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The impact of organizational culture on the success of information technology projects

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Abstract

This paper discusses organizational culture and presents a model for managing cultural change in order to foster an organizational climate conducive to the successful implementation of information systems. Four key points are made in this paper: 1) organizational culture is an information-processing system composed of people and is fueled by values and beliefs, 2) there are four types of organizational cultures based on level of risk of the tasks performed and the speed of feedback, 3) essential to an organization's adaptability is a culture where planning and information management is an integral part of the organization's processes, 4) building this planning culture involves the use of existing change forces based on the type of culture prevalent in the organization.

Keywords

Educational management, culture, information technology, organizations

1   INTRODUCTION

The system of values prevalent in any society not only influences the way organizations are structured but the way organizations use technology. Values and structures within an organization, as articulated in and supported by the organization's culture, can either limit or encourage technological innovation. For an information system to produce the envisioned benefits, the system has to fit into the organizational culture for it to be acceptable and useful. On the other hand, introducing new technology molds a new set

of organizational values and drives changes in organizational structure. With the emergence of decision support systems, for example, the power to make crucial business decisions filters down the ranks to the lower levels of the traditional organizational heirarchy, thus eliminating the need for middle management. The changes in the value system that technology projects require for success, and the changes these projects will bring, calls for an awareness of the significance and impact of culture on the deployment of technology in organizations. While change must be managed during the whole systems development lifecycle, the challenge lies in managing the change upfront, before information technology is introduced.

   This paper discusses the elements of organizational culture that will create a climate conducive to technological change and innovation. This will be done by first presenting the concept of organizational culture: what it is and why it is important. The next section will discuss a method aimed at fostering an organizational culture that can assimilate change. Central to the change management process is the information systems project manager who has a great degree of influence on the organization's culture.

2   ORGANIZATIONAL CULTURE AND TECHNOLOGY

The successful planning and implementation of new systems development projects rely, in no small way, on the development of a shared vision and the articulation of a shared culture that recognizes the importance of change. Alter (1988) stated that the US government is lagging 5 to 10 years behind the private sector in the adoption of IS technologies. He recognized that one obstacle had to do with a lack of leadership, coordinated planning, and integration. The solution, he states, is a more effective leadership that is based on a clear line of command, and that promotes a climate throughout the state government that favors information innovation and gets management involved.

   According to research conducted through the Massachussetts Institute of Technology's Management in the 1990's Program, it is the inadequate management of organizational change that emerges as the major reason organizations do not achieve the full benefits of information technology (IT). As IT and business processes both spiral upward in complexity, the need to change the organizational structure and culture becomes more pronounced. This is so because IT moves the locus of knowledge, and its concomitant power, within the organization; IT changes the time frame within which decisions are made and processes are completed; and IT creates new organizational structures. As change is needed, resistance and other change management issues have to be addressed. But even with a commitment to manage change, companies are likely to find that people's inability to change, not technology, is the limiting factor in transforming organizations (Benjamin and Blunt, 1992).

Definitions of organizational culture
Organizational culture can be defined as "a system of beliefs or set of values that [is] transmitted, carried out, and upheld by the entire physical, psychological and social milieu of an organization" (Louis, 1980). It can also be described as a series of "cultural networks" which are composed of various "media" used to collect, interpret, share, store, and directly apply information about the organization's values or beliefs. Each cultural network uses the cultural media in its own unique way, for example, an "old boy" network of long-time workers who act as informal "historians" by telling stories about "how things were when this place first got started." (Deal and Kennedy, 1982). Cultural media can be classified into four types that embody or convey what an organization stands for: 1) heroes, 2) rites and rituals, 3) myths and legends, and 4) physical settings and work technologies.

A more formal framework describing organizational culture defines it as an information-processing system that is organic, not mechanized, because it has a purpose, it is fueled by values, and it is composed of people. This is so because information has no "value" or "meaning" unless and until people ascribe value or meaning to it. The organizational culture interacts with its external environment both at an input point (resources flowing into the organization) and at an output point (services, products delivered). This shows that an organization's culture is dependent upon its external environment for resources and for purpose. The culture has a feedback loop through which the organization is informed of the degree to which the organization is meeting external expectations (Harman and McClure, 1985). Thus, the organization's culture embodies all the elements necessary for the organization, and for the people who are the organization, to succeed in the organization's particular social and industry environments. Beliefs and values are the core of the culture because they are the reasons for the organization's existence.

Cultural Types and Subcultures

Deal and Kennedy (1982) have identified two factors that create cultural types: (1) the degree of risk associated with the tasks the organization must perform in order to succeed in its environment, and (2) the speed with which the organization learns whether or not its strategies and actions were successful. Figure 1 shows four cultural types based on the levels of these two factors.
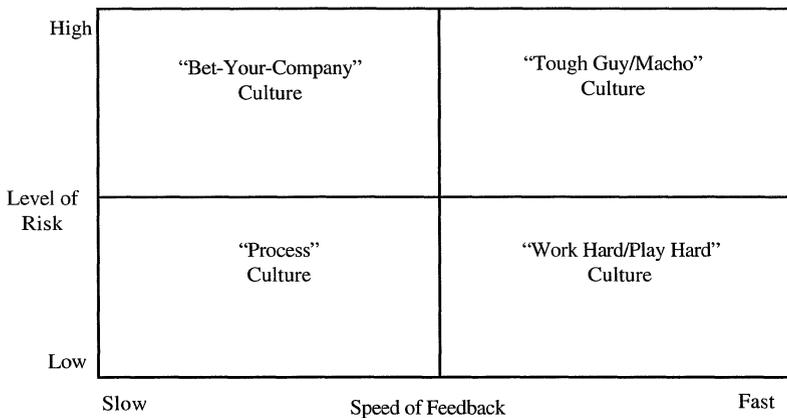
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High ┌─────────────────────────┬─────────────────────────┐
     │    "Bet-Your-Company"   │    "Tough Guy/Macho"    │
     │         Culture         │         Culture         │
     │                         │                         │
Level of                       │                         │
Risk ├─────────────────────────┼─────────────────────────┤
     │                         │                         │
     │        "Process"        │   "Work Hard/Play Hard" │
     │         Culture         │         Culture         │
     │                         │                         │
Low  └─────────────────────────┴─────────────────────────┘
     Slow           Speed of Feedback              Fast
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Figure 1   Cultural types (based on Deal, T. and Kennedy, A. (1982) Corporate Cultures. Addison-Wesley, Reading, MA).

As can be seen, given risk-levels and speed of feedback, it is the availability of information and the need for information which produces different types of organizational cultures and sub-cultures.

The Culture in Educational Institutions

It can be argued that since the benefits of one's education cannot be immediately realized, educational institutions are organizations with predominantly low feedback; schools cannot immediately gauge the success of their actions or strategies, unlike organizations in advertising or manufacturing.

The planning and administrative functions within educational institutions are generally high-risk functions; poor planning and inadequate administrative practices will inevitably result in the poor delivery of educational services.

The Importance of a Culture

With a higher level of risk comes a high degree of uncertainty towards a project. With a longer period of feedback comes a greater degree of ambiguity of the purpose of a project. Organizational culture is important because it is through this that employees cope with uncertainty and ambiguity. Organizations that excel at their business and have learned to deal with risk and ambiguity have one common trait: information is widely available to employees at all levels of the organization, and information sharing is actively encouraged and rewarded (Peters and Waterman, 1982). With the information sharing comes the maintenance and development of that system of beliefs that push an organization forward. This kind of successful culture is called a 'planning culture'.

A planning culture

A planning culture is defined as:
> "a widely shared belief or philosophy, which is expressed in an organization's culture, that planning and information management are an integral part of the organization's essential tasks and, when conducted effectively, promote better organizational performance by engendering and enhancing organization members' personal commitment to excellence and continuous improvement" (Harman and McClure, 1985).

It is with this planning culture that favorable organizational attitudes may be developed towards adaptiveness, flexibility, and innovation. Coordination of effort across functional boundaries is one way to ensure the success of information systems. Integrating the information systems function into the business essentially means building a planning culture that recognizes information management as integral to the business. One way to achieve this is for the CEO to create the planning and control mechanisms within which his managers do their planning and controlling, particularly with regard to IS.

3   ORGANIZATIONAL CHANGE

Building a planning culture

Harman and McClure proposed a generic three-phased plan for building a planning culture. The plan depicts the creation of a planning culture as a continuous process with a feedback loop from the third phase back to the first phase.

The first phase involves envisioning a planning culture within the organization and this requires top management or project managers to display their values and beliefs by making sure that they are consistent in what they say and do. Here the manager seeks to distribute a sense of responsibility for the organization by concentrating upon the development, as opposed to the evaluation, of employees. This is called the ethic of creation. Once the managers begin to exemplify this ethic of creation, the second phase can begin.

The second phase involves creating a blueprint for change. This is done by identifying existing change forces within the organization, an effort that will enable management to deal with resistance to change by powering the change effort with change processes already underway within the organization. This way the change will be

perceived as a natural response to pressing or widely felt needs with which the organization must cope (Moss, 1983). Certain change forces are characteristic of the predominant cultural type exhibited by the organization. Cultures which exist within a high-risk environment rely more on planned types of change forces, such as strategic decisions, as compared to low-risk cultures. These cultures actively promote change, while low risk cultures are more "reactive" by nature. The cultures created by slower feedback cycles and lower environmental risk tend to have gradual departures from tradition as the key force for change. See Table 1.

Table 1   Forces for Change for Different Cultural Types (Harman and McClure, 1983)

Type of Culture or Subculture	Level of Environmental Risk	Most Likely Pre-existing Force for Change	Type of Change Force
Tough Guy/Macho	High	Individual Prime Movers	Planned
		Strategic Decisions	Planned
		Crisis/Galvanizing Event	Natural
Work Hard/Play Hard	Low	Gradual Departures from Tradition	Natural
Bet-Your-Company	High	Strategic Decisions	Planned
		Action Vehicles	Planned
Process	Low	Gradual Departure from Tradition	Natural
		Action Vehicles	Planned

The third phase in the cultural change process is a transition phase wherein the change that has been initiated begins to form sturdier foundations. Encouraging modification of procedures to reflect new values promotes greater participation in and acceptance of the change, and shows that management is consistent in both word and deed. Monitoring the effect on the organization's bottom line is needed to ensure that the change is positive, shown in effects such as reduced turnover or increased employee productivity. Communication in this phase is critical in order to avoid hostility and resentment.

Harman and McClure also propose certain change tactics for each of the different change forces. See Table 2.

Table 2   Change tactics for different cultural forces

Forces for change within culture	Corresponding Change Tactic(s)
Action vehicles	• Use transition rituals such as celebration or award dinners
	• Provide transition training such as using problem-solving simulations to spur creativity and innovation
	• Build tangible symbols of the new directions, such as changing the configuration of the offices, simplifying internal review forms, introducing new technology

Individual prime movers	• Position a hero in the change process, such as in giving recognition to successful project directors
	• Bring in outside experts
Strategic decisions	• Insist on building security during transition, such as in involving people in planning committees, searching for seed money to support projects
Crisis or galvanizing event	• Insist on security by bringing in successful outsiders
	• Call on heroes
Gradual departures from tradition	• Use transitional rituals such as developing new procedures
	• Provide transition training such as training employees in new procedures
	• Build new symbols such as producing new procedures manuals

Those responsible for overseeing a new project should also prove adept at overseeing the cultural change process because before they initiate a project this process must take place. Managing change is important because employees my revert to former attitudes and modes of behaviour. This can happen if the employees perceive the change process as creating uncertainty, upheaval, and unnecessary hardship. For those in charge of projects, time and patience is required of them especially during project start-up when they simultaneously have to get the project running and have it integrated into the culture.

4   CONCLUSION

Organizational culture has been described as an "organic" network composed of "heroes," rites and rituals, "myths and legends," and physical settings and work technologies. It is through this network that the values and beliefs of the organization are expressed. Since organizational culture is the means through which the organization copes with risk and ambiguity, the nature of this culture can either promote or hinder the successful deployment of IT in an organization. Often, the power and benefit of an information system is not limited by technology but by people's inability to change. The more ambiguous and risky an IS project is, the less likely it is to be accepted and successful. Organizations that have successfully dealt with ambiguity and risk have created a culture where planning and information management are processes considered critical to and an integral part of the business. To create such a culture, top management must begin by envisioning this end. Change management starts by recognizing and using existing culture change forces already underway in an organization to channel and focus the change effort.

5   REFERENCES

Alter, A. (1988) The art of the state. *CIO*, **2(2)**, 28-39.

Benjamin, R. and Blunt, J. (1992) Critical IT issues: the next ten years. *Sloan Management Revie*, Summer 1992, 16-17.

Deal, T. and Kennedy, A. (1982) *Corporate cultures.* Addison-Wesley, Reading MA.

Harman, K. and McClure, C. (1985) *Strategic planning for sponsored projects administration.* Greenwood Press, Connecticut.

Louis, M. (1980) Organizations as culture-bearing milieux, in *Organizational Symbolism* (eds. L. Pondy et al.), University of Chicago Press, Chicago.

Moss, K. (1983) *The change masters.* Simon and Shuster, New York.

Peters, T. and Waterman, R. (1982) *In search of excellence: lessons from America's best run companies.* Warner Books, New York.

6   BIOGRAPHY

Gina Reyes teaches systems analysis and design at the Ateneo de Manila University. She has undergraduate degrees in management science and in computer science. She holds a masters degree in Information Systems from Golden Gate University in San Francisco. At present, she is working on various administrative information systems projects in the Ateneo.