

Guest Editorial

Cultural Issues and IT Management: Past and Present

THE STUDY of culture is rooted in sociology, social psychology, and anthropology. In particular, cultural anthropology seeks to understand the similarities and differences among groups of people in the contemporary world. Not so long ago, the practical relevance of researching cultural issues, and especially comparing phenomena across cultures, was widely questioned (see [7]). However, the importance of cultural issues is becoming increasingly evident in many applied disciplines. These include the management of information technology (IT), which is the focus of this issue of TRANSACTIONS ON ENGINEERING MANAGEMENT.

Our own interest in, and belief in the importance of, culture stems less from our academic training than from our personal experiences. We have lived and worked in Europe, North America, and Asia, worked for more than a dozen different employers, and researched hundreds of organizations. In our encounters and interactions, we have observed that different people do things in different ways, and that they use various approaches to develop and express their ideas. Our consulting and research work, as well as our discussions with both business practitioners and students from all over the world, have convinced us how important it is to understand local beliefs and practices. Although a truly global practice remains very rare, people often do not realize that *their* way of doing, thinking, or expressing is unlikely to be universal.

I. DEFINING CULTURE

Culture is difficult to study, alone or in relation to management practices [17]. This is partly because it is not an easy concept to define. Decades ago, when reporting on the native rituals in Samoa, anthropologist M. Mead [22] defined culture as “shared patterns of behavior.” This definition had at least two implications. First, it implied that culture was a group-level construct, situated between the personality of individuals and the human nature that is common to all of us. Societies, organizations, and professions are among the “groups” that could be considered to have their own cultures. Second, it implied that the study of culture involved little more than observing and describing behavior.

Although culture continues to be conceptualized as a group-level construct, it is now widely recognized that observing behavior is not enough; we also need to understand the meaning behind the behavior. This deeper knowledge is critical because, as Schneider and Barsoux [24] contend, “the same behavior can

have different meanings and different behaviors can have the same meaning.”

Unfortunately, the meaning behind an observed behavior, and the attitudes and expectations that shape people’s thoughts and actions, are not as easy to see. Even more difficult to identify are the deeply embedded values and beliefs that represent the core culture of a group. Thus, culture may usefully be compared to an iceberg: we can observe directly only the small part that lies above the water’s surface. More difficult to understand, and only partly because it can’t be observed directly, are the reasons for and meaning of that behavior.

It is generally accepted that culture is socially acquired rather than logically transmitted. Kluckhohn and Strodtbeck [18] viewed culture as a shared and commonly held body of general beliefs and values that define desirable and undesirable behaviors within a society. They, together with Hall [8], have asserted that these beliefs and values dictate the way people think, behave, solve problems, make decisions, plan and lay out their homes and cities, and even organize their economic, political, and transportation systems. Others have described culture as what humans have created in order to manage their environment [5], [20].

Although a precise definition for culture remains contentious, the varied conceptualizations commonly converge on a few principles. These include: it is shared by two or more people; it is defined by a pattern of values, attitudes, and behaviors; and it can be characterized by a variety of indicators. These indicators encompass external adaptation (relationships with the environment), internal integration (relationships with other people), and related assumptions in terms of language, space, and time [23], [24].

The relationship between people and their environment is mediated (and perhaps even shaped) by culture along with other factors, such as resource availability, climate, and topology [27]. It has been argued that the environment is affected by and affects culture, potentially reinforcing, shaping or even changing radically the manifestations of cultural patterns [9]. For example, the scarcity of a critical resource (such as water, food, or fuel) could stimulate changes in behaviors (rioting) and social institutions (the overthrow of an incumbent government) that would not have occurred in other circumstances. As a result, there is a growing recognition that particular behaviors may be due not only to the group membership of the people concerned, but also to their environmental context.

Thus, culture emerges as a latent and theoretical construct characterized by “its forms and patterns, the interrelation of these into an organization, and the way these parts, and the whole, work or function as a group of human beings lies under

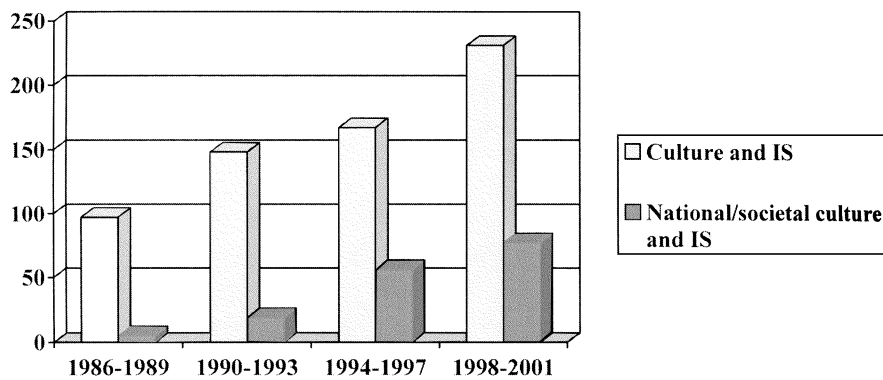


Fig. 1. Articles indexed in ABI Inform Global and Emerald.

them” [19]. Although the construct is inherently complex, it is possible to label many different aspects or dimensions of it. A large body of literature on culture has identified and considered these dimensions (see [9], [10], and [18]).

Significantly, these cultural dimensions exist at different levels of analysis. They include values, cognitive structures, and behaviors at the individual level; structures and rituals at the organizational level; and artifacts and attributes at the national or societal level. For example, the relative preference for making money or having leisure time (assuming that they are mutually exclusive) will vary from person to person. In contrast, work routines will reflect most directly the culture of an organization, while the degree of public compassion for the jobless will vary from society to society.

As “the collective programming of the mind which distinguishes the members of one human group from another” [10], cultural distinctions at the national or societal level may be expected to exert a significant influence on the management of information technology. In his seminal study of about 116 000 IBM employees in over 60 countries, Hofstede found that national culture (or more precisely societal culture) explained about half of the differences in work-related values. This was far greater than the proportions explained by professional role, age, or gender. Despite the assorted criticisms of Hofstede’s study (see [16] for an incisive review), it is generally agreed that culture at the societal level plays a major role in determining work-related values and attitudes, as well as the behaviors and practices that prevail in a particular business context.

The road of culture and culture studies is emblazoned with a number of significant milestones—events or publications that have come to exert considerable influence over the way we conceive of culture and consider its impacts. Key among these milestones are:

- 1) G. Hofstede’s studies [10]–[13], and, in particular, his identification of four dimensions of societal culture, viz.: power distance, individualism–collectivism, masculinity–femininity, and uncertainty avoidance;
- 2) the identification and application of a fifth dimension of societal culture (known variously as Confucian dynamism, long-term orientation, or time orientation) by the Chinese Cultural Connection led by M. H. Bond [3], [14];
- 3) the work of H. Triandis [26]–[29] on individual values, attitudes, and behavior;

- 4) meta-studies in industrial and organizational psychology that explicitly encompass cultural issues (e.g., [6]), and assorted research of organizational culture and subcultures [1], [15].

Emerging notions of culture include those at the professional and project team levels (e.g., [2], [25], and [30]).

Despite these and other milestones to date, we strongly believe in the need to further advance our knowledge and understanding of different behaviors and practices, different values and attitudes, and ultimately different cultures.

II. CONTEXT: CULTURAL ASPECTS OF IT MANAGEMENT

In the early decades of IT management, both practitioners and scholars dealt with cultural aspects of IS problems in a cursory and anecdotal manner. Cultural anthropology was often dismissed as a peripheral consideration in the worlds of computing science, engineering, and business, and notably in both information management and technology management. Over time, however, researchers in both management and information systems (IS) have developed a healthy interest in cultural issues. This trend has been supported by the growing number of studies that address cultural issues in these domains, as evidenced by an informal survey of articles indexed in ABI Inform Global and Emerald (see Fig. 1).

Despite the growing interest in cultural issues from IS and technology management scholars, the research outputs tend to be fragmented and ephemeral. A small number of journals (such as the *International Journal of Information Management*, the *Journal of Global Information Management* and the *Journal of Global Information Technology Management*) focus exclusively on “global,” “international,” and/or “cross-cultural” issues and are natural havens for this type of work. Journals that explicitly address issues relevant to developing countries (such as the *Electronic Journal of Information Systems in Developing Countries* and *Information Technology for Development*) also publish cross-cultural articles. Other journals, including those widely perceived to be in the top tier of their respective disciplines, publish papers dealing with cultural issues from time to time, but these papers tend to be drowned in the sea of mainstream writing.

We have also observed a tendency for research supervisors to warn their students (in management and IS) away from cultural

issues. An investigation that addresses cultural issues is perceived to be too risky, and too much of a quagmire in which research students may flounder, never to emerge with a completed research dissertation. In our Internet-driven society, much of the content that is easiest to access originates from the “West.” As a result, cultural issues and cultural sensitivity are often marginalized or considered primarily from an implicitly Western perspective, even when we are talking about a World Wide Web-culture.

With the increasing internationalization of trade and consequent integration of the global economy, it is becoming increasingly difficult and dangerous to ignore cultural issues. Despite a universal desire to benefit from IT, far too many IT applications have failed to meet expectations. Unsatisfactory results with IT are due most commonly to a poor fit with the prevailing culture and/or a failure to build a culture to support change [21]. Although there is a growing consensus that *context does matter* when it comes to IT application, IT specialists still tend to seek universal formulae for successful practice, while ignoring or downplaying the messiness of human factors in different environments. For example, our own recent work highlights culturally-derived problems associated with an IT-supported business process change initiative [4].

With IT enabling the creation of environments (both physical and virtual) that have burgeoning levels of interactivity and networking, there is an increased consciousness not only of the world as a whole, but also of the cultural differences that exist between societies, organizations, and other subcultures. Coupled with this elevated consciousness, there is a growing realization that it is difficult to transfer and assimilate an IT application into a different cultural context. While analyses of different contexts have been undertaken, there has been a tendency to compare and contrast IT-related phenomena in two or three organizations or countries and then attribute the differences to a rather imprecise “culture.” Relatively few researchers have probed the invisible part of the iceberg in an attempt to understand the reasons for the observed differences. As a result, we have a limited understanding of how and why specific cultural attributes affect the planning and implementation of IT-enabled business process change efforts. Consequently, technology and engineering managers have been left to cope with cultural issues without being able to draw on the empirically tested prescriptions or experiences of others.

III. PROCESS: DEVELOPING A SPECIAL ISSUE

Given this current situation, and our belief that culture does matter when it comes to managing IT, we have developed a special journal issue. A special issue provides a unique opportunity to bring together the leading experts in a discipline (or in this case, an emerging subdiscipline) as authors and reviewers. We are, thus, able to review and consolidate what we already know, to integrate and build significantly upon this existing base of knowledge, and to outline the directions for meaningful progress in the future.

The IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT was believed to be a singularly appropriate journal for this Special Issue, given its:

- 1) ability to bridge the engineering, management and technology disciplines;
- 2) broad academic and professional readership that is knowledgeable about both management and technology;
- 3) position as an influential source for opinion makers, policy makers, and scholars—around the world.

This special issue provides a unique opportunity for authors to showcase their best research to a large and receptive audience. The audience, in turn, can glean a significant amount of knowledge specific to this emerging subdiscipline in a single location. Ultimately, we hope to persuade the readership, and in particular the research, business, and government communities, that culture does indeed matter, and that it deserves more attention from both technology management scholars and practitioners.

Our Special Issue solicited work that would advance our empirical and theoretical knowledge of the subdiscipline through consummate “how” and “why” analysis of the key issues. We received 38 indications of interest from potential contributors to this special issue, of which 28 produced full-length, formal submissions. Eighteen of these manuscripts focused on national/societal culture and six on various forms of organizational culture. Submissions were received from authors located in 13 countries: the U.S. (16); U.K. (3); Australia (2); and one each from Austria, Canada, China, Denmark, Indonesia, the Netherlands, New Zealand, Singapore, South Africa, and Tanzania. A total of 21 countries were described in these 28 papers: U.S. (9); U.K. (5); Singapore (3); Egypt (2); Germany (2); Japan (2); and one each from: Australia, China, Denmark, Finland, Indonesia, India, Ireland, Malaysia, Nigeria, Norway, Peru, Taiwan, Tanzania, Thailand, and South Africa.

Topic areas covered in the submissions include: e-commerce/web (6); organizational dynamics (4); virtual teams/projects (3); frameworks or meta-studies (3); adoption/diffusion of technology (2); and group support systems (2). Finally, the 74 reviewers who have worked so assiduously with us in providing quality feedback to the authors represented even more cultural diversity. Their work locations were as follows: U.S. (28), Hong Kong (21), U.K. (5), Australia (3), Canada (2), Finland (2), the Netherlands (2), Singapore (2), and one each from: Austria, Brazil, China, Denmark, Germany, Israel, Japan, Malaysia, New Zealand, South Africa, Taiwan, and Thailand.

IV. CONTENT: PAPERS IN THE SPECIAL ISSUE

Eight papers have been accepted for publication in this special issue, representing an acceptance rate of 28%. The first article in the Special Issue comes from Ford, Connelly, and Meister. They contribute a valuable citation analysis of IS research that has relied upon the culture dimensions identified by Hofstede. Hofstede’s cultural dimensions have been widely applied in a variety of business and social science disciplines. This paper begins by justifying the interest of IS researchers in cultural issues, noting the role of IS in the (development of the) international economy, and, hence, highlighting the need to appreciate how cultural differences can influence the design, implementation and use of various IS. Ford and her colleagues identify areas of IS research that have been significantly informed by Hofstede’s cultural dimensions, for example Group Support Systems, and

other areas where this informing has yet to take place. While IS researchers have predominantly used the power distance and individualism–collectivism dimensions, the relevance of each of the four dimensions to IS research is discussed and areas for future research are identified.

The second paper by Weisinger and Trauth considers IT management from a situated culture perspective. It suggests that cultural understanding is locally situated, grounded in actual behavior, and firmly fixed in the socially negotiated work practices of everyday life. The framework is applied to an analysis of the interplay between national cultures of the donor and recipient countries, the IT industry culture, and the organizational culture of one firm.

The third paper, by Rose, Evaristo, and Straub, focuses on cultural responses to the download time of websites in a four country study that uses the cultural construct of monochronism–polychronism. This study is motivated by a desire to understand the tolerance level of e-commerce consumers for download delays. The insights that emerge are valuable for the customization of web pages (including specifically the richness of content) based on the cultural identity of the consumer.

Straub, Loch, and Kamel consider the nature of Internet adoption in Arab cultures. They focus on the roles of social norms and technological curation. Their survey of knowledge workers identifies the extent to which respondents are influenced by “advanced” technology cultures. They observe that culture can both inhibit and encourage technological innovation and suggest how Arab cultures may move their economies more quickly into the digital age.

Tan *et al.* consider the impact of organizational climate and information asymmetry on the propensity to report bad news in software projects in two national cultures: one individualistic and one collectivistic. This propensity is important, since early warning signals can alert project managers to looming problems and so help avert disaster. Tan and his colleagues provide valuable guidance with respect to the cultural composition of project teams.

Doig and Doherty investigate the differing impacts on organizational culture that may result from the implementation of data warehouses. In particular, they focus on the changes in the availability and quality of information, and the concomitant consequences for customer service, flexibility, integration, and employee empowerment. Their study shows how information system characteristics and organizational characteristics influence each other over time.

Huang *et al.* present an exploratory case study of an attempt to introduce component-based development in a multinational bank. Their analysis focuses on the subcultural differences within the bank that hampered effective knowledge sharing and collaboration. These differences highlight the problems involved with creating a truly corporate culture, as well as devising effective IT policy. It is suggested that simplistic exhortations as to the value of collaboration and knowledge sharing are unlikely to produce the intended results.

Finally, Ngewnyama and Nielsen investigate organizational cultural assumptions embedded in the Capability Maturity Model (CMM), discussing the implications of these assumptions for software process improvement (SPI) initiatives. They

surface and analyze the underlying assumptions of the CMM using the well-known competing values model. Their analysis reveals contradictory sets of assumptions about organizational culture in the CMM approach, and considers the implications for effectively implementing and institutionalising SPI programmes in an organizational context.

V. CONCLUSION

We believe that this set of eight papers, framed by this introduction and meta-analyzed in a tail piece, makes a valuable contribution to our knowledge of cultural issues in IT management. We commend these papers to our broad and influential audience, and look forward to additional scholarship that will further advance this important subdiscipline.

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