Nomadic Culture: Towards An Understanding of the Cultural Impacts of Nomadic Computing

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Abstract

The increasingly mobile workforce, organizations’ desire to be flexible and reactive, changing organizational structure and management style, and the wide availability of enabling technologies to support nomadic computing are gradually influencing the characteristics of an organization that eventually contribute to the organization’s culture. This study attempts to investigate the cultural impacts of nomadic computing. We coined the term “nomadic culture” to describe a collection of artifacts, beliefs, and basic assumptions that supports the technologies and procedures enabling an increasingly mobile workforce to achieve efficiency and effectiveness. This study offers a conceptualization of nomadic culture and proposes a framework for understanding the factors that affect the rate of formation of nomadic culture. Future research directions are also discussed.

Keywords: Nomadic computing; nomadic culture; organizational culture; remote work; virtual organizations

1. Introduction

Today’s enterprises consist of an increasingly mobile workforce. According to a recent report released by Meta Group, the number of full-time telecommuters in the U.S. has doubled since 2000, and the number of employees who spend more than 20% of their time working outside an office is booming (Meta Group, 2003). Globally, the number of mobile workers is also on the rise. A recent survey of UK senior-level managers shows that 56% of the respondents reported to see an increase in the number of remote workers in the organization (NOP, 2002). The surveyed attributed the growing number of remote workers to technological advances (65%), greater desire for a work/life balance (58%), reduced travel (44%), and globalization (36%).

The growth of the information economy is reflected in the increasing percentage of white-collar workers in relation to the entire workforce. According to the U.S. Department of Commerce, the percentage of white-collar workers has exceeded 60% of the entire workforce by 2000 and was growing at a phenomenal rate. This makes the majority of U.S. workers knowledge or data workers. These employees depend on computer technologies for productivity and effectiveness at work. Providing these employees with the right tools to work efficiently and effectively should be considered one of the top priorities of modern organizations as Belanger et al.’s (2001) research concluded that the availability of information systems and communications technologies positively impacted the productivity, performance, and satisfaction of telecommuters.
1.1 Nomadic Computing and Nomadic Culture

Lyytinen and Yoo (2002) coined the term nomadic information environment (NIE) to describe “a heterogeneous assemblage of interconnected technological and organizational elements, which enables the physical and social mobility of computing and communication services between organizational actors both within and across organizational borders.” A NIE provides the user with the same level of information access as the user moves from device to device and network to network. More importantly, the handover between devices and networks occurs seamlessly. As the definition of NIE suggests, nomadic computing is not only a technological phenomenon, but a social phenomenon as well. The increasingly seamless computing environments, especially those supported by wireless technologies, are changing the social dynamics both within and beyond organizational borders.

The sociotechnical perspective suggests that an organization and their IT infrastructure must adjust to each other until an equilibrium is achieved in order to attain optimal performance. While technology itself is often viewed as culture free, the type of technology and the way technology is implemented influence the behaviors of members in the organization. The behavioral changes of individuals will dictate changes in the collective culture of an organization. Therefore, the underlying philosophy of this article is that the increasingly mobile workforce, organization’s need to be flexible and reactive, changing management style and mentality, and the wide availability of enabling technology to support nomadic computing are gradually influencing the characteristics of an organization that eventually contribute to the organization’s culture.

On the other hand, technology without cultural support will not realize its true potentials. The acceptance of a new technology requires the fundamental shifts in the values and beliefs of organizational members. Enabling technologies of nomadic computing allow employees to be more distributed without sacrificing productivity and effectiveness. Prior research has found that maintaining and developing an appropriate corporate culture in a dispersed work environment was a key issue. Hence, we coin the term, nomadic culture, to describe this new cultural phenomenon that is incubating in some organizations today. Nomadic culture will provide the cultural support for technologies and procedures that enable an increasingly mobile workforce to achieve efficiency and effectiveness.

2. Conceptualization of Nomadic Culture

In order to theorize and research on nomadic culture, a formal conceptualization of nomadic culture is necessary. As Balasubramanian et al. (2002) pointed out, when a concept is embedded in technology, one has the tendency to confuse the concept with the technology. Nomadic culture is deeply embedded in an array of fast changing technologies; therefore, it is crucial to create a stable conceptualization that is not subject to the volatility of its enabling technologies. This section of the paper aims to provide a technology-independent conceptualization of nomadic culture.

Nomadic culture consists of a collection of artifacts, beliefs, and basic assumptions that provides the employee with the flexibility to work whenever and wherever she needs to.
It facilitates the mobility of services, information, and employees across different devices, networks, and locations. The employee has the same or comparable access to information, support mechanism, and opportunities when away from the office as in the office. Using Schein’s (1984) levels of culture model as the outline, the following sections define the artifacts, value, and basic assumptions that are believed to be associated with nomadic culture.

2.1 Artifacts

The most visible artifacts of nomadic culture are a workforce with various nomadicity and enabling technologies and services.

The spectrum of an employee’s nomadicity ranges from completely stationary to completely mobile. In this paper, nomadicity is defined as the function of an employee’s mobility and distance from her office at work. Local nomadic workers consist of employees whose jobs require them to spend a great deal of their time away from their desks to attend meetings, interacting with co-workers, or solve problems. While they are restricted to the office buildings, they can still demonstrate a high level of mobility. Employees who work remotely are often referred to as telecommuters. Today, a telecommuter may be someone who works from home, a hotel room, in the field, or in transit. Nomadic culture and its relevant components should be able to support employees of a wide variety of nomadicity.

Nomadic culture is a direct result of the implementation of technologies that support NIEs, both wired and wireless. Nevertheless, the dramatic advancement in the wireless technologies in the recent year has accelerated the rate of formation of nomadic culture in organizations. Belanger et al. (2001) found in their study that the availability of advanced information and communication technologies has a positive impact on a telecommuter’s productivity, performance, and satisfaction. Therefore, providing employees with various nomadicity with the right tools and services is paramount to the success of nomadic computing.

2.2 Values and Beliefs

Values and beliefs of an organization allow us to understand the rationalization for the behavior of organization members. While they cannot be observed as easily as artifacts, values and beliefs can be identified by interviewing members of the organization or analyzing artifacts (Schein, 1984). The artifacts of nomadic culture comprise of technologies and behavior that facilitate remote work, remote supervision, and collaboration. Therefore, the following values and beliefs may be found in organizations with nomadic culture:

- Spatial and temporal limitations can be overcome by information and telecommunications technologies. Therefore, one does not need to be confined to an office to do his or her job.
- Employees enjoy the flexibility brought by nomadic computing; therefore, they are more productive and satisfied with their job.
- Data and information necessary for performing one’s tasks need to be accessible at anytime and from anywhere.
• Managers recognize and help address employees’ need for flexible work conditions in order to achieve maximum productivity and high job satisfaction.
• Working remotely will not deprive one from any opportunities for promotion and resources. In contrary, working remotely is supported or even promoted by the organization.
• While being away from the office, the employee can depend on the support and assistance from other employees to perform his or her job.

2.3 Basic assumption
As the most important element of culture, basic assumptions form a coherent pattern called culture paradigm. According to Schein (1984), a set of categories of assumptions that can be used to analyze culture paradigm include the organization’s relationship with its environment, the nature of reality and truth, the nature of human nature, the nature of human activity, and the nature of human relationships. These basic assumptions are reflected in the organization’s behavior to improve performance, react to changes, allocate resources, assign responsibilities, and etc.

In this light, the following basic assumptions are likely to be found in an organization with nomadic culture:
• The organization strives to be the dominant force in the industry via technological superiority, better performance and agility.
• The employees of the organization are responsible, motivated, trustworthy, and capable of governing themselves.
• Work is not limited to the traditional nine to five schedule. Employees should be ready to perform their tasks at anytime.
• The relationship between employees is cooperative and collaborative.
• Technology helps the organization to be more efficient and effective; therefore, positive changes brought by technology are welcome by organizational members.
• Coordination and control of work can be performed remotely.

3. A Framework of Nomadic Culture
To better understand nomadic culture, we constructed a framework of nomadic culture, which outlines some of the most important factors that affect the formation of nomadic culture (see Figure 1). Table 1 lists the factors and their corresponding components. This framework provides both researchers and practitioners with a systematic understanding of this phenomenon, which will make future research in this area possible. The framework also provides managers with a method to audit their organizations for nomadic culture. For organizations that want to promote nomadic culture, this framework offers some operative guidelines. The framework stipulates that the formation of nomadic culture is related to five crucial factors: attributes of organization members, technical infrastructure, management mentality, reward system, and competitive environment. The framework finds theoretical support from existing management science and IS literature on organizational culture and adoption of new technology, hence it demonstrates high content validity. The following sections discuss these factors in detail.
4. Future Research Directions in Nomadic Culture

A number of research themes emerged during the exploration of nomadic culture. The following three research themes are of immediate importance to a deeper understanding of nomadic culture.

Research Theme 1: How can we measure the strength and pervasiveness of nomadic culture in organizations?

Before we can develop an understanding of the impacts of nomadic culture on other organizational variables, a reliable and valid measurement for nomadic culture is imperative. Therefore, the next immediate research theme lies in the development of a scale to measure nomadic culture. While organizational culture has been a recurring research topic in management science, few research projects have attempted to develop a systematic measure for it. As Petty et al. (1995) pointed out, most methods of measurement of organizational culture tend to be qualitative rather than quantitative. However, without quantitative measurement, it would be difficult to relate organizational cultures to other organizational variables (e.g. performance and employee job satisfaction). Among the quantitative studies, Reynolds (1986) and Sriramesh et al.
(1996) used questionnaires to capture organizational culture. Sriramesh et al.’s (1996) research confirmed that organizational culture can be measured quantitatively with reliability and validity. The framework proposed in this paper provides a starting point for developing a measurement for nomadic culture. By operationalizing the five factors and their components discussed in the framework, researchers will be able to identify the items of an instrument that can be used to measure nomadic culture.

**Research Theme 2: What impacts nomadic culture has on company performance and employee satisfaction and commitment?**

Prior research has explored the impacts of organizational culture on firm performance and employee job satisfaction and commitment (e.g. Petty et al., 1995; Ogbonna and Harris, 2000; Lund, 2003). Ogbonna and Harris’ (2000) research provided empirical evidences that competitive and innovative cultural traits of an organization were directly linked to performance. Lund (2003) found that job satisfaction was positively related to clan and adhocracy cultures and negatively related to market and hierarchy cultures. These studies suggested that it is necessary for firms to foster a culture that will effectively enhance organizational performance and employee job satisfaction. This realization leads researchers to question whether nomadic culture will have positive or negative impact on organizational performance (e.g. revenues, profits, and customer service quality) and employee-related (e.g. satisfaction, commitment, and retention) variables.

**Research Theme 3: What are the impacts of parent cultures (e.g. organizational and national cultures) on the formation and sustainability of nomadic culture?**

Extensive research has been conducted on national and organizational culture. Sub-cultures such as nomadic culture are derived from and bear traits of their parent cultures. In this light, one can argue that certain parent cultures may support nomadic culture while others may impede its formation. For example, in a culture where the division between work and leisure is clear, the formality of an office is important, and face-to-face interaction is imperative, nomadic culture will not be sustainable. Hofstede (1994) used power distance, individualism, masculinity, and uncertainty avoidance to differentiate between different national cultures. These attributes can have profound influence on the formation and sustainability of nomadic culture in organizations under various national cultures. Similarly, various organizational cultures’ impact of the formation and sustainability of nomadic culture should not be overlooked. Cameron and Freeman (1991) classified organizational cultures into four broad categories: clan, hierarchy, market, and adhocracy. As one may envision, the adhocracy culture, which is characterized by creativity and adaptability, is likely to be more nomad-friendly, whereas hierarchy culture, which emphasizes on order, rules, regulations, and formal structure, may impede the formation of nomadic culture. Recognizing the impacts of parent cultures on the formation and sustainability of nomadic culture will allow us to predict whether nomadic culture will be able to find its place in certain organizational and national environments successfully.
5. CONCLUSION
As we move into an era in which competition among businesses is fierce, dependency on technology is heightened, and agility becomes a requirement for success. A shift in the organization’s culture to make the organization more competitive is imperative as technology alone fails to create sustainable competitive advantages. This study offers some insights on the cultural impact of nomadic computing. The formal conceptualization and the framework of nomadic culture provide theoretical ground for future research opportunities, which are also outlined in this paper.

REFERENCES