

Diversity, Culture and Technical Project Management

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Abstract

In this paper, we propose that the collaboration and technical project management must take cultural factors into account. Following a brief summary of recent research results on diversity and its effect on team performance, we discuss several manifestations of value diversity with examples from the communications and information technologies. Finally, we propose a few directions for research on the implications of value diversity on project management.

Background

Many human resources specialists as well as international business consultants have realized the importance of cultural factors in multinational companies, in international negotiations and in global projects [Breuer and de Bartha, 1993; Trompenaars and C. Hampden-Turner, 1998]. Recently, some attention has been given to the impact of culture on project management, including global software projects [Carmel, 1999; Gezo et al., 1999]. Nevertheless, designs of complex collaborative applications (telephone, e-mail, teleconference equipment, groupware, etc.) have traditionally emphasized the technological aspects and not the cultural factors.

The importance of culture stems from several trends. The general shift from standardized products or services to customized products implies more attention to individual needs and tastes. Furthermore, in an era of technological abundance, there are usually multiple answers to a given need. Successful designers come up with systems that enhance the end-users performance and satisfy their expressed wants as well as their latent needs. Thus, technical performance cannot be separated from the context of its usage.

Project teams usually comprise a diverse group of professionals with complementary sets of technical skills. As projects take on a more global dimensions, in terms of scope or of team membership, cultural differences among team members may affect their cooperation [Chevrier, 1996; Minor, 1999]. Furthermore, during the life-cycle of a project, the team composition usually changes to match the tasks to be implemented, which adds an additional layer of management complexity [Kloppengorg and Petrick, 1999].

Shared values shape the implicit assumptions and expectations (i.e., things that are taken for granted) and define the framework within which acceptable solutions are negotiated. Shared values increase the effectiveness of communications [Jehn, 1999; Jehn et al., 1999; Neal et al. 1999], but may have the side-effect of "group think." Conversely, in a "globalized" or multicultural teams, there is ample room for misunderstandings. This means that the design of collaborative systems for global

project teams with members from several work locations, companies or countries, is a challenging task that requires a multidisciplinary approach.

In the light of the pioneering works by Hall [1990] and Hofstede [1980, 1990], we propose that designers of collaborative systems take into account the following aspects: 1) the style of authority and allocation of power (centralized vs. decentralized, consensus vs. authoritarian), 2) the attitude toward time and, 3) work practices.

Style of Authority

Whether a decision is taken in a top-down or a bottom-up fashion, in a centralized or decentralized fashion, is a cultural phenomenon. Hofstede's concept of "power distance" provides a rough assessment of the situation by measuring the ability of employees to decide independently of their hierarchical superiors. This tool has to be used with caution, however; decision styles that may appear to be equivalent on the "power distance" scale, do not necessarily correspond to the same daily practices. For example, U.S. project managers like quicker decisions than European project managers, are more inclined to allow groups to determine vacation and work schedules and managers use subordinate input more frequently. European project managers, however, prefer group decisions [Lee et al., 1995]. It should be noted, however, that the "European" managers differ significantly among themselves [Breuer and Barha, 1990].

The Concept of Time

Cultural differences with respect to planning appear in several aspects, such as whether any planning will exist at all, as well as the time-span of the plan: the immediate future or the long term. This translates into at least two styles for planning: planning for resilience or for obsolescence.

If the focus is on the short term, the purpose of the activities is to grab available opportunities using existing information. Action on the basis of "raw" information forces the individual to move without the benefit of a thorough analysis. The goal would be to learn fast rather than to learn well. This focus on the present is very useful to get started, particularly when information is lacking or hard to get. However, the person becomes more dependent on the group for approval or for information.

In contrast, a long-term plan has to consider many questions: Who will benefit? Who will pay? What are the criteria of selection? What to do with those that are excluded? What happens if the environment changes? Taking into account all historical precedents and future impact is a slow process.

With respect to task execution, cultures can be divided into monochronic or polychronic. [Hall, 1990]. Polychronic people can perform many tasks simultaneously while in monochronic individuals envision time in a linear and compartmentalized way. In polychronic cultures, a vast and

elaborate information network of clients, friends and family must be maintained scrupulously so that they remain effective.

Work Practices

Every culture has to balance issues of individualism and communitarism. According to Hoefstede [1980, 1990], cultural differences affect the working atmosphere and whether assertiveness or competitiveness are valued at the expense of care and attention. They also affect the organization of space and the way collaborative work takes place. In a high-context society, the decision maker must be at the center of the information flow. Whether admitting faults or failures is a strength or weakness, or whether the participants need to be knowledgeable on all aspects that is associated with their status are cultural variations [d'Iribarne, 1989; Winch et al., 2000]. The definition of a "team" in terms of purpose, distribution of roles and assignment of responsibilities may vary.

Whether communications will be verbal or written depends on the cultural attitude to the written word. In some cultures, written documents are reserved for binding commitments. Furthermore, there may be a certain hesitation to exhibit individual knowledge (or wealth), besides the fear of making mistakes of style or grammar, which translates in the amount of time needed to write documents.

The purpose of a meeting among equals can vary from informing about an already established decision to creating a consensus or reaching a decision. A meeting to reach a large consensus would include many hierarchical levels, while a meeting to air opinions can last for hours or days without a very structured agenda. The actual running of the meeting is also a cultural phenomenon. In low-context cultures meetings take place in a linear fashion with a specific agenda to achieve results that can be *reported*. There is little room for "open space" and for discussion outside the subject of the meeting. In "high-context" (diffuse) cultures interpersonal contacts take precedence, the main purpose of a meeting would be to allow different parties to express their views. The way that these results can be obtained can be by consensus or by majority vote depending on the type of society.

Obviously, the purpose of a meeting and the way it is conducted will determine whether videoteleconference is appropriate and such a videoteleconference should be managed.

Effects of Culture on Collaborative Technology

The following examples show how cultural differences affects the design of collaborative technology. They range from traditional telephony to new technologies such as the Internet and computer-aided collaborations.

Telephony

Cultural differences affect traditional telephony in many ways. The quality of speech through telephone connection is quantified by a numeric called the mean opinion score (MOS). The MOS is derived by averaging the numerical equivalents of subjective qualifiers *excellent* (5), *good* (4), *fair* (3), *poor* (2), and *bad* (1), obtained from a large number of persons after they have listened to a sample of telephone speech. The methodology of testing has been standardized, including the use of words of equivalent meaning. However, technically identical systems do not yield the same MOS value when evaluated in different languages. This may be due to differences in the perception of the language equivalents of the terms or differences in the sentences used [Snyderhoud, 1988].

In speech communications, a user spends half of the time talking and the other half listening (except in the case of double talk). This fact has been used for several decades to increase the number of conversations transmitted wherever bandwidth is a premium, such as on undersea cable and satellite links. Typically, this is represented by the speech activity factor, which measures the amount of talking from each party. The value of this parameter usually lies between 30% to 40%. This value depends on the originating and destination countries, and is usually not the same in both directions, which shows that its value depends on the language and the culture. Many types of transmission equipment (e.g., speech Detectors, Echo Cancellers, Circuit Multiplexers) Are Tuned Accordingly.

Internet

Internet is more popular in the Nordic countries, Germany and the UK, than it is in the remainder of Western Europe. (source: <http://www.nic.fr/Statistiques>). More surprisingly, in November 1998, the percentage of computers connected to the Internet in Finland and Denmark was 9% and 5.5% respectively, surpassing the figure of 3.5% in the US and by far exceeding the 0.9% in France [Catinat, 1999]. It is interesting to note that the countries where the Internet is successful are those that, according to Hall's definition, have a low-context/monochronic culture. This is also consistent with statistics on newspapers readerships and sales, which show that the North of Europe (Finland, Germany, the Netherlands, Sweden, UK), which is low-context and monochronic- relies more on the press for information while the South of Europe (Belgium, France, Greece, Italy, Portugal and Spain) - which is high-context and polychronic- is more attuned to broadcasts (radio and TV) [Futuribles, 1999].

Technical Publications

The adage of "publish or perish" is not accepted worldwide and technological advances are not highly correlated with technical publications. In fact, in the societies that Hall defined as "high-context," such as France, things to do not have to be spelled out explicitly. In these societies, achievements can be recognized through many channels, and results can be communicated with ways other than the peer-reviewed journals. They can be available through oral presentations,

apprenticeships, memos, internal reports or journals with limited circulation. Here again we have at least two different models for information distribution. In contrast, in "low-context" cultures, such as in the dominant culture of the United States the information transmitted has to be explicit. Finally, although English is now the *de facto* international working language for communications, it is rarely used for genuine dialogues (even for understanding scientific bases). Misinterpretations are more likely to occur because of the "lack of attention from the nonnative speakers to the metatextual aspects of the text as a discourse event, such as the authors' purpose and his target audience (.. and) also from the nature of the text itself...(The) mental representation of the texts (by nonnative speakers) is fragmented, incomplete and inappropriate." [Daoud, 1991; Chevrier, 1996].

Groupware

Computer-supported cooperative work, collaborative computing, and groupware are common tools that can enhance organizational effectiveness. Many products are designed to support communication, coordination and collaboration through features such as electronic mail, computer conferencing, shared databases and schedules, in addition to customized views. However, designers assume that the same things will work independent of the culture. Field experience, however, shows that a collaborative system using the telephone was successfully used within Belgacom, the Belgian telephone operator, while a shared electronic scheduling system was not as successful [d'Iribarne, 1998]. This could also be attributed to the desire for flexibility without appearing as imposing on others. In a telephone conversation, there are more interactions than in electronic scheduling. It should be noted however, that Belgium is a high-context culture. It should be also noted that, even in low-context culture, effective use of computer-aided collaboration must be congruent with the organization's competitive and individualistic culture as well as its reward system [Orlikowski, 1996].

Implications for Project Management

Even if the information is generated and distributed by the same tools worldwide, the belief that a common information culture is being created sidesteps the crucial issue of interpretation and meaning. The essence of culture goes beyond what is visible to shared interpretations of reality. Cultural factors affect not only how and what we produce but also how and what we design as well as what services we select.

Based on the above, we can say that cultural factors affect project management in the following aspects 1) the scope of the project, 2) the choice of the collaborative technology, 3) the social organization for production and consumption (e.g., who needs the information? Why, when and in which format it is communicated?), 4) the potential evolution of the methodology for project management.

Confidence and trust are cultural constructs. Therefore, the collaborative technologies have to take into account impact of culture on the management of communication. In particular, what

enhances or impedes communication and what should be communicated to whom (plans, results, assumptions, constraints, requirements, etc.).

Project managers must be able to recognize their own set of values and wherever possible work with team members that have the complementary skills to assist them. It has been suggested that organizations need to develop training programs to teach project managers how to create an effective mix of values (e.g., to vary their time orientation) [Thoms and Pinto, 1999]. The difficulty is that values are set very early in life and work at a sub-conscious level. What may be more practical is to assign various individuals to the various phases of the projects. For example, more objective ways may be needed to assess the values of various project managers and team members in terms of dealing of authority and power allocation, attitude towards time and work practices. Such an objective measure may allow team members to select tasks that may best fit their skills

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