Culture

"When in Rome" doesn't help when your team crosses time zones— and your deadline doesn't.

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Technology has made it possible for organizations to construct teams of people who are not in the same location, adopting what one company calls "virtual collocation."[1] Worldwide groups of software developers, financial analysts, automobile designers, consultants, pricing analysts, and researchers are examples of teams that work together from disparate locations, using a variety of collaboration technologies that allow communication across space and time.

Although solving the problems of space and time is difficult, these are not the only issues. Work that takes place over long distances means that communication will often involve different cultures. Participants may be surprised by such interactions because they have not considered various cultural differences and how they impact the daily work of long-distance teams. Our own culture is invisible to us. "We don't see our own ways of doing things as conditioned in the cradle," writes Esther Wanning, author of *Culture Shock! USA*. "We see them as correct, and we conclude that people from other countries have grave failings."[2]

The goal of this article is to review various cultural differences likely to appear in the work setting and explore their implications for virtual collocation of software development teams. We begin with a definition of culture and various dimensions of cultural difference that have emerged. Then we examine two cases: (1) one in which the team members are collocated; and (2) one involving the team in virtual collocation. From this analysis we draw some practical implications.

CULTURE AND ITS DIMENSIONS

Larry Samovar and Richard Porter[3] have defined culture as:

> The deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving.

Culture is acquired. It helps people categorize and predict their world by teaching them habits, rules, and expectations from the behavior of others. It helps people "read" the world's signals—the meaning of symbols of artifacts, gestures, and accoutrements of others.[4] Culture also molds the way people think: what their motivations are, how they categorize things, what inference and decision procedures they use, and the basis on which they

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evaluate themselves.[5] It sets the gestures, space, and timing of interactions.[6]

There are multiple kinds of culture: national, regional, occupational, organizational, avocational, and generational. Any of these might have important effects. Here we focus on national culture, assuming that knowing at least what a member of a culture shares with others is helpful in understanding how to interpret unusual behaviors. There are cultural explanations and new signals to read in understanding various interactions with people who are unlike oneself.

DIMENSIONS OF CULTURE

Social scientists have conducted extensive research on how cultures differ, the dimensions of importance, and the resulting clustering of similar and different countries. Geert Hofstede[7] and Edward Hall[8] are among the most prominent, developing ten dimensions on which they have found cultures to differ.

Hofstede's five dimensions, according to Erran Carmel,[9] cofounder of the Global Intellectual Property Project at American University, are:

1. **Revering hierarchy.** What do people think about their relationships with supervisors and subordinates? Is there is a large gap or do managers expect subordinates to speak out? In Russia and China, rank and class are very important, whereas in the United States, Netherlands, and Germany they are less important.
2. **Individualism versus collectivism.** Is it the goal of individuals to enhance their own position or the advancement of the corporation or community? The United States and the Netherlands are very high on individualism, whereas China, West Africa, and Indonesia are collective.
3. **Task- or relationship-focused.** Is the goal to "take care of business" or to develop and maintain relationships or quality of life? Japan, Germany, and the United States are very high on task focus, whereas France, Russia, and the Netherlands are quality-of-life focused.
4. **Risk avoidance.** Do people want to control the inher-

ent uncertainty of the world with rules, or can they handle the ambiguity and react flexibly? Japan and Russia are very high on risk avoidance, whereas the United States, India, and Hong Kong are more flexible in handling ambiguity.

5. **Long-term orientation.** What is the relative importance of here-and-now versus the future? China is very future-oriented, whereas Russia is focused on the here-and-now.

Hall's dimensions (again, taken from Carmel[10]):

1. **Space.** Natural social distances vary by culture. Americans have normal conversations at about two feet apart, whereas Arabs are more comfortable much closer. Japanese are very careful about where they sit, as seats connote rank and power; Americans sit wherever there is a seat available, frustrating the Japanese who misinterpret rank.
2. **Material goods.** How much status is conveyed by material possessions? U.S. managers battle to get the largest office and have expensive cars. Japanese managers have offices in the open office area; Danish CEOs are admired if they drive old, battered cars.
3. **Friendship.** In some cultures, like the United States, friends are transitory; people make and lose them frequently. In other cultures, like France, friendships and business relationships take a long time to develop, and people prefer to do business with those they know.
4. **Time.** Some cultures, like the United States, take time and deadlines very seriously. Others are more fluid in that they are more likely to conclude a conversation when it is finished, no matter how long it takes, and move to the next "appointment" when ready.
5. **Agreement.** Expressing disagreement and having formal contracts differ from culture to culture. Some deals conclude with a handshake; others require specific contracts. In some cultures, like the United States, disagreements are public, open debate. In Japan, disagreements are worked out one on one, with meetings used for ceremonial conclusions.

Hall summarizes a number of these dimensions as being either *high-* or *low–context cultures*. Low-context cultures spell out many things, saying them explicitly; in high-context cultures, many things are understood or inferred from power, status, or history. The United States is very low-context, missing things understood in high-context Japanese conversations. The Japanese resent the over-explaining that Americans do, thinking that certain things need not be said.

Some researchers argue that the professional culture of software developers mitigates against national dif-

ferences.[11] Indeed, they have found that most software developers in different countries valued work highest, as well as opportunity for advancement and pay, with a low need for interpersonal relationships. Hofstede's study of IBM employees, however, showed a high degree of cultural differences: The French are better at object-oriented development; the Japanese are better at metrics; Belgians hold closely to process methods; and U.S. "cowboys" code first and design later.

Given that, in the next section we will outline how culture might affect long-distance software development teams.

CULTURAL DIFFERENCES IN DEVELOPMENT TEAMS

Two classes of basic cultural differences may arise in multicultural teams, independent of setting: (1) Team composition—the members of the team, what motivates them, and how they develop trust in each other; and (2) Teamwork—ways in which the activity progresses, including the predilection for planning, the process and content of decision making, and the wish to take responsibility.

Team Composition. Suppose a team is collocated but its participants are from several national cultures. What issues might arise?

Serving on cross-cultural, short-term teams. The success of a mixed-culture team begins with the feelings people have about being members of a short-term team. In countries where relationships are well established and valued as the basis of actions, people might find it distressing to be put into a new group where you know no one and have no relationships to build upon.

Attribution of teammates. Work teams are often put together with two main purposes: to blend expertise and to allow more work to get done in a short amount of time. As a result, it is particularly important that teammates correctly perceive each other's abilities or traits (the European-American tendency) or their clan membership (the more Asian view). The core issue is how to distribute the work among the members and to engender trust in each other. The cues for the correct perception of trust from either abilities or membership come from first impressions of a person's attire, gestures, and so forth. Clearly, there is room for surprise and mis-attribution when people from different cultures meet.

For example, we saw mis-attribution in a multinational videoconference that introduced new development teammates to each other. Individuals naturally assessed teammates by their dress and posture. We believe that had the team members traveled to meet face to face, they

would have attempted to dress appropriately to the location where the meeting took place, alleviating some of the wrong first impressions generated at this event.

Motivation. Individuals from different cultures are also likely to be motivated differently. In countries where individualism is valued, people seek material gain and personal recognition. Countries that emphasize the collective rather than the individual tend to value time for personal relations, family, and so forth, over material gain. For them the goal is to preserve social equilibrium, not to "rock the boat." And, for them the greatest punishment is ostracism. Team incentive systems should take these values into account, rewarding U.S. developers with money and French developers with time off.

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Teamwork. These values and goals just outlined also drive some of the moment-by-moment activity of the group, once formed. They influence how people approach situations, whom they seek in decision making, and what their working style and expectations of others are. In addition, subtle differences exist in the microstructure of conversations—whether eyes meet while someone talks, and whether gestures and tone of voice convey additional cues that the listener is expected to pick up or not.

Planning the work. In more egalitarian countries where people are given choices, there is likely more need for individuals to "buy in" to the plan before they are motivated to work hard. In authoritarian cultures, plans are based more on political maneuvering than tasks.

Decision making. In some cultures, the past guides decisions. People make decisions on the basis of tradition or key stories of past wisdom.[12] In other cultures, there are more material-based criteria, including the time/cost/ quality trio stressed in Western management books. Some cultures focus on the present, looking for short-term solutions, and others focus on the long term, planning for a better future that they believe they can influence.

Argumentation styles also vary. In Western societies, decisions are made on the basis of input from those involved. Or, they gather individual preferences and democratically

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vote on the solution. In cultures with greater hierarchies, group members assume an authority will decide and they are only to enact the decision, not to have input or take responsibility. Of course, this is hard to assess since the criteria for success in relationship-based cultures is very different from those in material- or success-based cultures. Not only do the processes differ, the basis for evaluation of alternatives and the outcome also differ.

Conversational content. Some cultures find it natural to boast, to aggrandize one's personal accomplishments or position. The American tendency to be open and honest is considered rude and destructive to longer-term relationships. Those in relationship-based cultures are seen as being evasive or secretive.

Conversational flow. Countries that value individuals generally stand farther apart during conversation. Extended distance connotes respect in authoritarian cultures. Also, as noted previously, seating around a table is important in Japan but not in the United States.

Use of time. Time in general has different values and meanings in different cultures. Time is spent on accomplishing tasks in individualistic countries, and on building relationships in more collectivist countries. Americans are seen to start meetings too abruptly by Europeans, and Americans find that Europeans dawdle in idle chat instead of "getting down to business."

For example, in a recent videoconference involving developers from the United States, France, and Germany, the Americans spent the first five to ten minutes worrying that not all participants were there yet. In contrast, the Europeans spent the time talking among themselves (across the video link) about the weather, sports, and other personal matters until the Americans decided that a quorum was present and business could begin. At the end of the videoconference, the Americans immediately disconnected the call. The French and Germans continued for another five minutes wishing a departing French teammate well in his retirement, and reminiscing about good times. The Europeans viewed the American behavior as rude and insensitive. The Americans viewed time as money, focusing on the cost of the videoconference. In other countries, entire meetings are devoted to establishing relationships, without conducting the core of the task at all.

GROUPWARE AND CULTURAL DIFFERENCES

With the advent of reliable long-distance networking and technologies such as e-mail, fax, audio and video teleconferences, and IM (instant messaging), more and more organizations are using distributed teams. Various technologies may impact cultural differences, in some cases ameliorating them, and in others exacerbating them.

Realtime Groupware. Groupware comes in two varieties—realtime and asynchronous—and cultural issues play out differently in each type. First, we'll look at the impact of cultural differences on realtime groupware.

The basics: trust over distance. Central to the issue of constructing successful remote groups is the issue of remoteness itself. For countries like China, which are very loyal to the local extended family, people value without question the in-group and mistrust out-groups. In China, consummating a deal almost requires that the parties be co-present. Since in the United States and Europe group membership is more fluid and task-related, dealing with someone by post or telephone—someone you do not know or who is not part of your group—is more acceptable and natural.

Video- vs. audio-conferencing. When people can see and hear each other, they can send and receive gestural and tonal signals. High-context cultures convey much of their message through tone and gesture. For them, the video channel is important. If people are from different cultures, however, there are two effects: (1) the gestural signals could be misread; and (2) if most of the message is in the gesture and intonation, high-context people are differentially hindered if they are without video. Low-context people have the habit of explaining context and being detailed and explicit. They might be as well off in conveying their message in audio as video; high-context people are likely to be hindered without video.

In both audio and video teleconferences with cross-cultural teams, there is pressure to speak, often in a foreign language. Listeners for whom the conference is taking place in their native language can easily misinterpret the slowness of speech of the non-native participants as a measure of lower intelligence or lack of attention or enthusiasm. In this respect, IM offers a distinct advantage. The people who struggle to form grammatically correct sentences are better at writing them out at their own speed and sending them in one burst to be read at the

reader's fast pace. This is preferable to producing words in realtime, which is often a struggle.

In some cultures, speaking softly is a way to show respect. In others, loud speech shows more confidence. Here's a case where technology can indeed help the situation, since it allows you to de-couple how loudly one speaks from how loudly one is heard by adjusting the gain and the speaker volume at the two sites. Thus, you can enhance the soft talker and turn down the volume on the loud talker.

Brainstorming and anonymity. Some new technologies allow people to offer their ideas by typing them into a computer anonymously. Research shows that these technologies provide two kinds of benefits: (1) People don't have to wait their turns to offer ideas because they can be generated in parallel; and (2) anonymity allows people to offer ideas without fear of retribution if the ideas are unpopular or considered stupid or ill-advised. Thus, more ideas are generated and they are better as a result.[13]

The question then is how these technologies would fare in hierarchical and non-egalitarian countries. It could be that because the ideas contributed are anonymous, the release from fear of retribution indeed enhances the benefits more than in countries whose culture is egalitarian to begin with. On the other hand, if people are not used to being asked for their ideas or opinions, this technology may not tap any extra intellectual resources.

Decision-support systems. The decision-support systems designed in the United States embody algorithms that fit egalitarian, democratic participation. These systems focus on the task rather than relationships, common in many other cultures.[14] They allow for anonymous voting and weighted decision analysis and other algorithms that ignore any aspect of relationships and obligation.

The one exception is "stakeholder analysis," which surfaces the interests of the major participants. Although it does not openly acknowledge decisions on the basis of power and relationships, it reveals who the players are and what their goals are. Furthermore, in the United States, the criteria typically concern cost and benefit to the future material outcome of an organization. The criteria often are neither wisdom from history nor the preservation of long-term personal relationships central to the thinking in other cultures. And, of course, some cultures don't want the details ever to be made explicit.

Speaker identification. In countries where hierarchies are

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strong, knowing the speaker's authority level is important. If the speaker is ranked higher than you, you will listen more carefully and value the idea because of the authority of the speaker. Similarly, in countries where relationships are key, knowing who is speaking is important to negotiation in that you need to know whether this person represents a relationship worth investing in. Videoconferencing provides an important channel for this kind of information, which is often lacking in audio-conferencing, unless people adopt the habit of announcing who they are before they speak.

For example, consider an open discussion focusing on an issue of future development, with various positive and negative comments being exchanged. Yet, the participants proposing the project are unaware who at the remote end is being positive or negative, and in particular whether the one with spending authority likes the proposal or not. This severely hampers the discussion, because the participants do not know whether to dismiss the negative comments (if they are from someone not in authority) or to argue more strongly for the case (if they are from the authority). The need to know the speaker's position is enhanced in cultures where authority is solid, less so in cultures that are more egalitarian, democratic, and where everyone's opinion needs to be considered.

Time of day. One of the other physical features that remote technology has altered is time of day. Often, the time of day at the current location is not the time of day at the remote location. In some physical sense of the meaning of "instant," the interaction is indeed realtime. But the context is often different. The time of day determines fatigue, hunger, attitudes about finishing early to begin a weekend, and so forth. Indeed, since holidays are based primarily on religion in many countries, and the religious calendars and traditions differ (e.g., Christmas and Easter in Western Christian and Eastern Orthodox cultures), it is common to encounter very different attitudes in remote team members.

For example, the workweek in Israel goes from Sunday through Thursday, not Monday through Friday as in the United States. Coupled with the time zone difference, these two countries have a "black-out period" of several workdays a week. Similarly, the French have a 35-hour workweek, making Friday afternoon videoconferences outside of their work time. Those in the United States

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may accommodate the time-zone difference, but miss the differences in workweek.

Asynchronous Groupware. Time and distance may not be as important in asynchronous groupware, but cultural differences nonetheless impact its effectiveness.

Distribution of e-mail. E-mail is acknowledged to be the most widespread example of groupware. Within e-mail, distribution lists make it possible to send things easily to many people. But every culture makes different assumptions about who should be involved in a decision, who should take action on an issue, and who needs to be aware of issues and decisions. It is difficult to indicate in a long distribution list those responsible for the action, or why individuals are informed—if not asked—to participate. In some cultures people do not assume responsibility unless told; some seek responsibility because they enjoy taking credit for controlling an outcome. Some will not volunteer, thinking it arrogant to presume that others find them capable, an act by which they could lose face.

Online discussions. Systems such as Lotus Notes IM allow people to contribute to discussions remotely either synchronously or asynchronously. In cultures where meetings are the venues for confirming, rather than making, a decision, the actual content of the discussion is not visible to everyone concerned. In contrast, online databases show all the discussion, displaying various pros and cons, signed by the contributors. They are task-based rather than relationship-based in their underlying structure. It is easy to see that this kind of technology will be less favored by cultures that value "face" and relationships over task orientation.

AN EMERGING INTERNET CULTURE

As workers increasingly participate in distributed teams, you might expect that cultural differences would be apparent and that skills for working with multicultural teams would emerge. Indeed, many multinational companies teach their employees about cultural differences. In some cases, such as scientific research, the shared occupational culture (e.g., high-energy physics) may so dominate

the national cultural differences as to minimize the effect of the latter. We have observed, however, that even teams with lots of cultural sensitivity can encounter culturally based problems under conditions of stress. Since cultural knowledge is so ingrained and automatic, it can surface when deadlines or other stressful conditions exist.

Some Practical Advice: The first step to engendering change is awareness. Unfortunately, culture is hidden. People don't think of themselves as having values or culture; they simply imagine that the qualities they hold dear are those that matter to all mankind. You must first be aware that you have a culture that may hold values and work habits that others may not.

For example, if Jim and Luc are remote teammates on a development project, Jim may finish one task and immediately jump into another, whereas Luc waits to be told what to do. Jim attributes Luc's inaction to be a sign of shirking, whereas Luc views Jim as arrogant and pushy. They consequently do not coordinate well; they do not check with each other when issues of coupling come up. The fact that they are unaware of their cultural differences leads them to dislike each other and not seek each other's advice and counsel.

The second step to dealing successfully with multicultural teams is to find out explicitly what the cultural values are of the people you are working with. For example, read books in the *Culture Shock!* series,[15] which are written by people with great experience in a particular culture. So, if Jim read the *Culture Shock!* edition about Italy and Luc read the one about the United States, they may begin to understand the differences in management that neither even imagined. They may then think to consider alternative explanations for each other's surprising behavior. The hope is that they look for attributions that are not personally negative, but directed more toward cultural understanding.

Third, one has to consider adjusting to suit others, as well as to understand them. The issue is what to do once you know, "When in Rome, do as the Romans." But in a today's groupware-supported environment, the question is, "Where is 'Rome'?" It is unclear whose culture to adopt (if you truly can) or what habits the team should adopt.

Because we know that values and habits differ in multicultural groups, these should be discussed and resolved in a group that wants to be effective in the long run. All teams are recognized for working out (sometimes with difficulty) *how* they are going to work together before they can get down to working. The team has to develop shared work habits. Addressing group procedures, expec-

tations, values and rewards, and so forth are the first steps toward creating high-functioning groups.

We would suggest in Luc and Jim's case that the entire team talk about how they manage their work, what the expectations are about assignments, to-do lists, and more. In some circles, this is called a *management/communication covenant*. Clarification about whom will communicate with whom, how often, and by what mechanism, and what days and times people are at work is essential to smooth development practices. In addition to agreeing on the development environment, features to be included, and overall architecture, distributed software development teams must agree on how they will be managed and how they will communicate.[16] Q

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16. See reference 9. Carmel reinforces what we have talked about here, but then goes into more detail about how to divide up the work in remote teams, and how to manage in general.

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