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Achieving Cultural Fit in Global Information Systems Implementation

Esther Brainin
Ruppin Academic Center

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Abstract

Designers and engineers that plan and manufacture technological systems imprint their values and practices onto these systems, without fully realizing that inconsistencies in cultural dimensions between developers and users may result in poor implementation of the new system due to resistance to change, among other causes. Therefore, manager's awareness of cultural differences is a necessary condition in formulating GIS policies for implementation in different organizational settings across countries. The paper offers detailed examples of cultural differences between countries and their relations to the different stages of technology implementation, which may serve as a guideline for engineers, vendors, consultants, and managers of GIS interventions in formulating mechanisms for global implementation. Implementation managers are advised to adapt GIS to their own set of beliefs through the establishment of joint global and local teams, which represents all parties in the process. In this manner, rather than a cultural conflict, GIS implementation becomes a cultural exchange that reduces resistance to change.

INTRODUCTION

GIS impose high demands on virtually all organizational members since these process-oriented technologies are designed to standardize business procedures across the enterprise. In addition to its potential benefits, the introduction of an IS into an enterprise becomes the means for achieving organizational standardization and integration. Hence, it can be viewed as an organizational 'boundary crossing' channel, and as such, IS integration processes are more than likely to face resistance to change. It is not surprising, then, that while companies worldwide have made substantial investments in the installation of GIS, difficulties in implementation and uncertain bottom-line benefits (Davenport, 1998; Kumar & Hillegersberg, 2000; Robey, Ross & Boudreau, 2000) may be attributed to a failure in the implementation process (Brainin, Gilon, Meidan, & Mushkat, 2005; Klein, Conn & Speer-Sorra, 2001) rather than a deficiency in the technology itself.

The complexity of IS implementation is exacerbated when ISs are globally implemented since the integrative nature of this technology calls for the crossing of national or regional boundaries, in addition to organizational boundaries. Since countries, regions and organizations differ in their absorptive capacity (Lane, Koka & Pathak, 2006) and their societal and organizational culture (Hall & Hall, 1990; Hofstede, 1980; Javidan, House, & Dorfman, 2004; Trompenaars, 1996), the implementation of information systems in global enterprises requires a detailed examination of potential gaps or inconsistencies in the interaction between new technologies, end-users and organizations in different countries and/or regions (e.g., Boerma & Kingma, 2005; Dube & Robey, 1999; Krumbholz & Maiden, 2001; Leidner & Kayworth, 2006).

This paper is based on the theory of the social construction of technological systems (Bijker, Hughes & Pinche, 1987). Their theory maintains that different types of user groups differ in how they conceptualize, interpret and exploit technologies and their potential. Accordingly, the effective utilization of a technology is the result of explicit and implicit 'negotiations' between groups of users regarding the desired use of the technology and its organizational contribution and significance. That is, the theory holds that technology does not constitute an entity per se, and that despite its standard engineering components, its preferred pattern of use can differ as a result of what Orlikowski (2002) described as the diverse attributions of meanings and power relation conceptions within and between organizations.

In the culture literature, technology is viewed as a 'cultural artifact' (Schein, 1985) thus, constituting an integral and inseparable part of organizational culture, which is reproduced in everyday working routines.

As a result, GIS are not only large off-the-shelf software solutions that provide integrated business and software systems to a customer, but are also *cultural tools*, mostly designed and invented by the Western world but implemented in diverse local/regional settings, all having different cultural characteristics. In fact, cultural differences may impede IS implementation even when its diffusion occurs within Western countries. Boersma and Kingsma (2005) described Nestlé's IS implementation as an example of a misfit between the decentralized organizational culture of Nestlé and the centralized culture imposed on the conglomerate by the adoption of the IS. The example highlights differences in cultural attributes between a pre-existing organizational culture and the new technological culture after IS implementation.

The Nestlé study is an example of how IS implemented in different organizational contexts, force local cultures to surrender to IS mechanisms and logic that disregard local cultures and leadership styles. Such an implementation process may result in poor and delayed exploitation due to a misfit between the cultural characteristics that are embedded in and represented through the new technology, and between the target organization's culture, its end-user practices and their perceptions.

Accordingly, transfer of technology from one region/country to another necessitates the addition of the cultural dimension to Bijker, Hughes and Pinche's theory of the social construction of technology among end-users. Leidner and Kayworth (2006) who reviewed 86 studies on cultural dimensions of IS implementation, suggested the term 'technology cultural conflict' to "lend insights into the understanding of the linkages between IT and culture" (ibid. p. 357).

Cultural dimensions are entwined in technology implementation on different levels of analysis and operation (e.g., societal, organizational). This paper outlines the various stages of IS implementation, indicating the potential for cultural discordance or concordance at every stage. Managers and end-users are defined as actors during this long process. They are likely to be involved from the initial stage of strategic planning and decision making and continue their involvement by leading and championing the implementation using goal setting, feedback and reward techniques. Thus, GIS implementation implicates managerial and leadership practices in a multicultural context. Consequently, the paper will be supported by the findings of the GLOBE project, an impressive research effort conducted by 170 investigators from 62 countries which measured culture at different levels through both practices

and values, and explored the relationship between culture and societal, organizational, and leadership effectiveness (House, Hanges, Javidan, Dorfman & Gupta, 2004).

The basic assumption of this paper is that GIS are not universally acceptable or effective, and that testing the cross-cultural generalizability of IS in organizations will produce a managerial agenda that facilitates the implementation process. This paper addresses topics of explicit concern to IS implementation in global organizational economies related to organizational and societal culture, and proposes managerial mechanisms for overcoming major obstacles in this process. The first section provides a description of the stages of IS implementation and the actors involved in the process of technological change. This is followed by a brief overview of the dimensions of organizational and societal culture. Building upon this review, recommendations are proposed for the relationships between IS implementation and cultural dimensions. The paper concludes with a summary of key points drawn from the analysis.

STAGES AND ACTORS IN TECHNOLOGICAL CHANGE

Technological change entails a long process involving different types of actors in each of several stages. Beyond having significant implications for the organization's form and function, (Orlikowski, 2000), the decision to purchase an IS for global implementation necessitates a heavy investment of resources. The uncertainty surrounding the decision and its implications, as well as the implementation itself, makes the process long and complicated. Therefore, it is optimally divided into several stages that subsequently serve as milestones. Dividing the process into stages and checking to see the target is met at each stage may alleviate some degree of uncertainty and allow proper oversight, including the clear definition of starting and finishing points for every stage.

Although the purchase of the system is typically viewed as the first stage in the implementation process, organizational events and actions that precede the purchasing stage impact system selection and its eventual implementation. Therefore it is proposed to address the implementation process as composed of five stages—three of them occur before the new technology is introduced into the organization, two of which occur before the final purchase decision is made by the organization. The final two stages occur following the introduction of the system. Although several stages may overlap, it is correct to address each as a separate stage and manage the progress from one stage to the next based on the achievement of the targets in each stage.

Many organizational actors in the organization and its environment are involved in the implementation process, yet their level of involvement may vary from stage to stage. While the organization's senior management is the dominant and central actors in the initial stages of the process, responsibility passes to project supervisors appointed by management, and to end-users, as the implementation process proceeds.

There are three stages that occur before the system is delivered to the organization:

a. Initiative Stage

The need for a new GIS in an organization can emerge as a result of institutional isomorphism, a technology crisis or inadequacy, new technology boost, or global business development. Actors, within or from outside of the organization, identify a need or decide to promote technological change by initiating the implementation process. As a result of such actions, a careful review of the technological change should be conducted through strategic planning before any decision is made. IS implementation calls for a major organizational transformation which must be planned strategically and implemented thoroughly.

The process of strategic planning starts with identifying the impetus for changes in the company's business and IT systems, and their expected strategic and operational benefits. This process helps people understand the need for change; it sparks their interest in it and promotes their commitment to the process (Adams, Sarkis & Liles, 1995; Al-Mashari, 2003; Light, 1999). Strategic planning related to IS implementation relates to process design, process performance measurement, and continuous process improvement, also known as Business Process Reengineering (Hammer & Champy, 1993). It also deals with critical success factors in early phases of ISimplementation (Nah, Zuckweiler & Lau, 2003). In classical strategic planning, employees or representatives from all organizational ranks are commonly co-opted into the process. The case of IS implementation at Texas Instruments (TI) described by Sarkis and Sundarraj (2003) illustrates how market forces compelled TI to make a radical shift in its business. TI's strategic response to these changes identified flexibility and time (speed) as the key strategic performance metrics that had to be stressed in order to be competitive in their business. As a result, this is what they focused on when designing and implementing a new IS system for the company.

b. Decision Stage

This stage leads to a decision to invest resources in acquiring and assimilating a new system. When deciding to allocate resources for the purchase of a GIS, a cost assessment that includes cost estimations made by representatives of all operational departments (e.g., logistics, training etc.) must be performed. In addition to the

cost of the system, this must also include the costs of implementation processes. It is standard practice today to assume that 18% of an IS implementation budget should be reserved for implementation and consulting (Gartner, 2001). The assured availability of resources for the entire implementation process is an important variable in predicting implementation quality (Klein et al., 2001).

Between the second and third stages, it is important to examine which system best answers the organizational needs defined in the strategic planning process. Organizational suitability is a compulsory condition, but it is not enough to ensure successful implementation. Transforming an off-the-shelf product into one that is appropriate for a specific organization typically requires customization. In this process it is essential that developers meet users and therefore potential end-users of the new system should be involved in the selection process.

c. Selection and Leader Nomination Stage

A development or selection process leads to an order to produce a new technological system. Thus, at this stage, ensuring the involvement of users in system development is an important mechanism for improving system quality and utilization (Baroudi, Olson & Ives, 1986). Sounder and Nashar (1995) referred to this matching process, between new technology and end-user needs, as the "transfer of technology between a developer and a user." (p.225), and suggested that "failures (of transfer) often occur as a consequence of many natural barriers within the transfer process (e.g., a developer's choice of an inappropriate technology or a user's risk aversion)." Leonard-Barton and Sinha (1993) stressed that effective internal technology transfer—the implementation of technical systems developed and disseminated to operational subunits within a single organization—depends not only upon the cost, quality, and compatibilities of the technology, but also upon two processes of interaction between developers and users: user involvement in development and adaptation by the developers and users of both the technical system itself and the workplace. A linkage between producers and users is needed to ensure a good fit of any global new IS to the organizations that must implement it.

GIS technology is based on "best practices" solutions, an ideal recipe for the most effective performance of business functions. Still, the organization must ask whether standard solutions fit its organizational requirements? Off-the-shelf IS are implemented in different organizational contexts, which seem to deviate considerably from the context in which these packages were originally designed and developed. Boersma and Kingma (2005) note that the structure of IS typically requires the redefinition of work from the actor's point of view.

At this point it is important to nominate the project leader who will manage the fourth and fifth stages of the implementation process and achieve the organizational improvements that the new system was design to accomplish. Hammer and Champy (1993) suggested that the implementation project leader establish a number of teams composed of potential end-users, representing all the operational units where the new system will be implemented. The number of the teams depends on the quantity and quality of operational processes that will be forced to undergo massive changes during system implementation. The teams should analyze the future changes and find solutions to problems that are likely to occur during the implementation stage. The leader operates as an advisor, assisted by a steering committee comprising the senior managers who are in charge of decision making during the process. Two of their most important tasks are to define priorities among the various change processes and to arbitrate the conflict of interest disputes that are almost certain to arise.

The final two stages occur after the new system is delivered to the organization. However, several activities must be performed between the third and fourth stages, to ensure a smooth transfer of responsibility for the implementation and the new system operation to the end-users.

d. Basic Operational Stage

In this stage, the new system is installed in the workplace and employees "ideally become increasingly skillful, consistent, and committed in their use of the innovation" (Klein & Sorra, 1996, p. 1057). Management attention should be directed to setting priorities for IS implementation, and influencing the implementation process and project duration (Cheu, Chae & Yang, 2004). This is the stage for end-user training, which, together with goal setting, feedback and rewards, is a fundamental condition for system operation. The focus in this stage is on system customization and developers should interact with end-users in fine-tuning the system.

e. Routine Operations Stage

In this final stage of IS implementation, the new system becomes established and the employees who operate it adopt stable work patterns. At this stage, the organizational improvements resulting from the system operation should be tested and the project leaders should conduct a post-project review of the entire process.

Cultural dimensions impact the entire change process yet play varying roles in the different stages of the IS implementation process. Since implementation methods are culturally dependent, they therefore, should be planned in advance after careful scrutiny of organizational and societal cultures.

"SOCIETAL CULTURE" AND ITS IMPACT ON ORGANIZATIONAL CULTURE

Cultural factors take center stage in the discussion of GIS implementation. The implementation of the same technology in different countries produces various cultural encounters that may facilitate or inhibit its exploitation. Thus, the concept of organizational and societal culture should be addressed. Work organizations are distinguished by social experiences that can be called "cultures." Such experiences, however, do not necessarily represent the organization as a whole. In this sense, organizational culture is itself organized into various work settings (Frost et al., 1985) and produces a form of locally recognized and common social knowledge, similar to the common knowledge that develops within a clan. The organizational culture is the glue holding a group of people together. It is produced over a period of time, and helps solve the group's problems of survival in an external environment and its problem of internal integration. (Schein, 1992). At the same time, on a different level of analysis, employees working in the same local societal culture share the same societal meaning system (Hofstede, 2001), which supports their adaptation to their local organization. A shared meaning system can be formed at different levels, from the micro level of the group, the meso level of the organization, and up to the macro level of nations and beyond (Shokef & Erez, 2006).

The question arises whether organizational culture is a reflection of societal culture, or are organizations culture-producers? The open system theory builds on the principal that organizations are 'open' to their environment, and devote much attention to understanding their immediate tasks or business environment, through direct interactions with their customers, competitors, suppliers, labor unions, and government agencies. All these stress the importance of being able to bridge and manage critical boundaries and areas of interdependence, and develop appropriate operational and strategic response. Thus, the surrounding societal culture is an external source of influence on organizational culture through the behavior of organizational members who introduce their beliefs, norms, and values into the organization. Thus, consistent with the open systems theory, we expect to find systematic societal variations over and above within-societal differences. Yet individual organizations may also have their own unique culture: organizational culture can be examined as an independent entity that develops its own unique dimensions (Rousseau & Cooke, 1988; Kunda, 1992). It is suggested to address these different views as two perspectives that complement each other.

Societal Culture and Globalization

Many firms struggle with the interpretation, implementation, and impact of globalization on their everyday operations. Adopting a global mindset challenges managers and companies to look beyond their own operations, so that they may improve their practice of global management beyond the experience provided by their own businesses. The importance of international thinking lies in its ability to serve as a bridge between the home country (i.e., the head office's country) and the local sites' environments, playing the role of cultural interpreter for both sides (Jeannet, 2000, p. 37). The road map to strategic global competitiveness assumes that managers have an understanding of how attributes of societal and organizational cultures affect selected organizational practices. This assumption is the key issue in GIS implementation.

It seems clear that an IS that is developed in one specific region or state and implemented in another region (the regions may differ only in the language spoken there) constitutes an inter-cultural encounter which generally ends in conflict on one level or another. These encounters must be managed and implementation processes must be planned to cope with the diverse gaps and expectations. The latter can create antagonism among end-users at different levels, leading to partial or deficient implementation. Therefore, one of the most important challenges is acknowledging and appreciating cultural values, practices, and subtleties in different part of the world. McDonalds is an illuminating example of cultural sensitivity. In France, McDonalds serves wine and salads with its burgers. In India, where beef products are taboo, it created a mutton burger named Maharaja Mac. To succeed in global business, managers need the flexibility to respond positively and effectively to practices and values that may be dramatically different from what they are accustomed. However, it is not easy for one to understand and accept practices and values that differ from one's personal experiences. The GLOBE research project has shown that the status and influence of leaders vary considerably as a result of the cultural force in the countries or regions in which the leaders function.

THE INTERFACE BETWEEN CULTURE AND GLOBAL IS IMPLEMENTATION

In GIS implementation, the initiation, decision, and selection stages are usually dominated by the parent company and may reflect a desire for more control and standardization of work processes. Thus, the new system is imposed

'top-down' on most local managers and all end-users, turning this process into a deterministic one, with no leeway for local impact related to structural and/or cultural adjustment. Indeed, corporations' different national and organizational cultures have been shown to be associated with problems during IS implementation (Krumbholz & Maiden, 2001).

Using the contingency theory of organization, Donaldson (1987) presented a model wherein incompatibility between technology and organizational structure results in lowered performance. Donaldson believed that in such cases the organization will eventually make an adjustment to restore compatibility between the new technology and the organizational structure (SARFIT – Structural Adjustment to Regain Fit). Applying Donaldson's argument to global implementation, *cultural adjustment* must also be addressed to achieve adequate compatibility (Krumbholz & Maiden, 2001; Sheu, Chae, & Yang, 2004). Implementation of GIS implies that management must have an international perspective or, what Jeannet referred to as a "global mindset" (2000).

In the various stages of GIS implementation, different encounters with cultural manifestations are to be expected. Thus, a cross-level analysis of cultural issues is indispensable. To understand the interface between culture and GIS implementation, the difference between treating organizations as "culture producers" (Rousseau & Cooke, 1988) or as the reflections of the national-societal culture surrounding the organization, must be examined. These two approaches can be seen as complementary. The question of the impact of the broader culture when examining the culture of a specific organization was considered in numerous studies (e.g., Hofstede, 1980; Schwartz, 1992; Trompenaar, 1996). These studies ranked approximately 60 countries according to cultural characteristics such as Individualism/Collectivism, Power Distance, Uncertainty Avoidance, Universalism/Particularism, Affective/Neutral culture, Specific/Diffuse culture, and more.

In line with this, the following analysis of the interface between culture and IS implementation relates both to organizational and societal-national culture manifestations. It is important to stress that the analysis of the link between the implementation phases and cultural influences relates to *specific cultural manifestation*s.

An examination of specific aspects of an organizational culture can shed light on explicit processes within specific phases. The selection of specific cultural dimensions is unavoidable because it is impossible to examine all dimensions of organizational culture among all members of an organization (Rousseau, 1990, p. 171).

In the context of Information Technology (IT), an important point to be made is that information technologies are not culturally neutral and may come to symbolize a host of different values driven by underlying

assumptions and their meaning, use, and consequences (Coombs, Knights & Willmott, 1992; Robey & Markus, 1984; Scholz, 1990). Leidner and Kayworth (2006) argued that using a value-based approach reveals the types of 'cultural conflicts' that might arise from the development, adoption, use and management of IT. Thus, some implementation phases are influenced by the international, national, regional, and/or business level culture, while other phases are influenced by the culture an organization produces. It should be emphasized that implementation of a GIS constitutes a force for cultural change and new cultural dimensions may be expected to emerge in the assimilating organization at the end of the process. The purpose of portraying the cultural interface in GIS implementation is to disclose the discrepancies and inconsistencies that must be addressed in order to restore fit or reduce culture conflict, with the end result being heightened GIS implementation effectiveness.

Mapping the link between the societal and organizational culture and the global implementation of IS requires us to relate separately to the three initial stages, as described before, which take place prior to the installation of the system, and to the last two stages, which occur after the organization has received the system. When a global organization decides to introduce an IS into its various worldwide branches, senior management is responsible for executing the first three phases, as outlined above. The decision to acquire a new system is one that is forced upon the organization's distant branches, which do not have the authority to make decisions of this type. In contrast, the fourth and fifth stages are within the range of authority and responsibility of the individual sites, and consequently, these must plan and implement these stages effectively. Only the local office (in which the organizational management resides) carries out all five of the stages. Assuming that the implementation is to be executed in a number of countries, the cultural implications of the global change involved the first three phases by the central senior management are be discussed. Stages four and five as assumed to be executed by the organization's local subsidiaries.

The Importance of Societal Culture in the First Three Stages of ERP Implementation

The product of the first three stages is the decision to invest resources in acquiring a global information system, and the selection of a suitable system. The central axis around which these decisions are made is the process of strategic thinking.

There are long-term implications of the strategic planning by firms intent on becoming global enterprises. Such strategic planning requires a balanced choice between strategic decisions involving numerous variables such as

values and problem-solving methods of owners, managers and end-users; formal recruitment procedures; reward systems; regulation and control processes etc. As a company expands internationally, it needs to fit its corporate culture to the various societal cultures of its overseas operations in order to obtain the maximum benefits of the new implemented system.

Given that we are discussing a complex process of change, the cultural issues in this process take on critical significance since they may affect the order of the countries in which the system is implemented.

The Initiating Stage

At this stage it is important to discover the degree of receptivity of companies in a particular culture (represented by a nation) to certain types of innovations, compared to companies in other cultures. This knowledge reflects the overall 'technological leap' that could be expected to occur as a result of GIS implementation. This argument is supported by empirical findings from several studies. Van Everdingen and Waarts (2003) compared ERP implementation in 10 European countries and found that "national culture has a significant influence on the country adoption rate" (p. 217). The extent of cultural openness (accommodation of another's culture) has a strong positive influence on the degree to which the technology transfer is successful (Hussain, 1998). IT is less readily adopted in *risk-averse* and high *power distance* cultures since technology is perceived as inherently risky (Hassan & Ditsa, 1999; Srite, 2000; Png, Tan & Wee, 2001; Thatcher, Srite, Stephina & Liu, 2003). Thus, the impetus for acquiring a GIS will most likely come from countries that have the cultural characteristics that allow them to cope with change and uncertainty.

The Decision Stage

The decision to invest resources in a new system must be made only after a strategic thinking process undertaken by the parent company. This process will also help the parent company decide how and in what order the system is to be distributed in different countries. Such decisions are culturally endorsed. Moreover, target country selection has two important implications. The first implication relates to the examples given in our description of the first phase. The parent company must anticipate differences among the implementing countries in terms of their abilities to cope with change. The higher the implementing country is in *uncertainty avoidance* and *power distance*, the more

resources should be allocated to them for the implementation process. Support by the parent company may greatly alleviate problems that such countries encounter in the implementation process.

Second, different countries may have different perspectives on the strategic goals of the new system based on differences in societal values. For instance: *Service quality* dimensions function differently across national cultures (Kettingen, Lee & Lee, 1995). *Information privacy concerns* were found to vary across countries: countries high in *uncertainty avoidance* and *power distance* exhibited higher levels of government involvement in privacy regulation (Milberg, Burk, Smith & Kallman, 1995).

Since agreement on strategic goals is an important condition for implementing and exploiting the new IT system, early mapping of the differences in the perception of these goals is imperative. Gaps will appear as a result of differences in national cultures, but knowing about them beforehand will allow the system's implementers to take appropriate action to sell the system to end-users and convince them of its benefits.

The System Selection and Leader Nomination Stage

In the third GIS implementation stage, two pivotal events must take place: system selection, and nomination of a leader to oversee the project.

System Selection

At this stage, managers are shown a demonstration of the system under consideration. Differences in perceptions between developers of the system and managers of the purchasing organization constitute an important consideration in the strategic process of choosing a system. Leidner and Kayworth (2006) claimed that variations across cultural values may lead to differing perceptions and approaches in the manner in which information systems are developed. Thus managers should be aware that the system reflects the cultural organization view of its developers, which might deviate considerably from that of their own organization or its strategic needs. These differences were conceptualized by Hazzan and Dubinsky (2005), in their discussion of the connections between a national culture and the culture inspired by software development methods. According to their proposed model of the tightness of Software Development Methods (SDM) and the tightness of a national culture, the fitness of a given SDM and a

national culture can predict the degree to which a given SDM will be accepted by a specific national culture. Thus, the system developers and the organization's IT people must be involved in the ERP selection process.

Since IT developers are also in charge of technical assistance during the implementation processes, it is important to understand that this assistance is also culturally dependent: Hassan and Ditsa (1999) found that IT staff are able to give advice to IT managers *in countries with low power distanc*e. This finding has implications for the fourth stage implementation as well, in which end-users operating the system require technical assistance in coping with problems that emerge. However, when cultural differences between developer support personnel and end-users are significant, they may impede the implementation process.

Project Leaders for GIS Implementation

GIS implementation implies confronting work situations charged with dynamic cultural issues. Elaborating effective solutions for global implementation activities, influenced by nuances of culture, pose difficult challenges that may confound even the most skilled leader. Brake, Walker, and Walker (1995) portrayed the desired global implementation leader as a strategic architect-coordinator, who is able to recognize opportunities and risks *across national and functional boundaries*, and is sensitive and responsive to cultural differences. The implementation project leader should have a "global mindset" since GIS implementation requires fundamental changes in managerial practices in domestic as well as international organizations. The GLOBE project offers detailed examples of the cultural manifestation of countries and leadership attribution. The GLOBE's major empirical contribution to this stage in the implementation process is its identification of universally desirable, universally undesirable, and culturally contingent attributes of leadership. GLOBE's findings show the relationships among cultural dimensions, organizational practices, and culturally endorsed leadership dimensions.

The Importance of Organizational Culture in the Fourth and Fifth Stages of IS Implementation

Transfer of technology from the manufacturer to the end-user begins when the decision is made to implement the system in different branches of the organization worldwide. The products of these stages should include: the exploitation of the new system; final customization of the system to the needs of end-users and to the special needs of specific organizations; a post-project review process; and a cultural change in the organization (if required).

The central axis around which these stages occur relates to employee management and it involves classic areas in organizational behavior and human resource management such as training, learning and performance goal setting and reward.

In these stages of the process, the relevant cultural dimensions concern the differences *within the organizational culture*. An organizational culture is not uniform; it comprises horizontal as well as vertical sub-cultures. A horizontal sub-culture may be created on the basis of professional practices – a sub-culture of physicians, nurses and managers (Trice, 1993). Similarly, a vertical sub-culture may emerge, based on the organizational structure – a sub-culture of the production department, the R&D department, or the HR department (Schein, 1996), or a sub-culture of technology-intensive departments as opposed to low- technology departments (Brainin et al., 2005). These sub-cultures imply that there will be differences in the implementation of the new IT system because each sub-culture perceives the role and function of the IT system in its work differently. This process of ascribing meaning to technology is labeled the 'social construction of technology.' Furthermore, different occupational sub-cultures had entirely different cultural interpretations of proposed technologies and experienced conflict and resistance to adopting certain technologies (Von Meier, 1999). Researchers found that clashing values among organizational sub-cultures hinder the information sharing and collaboration needed to effectively integrate technology.

In this stage it is important to appoint champions of technological change from within the organization (Howell & Higgins, 1990), to lead the implementation process effectively. Management style also influences the implementation approach and project duration. Management style relates to the attitude toward setting priorities for implementing an IS (Cheu, Chae & Yang, 2004). It must be stressed that societal culture also has an influence on the organization's activities, and therefore, the techniques used in human resource management, as explained above, must be adapted to the local culture (for example, societal culture was found to influence instruction processes (Earley, 1994), goal setting (Erez, Earley & Hullin, 1985) and many other areas).

There are organizational culture characteristics that facilitate technology implementation. Organizations with a high learning orientation are better able to adjust to changes on the whole (Lipshitz & Popper, 1996) and to technological changes in particular (Brainin & Erez, 2002; DeLong & Fahey, 2003), because they have learning

channels and can learn from experience. This is a very important condition for implementing new technology. GIS implementation can result in culture transformation over time.

CONCLUSIONS

A Managerial Agenda for a Positive Cultural Experience during GIS Implementation

This paper set forth to explain how variations in cultural aspects, which surface as a result of GIS implementation, may be handled, based on the assumption that GIS are not universally acceptable and effective. The increasing interrelations among countries and the globalization of corporations do not imply that cultural differences are disappearing or diminishing. On the contrary, as economic boundaries are eliminated, cultural barriers may present new challenges and opportunities in business. When different cultures come into contact, they may converge on some aspects, but their idiosyncrasies will likely amplify. As a means to integrate work processes, ERP implementation becomes a method for organizational boundary crossing and requires special attention to overcome the resistance this change induces. A detailed examination of cultural discrepancies that occur at various stages of the implementation process was given. Cultural boundaries to be crossed as a result of GIS implementation are:

Within the organization:

1. Organizational sub-cultures as a result of organizational structure
2. Organizational sub-cultures as a result of different professions and roles

Between organizations:

3. Societal culture as a result of cultural differences between countries

To overcome the problems arising from GIS implementation, it was suggested that crossing the cultural boundary be treated as a process of *cultural exchange*, instead of as a *cultural conflict*. In order to restore fit and to prevent poor GIS implementation and resistance to change, managers must harness the IS to their needs by adapting it to their set of beliefs, thus breaking the link between technology and Western logic. It requires them: To simultaneously examine their positions and behaviors and those of end-users regarding IS use, and analyze their reciprocal impact; to help formulate policy regarding utilization of IS in different organizational settings across countries or regions; to coordinate expectations between themselves and end-users in order to narrow the cultural gap, and to raise the consciousness of IS engineers and designers regarding the impact of differences in the socio-cultural attributes of potential managers and end-users and hence increase their effective fit into different societies.

The following recommendations are proposed:

Organizational leaders must be made aware of cultural differences and be prepared to cope with them. Financial resources must be available in order to allow investment in a complete mapping of the cultural gaps that may become manifest in the second implementation stage. Multi-cultural groups of project managers and team leaders[1] can overcome the lack of communication between host and subsidiaries that often results in mistrust, project delay and running over budget. Moreover, such groups will foster informal communication among representatives of different nationalities, which is critical for the success of GIS projects, and will limit formal documentation channels that people tend to use in the absence of such groups. Solutions may include:

1. Multi-national teams for developing and implementing may be the key to success.
2. Local examination of the technological leap.
3. Flexibility in implementation stages: even if the strategic stages were carried out in a deterministic fashion (were imposed on the organization), the later stages may allow participative actions and be culturally appropriate.

The second proposed solution is to involve users in the design of GIS. Although determining the key actors in user groups is especially challenging in international settings, their involvement may partially assuage subsequent perception conflicts since the greater the extent to which a user's group values are embedded in a system, the less vision conflict is expected.

The paper addressed aspects of organizational and societal culture that are of explicit concern to IS implementation in global organizational economies, and recommended managerial mechanisms for overcoming major obstacles in this process.

[1] See appendix 1

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APPENDIX 1

Stage No.	Stage Name	Experiences of Culture	Result	Solution
1	Initiation	Differences in societal cultures between initiating and implementing countries	Cultural gaps and a high level of technological leap	Glocal teams with representatives from all the countries
2	Decision 1. Strategic thinking 2. Resource allocation	1. Differences in perceptions of strategic goals 2. Differences in Decision Making	Need for promoting & persuading of the strategic goals and convincing the end-users	Glocal teams with representatives from all the countries Local teams
3	System Selection	Language gaps, differences in developers' and owners' perceptions regarding critical performance factors	Misfit of the system to the societal culture	Glocal teams including developers and end-user representatives of the countries
	Leader Nomination	Unique characteristics of a global approach – global mindset	Insensitive and unresponsive to cultural differences	Global selection processes
4	Basic Operation 1. Exploiting the system 2. Additional technical matching	Differences in sub-cultures	Inadequate training and goal setting processes	Local teams and representatives of the glocal team
5	Routine Operation & system exploitation: 1. Post-project analysis 2. Cultural change	Differences in Management style and levels of learning orientation Culture	Lack of Synergy	Local teams and representatives on the glocal team