Effect of Uncertain and Turbulent Environment on Organizational Design

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Abstract: Many researchers have argued that organizations must tailor their structures and decision-making process to fit the demand of their external environments. Uncertain environments require more flexible and responsive structure. The new design must achieve a fit, both with the organization's external environment, and among its elements of structure and processes (Thompson, 1967). In this paper, I explore the various design approaches including using an object-oriented paradigm for developing flexible design. Since the uncertain environment will eventually affect almost all organizations, it is concluded that organizations should adapt a flexible structure and move from one archetype to another or to mixed archetypes as the environment changes. Managers must involve employees and communicate the details to them as they work through the organizational design and implementation process.

INTRODUCTION

Organization theory is a positive science and helps in understanding the organization. Organizational design, in contrast, is a normative science that focuses on creating an organization to achieve a given goal (Baligh, Burton, and Obel, 1996). Organizational design encompasses the structures and processes that organizational members use to meet their functional obligations (Huber and McDaniel, 1986).

The field of organization design has emerged in response to the challenges of an industrial age that is now coming to an end (Yoo et. al., 2006). The organization design of the industrial age was suited to large volumes of standardized product with the objective of providing stability and predictability (Weick, 2004). In today's knowledge-based economy customers are no longer satisfied with standardized products, but ask

for customized, unique products and services. In this knowledge–based economy and in a dynamic and unpredictable environment, the organization design needs to be flexible and innovative.

Organizational design comprises people, technology, process, and governance. These design elements interact, reinforcing and balancing one another, and adapt to the changing environment. An organization exists within a particular external environment that comprises a number of elements (local and global) including: government, legal system, labor pool, supplier, customer, competitors, morals, and existing technology.

Organizational design begins with the creation of a strategy — a set of decision guidelines which members use for choosing appropriate actions. The strategy is derived from statements of purpose, vision, and the organization's basic philosophy. Strategy unifies the organizational efforts for accomplishment of desired outcomes. Creating a strategy is planning, not organizing. In organizing, people are connected with each other in meaningful and purposeful ways. Further, people are connected with the information and technology necessary for them to be successful. Organizational *structure* depicts the formal relationships among people and describes their roles and responsibilities. The *Governance* mechanism provides the guidelines, procedures and policies. Information and technology define the *process(es)* for members to achieve outcomes. Each element must support each of the others and, together, the organization's purpose (Autry, 1996).

In a dynamic and uncertain environment, new products, technologies, and capabilities become available at an increased rate; suppliers and competitors join and leave the market on short notice; and customer requirements and expectations change and evolve in very short periods (Nogueira and Raz, 2006). On the other hand, it creates tremendous pressure to maintain customer and stakeholder satisfaction through market and financial successes.

Most organizations face crises on an ongoing basis in large and complex systems because of a turbulent and unpredictable external environment, and because of malfunctions within the organization (Nobre, 2011; Perrow, 1984). The complex environment threatens millions with "future shock" (Toffler, 1970), which occurs when types of changes and their speed of introduction overcome the individual's ability to adapt. Therefore, the internal malfunction is attributed mainly to ineffective organizational design for the current environment. Some organizations are responding to the current fast-changing environment by reorganizing (Goodridge, 2009).

In this paper I examine two enduring and very vital questions: (1) how do uncertain and complex environments affect the formal design of organizations? and (2) what will be the appropriate design to cope with the new trends in the environment?

ENVIRONMENT

The new environment is labeled as hostile, complex, turbulent, dynamic, and uncertain because of the pace and nature of change attributed to rapid and discontinuous change in demand, competitors, technology and/or regulation (Siggelkow and Rivikin, 2005). The post Cold War trends witnessed widespread acceptance of

capitalism and resulted in opening of markets, true global competition, widespread industry deregulation, and an abundance of accessible capital (Nadler and Tushman, 1999). Organizations entered the Information Age, which eliminated the constraints of time and space. The Post-Industrial economy places more value on information, services, support, and distribution, which created phenomenal demand for "knowledge workers" (Nadler and Tushman, 1999). The new workforce wants to work fewer of more flexible hours; they also want involvement, called industrial citizenship, rather than just a wage-work bargain relationship (Morley and Garvan, 1995).

The greater turbulence of the post-industrial environment will demand that organizational decision making be more frequent and faster (Huber and McDaniel, 1986). Rapid technology changes, deregulation, and globalization have intensified competition and increased the turbulence in the environment, forcing managers to adopt new, more responsive organizational forms (D'Aveni, 1994; Lei and Slocum, 2002). Information technology has standardized some interfaces and has enabled managers to conduct more transactions across organizational boundaries rather than within them, leading, for instance, to more modular organizational forms (Langlois, 2002).

The accelerated pace of technological change has produced a pervasive demand for continuous innovation (in products/ services and organizational design) that holds the potential to make a product line, or even an entire business segment, virtually obsolete (Luftman et. al., 2004).

For most products/services, we are in a buyer's market whose environmental characteristics are identified by El Sawy et al. (1999): time-compression, short product life cycles, strategic discontinuity, increase in knowledge intensity, and customer-focused approach. The perception of the voice of customers is divided into three categories: "free" (cost of transaction, cost of value-added services), "perfect" (customization, conformance, anticipation of future needs), and "now" (accessibility, delivery time, customer's time to market). Although the targets of "free," "perfect," and "now" are clearly unachievable, these targets will intensify competition and exert continuous pressures on organizations to provide more features, functions, or services at a lower price. The trends will lead to higher customization and fragmentation of markets into smaller niches. Cost pressures and higher automation will lead to reduction in the size of the workforce. Managers will be required to examine how to best utilize human resources on the core activities and let others provide peripheral services so that organizations become more flexible in response to opportunities and threats in the environment (Morley and Garvan, 1995).

Unpredictable and changing governmental actions, such as consumer protection, pollution control, and civil rights, are changing the values of a large number of individuals and organizations (Slocum and Hellriegel, 1979).

Time compression will force organizations to find creative ways to design and implement new organizational architectures in significantly smaller timeframes. These changes challenge fundamental assumptions of organizational design. Historically the purpose of organizational structure was to institutionalize stability. In the future, the goal is to institutionalize change (Nadler and Tushman, 1999).

ORGANIZATION'S RESPONSES TO ENVIRONMENTAL CHANGES

Organizations can respond to environmental opportunities and threats by using a number of strategies including: increasing organizational clock speed, designing diverse business models, creating go-to-market flexibility, innovation in the organization's design, and modular product design (Nadler and Tushman, 1999).

- Increasing strategic clock speed: Rapid changes in the environment make evolutionary cycles very short. Organizations are required to change strategies regularly at intervals of eighteen months to five years, compared to decades in the past. During periods of radical, discontinuous change, organizations must understand the environmental requirements and redesign the organization to encourage "capacity to act" and become the first mover to enjoy significant advantage.
- Designing diverse business models: Organizations are required to compete simultaneously in mature, emerging, and future segments of the same market. The variations in business design must encompass four dimensions (Slywotzky and Morrison, 1997): which customer to pursue, how to capture value (i.e., profit), how to maintain a unique value proposition, and what scope of activities to pursue. The new design must minimize linkage to encourage autonomy and differentiation across the very different aspects of the business; for example, the linking at the back end through common technology architecture, at the middle through the manufacturing processes and supply chain, and at the front end through shared customer relations, distribution channels, service operations, etc. The new design with modular structure of the organization will facilitate custom design at a faster speed to match a given strategy (Cackowski, Najdawi, and Chung, 2000). Furthermore, different modules will help in simultaneously managing different channels of distribution in order to serve a highly fragmented market.
- Creating "Go-to-Market" flexibility: In the current environment organizations can not succeed with a "one size fits all" approach to the marketplace. R&D efforts are required to change their processes, structure, priorities and behavior to cater to present and future demands by offering the right solution at a faster speed. Organizations need to fulfill the demands of various market segments for the same core product/service in terms of various options including price, after-sale support, speed, and customization.
- Innovation in organization's design: In addition to innovation in product, processes, and distribution, the new environment requires innovative strategic development and organizational design. The quick development of strategy and organizational design will result in competitive advantage. The new design should encompass the processes, culture, and behavior capable of accommodating and resolving conflict in ways that benefit the customer and strengthen the value proposition. The value, culture, and shared goals should replace formal structures as the glue that holds the organization together and should help in preventing autonomous units from becoming competitors with one another. The leadership in new design comes from the executive team, where the CEO will be part of the team. It is impossible for a

single person to possess all the necessary leadership skills, managerial talents, and technical knowledge. The team will become a key mechanism for managing the organization of future.

- Modular product design: The idea of cannibalism must become routine in the environment in which a new product may be well on its way to obsolescence by the time it reaches market. Modular product design makes it easier for a company to make components of products whose sales decline because of cannibalism.

DESIGN OPTIONS

Process of organizational design: The organizational design is developed based on environment-driven strategy (Nadler and Tushman, 1999). The strategic architecture is developed through anticipation of, or reaction to, major changes in the marketplace. In the marketplace, every industry is evolved through cycles of incremental change along with intermittent turbulent periods that call for radical or discontinuous change. The strategy drives organizational design that encompasses structures, procedures, and people of the firm. The closer alignment of each organizational component within and with organizational strategy results in more effective overall performance. The developed organizational design is required to equally manage differentiation and integration in the new environment. The design must provide flexibility to its people and simultaneously maintain the link to the larger organization.

Design alternatives: Organizational design deals with the allocation of task and decision rights, the provision of incentives, the governance, and the structuring within hierarchies. Furthermore, the appropriate design depends on the nature of an organization's technology, its task interdependence, and its information processing requirements, as well as on the character of change in its environment. The turbulent, unpredictable, and complex environment creates crises on an ongoing basis within the organization. Staw et al. (1981) pointed out that centralized structure works well in managing crises, while Shaw (1981) noted that decentralized organizations can respond quickly to complex tasks and therefore perform better during crises. Additionally, a centralized organizational structure is more effective under low uncertainty conditions, while a decentralized structure is preferable under high uncertainty. Empirical studies cited by Kim and Burton (2002) provide mixed results that require further research.

Organizations are now designed based on networks which replace hierarchies; social relations which push aside formalized coordination; and a focus on processes or capabilities rather than functions, products or regions (Denison et. al., 1996). A complex environment creates complex tasks in the organization. In turbulent settings, firms are designed to improve performance speedily and to attain a decent outcome before conditions change. In complex settings, firms need designs that permit them to search a diverse array of operational configurations (Siggelkow and Rivkin, 2005).

A firm that provides a stable product with little technological innovation and relatively few competitors requires a different design than a firm that provides a rapidly

changing product or service in a growing, competitive market. In case of an unstable environment, the organization must change its internal structure because customers, prices, demands, and other factors are changing.

Degree of homogeneity	Degree of Stability	
	Stable	Changing
Homogeneous	I	II
Heterogeneous	III	IV

Table 1: Organizational designs (Source: Slocum and Hellriegel (1979))

Based on the degree of change in the environment and segmentation of the market, Slocum and Hellriegel (1979) divided the organizational design into four categories (Table 1). In Table 1, stability refers to the amount of change in the dimensions (legal, market, technological). A heterogeneous market segment is one with many buyers and different types of customers and sellers, while a homogeneous one has few buyers and limited types of customers and suppliers. These combinations, as given below, may require different designs in various parts of the organization.

I. Homogeneous and stable (stability in suppliers and customers): A hierarchical, rigid organizational structure with centralized control, having standard operating procedures and guidelines, may be most effective to meet organizational goals.

II. Homogeneous and changing (changes in customers' attitudes, habits, and tastes, but not their numbers): A hierarchical form of organization is likely to be effective, except that individuals performing the marketing and other functions are likely to have more decision-making power, because they monitor the changes in the environment and relay them to the appropriate members of the organization.

III. Heterogeneous and stable (customers and suppliers remain constant, but there are a great number of them): The hierarchical, or mechanistic, type of authority structure is likely to benefit the organization.

IV. Heterogeneous and changing (continually changing products or services, technological innovations, and rapid changes in the value and behaviors of customers, suppliers and other parties): The organization is likely to benefit from matrix management, which is a compromise between functional departmentation (in which each department has specialists) and product departmentation (all different specialists for the product are in same unit).

The organizational design must identify the optimal amount of autonomy at the individual and team level for the best contribution to the firm. Task uncertainty affects team performance negatively. The negative effect is positively correlated with the degree of centralization in the team's decision making structure. As task uncertainty increases, decentralized teams work better in terms of project duration and costs, but suffer in terms of quality. For the extremely turbulent case, there was no evidence that a centralized team (tight structure) or highly structured team could perform better than

a flexible one (Nogueira and Raz, 2006). However, in an uncertain environment, when goals and tasks are not fully defined but also change and evolve over time, it is best to use a loose organizational structure with significant flexibility. In a turbulent environment, a tight team structure accumulates less value and inhibits the development and management of leadership talent. In a flexible organization, professional staff can form their own teams and change teams as their interest evolves, which maximizes the identification and execution of value-adding tasks.

Decision type		Organizational Processes	
		Rigid	Flexible
	Routine	**High**	Low
	Non-routine	Low	**High**

Table 2: Quality of Organizational Decisions (Source: Huber and McDaniel, 1986)

Decision making is the central activity in an organization and its successful execution is essential for effective accomplishment of the organization's goals. The quality of decisions (Table 2) is very high for routine decisions in a rigid organizational design (hierarchical) or non-routine decisions in a flexible organizational design (network). In an uncertain and turbulent environment, a higher proportion of non-routine decisions is generally expected, and thus a flexible organizational structure will aid in overall performance.

The evolution in organizational design indicates the adoption of a flexible structure with flat hierarchy and supports the arguments that the future of the hierarchical design is very grim (Beakey, Webster, and Rubin, 2007).

DESIGN IN UNCERTAIN AND COMPLEX ENVIRONMENT

In the design process, an organization must consider and assess major areas including the business itself, company values, and major processes.

- The business itself: This includes customers' needs and wants, competition, industry trends and marketplace changes. Additionally the organization's overall strengths and weaknesses should be considered.
- Company values: This focuses on organizational values, vision, cultural norms, and behaviors.
- Major processes: The critical processes are assessed for effectiveness and efficiency by comparing with the standards, including benchmarks.

Successful organizational designs have three things in common: they focus on business climate; the people in the organization drive the process of the organization's design with the help of a consultant; and the process involves many people at every stage and communicates to everyone at each stage of development. The organizational design model provides an overview of the major steps (set the stage; gather data;

design transformation; and implement and evaluate) in the design process and implementation (Beakey, Webster, and Rubin, 2007).

Flexible Organization: Many organizations operate within environments where change is continual (March, 1991). Globalization and change in technology will very soon create a turbulent and uncertain environment for the remaining ones. In an uncertain and complex environment, flexible organizations institutionalize their ability to continually adapt, and create a stable environment for continual change (Overholt, 2002). Organizations recognize the need to change structure, process, and behavior for meeting the needs of different customers, and shift the organizational design as the market and the customers shift. They use their flexible design to fit in the environment and, thus, get a competitive advantage. Their people change the shape of their organization to match the external environment. In global, turbulent markets flexible organizations (which implies flattened organizations) are deemed desirable and hierarchical organizations are seen as undesirable because of the inefficiency of a poorly run bureaucracy. However, there are no studies available to prove this phenomenon (Overholt, 2002). The belief that flattened organizations are the answer to survival is a cultural trap. However, the concept of flexible organizations avoids this cultural trap and the current bias that one organizational design is better than the other. No matter how the organization is structured, there is no substitute for good management.

Executives in flexible organizations are more innovative and take various factors into account in organizational design including market needs, the host country's culture, competitors, nature of the industry, and core competencies. A flexible organization is capable of self-correcting, adjusting its internal components to changes in external environments. Managers make radical changes in organizational design, viewing the organization holistically and developing and enabling change strategy which rebalances the organization around a new configuration (Nadler, Shaw, and Walton, 1995).

Archetypes: There are various archetypes (sets of characteristics) that describe organizational architectures proposed by a number of authors. Siggelkow and Rivkin (2005) suggested five archetypes: decentralized, liaison, lateral communication, hierarchy, and centralized. Overholt (2002) exhibited the variations in the set of characteristics, using ten different combinations varying from a highly centralized functional organization to highly autonomous (decentralized) process-based organization. Flexible organizations are those that can move from one archetype to another or mix archetypes. They must shift archetypes as their market shifts, their products obsolesce, their competitors introduce radically new products, or when new technology presents huge cost-savings opportunities.

Object-oriented Paradigm: Many current organizations are not effective in dealing with complexity in a modern environment (Cackowski, Najdawi, and Chung, 2000). The flexible organization with a matrix structure is limited by the performance of its program managers (El-Najdawi and Liberatore, 1997). To enhance the performance of the

organization, the structure needs to be designed using the concept of object-oriented paradigm (Cackowski, Najdawi, and Chung, 2000). The object-oriented approach is used in software development, which made radical changes in the methodology and approach of large-scale application development projects. The potential application of this technology is used in matrix organizational design. Once the objects are defined and the system functionality is assigned, major components of the software system are developed independently. Furthermore, the program integration, which was previously the most expensive aspect of software development, required the least amount of time and effort because of reusability of objects. In the matrix design, the method of decomposition by objects may help in structuring the complexity in the organization. Similar to software projects, the object-oriented approach enhances the performance of an organization in a complex environment. The integration of the organizational design would be simply a plug-and-play exercise of its components during initial development as well as subsequent changes in the design. The object-oriented approach will reduce the complexity in design efforts and will increase efficiency in development of design. Quinn-Mills (1991) noted the objects as clusters in the organizational structure. He identified numerous benefits of this approach, including lower administrative overheads, quicker innovation and new ideas, greater flexibility and adaptability, more open environment for professionals to learn new technologies, and retention of workers because of challenging assignments. It helps in developing a competitive culture among the members of an organization.

Managers must have organizational clarity, a focus on flexibility and efficiency, and a product/service focused approach for using the object-oriented approach in designing a matrix organization (Cackowski, Najdawi, and Chung, 2000). The organizational clarity defines vision, departmental interface, authorities, and responsibilities. This helps in understanding the purpose of the organization.

In most organizations, the resources are focused on the process and not on delivering the most current and competitive product. In an object-based structure, the flexibility and efficiency of a competitive organization is maximized through application of the inheritance concept. Finally, the development of objects and interfaces followed by products and deliverables helps in concealing the process and focuses on products. Thus, the modular components come together to compose a complex arrangement that is superior to its individual contributions.

Fit among Elements: An effective and efficient organizational design constitutes a good fit on three different dimensions simultaneously: fit between contingency factors and design parameters, fit among contingency factors themselves, and fit among design parameters (Baligh, Burton, and Obel, 1996). For effective, efficient and viable fit, the authors included the following attributes in the defined factors: (1) contingency factors: size, technology, strategy, environment, ownership, management preferences, (2) design parameters - structure: simple, functional, divisional, machine-bureaucracy, matrix, etc., and (3) design parameters – properties: complexity and differentiation, formalization, centralization, span of control, rules, procedures, professionalization, activities, meetings, reports, communications. The design parameter fit ensures a

balance, or weighting, among the supportive and opposing design recommendations. Situation fit assures that the situational factors are consistent among each other. The total parameter/design fit requires that the design is usable and helpful for recommending the structure and properties to attain goals (Nissen and Burton, 2011).

Putting together Design Elements: Organizational design involves putting together elements also known as pillars: people, process, technologies, and governance. Infosis places equal emphasis on all the pillars for efficient and effective organizational performance (Garud, Kumarswamy, and Sabamurthy, 2006).

People: For continuous improvement the organization should give sufficient attention to the harnessing of people's commitment. For a leaner, flatter, and more responsive organization, it is necessary to develop a highly skilled, flexible, co-coordinated, motivated, committed, productive workforce (Quinn-Mills, 1991). An integrative approach is advocated to the structuring of work and the management of human factors (Lawler, 1986). One should distinguish between "system" and "value" changes within the organization (Mooney, 1989). A system change deals with changed methodology, while value changes run deeper and change in relation to a revised understanding of workplace relations.

Human resource development (HRD) should ensure that for a new environment people possess five characteristics: high level of education; ability to learn new skills and continually adapt to changing circumstances; an ability to work without supervision, including self-monitoring of performance; an emphasis on interpersonal skills; and an ability to solve problems and think creatively (Connock, 1991). Organizational creativity could be viewed from two major directions: a creative work environment and individual creativity performance (Chang and Chiang, 2008). The philosophy assumes that learning should be endless for all and throughout life. The workforce must respond quickly to fast-changing external environments; adopt new technologies at rates faster than competitors; operate competitively in a global market; provide high quality products and services; and become more customer focused.

Governance: The decentralized structure encourages people to make decisions and creates a culture of taking responsibility, sharing expertise, and helping each other. Organizational culture is a tool for internal integration and coordination to help the organization to reach its goals (Chang and Chiang, 2008). Decision making generates an informed consensus. People should be free to ask any question or raise any issues irrespective of their level in the hierarchy. They should be allowed to give their opinions as the environment changes.

Process: The learning from present assignments should be evaluated to refine existing processes and measure the effect of these refinements for future assignments. Global projects should be broken into several modules for execution at various locations, according to cost considerations.

Technologies: The company-wide information intranet can help in informal technical and personal discussions. It is beneficial in the long term to continuously retrain

employees and avoid layoffs. The organization can create domain competency groups (DCG) and reuse knowledge through knowledge management systems.

The organization may recruit external consultants/directors for managing globalization and growth into new markets. Organizations may be designed for transformation and for day-to-day performance using a series of incremental and manageable changes (Weick and Quinn, 1999).

"Designs can themselves be conceived as processes – as generators of dynamic sequence of solutions, in which attempted solutions induce new solutions and attempted designs trigger new designs," (Hedberg et. al., 1976 p. 43). Complementing this perspective is a design attitude that "views each project as an opportunity for invention that includes a questioning of basic assumptions and a resolve to leave the world a better place than we found it," (Bolland and Collopy, 2004 p.9).

IMPLEMENTATION

Implementation is a very important phase in transformation of the organization. Design projects often fail during implementation, even though they have a superior design.

Setting the Stage: Initially, in the implementation process, managers need to communicate to all employees the detailed plan of the organizational design.

- Communicate the vision, long-term strategies, competitive climate, and customer needs.
- Communicate the values and culture that need to be cultivated within the organization.
- Design the data-gathering process and inform the employees about the changes needed in the organization.
- Discuss the benefits and difficulties involved in the change process.
- Create the design, data-gathering, and data analyst teams. Initially the members in the teams must be from senior levels. Gradually involve as many people as possible from every level.
- Identify the information you need, the team responsible to process that information, and how the information will be used.
- Determine expectations for continuous communication, and communicate the philosophy for staffing the organization.

Implement and Evaluate—In organizational transformation the job design and talent choices are the most critical part of this stage. The changes and degree of change in the job need to be assessed carefully. It is very important to place the right people in the new or changed positions, which usually requires due diligence in assessing employees' experience, skill, knowledge, and potential.

The ideal approach is to discuss changes throughout the process. Develop the strategies for change offering multiple options, get feedback of others, and understand their interests. This will help in making the process more about creating choice rather than one of arbitrary selection. It will also facilitate designing the jobs and selecting

individuals to fill them simultaneously. The participative planning approach minimizes resistance and creates a more agreeable outcome. The plan needs to include an impact analysis because most people will have concerns about the pending changes even if they view the changes as positive.

The change plan must include staffing and selection requirements, new skills needed, recruiting needs, technology requirements, outplacement needs, training and development needs, a phased implementation strategy, ongoing communication avenues, facilities requirements, resource requirements, and an evaluation process.

Organizational design flows with a general view and gradually tests that view by creating more and more specific descriptions that will become part of the new structure. Managers must be very careful in managing the design flow, because the design changes impact so many people and can make them feel powerless. The process can not be forced and must recognize the value of the contribution of affected employees. It is like a puzzle. If all the pieces are integrated properly, it will help in creating a picture that is rewarding to all involved.

IMPLICATIONS FOR MANAGERS

The new environment will gradually influence all organizations and the changes in organizational design will become a continuous exercise. In the new era, HRD is likely to play a vital role in organizations. Managers also need to change the culture and value system of the organization so that its people will be receptive to continuous and discontinuous/radical changes.

CONCLUSION

The unpredictable environment requires continuous and radical changes in organizational design so that the organization can survive, can reap temporary advantages, and can grow continuously in the industry (Stieglitz et. al., 2009). Flexible organizations can adapt quickly to the changes in the environment. They use their flexible design to fit in the environment, and thus, get a competitive advantage. Organizations can move from one archetype to another or to mixed archetypes as the environment changes. The object-oriented paradigm can help in matrix design to reduce the complexity in the structure and to increase efficiency in development of the design. An effective and efficient organization must achieve fit, both with its external environments and among its elements of structure and process. Managers must involve employees and communicate to them the details of design at each stage of development. In implementation, the involvement of as many people as possible, as well as extensive communication, may help in mitigating the resistance to change. Managers should cautiously monitor progress and take corrective actions as needed from time to time during implementation. The HRD should develop a plan to ensure availability of required human resources for the new design of the organization.

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