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A REDEFINING VIEW OF TIME AND SPACE

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ABSTRACT

The fast development of mobile technology in recent years has penetrated the global business world. Empirical studies, however, are substantially lagging behind this exponential technology expansion. This study thus seeks to provide a refreshing understanding of organizational changes enabled by mobile technology. More specifically, based on an interpretive approach, my study analyzes how mobile technology redefines the notions of time and space in the organization's routines and structures and how such redefining changes in turn subtly transform organizational culture. Valuable practical implications and future research directions are thus suggested.

Key words: Mobile technology, culture, time, space, interpretive, case study

INTRODUCTION

As practitioners continued to project how mobile technology would create a new competitive market and potentially transform the manner in which business is conducted [1-5], most scholarly work on mobile phenomenon over years simply addressed conceptual issues or technical concerns [6-9]. Empirical studies seemingly failed to pay adequate attention to the phenomenon until very recent years. Even with such growing attention and empirical efforts [10], most investigations tended to focus on the applications and capabilities of mobile technology [11, 12] or individual usage and adoption behavior [13, 14] including consumer intention in mobile commerce context [15, 16]. While the merit of these empirical efforts was laudable, it could not provide sufficient understanding of the relationship between mobile technology and organizations. In other words, how mobile technology transforms the organization as predicted by practitioners [17] still critically needs empirical investigation and findings. My research inquiry thus seeks to extend these recent research endeavors and in turn provide a better understanding of the process through which mobile technology transforms the organization.

My particular interest centers on how mobile technology transforms organizational culture through the perspectives of time and space. The primary research question inquires, "How does mobile technology change organizational culture?" The focus of organizational culture reflects the significant role that an organization's culture plays in today's global and diversified work environment [18-23]. In addition, similar to mobile technology, the notions of time and space are relatively new perspectives in our research community [24]. They mirror the unique attributes of mobile technology and could provide valuable insights to the organization's management.

CULTUREAL ELEMENTS

Sociologists define culture as the interaction and collective behavior recognized and practiced by actors in a group [25]. In a simple sense, culture configures social relationships and reflects "ways of life" [26]. Such ways of life represent a set of shared values that distinguish members of one group from those of another [27]. As such, the underlying assumptions of culture theory are that people concerns most about their relationships with others and others' relationships with them so they often inquire "who I am" and "how should I behave" seeking their identity and social recognition in a group [28]. Organizational culture, thus, reflects such shared values and collective behaviors in an organization's routine or everyday life.

The influence of mobile technology on the organizational culture would then need to take account of changes emerged in organization members' collective actions or shared values [29]. Such changes could be reflected in organization members' interaction and communication [30], collective work patterns [31], power and control [32, 33], interpersonal relationships [34], coordination and collaboration [35], and/or their interactions with the technology [36]. Drawing from the perspectives of time and space, I will demonstrate how the emergency of mobile technology in the organization would also explicitly and/or implicitly transform an organization via these cultural elements aforementioned.

MOBILE TECHNOLOGY IN TIME AND SPACE

By nature, mobile technology is unique for its ability to enable the technological mobility of individuals and organizations; this enabled technological mobility could provide functionality similar to that of any other technologies but at "anytime and anywhere." This "anytime and anywhere" notion is an enabled freedom, which serves to emancipate individuals from the constraints of time and space. As such, technology is no longer designed to simply help users accomplish tasks efficiently but more importantly to be attached to the users. In other words, technology will accompany individual users even as they travel. A technologically enabled mobile user would then become a moving workstation [6]. Regardless of *time* and *space*, individual mobile users could and would be working continually. The literature related to *time*-based competition and *location*-independent

flexibility, thus, can provide valuable insights to help explain how this movement benefits the organization and, in turn, transforms organization members' shared values and collective behavior, i.e. organizational culture.

Time-Based Competition

Since Stalk [37] first introduced the notion of time-based competition (TBC), TBC has significantly transformed many corporations [38]. However, with the rapid growth of the Internet and relevant technologies in the 1990s, researchers began to recognize the need for re-conceptualizing TBC's original notion—*timeliness* [39]. Timeliness is defined as "the need for speed" and considered as the driving force for IT investment [38]. Nowadays, customers are more service oriented and responsiveness sensitive [40]. They demand not just prompt service but also the service delivered at any time instantly. In other words, "speedy service" is not enough; it has to be also "*at any time*" and "*instant.*"

Location-Independent Flexibility

Similarly, conventional wisdom has recognized location as a significant factor in determining much of an organization's competitive advantage [41] or in enhancing an organization's ability to overcome many barriers [42] such as communications and interactions [43]. With the increasing effectiveness of computer and communication technology and changing life style in society, the location factor is projected to change and be centralized to individuals leading to a highly mobile workforce [44]. As illustrated by Lynskey [45], "industrial competence is now widely dispersed geographically, competencies are increasingly situated outside the firm" (p. 317) and can be found everywhere. The emancipation from the constraints of time and space enabled by mobile technology naturally changes organization members' interaction and communication [30], collective work patterns [31], power and control [32, 33], interpersonal relationships [34], coordination and collaboration [35], and/or their interactions with the technology [36], which, in turn, collectively and ultimately, transform an organization's culture in subtle processes.

RESEARCH METHODOLOGY

To help unveil how mobile technology transforms an organization's culture in subtle processes pertaining to cultural elements mentioned above, I conducted an interpretive case study to allow authentic details to surface. My inquiry involved one large public university and six private organizations in the U.S. throughout one academic year. These organizations were chosen because they have implemented wireless networks at that time and witnessed consequent organizational changes. The primary data source was based on semi-structured interviews while organizational documents and websites provided supporting materials. The interview duration varied from approximately 55 to 125 minutes. The recorded interviews were soon transcribed and resulted in 148 single-spaced pages of transcripts. My coding strategy was primarily based on "analytic coding" with two stages involved: "initial coding" and "focused coding" [46]. The initial coding was a broad search for any concrete indications that were related to conceptual definitions. As the quantity of initial codes continued to accumulate, the more frequently used codes were then articulated and developed into focused codes. The focused coding would then elaborate more on the frequently used codes and collapse or dismiss those that were less relevant.

CULTURAL ANALYSIS

The results of analytic coding revealed that culture changes not just manifested themselves specifically in the areas aforementioned but also connected to the notions of time and space. More specifically, these organizations have witnessed more responsive interactions and communications, enhanced power and control, spontaneous work patterns, impersonal relationships, simultaneous coordination and collaborations, and the shaping of technology informality; all of which contributed to an organization's cultural transformation. However, due to the limitation on paper length, only selected examples of culture changes were presented here.

Changes in Interaction and Communication

In a group of technical service providers who were constantly traveling, carrying mobile devices such as BlackBerry and cellular phones denoted that group members would expect one another to engage in and commit to a highly responsive interaction and communication. Failing to do so could result in certain difficulty of maintaining their status in work groups. The use of mobile devices thus fundamentally transformed collective communication patterns, which, in turn, contributed to the changes of organizational culture. This subtle change was best illustrated by Derek's message below.

> If you are carrying one of these [BlackBerry] and you are on this account and you have it on. Ok. I send you a message; I have a high degree of certainty you got that message. If you don't answer me back I am gonna ask you why later on [**time**]. I think that is a fair question. And we don't accept the excuse that 'hey, I didn't get this so I couldn't help you out.' If the guy doesn't answer back… like I paged somebody an hour and half ago [**time**]… I know he's gotten it, so he is either in a meeting or he is ignoring me [**location**]. And I will know sooner or later [**time**]. That has definitely… you can see how that has *changed the workforce*. People are much *more intent to each other* because they know that the other person knows that you got the message. (Derek, TechServ1)

Changes in Power and Control

With lesser face-to-face interaction in a wireless enabled work environment, how a manager evaluated employees' performance and teamwork has differed from traditional face-to-face mechanism. To a manager who was task oriented and tended to

constantly monitor an employee's work progress, mobile technology could offer a medium for him/her to demand feedback from the subordinates regarding his/her work progress at anytime (*time*) and from anywhere (*space*). With the technology enabled flexibility and communication, the subordinates would have no excuse of not being able to respond promptly and constantly. The presence of mobile technology, therefore, could significantly reinforce *controlling* leadership style as illustrated by Derek's message below.

> They can *supervise you more not less*. If my boss pages me on this [BlackBerry] and says 'Derek, I want to talk to you', and I am in one part of HN [their city] and he is in another part of HN [**location**]. He's got a cell phone; I have got a cell phone. And I get that page, what do you think the chance for me saying 'Nah, I don't want to talk to him? —None. So what that allows is it gives him the confidence to know that if he wants to reach out and touches me, he can do it *anytime he wants to* [**time**]. That is about as much control as I, you know, 'cause he knows I am gonna get that page… (Derek, TechServ1)

Changes in Work Patterns and Atmospheres

Alternative ways of performing daily activities, such as working outside instead of in the offices, were also enabled by mobile technology so that employees could continue to accomplish their tasks regardless of surroundings. A highly mobile workforce even within the same facility was then emerged. As people moved around the building or the campus, they would gradually form different organizational settings, engage in conversations on which they would not normally carry, and inevitably develop an emergent mobile organizational structure within which the traditional boundaries among the divisions or departments could become less significant. Similarly, in an urgent scenario when a professor had child care needs, he/she could easily manage his/her work schedule (*time*) and conduct his/her work without physically being present at school (*space*) as indicated by Garth's message.

> People who want to work at 2am can work at 2am [**time**]. People who have child care needs or whatever that needs to have flexible schedules [**time**], have much easier time doing that. We have a professor who had twins three weeks ago, *he does not need to be here, he needs to be home with his twins but he is still working* [**location**]. (Garth, Law1)

Changes in Interpersonal Relationships

Enabled by technological flexibility in a wireless environment, the number of mobile workers who frequently engaged in lesser face-to-face interaction increased, even when they were located in the same facility. In Energy2, for example, most people would no longer involve in face-to-face activities and most businesses were operated by wireless communication. It has been increasingly experienced that Michael's jobs including supervising his team were mostly conducted through non face-to-face situations.

> These are our offices. If they weren't here [**location**], I would probably never see their faces because they have their own things but we can still communicate. We can still talk. I would never typically see them… Everything can be done through email. I can give him all the requirements that I have and he can reply back saying "ok it is done what you want me to do next" [**time**]. I see that happens more often where I don't have to talk to him on a phone anymore because I can be on the bus going back home and typing a message to him saying "Here don't forget to do this if you are still here" or something like that [**location**]. So everything is probably gonna be even more *impersonal* of an environment. (Michael, Energy2)

Changes in Coordination and Collaborations

Another change in the organizational culture manifested itself in how group members coordinated and collaborated with one another. As mobile technology facilitated time and location flexibility, it tremendously changed group members' perceptions and expectations as to how team work should be accomplished and in turn increasingly transformed how group coordination and collaboration were actually carried out. A typical example could be observed in the description of Richard from Compu1 where the wireless mobility allowed a presenter to send audiences his presentation immediately in a conference meeting.

> I think it is just taken for granted… Now we are in a conference room, we just say… "Can you send me that presentation?" You have 30 seconds *right then and there* [**time** and **location**]. It *changes the way we work with our people, and the way we were*. (Richard, Compu1)

Changes in Technology Interaction

Finally, the last element of cultural changes centered on how the interaction between employees and technology was shaped and reshaped by mobile technology. Traditionally, the formality of organizational culture intensified as the channels of communication became more technologically dependent. As such, the formality would inevitably intensify as the communication channel relied more on technology which provided less non-verbal communication cues. However, organizational culture, largely shaped by how group members perceived their identity and how they interacted with one another, was mostly driven by informal interactions and eventually reflected in specific, locally sanctioned patterns of collective behavior. As the formality increased with the use of technology, the difficulty to develop or maintain an organization's culture would predictably increase as well. The need to discover or invent different patterns of technology usage would then be essential as suggested by Daniel.

> The concept of 'water-cooler', the culture of an organization is traditionally formulated informally more than formally, right? And that 'informal' is virtual water cooler: the water cooler concept is people running into the hall so when they go to the water cooler [**location**]… maybe today is not the water cooler; maybe it is the juice bar, it is the coffee pot or whatever so that'll be more metaphoric. Most definitely, these are culture channels [**location**]. We have to channel our culture in different ways… So the

challenge is you have to keep and create that virtual water cooler, ok? You got to enable people to communicate at the lowest level of formality so they can maintain their relationships, maintain their culture and continue to use this channel as their culture… So I notice that people who are sending me a pin [text] message is much less formal [**time**]. And in a lot of cases, we facilitate communication and meeting the minds better than by using the exact same device that is going through the email gateway. (Daniel, UITD1)

IMPLICATIONS

The insights gained from case analysis demonstrated that subtle cultural changes in a wireless enabled environment evidently manifested themselves in responsive interaction and communication, intensified power and control mechanism, emancipated workplace and spontaneous environment, virtual and impersonal context, simultaneous coordination and collaborations, and emerging technological informality. The issues that a manager should beware would then be how to effectively deploy mobile/wireless technology to maintain positive elements in organizational culture. For example, as employees heavily reply on mobile/wireless technology, the formality of communication could result in the loss of richness that is normally better experienced in face-to-face interactions. It could also gradually shape an impersonal work environment and comprise the development of employee relations. As such, how to enhance the richness of communication and, in turn, maintain the essence of organizational culture would become critical. As indicated by interviewees, the informal use of technology could better facilitate coordination and communication, sustain the informality of organizational culture, and maintain employee relationships. Therefore, managers might need to consider creating an atmosphere that would encourage informal use of mobile technology.

In addition, IT managers might need to be aware of managerial issues emerging from an impersonal, virtual context where employees are more spontaneous with work schedule and space. If teamwork is highly emphasized in the organization, managers might need to deploy certain mechanism to promote employees' communication so that team collaboration could be maintained. Other critical issues in such impersonal, virtual environment include organizational justice and leadership. Since face-to-face interaction becomes less frequent in a wireless enabled environment, social relationships and interpersonal skills might become less significant in the workplace and, in turn, lesser a factor in outcome appraisal. The evaluation of employees' performance might then need to focus on other factors.

Since employees could be constantly mobile, how managers coordinate the team become rather critical as well. As employees' perceptions and expectations with regard to their shared values and collective behaviors in mobile, virtual environment significantly differ from traditional work environment, managers might not be able to lead their teams in traditional approaches. There is no doubt that it creates more barriers for managers because the fine line between tight (controlling) and loose (empowering) leadership style might not be easy to capture. As mobile technology and virtual workplace continue to develop, I would suggest that managers be more empowering and, in turn, coordinate and evaluate their teams based on goals and outcomes rather than the requirements of time and place that are traditionally predetermined by the organization. In so doing, managers of mobile work teams might find themselves have better time to accomplish their team projects and at the same time shape commonly recognized values and collective behaviors that help maintain long term work relationships.

CONCLUDING REMARKS

Despite practitioners' substantial discussion on the potentials of mobile technology, our research community critically needs more attention to this evolving and uncertain phenomenon. In line with recent research efforts, my interpretive case study has shed light on how subtle changes in organizations are increasingly witnessed in various cultural dimensions, particularly in relation to interaction and communication, power and control, work pattern and atmosphere, interpersonal relationships, coordination and collaboration, and the interaction with technology. Although the research purpose does not aim for generalization, the changes found in relation to organizational culture here could pave new avenues for future studies. As many interviewees revealed, the future of wireless technology would tend to embrace a more simplified device with integrated functionalities. Wireless networks and mobile technology would thus be centralized into mobile individuals and generate more powerful meanings in transmitting voice and data more swiftly. Our work environment would then tend to be virtual and ubiquitous. Mobile computing devices would be increasingly embedded in work environment and wireless networks would enable work activities boundlessly and timelessly. Any further understanding of how these technological trends lead to changes in organization culture and business practices would thus provide valuable insights to IT practitioners and researchers.

*References will be available upon request.