

**THE CHANGING PATTERNS OF WORK ENVIRONMENTS
IN A GLOBAL SOCIETY:
TOWARD AN EMPLOYEE-CENTERED FRAMEWORK
FOR WORKPLACE DESIGN**

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ABSTRACT

Certainty about the change of work environments, the permanence of this change, and the associated behavioral phenomena represent a challenge decision makers face to value people as an integral component of organizational and physical development processes. Globalization and trans-national practices have led to the emergence of multinational organizations. As a result, people with different cultural backgrounds come together to perform tasks for their organization. This paper bases its argument on the need to understand the employees through their direct involvement in the process of introducing physical changes in their environment. Centered on the principles of theory Z of collaborative management, an employee-centered framework is introduced and developed. It is envisaged as an interaction mechanism for involving employees in the decision making process of designing or redesigning their work environments. Addressing employees in the early stages of the process would ensure incorporating their functional and psychological needs, preferences, and the work style mandated by the culture of an organization. Implementing the proposed framework would help create a healthy and productive workplace and invigorates an environment conducive to achieving the mission and goals of an organization.

INTRODUCTION

Conventional working patterns are dramatically changing in response to the emerging needs of global markets. Requirements for workplaces have become much more demanding in recent years. Information and communication technologies, energy costs, environmental quality, employee productivity and occupant health were of little concern two decades ago when many of today's buildings were being designed; but they are now of vital importance. The challenge of meeting these requirements has been just as demanding. Global markets, changing fiscal policies, fluctuating capital costs, high rates of organizational restructuring and many other factors have converged to create the need for more capable facilities – capable of accommodating optimal quality and rapid change with reasonable cost and minimal disruption.

As a result of rapid development and urbanization processes, many municipalities, government agencies and private corporations around the globe occupy millions of square meters of work environments. However, in many cases, insufficient care is taken initially to define the specific requirements these work environments must fulfill. Researchers have voiced the opinion that the result is a large capital investment in facilities that do not enhance and often hinder efficient work operations. They corroborate that this does not support health, safety, functional performance, and employees' productivity and satisfaction.

Workplace literature developed over the past decade asserts the value of people working in an organization as important assets to that organization. Thomas Peters in his books *Liberation Management* (1992) and *The circle of Innovation* (1997) confirms that space management may well be the most ignored, yet the most powerful tool for inducing cultural change,

speeding up innovation projects, and enhancing the learning process in far reaching organizations. Office environments must be designed to be used in ways that reconcile adding value to employees' work while simultaneously driving down occupancy cost.

A visionary statistical model has been developed by BOSTI Associates based on extensive research of major corporations indicating important results. The model accentuates that over the period of 10 years from 1998 to 2008 the relative cost of the primary elements of any corporation is estimated to be 5% for building new facilities and furniture, 3% for facility operations and maintenance, 10% for technology and information systems, and 82% for people salaries (Brill and Weidmann, 2002). As well, there has been a surge in the development of new knowledge that establishes relationships between employees' health, productivity, absenteeism, and performance in relation to the physical environment (Davis, 1993; Duffy and Powell, 1997; Duffy and Tanis, 1999; Worthington, 1998). Much debate is increasingly on the rise to emphasize the value of people to government agencies and private corporations.

Although recognition of the value of employees to successful organizations is currently taking place, there has been little effort in looking for ways in which employees can be involved in making decisions about their environment. Research studies have indicated that decisions about work environments tend to be made by a few that affect many (Adams, 1988; Salama and Adams, 2003; Sanoff, 1992). In essence, few people who are not direct building users make decisions about an office environment, building location, workstation design, building capacity and size, furniture, and many other physical aspects. They often ignore the direct involvement of those who actually use the building. This results in creating workplaces that do not reflect the culture of the organization and the functional and psychological needs of its employees.

This paper calls for a new comprehensive framework to the design of work environments. It considers people to be the primary focus of investigation. This is promoted by recording their ambitions, aspirations, and psychological needs in both qualitative and quantitative manners that can be translated into requirements. The proposed framework recognizes the value that a balance is needed between these requirements and the culture of an organization and the way in which it pursues its mission and goes about achieving its goals.

The methodology adopted in this paper is based on reviewing the recent literature on workplace environments by conducting inductive analysis procedure. The aim is to establish a theoretical base that involves critical discussion of two major issues. These can be exemplified by first, the continuous process of change of work environments and the permanence of this change, and second, the emergence of internationalization and multi-cultural organizations. Factually, these two issues mandate employees' involvement in making decisions about their environment. Thus, a user centered design framework is introduced based on the Theory Z in collaborative management, illustrating different mechanisms for involvement.

PARADIGM CHANGE IN WORK ENVIRONMENTS

The true beginning of mass work environments occurred after WWII. In the early fifties office environments were named *paper-factory offices* since they shared many characteristics with the design of factories. They were places for routine processing of paper-based information. By the end of the fifties deep plan buildings were made possible by air

conditioning and were further encouraged by the development of the open plan office. According to Laing (1998), the typical European office remained narrow in depth and cellular in plan, with small offices served off a central corridor. The same period has witnessed the emergence of *Burolandschaft* office in Germany that comprehended the need for better communication. The flow of paper and visual communication between individuals and groups were used to determine the office layout. This has resulted in very open floor layouts with all walls removed. *Burolandschaft* was introduced to North America in the early sixties as *office landscaping* but new versions emerged (Duffy, 1992). They included the removal of casual meeting places. While clerical workers remained in large open spaces, top management staff was retreated once more to their private enclosed offices.

By the mid sixties, the *action office* concept was introduced by Herman Miller; the pioneering office furniture company. The concept was subsequent to the development of *Burolandschaft* concept and was based on idea that office furniture should be a kit of parts that responds to the varied tasks of office work. However, a criticism against these concepts was developed because of the overly deterministic assumptions adopted by them. Scholars agree, and rightly so, that not all office layouts should be equally landscaped and that not all organizations were communication intensive.

In response to this criticism, an *archetypal office* was envisioned in the early seventies (Gatter, 1982). It was to balance the tension between individual and corporate aspirations (Laing, 1998). Herman Hertzberger skillfully addressed this balance in Centraal Beheer building in Netherlands (Becker, 1995). Open spaces for ease of communication were provided. However, these were integrated with defined spaces for small groups and individuals with identifiable personal zones. Continuous developments continued to occur in the seventies throughout Europe until 1980 that marked the introduction of personal computers. A pioneering article by Stone and Luchetti (1985) addressed the question of how with ubiquitous information technology the space and time of the office could be used in new innovative ways. Several office types emerged to incorporate new thinking about work environments.

The *Combi* office has been developed in northern Europe, providing high levels of personal enclosures at the building perimeter while offering opportunities for teaming and gathering in core areas (Worthington and Konya, 1988). The *group room layout* concept was also conceived to accommodate small and average number of people to work collaboratively (Zelinsky, 1998). While several characteristics of the eighties work environments still exist, Harris (1998) indicates that the nineties decade is characterized by more demanding employees. They want control over their work environment and have specific preferences that pertain to natural light and ventilation and control over thermal comfort systems.

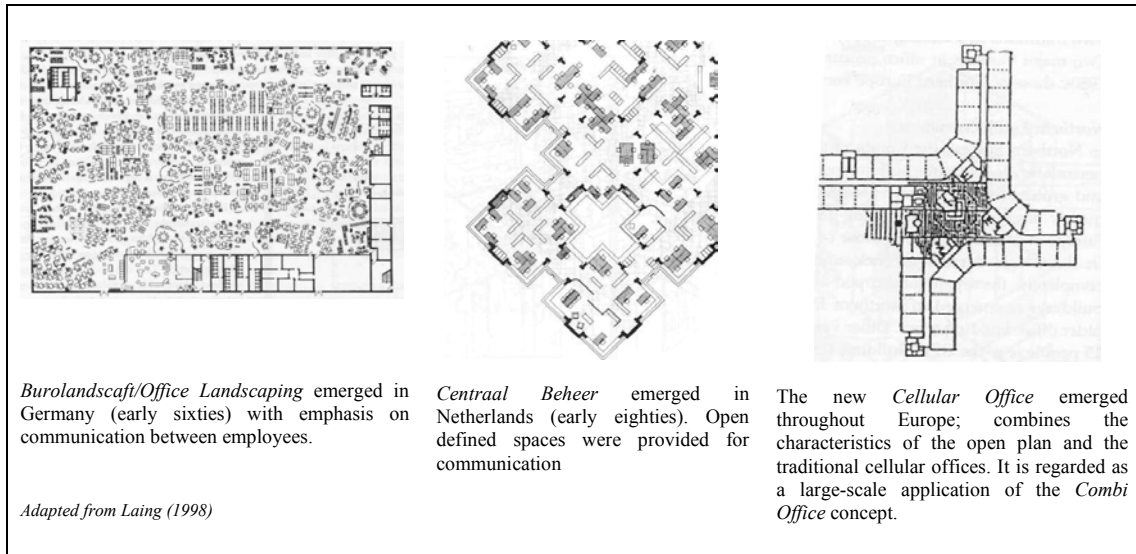


Figure (1) Major paradigm shifts in workplace design

MULTI-CULTURAL ORGANIZATIONS AND THE PSYCHOLOGY OF WORK ENVIRONMENTS

In recent years, multi-cultural organizations are increasingly visible as a result of globalization and the establishment of trans-national practices and trades. Coupled with this development there is a common understanding that internationalization can create a common global culture. However, this understanding can be questioned based on reviewing the environmental psychology literature in relation to work environments.

Primarily, an organization is a group of people intentionally organized to accomplish a common set of goals. Organizational culture is the personality of an organization that is comprised of a set of assumptions, values, and tangible signs of its members and their behaviors (McNamara, 2001). Concomitantly, to employees an office environment is more than a place for work; it reflects their psychological needs. These needs vary dramatically in multicultural organizations where employees from different parts of the world work together and perform office tasks. To elaborate upon cultural differences in office environments two types of psychological needs can be introduced in this discussion: power and status, and privacy and territoriality.

In generic terms people always seek means to express their status and power in different types of environments and work environment is no exception. In hierarchical cultures managers and employees see each other as unequal based on the fact that managers hold responsibilities while their employees have little autonomy and control. Hofstede (1991) and Rapoport (1992) have pointed out that status as a psychological phenomenon is highly expressed in work environments. Status in Germany is well illustrated in BMW headquarters where executives are accommodated on the 22nd floor with spacious rooms and conference tables. In contrast, employees are accommodated in high-density open offices. According to Meel et al. (1998), in this system decisions are literally taken top down. In Middle Eastern cultures, top management occupies the best spot in the building in terms of floor level and location in that level. Managers in this case are usually accommodated at the building corners with better views to the outdoor environment. In typical American office, employees are

arranged in a line to facilitate supervision of the top management. In Scandinavian countries, workplaces have less symbolic meanings (Hofstede, 1991). Managers and employees are equal in terms of office layout and office space. Employees of different ranks use the same parking space and other support and service spaces.

Privacy through territorial control is another important aspect that is determined by office furniture, walls, screens, and personal belongings. In Arab culture, work environments are characterized by cellular offices. Employees have their own territories and they are likely to leave doors closed. Direct observation indicates that they will not easily give up their attained privacy for an open plan office. Usually, when more than two employees share a space they are completely aware of what is personal and what is communal. According to Rapoport (1992), this can be applicable to typical office environment in United States and northern Europe. Japanese offices in contrast have hardly any closed workspaces and employees have little personal space (Meel et al, 1998).

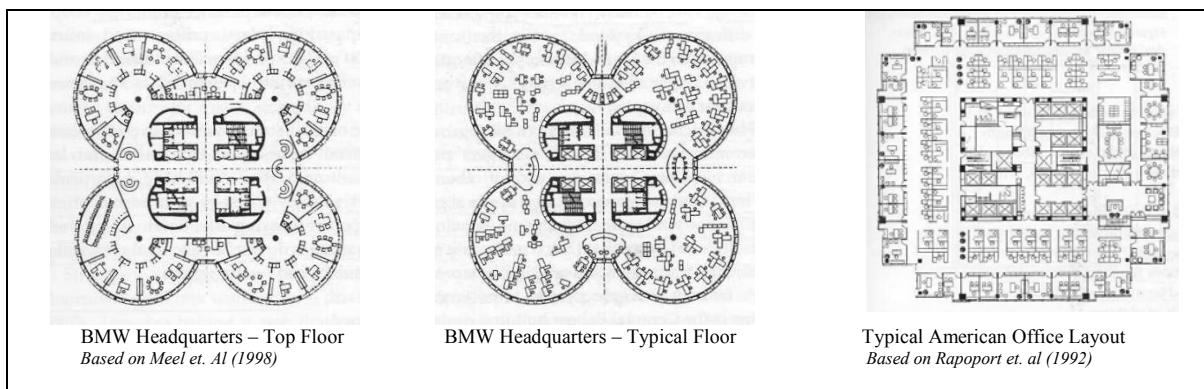


Figure (2) Psychological aspects as reflected in work environment design

OBSERVATIONS AND POLEMIC

Discussion on paradigm shifts in work environments suggests the phenomenon of “permanence of change.” Change in work styles and work environments occurred extensively over the past five decades. This is due to the fact that demand for work environments stems from the need for production and delivery of services. As this demand changes over the years, the work environment needs to change to adapt to changing markets and emerging needs for new services. This is applicable equally to government and public agencies and to private corporations. Paradigm change in work environments should be regarded as an important certainty. The analysis of two psychological aspects of work environments points out to the fact that there are behavioral phenomena expressed and reflected in the physical aspects of the work environment and the way in which employees perform their tasks.

It would appear that the speculative nature of the development of work environments has encouraged designers to focus on maximizing economy, emphasizing flexibility, and the corporate image. While these are important elements in the design of work environments, in many cases designs have not been closely related to the needs of organizations and their employees. The separation between the building --as the “container”-- and the activities of its occupants -- as the “contained” --reached its climax in the eighties, especially with the emergence of postmodern skyscrapers in major cities of US, Europe, China, and many Arab Countries. The fact that employees should be part of making decisions about the environment

is thus over simplified, especially since psychological needs seem to make little sense in a world driven by costs and technology.

The questions that can be raised here are: How designers can deal with paradigm change in work environments? How they can deal with the psychological needs of the employees in these environments? How they can act as facilitators and collaborate with managers of an organization to create responsive work environments that foster employees productivity and enhance their performance? The following section attempts to answer these questions.

BORROWING FROM MANAGEMENT SCIENCES TO DESIGN PRACTICES: IMPLEMENTING THEORY “Z” in DESIGN

While the latest writings are sensitive to the social and economic situations influencing work effectiveness (Cherniss and Coleman, 2001; Henderson, 1994; Henderson, 2000; Marmot and Eley, 2000), there is little effort in involving employees in making decisions about the future of an organization including developing new buildings or upgrading and renovating existing facilities. Henry Sanoff (1992) argues that “*concern about productivity and worker motivation are basic to organizations as are rapid staff turnover, absenteeism, and in some cases vandalism and theft of plant facilities*” (Sanoff, 1992:67). People gain satisfaction from feeling competent, in control, and choose for themselves. Personal involvement in the planning and design of their workplace will foster the development of responsibility, cooperation, and self-motivation. William Ouchi has described the relationship between an organization and its employees in 1981 through his Theory Z, known as “Japanese Management Theory” (Ouchi, 1981:80).

In 1960, McGregor introduced his famous theories X and Y that are referred to commonly in the fields of management and motivation. Theory X is an assumption about human behavior that adopts the premise that people are inherently lazy and need to be constantly watched and observed. Theory Y is completely the opposite since it assumes that people are inherently hard working and need only to be supported and encouraged. Theory Z is not an extension to these two theories, but can be regarded as a mediator. It assumes high level of trust, loyalty, and productivity. The theory adopts the premise that each person in an organization can apply discretion and can work autonomously without close supervision. It advocates that decision-making should be collective, but the ultimate responsibility for decisions still resides in one individual. This is based on a consensus process in which members of a group may be asked to accept responsibility for a decision that they do not prefer, but that the group in an open, complete discussion, has settled upon. Theory Z emphasizes participatory management in a holistic atmosphere where the culture of an organization is considered. Organizations adopting Theory Z function similar to an open system where a sustained interaction with the environment and a state of balance between the culture of an organization, employees, and the environment is achieved.

The principles of Theory Z can adopted and adapted to design practices where employees, who will actually use the environment, would have sufficient opportunity to be involved in shaping the future environment of the organization they are working for.

A FRAMEWORK FOR AN EMPLOYEE CENTERED APPROACH

An important step toward developing an employee centered framework for workplace design or redesign is to determine the best methodology or combination of methodologies for

employees' involvement, and utilizing reliable methods for collecting information from them. The proposed framework is primarily based on three conceptions outlined below:

- Understanding employees' satisfaction and performance is not sufficient.
- Allowing total employees input does not necessarily work for the total benefit of an organization.
- Survey questionnaires for gathering information from employees need to be supplemented by other information gathering mechanisms

The approach of understanding and measuring job satisfaction and employees performance has normally placed emphasis on their correlation with many workplace physical qualities such as enclosure, layout, furniture, noise, flexibility, comfort, communication, lighting, temperature, air quality...etc. *Although this type of information is crucial, it is not sufficient since it aims at the quantification of a job performance rating by supervisors or managers of units or divisions without actual involvement of employees.*

Going as far as giving employees total input in the space planning process does not necessarily work for the total benefit of an organization for political and hierarchical reasons. A major finding of recent research (Becker, 1990, Canastaro, 1990) asserts that if employees are queried as to what amenities or physical attributes they need to be more productive, then management should respond efficiently to those needs. If this does not happen, employees could be more dissatisfied and less productive after the process than if they have no input into the process at all. *Although it is believed that it is paramount to get direct information from employees the authors realize that the information should be obtained by different and multiple means avoiding this hierarchical dilemma.*

Survey questionnaires used in gathering data for designing office spaces tend to fall short in that they query respondents concerning their perceptions of various physical aspects of the workplace. Researchers indicate that in many cases survey questions tend to be confusing and introduce ambiguity. They also tend to lead employees to consider the issues presented to them one at a time, rather than pairing issues and having respondents make a choice between competing alternatives, not repetitive choices with very slight differences or in some cases with no real differences. *Although it is believed that there is no way of avoiding the use of survey questionnaires, it is critical to supplement them with other information gathering tools and techniques.*

In response to the preceding conceptions, the framework introduces action research process. Action research is a natural process of acting and researching at the same time. Dick (2002) argues, *"It is a flexible spiral process which allows action and research to be achieved at the same time."* Action represents change and research represents understanding. The understanding allows for more informed change and at the same time is informed by that change. People affected by the change are involved in the process so that the understanding will be widely shared and the change will be pursued with commitment.

The principles of theory Z and the action research process form the crux of the proposed framework that consists of a series of events envisioned as interaction mechanisms for designing or redesigning the work environment or introducing any change in it. In these events, designers and architects are immersed in purposeful activities to study the culture of the organization, work styles and how the organization performs its tasks and deliver

services. This takes place at different levels that involve top management, division or unit managers, and employees. The events are:

- Visioning Events to be conducted with top management of an organization
- Exploratory Events to be conducted with division and unit managers
- Workshops and Trade-off Events to be conducted with employees representatives

Visioning Events

Visioning events involve two major working meetings with the top management of the organization. The first is a kick-off meeting, and the second is focus group visioning sessions. The kick-off aims at achieving two objectives. First is the introduction of the design team to the top management of the organization. Second is to present, inform as well as be informed by the overall culture and hierarchy of the organization.

The major objective of Focus group visioning sessions is to provide the design team with detailed information about the core business activities including direct and support business functions. Direct functions are customer-based services while support functions are the ones that enable an organization to perform efficiently and effectively. Thus, visioning sessions are intended to establish conceptual and visual image of what the future of the organization might be while developing goal setting mechanism for defining what needs to be changed, modified, or developed. The nature of the building, its occupants, the activities taking place and the available budget for introducing physical change are discussed as important factors influencing the process ahead. The focus group represented by the top management is involved giving direction to the vision.

Exploratory Events

The ultimate objective of these events is to identify current and future activities while examining current shortcomings and defining future needs. Exploratory events comprise a work meeting and survey questionnaire. The work meeting is aimed at division managers where the objectives are to 1) inform with the organizational environment and the activities taking place, 2) the functional relationships between these activities, and 3) physical requirements for each activity. The result of this process is a clear definition of the activities in each division or unit.

The second exploratory event is survey questionnaire devised to include both verbal and visual information and integrate aspects of workplace environment together with the incorporation of any planning or design guides that the organization might have. The survey instrument intended to be utilized for use by division managers and should have the following features:

- Introduce questions with choices while having division managers think about the organizational issues underlying one idea or concept and simultaneously.
- Introduce questions that help division managers comprehend their real needs covering the entire range of workplace qualities.
- Provide one thought or idea underlying each question.
- Keep the language of the questions simple, clear, and direct
- Develop a format for this instrument that is appealing to the managers.

- Avoid questions that refer to defining problems that cannot be identified, but imbedded within these questions are parts of the new desired environment.
- Avoid questions that include universals such as always and usually. They often introduce ambiguity
- Avoid questions that are likely to be endorsed almost by everyone or almost by no one.

The process of information gathering would involve an instructional work meeting on how to use the questionnaire. The results of the survey questionnaire are a definition of existing condition while comprehending future needs.

Workshops and Trade-off Events

One Workshop, for each division within an organization, with employees' representatives is envisioned, together with interviews with key staff employees in each division. The introduction of "What if Scenarios" during the workshop is important while abstracting the essential workplace characteristics. The purpose of this technique is to document three types of information; these are 1) physical workstation elements, workstation trade off choices, and organizational elements. Workstation elements include all furniture and equipment, 2) trade-off choices include aesthetic, lighting, acoustics, ventilation, enclosure, seating, storage, and work surfaces, and 3) organizational elements go beyond the scope of individual workstations and include aspects that pertain to densities, image and style of offices, location, and services. The results of these events are workplace needs and preferences cited by the employees.

The three type of events result in a pre-design document that is based on collaborative effort between the design team and the organization where people who are influenced by the decisions are actively involved. The document illustrates why change is needed, what the requirements for introducing change in the organizational environment are, and how change might occur to shape the future of the organization.

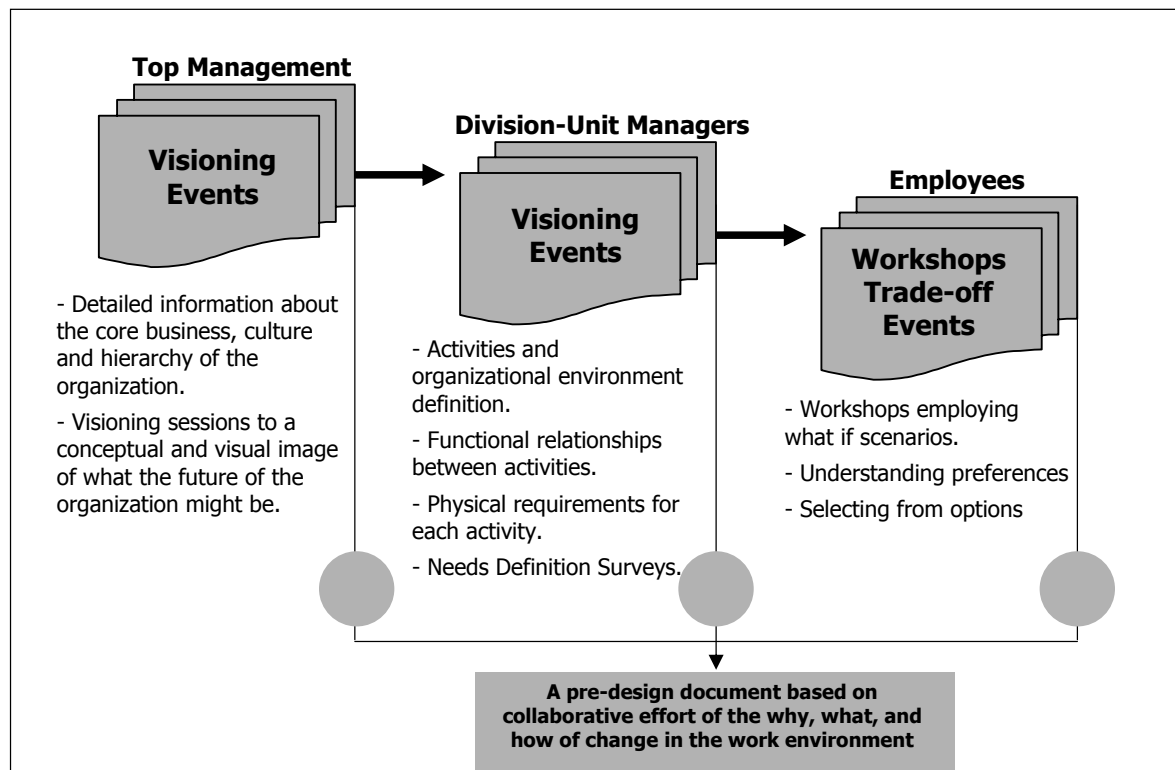


Figure (3) A proposed user centered framework for making decisions about introducing physical changes in the work environment.

CONCLUSION

This paper argued for the importance of involving employees in the decision making process of introducing physical change in their work environment. A summary of paradigm shifts in the physical aspects over the past fifty years was provided while psychological and behavioral phenomena of the workplace were critically discussed based on the merge of multicultural organizations. The paper introduced Theory Z-the Japanese management theory as a paradigm that helps bridge the gap between organizations and their employees. A framework for an employee-centered approach for the design of work environment was introduced based on Theory Z principles. Devised as a series of events, the framework is envisioned as a mechanism for interaction between the design team, the top management, and the employees of an organization. The author believe that this framework has the capacity to overcome obstacles faced in the preceding efforts for involving employees in decision-making. Implementing such a framework has several benefits that are outlined below:

- Avoid any shortcomings of using a singular method.
- The results of implementing each technique are documented and help verify the results of another, thereby reaching maximum accuracy and a real translation of all organizational needs.
- Covering the entire range of different types of users will lead, by default to a workplace environment that addresses the practical realities of each department or management unit within an organization.

- The introduction of trade-off choices into the process allows employees to go through a series of iterations in the spatial planning of their workspaces. This process helps the employees reach a goal, which is to layout the most responsive and cost effective office.
- The working meetings with division managers and real estate management and the trade off meetings with employees' representatives will both help to explore and discuss various options available to the employees while revealing unidentifiable issues and concerns.
- The results of using multiple techniques will have a value not only at the very short term level exemplified by developing a plan for introducing physical change, but will have a positive impact on the long term level for developing organizational and design criteria and guidelines.

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