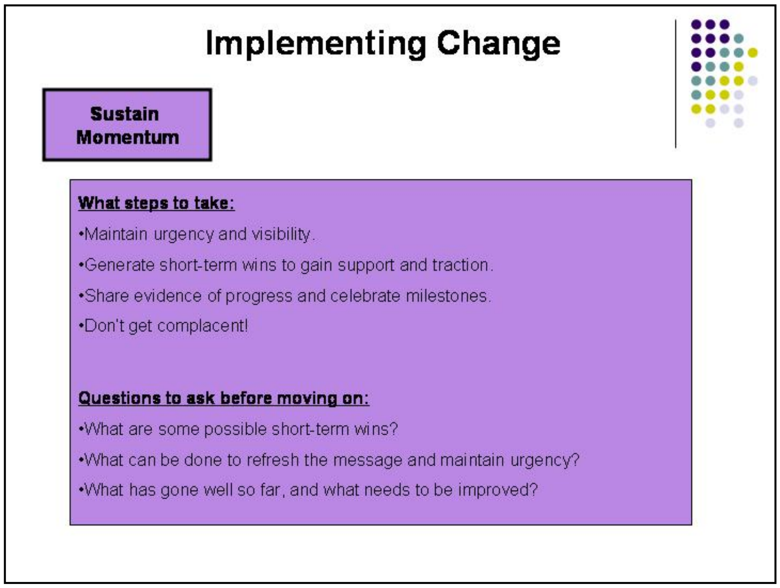
Once a vision is created, political support and commitment must be developed. According to Kotter and Cohen (2002) the goal of this step is to get everyone involved in the change effort. In order to accomplish this goal, the vision must be spread and communicated so as to create sufficient awareness among constituents (Hansson and Klefsjo, 2003). One of the most influential ways that this is done is through "walking the talk." It is absolutely essential that key change leaders are true to the vision because research has found that the words and actions of persons with firm-based authority can either "make or break" the change effort (Blumentritt, 2004). For example, if your firm's new vision is to be innovative and open to the ideas of all employees, it is imperative that change leaders practice listening to new ideas and not shooting them down. In this example, the change leader's decision to listen to a new idea, even if it is outrageous, can speak volumes of credibility to employees. On the other hand, if the change leader chooses to outright reject the employee's idea in a way that is inconsistent with the vision, employees will have a hard time believing in the change effort.

In order to develop the necessary political support, key stakeholders must be identified and influenced. Influencing stakeholders includes generating urgency about the change and also getting them committed to the change effort itself. In order for change to succeed all questions must be answered. Everyone who has any stake in the company will have questions and the change leaders must address those questions clearly and quickly, addressing their emotions. For example, shareholders will be concerned about the value of their stocks, and it will be the change leaders' responsibility to reassure them that the firm will do its best not only to maintain but also increase company value. In this stage it is important to address the anxiety of those who will be experiencing the change the most (Kotter and Cohen, 2002). They must understand the firm's motives for change as well as expected outcomes.

During this step it is also crucial to ensure effective communication. Communication not only includes speeches given by leaders or mailbox memos, but consists of the daily words and actions of the change leaders. Change leaders must use every possible channel to communicate to employees while at the same time making sure that their words and actions are consistent with the vision (Kotter, 1995a). Leaders must show their conviction about the change initiative and their belief in its success. Stakeholders must be kept informed about any news pertaining to the change effort and its progress. Sirkin et al. (2005) claim that the change effort should be addressed at least three more times than is thought to be necessary. Similarly, Duck (1993) suggests that change is finally starting to get through when the change leaders begin to get sick of talking about it.

Further, it is possible that your firm may need to hire a few new employees for various reasons during the change process. If you choose to hire new employees it is critical that the new hires fit with the budding new innovative culture in order to maintain it (Kotter and Cohen, 2002). Blumentritt (2004) claims that most successful innovative change efforts succeed because of the people who are involved in making the change a reality. Therefore, it is important to hire people who will help to take your company in the right direction. According to Blumentritt (2004) there are three main characteristics to look for when hiring a new person into an increasingly innovative culture: curiosity, talent and motivation. Curiosity is important because people who are curious generally ask a lot of questions and usually have a very creative mentality that helps to stimulate innovation. Likewise, talent is needed in order to understand how things work and finally motivation is necessary so that innovative efforts are not only devised, but also carried out to completion. In addition, you should also look for new hires that have diverse work experiences, education, demographics, knowledge, skills and abilities so as to bring new perspectives to the table. Newly hired employees can also bring excitement, which can help build support and energy for the change initiative.

3.6.4 Manage the Transition



During this step, the groundwork that was laid in the first three steps, such as urgency generation, vision creation and political support development, comes into action and helps to provide a more smooth transition into change. This step consists of empowering people by removing obstacles to change, reassuring that change is possible, planning activities and commitments, and managing structures.

Contrary to popular thought, empowerment is not just about giving people more power, but removing the obstacles that are preventing change (Kotter and Cohen, 2002). Indeed, giving employees additional power without first ensuring that they are capable of handling it may be detrimental (Duck, 1993). Further, Hansson and Klefsjo (2003) state that leaders need to drive the change effort by eliminating obstacles instead of just assigning new responsibility. The obstacles in this stage are often found in the formal and informal organization and could be people, processes, bureaucracy or just about anything else that has the potential to thwart the change initiative. Therefore, in this step it is important to ensure congruence between the change strategy and tasks. Empowerment is one way to ensure that the tasks performed are essential and that the essential tasks are performed.

Thus, empowerment can surface in the form of releasing employees from nonessential daily tasks in order for them to participate in the change process. It is a good idea to estimate the additional time and effort that employees will need to devote in order to embrace the change. Sirkin et al. (2005) claim that the increase in an individual's work load should not exceed ten percent. They suggest that when change requires more than ten percent additional effort from employees, they are likely to resist the change altogether. In order to minimize the additional effort, it is likely that some old, non-value-adding activities, such as excessive paperwork, can be removed from the employee's job requirements to make certain that only essential tasks are being carried out.

Additionally, Kotter and Cohen (2002) believe that providing information is another form of empowerment. During this phase, it is important to maintain open and honest channels of communication between change leaders and stakeholders. Because the process of change can be grueling at times, people must be reminded that change is achievable. This can be done by communicating progress as well as announcing and celebrating victories. Jansen (2004) suggests that rather than communicating overall project progress, it is more motivating to focus on short term progress and interim events. Visible signs of progress and success help to build momentum and sustain long-term change efforts (Jansen, 2004). Similarly, Sirkin et al. (2005) believe that the length of time between reviews is an important factor of the initiative's success. They have observed that long projects that are reviewed frequently are more likely to succeed than short projects that are reviewed infrequently.

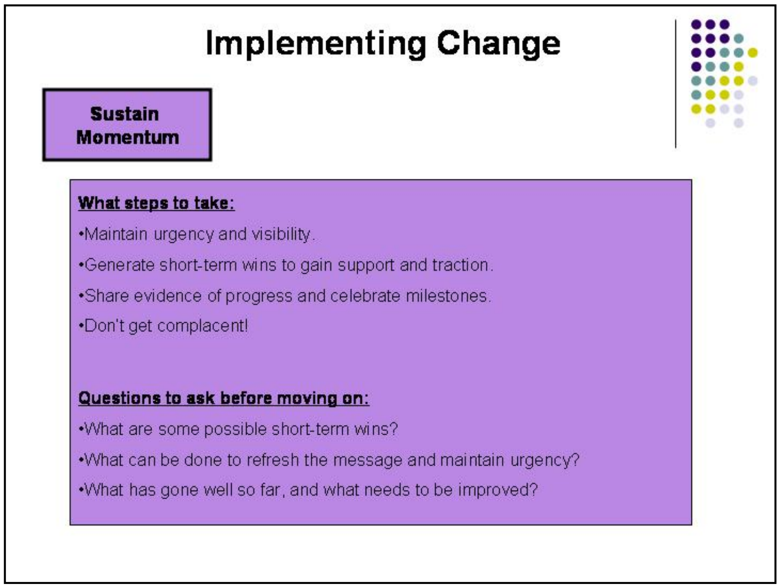
Another fundamental component of managing the transition is ensuring that both the formal and informal structures of the firm are consistent with the company's competitive strategy (as mentioned in section 3.4). Two key areas are especially important here: (1) processes supporting the generation of ideas and (2) human resource functions. Blumentritt (2004) suggests three processes are necessary for supporting idea generation: processes for articulating and distributing ideas, processes for integrating ideas, and processes for managing the evaluation and development of ideas. Additionally, methods for submitting, integrating, and evaluating ideas should be put in place to facilitate the process. It is important to note that all stakeholders, whether employees, customers, suppliers or partners, should have the opportunity to share ideas.

Second, it is important to make sure that the firm's human resource functions are consistent with the goals of the new vision (see section 3.4 for details). Firms often undergo a change process but disregard changing their reward systems, resulting in employees being punished instead of rewarded for performing new behaviors (Kotter, 1995a; 1995b; Kotter and Cohen, 2002). Since the goal of rewards and incentives is to encourage certain behaviors, it is important to ensure that your firm is encouraging the types of behaviors that it wants to see increase.

The field known as strategic human resource management (SHRM) attempts to understand the challenge of motivating individual employees to pursue organizational strategic objectives. SHRM research is primarily focused on utilizing the human resource function to strategically support firms (Barney and Wright, 1998; Gratton et al., 1999; Schuler and Jackson, 1987; Ulrich and Lake, 1991). SHRM proponents suggest that managers should use the total system of HR tools available (e.g., recruiting, training and development, incentive systems, etc.) to motivate a firm's employees to work towards the firm's overall strategic needs. SHRM researchers argue for a more strategic view of human resources within the firm and have positively linked human resource practices with organizational performance (Huselid, 1995).

In order to facilitate alignment between strategic initiatives and employee behavior, many firms use the balanced scorecard approach to involve their employees with the firm's objectives. The balanced scorecard gives each employee a set of personally relevant criteria that he or she will be rewarded for meeting (Chow et al., 1997; Kaplan and Norton, 1992). Similarly, research on "line of sight" has shown that employees who are made aware of the significance of their contribution to the firm are more likely to participate in strategy-supporting behaviors (Boswell and Boudreau, 2001).

3.6.5 Sustain Momentum



Sustaining momentum is about keeping the change effort alive by continuing to generate urgency, pursue a vision, develop political support and manage the change transition. According to a study by Tushman and Nadler (1986) there is a common theme among many companies that were once highly successful and innovative - they actually get trapped by their own success. This is especially true in small and family-owned firms (Beckhard and Dyer, 1983). Thus, it is important for firms to focus on sustaining momentum for change.

Following a Lewinian force field analysis, Jansen (2004) proposed terms for two competing forces during change: stasis- and change-based momentum. Stasis-based momentum describes the force for maintaining (or reverting to) the status quo. Change-based momentum is the force or energy for pursuing the change. Both forces exist within firms and during the change process. Effective change management involves generating more energy for change than for maintaining the status quo.

One of the most obvious ways to sustain change-based momentum in a change initiative is to create milestones by achieving short-term wins. Kotter and Cohen (2002) state that short-term wins are areas in which change has been successfully implemented. These “wins” encourage people that change is actually happening and reminds them that it is possible. Frey (2002) has employed small-scale pilot initiatives in working with small businesses. He points out that these successful pilots prove the viability of the change and show that it can be transplanted into other parts of the firm. More broadly, small wins and interim progress help keep energy alive after the initial excitement of the project kickoff wears thin. Jansen (2004) found that employees reported higher momentum (feeling energized) following key events and evidence of interim progress.

Another way to sustain momentum is to manage the social aspects of the change throughout the process. For example, key individuals in the firm supportive of the change initiative can be used as spokespeople and motivators during the change. Second, positive news about progress or change outcomes are best communicated in group settings, where interaction and enthusiasm can be shared. Conversely, negative information should be communicated in a less social setting. It is important to remember that even though excitement and enthusiasm can be quite contagious, so too can fear, anger, and resentment. Thus, managing the social energy of change is fast becoming a necessary tool for change leaders (Jansen, 2000).

Once short-term wins have been made and people have seen the results, the firm is able to evaluate those results and, if necessary, make adjustments to the change plan (Hansson and Klefsjo, 2003). This process helps to define the new firm as well as establish roots for the new organizational culture that is developing. Throughout implementation, consistent support is needed from the change leaders to not only successfully complete the change, but to also make sure it has lasting power. The change process is not complete until all aspects of the change have been fully incorporated into the firm. To avoid reverting to the status quo, leaders must make an active effort to legitimate and incorporate elements of the change into existing processes, procedures, and training.

3.7 Measurement

Although measurement is covered last in this guide, that doesn't mean that it should be considered last. Measurement should be considered during the planning of change and before any action is undertaken. Measurement serves multiple purposes. It should motivate employees to perform desired new activities. Ideally, employees will be intrinsically motivated to perform these activities if they are interesting and challenging to perform. However, performing them must be reinforced by an unambiguous connection to monetary or career-enhancing rewards. Measurement also should provide guidance toward goal achievement and alert managers to the need for mid-course correction if the change effort strays from its intended path. To assure that it performs this function; measures should be taken frequently and at critical milestones in the change process. Ultimately, measurement should allow an assessment of the degree to which the change effort has achieved its intended goals.

Ideally, the right mix of activities and outcomes will be measured. Measuring only activities suggests that planners know in advance what all the right activities are. This may not permit employees enough improvisation to develop the set of activities that best fits the intended task. Measuring only outcomes may allow employees to "game the system" and perform some activities improperly or ignore them altogether. Also, some outcome measures might be made to look good at the expense of others. All measures should be transparent and make sense to those who will be held accountable for them. Those collecting these measures should be able to assess activities and outcomes reliably and unambiguously.

3.7.1 Input Measures

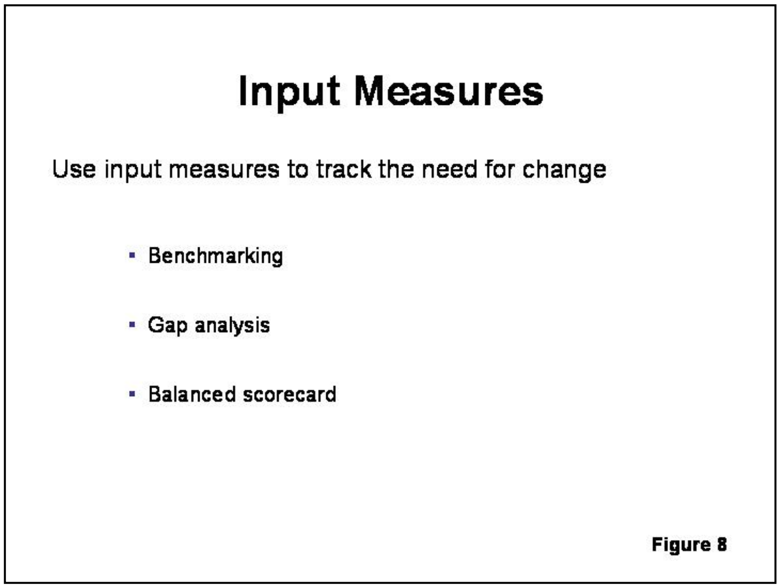


Figure 8

Tools that can be helpful in diagnosing the need for or triggering change include benchmarking and gap analysis (Frost, 2003; Hussey, 1997). Benchmarking consists of comparing your firm's processes to other similar firms in the same or other industries, or comparing your firm's practices to known "best practices." Similarly, gap analysis is used to measure the gap between where the firm currently stands and where you want the firm to be. The gap is analyzed and a strategy is devised to get the firm from its current reality to its desired state.

Another tool that is important in a pre-change period is a balanced scorecard (Kaplan and Norton, 1992). It considers a company's mission and strategy from four key perspectives:

1. How do customers see us?
2. What are the internal processes where must we excel?
3. How can we continue to improve or create value?
4. How do we look to shareholders?

The goal of a balanced scorecard is to identify a handful of measures that are most critical to the company in each of these four areas and track them over time.

3.7.2 Process Measures

Process Measures

- DICE
- Awareness
- Commitment to the change
- Momentum
- "Buzz"
- Interim progress

Figure 9

There was a time when measuring change focused on establishing a baseline (pre-change) which served as a comparison for some post-change metrics. The focus was on the before and after – addressing questions such as did we change and, if so, how much? In recent years, given the ease of administering surveys electronically, and the larger-scale and longer term changes associated with generative learning, more and more attention is being paid to the change process itself. Awareness of how a change program is progressing and how participants are responding to the change events as they unfold are important to the success of the overall change. The more timely the information, the more quickly change leaders can react and respond to keep the change on a positive trajectory.

Prior to beginning a change effort, Sirkin et al. (2005) suggest that you measure four key elements to identify potential problem areas and make modifications necessary. They refer to the four elements as DICE:

> Duration – the implementation time (if a small initiative) or the time between milestone reviews for longer efforts (the shorter the better)
>
> Integrity of Performance – the change team's skill
>
> Commitment – senior leaders' (C_1) and employee dedication (C_2) to the change effort
>
> Effort – the extra work employees must perform to adopt new processes (the less, the better)

They suggest assigning a score from one (strong) to four (weak) for each element and then combining these using a formula that doubles the weight given to team performance and senior management commitment as this formula has been shown to correlate most closely with actual outcomes. Change initiatives that receive high scores have greater risk and thought should be given to making changes prior to initiating the change. The DICE framework can also be used once a project is launched, as a tool for making mid-course corrections.

During the change process, it is important to monitor several other metrics. Early in the process, it might be necessary to determine just how much employees understand the need for change and how familiar they are with the overall goals of the initiative. Such awareness and familiarity measures help determine if the change message is getting through or if more should be done to get the message out. Another important measure to track during the change process is commitment. In long-term change efforts, it is likely that commitment to the change will wane. It is important to know when commitment is waning so that steps can be taken to address it.

In Section 3.6, we highlighted the importance of maintaining momentum during the change process. Jansen (2004) developed scales of momentum and “buzz” that can be used to assess the current energy levels among change participants and to determine the impact particular events and activities had. Pulse surveys (short surveys administered on a weekly or monthly basis) help keep track of these key metrics. Another approach that has been used successfully is to have employees actually graph the ebbs and flow of momentum over some period of time (generally three to six months). These graphs, called momentum maps, provide valuable information in a visual format to see where energy is waning, what caused the dip, and which individuals it affected most.

Finally, measures of short-term progress help infuse needed energy into the initiative. Rather than focusing on overall progress, it is important to emphasize recent progress, as this has been shown to be more motivating to employees than an emphasis on overall goal attainment.

3.7.3 Output Measures

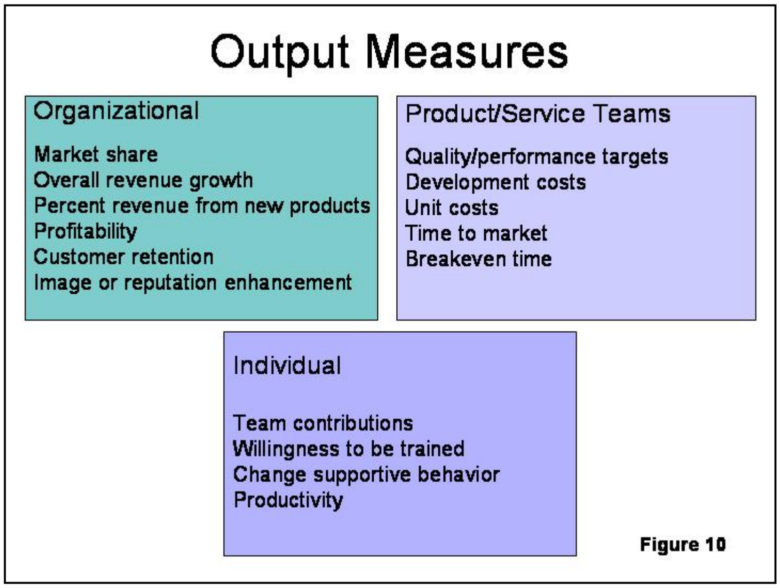


Figure 10

Company-wide Measures. SMEs have to satisfy fewer external stakeholders because they are usually privately held firms. Nevertheless, most stakeholders (including banks, equity partners) are interested to know if innovation has paid off for the company. Revenue growth alone is insufficient unless we know the number of new products that contributed to it within a specific period of time. It is also useful to know the types of new products that have been developed, e.g., product line extensions, major breakthroughs, and the new product success ratio. Operating margin per product or the contribution of all new products to overall operating margin tells us if these new products are innovative because they indicate that customers will pay a premium price for them (or at least prevent price erosion). Customer retention is a useful measure for families of products that allow customers to migrate easily to the next generation of product or to upgrade to a more feature-laden product. Customers may be "locked-in" to the product if they must invest time to learn how to use it properly or to purchase ancillary proprietary products. Such high switching costs may provide a steady new source of revenue from maintenance contracts, etc. Innovative products may leverage the company's existing image and reputation, or enhance it further. Image and reputation are especially valuable for selling services because of their intangible nature.

Measurement for Product/Service Teams. An important measurement issue is whether to design measures that encourage cooperation or competition within and between teams. It is rarely useful to encourage competition at any level because of the risk of inhibiting the flow of information and ideas among people. Team-based measures should be designed to encourage cooperation among team members. For example, Hewlett-Packard uses break-even time (time required for a product to recover its development cost) as a team-based measure (House and Price, 1991). This measure encourages all parties to consider trade-offs between selling price, unit cost, and development cost while accepting product performance and quality as a given. Time to market (from product idea to first sale) drives many other measures, e.g., products that quickly meet emerging customer needs will justify a higher selling price. Also, shorter time to market means fewer engineering hours are required to design, develop, and manufacture the product, thereby lowering development cost. Another measurement issue is whether to design products to minimize their life cycle cost or their unit or acquisition cost. This measure is useful if customers can be convinced that total cost of ownership (acquisition, operation and disposal cost) over the life of the product is more important than acquisition cost only.

Measures of Individuals. Individual performance is difficult to assess when a significant part of a person's contribution to innovation and new product or service development is generating and sharing ideas with team members. However, team leaders and team peers can assess individual contributions of this kind. Is the individual a "team player" and in what way has he or she contributed to team performance (use scales, rankings, open-ended questions)? Individuals can also be assessed on their willingness to be trained in (and master) new problem-solving methods, use of new tools (e.g., CAD), etc. They also may be expected to help other team members perform their functions when there is slack in their own work, but doing this may be limited by degree of specialization required to perform other functions. Rewards should be designed to encourage any of the above activities. These activities should be articulated as clearly as possible and rewarded as closely as possible in time to when they are performed.

4.0 Summary of Key Points

Key Points from "Change Arena":

- Traditionally, SMEs approach change with the:
  - Adoption of generic or packaged initiatives
  - Unsystematic planning and monitoring of projects
  - Use of "haphazard" change management
- Our perspective is that SMEs ought to approach change by:
  - Taking a proactive stance
  - Balancing adaptive and generative learning
  - Planning and monitoring projects systematically
  - Focusing on intentional change management activities
- Not only should companies be prepared for change, but they ought to learn how to identify the need to change and ultimately to manage change successfully

Key Points from "The External Environment":

- Factors that often constrain openness to the environment are:
  - Existing technology
  - Availability of resources
  - Lack of negotiation or collaboration skills
- Activities than help to foster openness to the environment are:
  - Scanning
  - Benchmarking
  - Tracking Performance
  - Networking (partnerships, collaborations)
- Leaders should continually scan the firm's external environment for "change triggers" that could either force a change or that may represent an opportunity to positive change

Key Points from "The Organization":

- Competitive strategy is a long-term plan to achieve the firm's vision. The competitive strategy should drive the four organizational elements in pursuit of the vision. The four organizational elements are:
  - The formal organization- (structures, systems and processes)
  - Work- (nature of jobs, teams and rewards)
  - People- (KSAs, education and training)
  - The informal organization- (culture, norms, values and beliefs)
- Formulate a strategic plan, follow it, and make sure the organization knows the strategy and is "aligned" with it.
  - Update your plan regularly to reflect new products, changing marketplace, etc. Strategic plans should be flexible to allow for innovation and subsequent growth

Key Points from "Alignment and Innovation":

- Innovation can directly support the company's competitive strategy by increasing the rate of new products and services that are successfully introduced each year.

- The company’s competitive strategy should be aligned with the company’s external environment.
- The four key elements of the company (formal organization, work, people and the informal organization) should be aligned with each other and with the company’s competitive strategy.

Key Points from “Change Triggers”:

- Change can be triggered in many ways, by various events or issues. Four epecially critical change triggers are:
    - Lack of alignment
    - Input from the environment
    - Change in leadership
    - Strategic choice
- Regardless of the trigger for change, there are certain ways that managers can assist the successful implementation of change.

Key Points from “Implementing Change”:

- **Leadership**
    - The change leader (usually the CEO or president of an SME) must take responsibility for the change effort and ensure that the steps in the process are accomplished.
- **Strategy**
    - The strategic goals of the firm must lead the change effort. Change implementation should be how the firm gets from where it is now to where it wants to be in the future. The change effort must always take into account the firm’s competitive strategy.
- **Step 1: Generate Urgency**
    - What steps to take:
        - Work on getting people excited about the change.
        - Generate urgency and motivation in the top management team first because its support is crucial.
        - Help people to “see” what needs to change and also “feel” the need for the change by providing visible evidence about the need to change. Show people that change must happen, because if it doesn’t worse things will.
        - Pay attention to the needs and emotions of the people and relate to them.
    - Questions to ask before proceeding to the next step:
        - Is the top management team motivated to change? If not, how can they be motivated?
        - Are people resisting the change? If so, why? How can readiness be instilled?
        - Do people “see” and “feel” the need for change? If not, how can they be shown?
- **Step 2: Create a Vision**
    - What steps to take:
        - Form a broadly represented and well-respected transition team to guide the change effort with the president or CEO of the SME as the change leader.

        - Use the firm's competitive strategy to figure out what the firm should look like after the change effort has achieved its goals, i.e., the vision.
        - Make sure the vision is clear and attainable, and yet stretches capabilities.
        - Have a clear sense of direction.
    - Questions to ask before proceeding to the next step:
        - What is the scope and target of the change?
        - What should the new company look like?
        - Does the vision match the strategic goals of the firm?
- **Step 3: Develop Political Support**
    - What steps to take:
        - Identify and influence key stakeholders.
        - Respond quickly and clearly to questions about change, making sure to address emotions.
        - "Walk the Talk"
        - Have clear channels of communication about the change effort and its progress. Open the lines of communication from top to bottom and promote more open communication
        - Consistently communicate your company's values to all employees
    - Questions to ask before proceeding to the next step:
        - Has the vision been communicated to everyone? Does everyone understand it?
        - Are employees excited about the change and getting ready to do something to help?
        - Are the words and actions of management consistent?
- **Step 4: Manage the Transition**
    - What steps to take:
        - Remove obstacles and barriers to change.
        - Make sure that people know that change is possible.
        - Focus on only one or just a few objectives at once.
    - Questions to ask before proceeding to the next step:
        - What is preventing people from buying into the change?
        - What can be done to reward people for taking part in the change effort?
- **Step 5: Sustain Momentum**
    - What steps to take:
        - Generate short-term wins to gain support and traction.
        - Keep people informed about the change effort and its current status.
        - Maintain urgency and visibility.
        - Share evidence of progress and celebrate milestones.
        - Don't get complacent!
    - Questions to ask before proceeding to the next step:
        - What are some possible short-term wins?
        - What can be done to refresh the message and maintain urgency?
        - What has gone well so far, and what needs to be improved?

Key Points from "Measurement":

- Utilize Appropriate Measures
    - Use input measures to track the need for change.
        - Benchmarking
        - Gap analysis
        - Balanced scorecard
    - Utilize process measures to measure progress towards the change.
        - DICE
        - Momentum maps
    - Also make use of output measures where appropriate in order to benchmark where you are, where your competition is, and where you want to go.
            - Company-wide measures
            - Product/service team measures
            - Individual measures

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