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## Exploring the Dynamics of Culture in the Roll-out and Adoption of eCollaboration Technology: A Case Study Comparison

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#### ABSTRACT

Implementing eCollaboration technologies implies specific organizational challenges surrounding roll-out and adoption. IT adoption literature has researched the concept of culture and the notion of fit between IT and culture. However, in the context of eCollaboration technologies, cultural fit as a possible influence factor has not been explored sufficiently. Thus, we aim at closing this gap by exploring the role of culture in the roll-out and adoption of eCollaboration technologies. We present two cases of eCollaboration technology roll-out that contrast in the extent to which the technology was adopted. The cases were analyzed from a culture perspective. Although our results confirmed the relevance of cultural fit, they also revealed additional dimensions of the concepts of culture and cultural fit that should be investigated further. Our paper contributes to a better understanding of the nature of cultural influence in the organizational roll-out and adoption of eCollaboration technologies.

#### Keywords

IT roll-out and adoption, eCollaboration technologies, culture.

#### INTRODUCTION

Today's organizations are faced with the challenge of how to implement eCollaboration technologies in order to help achieve organizational goals. eCollaboration technologies, like Real Time Collaboration (RTC) technologies or corporate social media platforms, can be described as *platform technologies* that are open to diverse modes of use (e.g. Riemer, Steinfield and Vogel, 2009). Thus, they are necessarily subject to experiment, interpretation and appropriation processes by their users (e.g. Dourish, 2003) and "need to be interpreted and appropriated to become part of the work environments and of shared practices" (Riemer et al., 2009, p. 186). Furthermore, as they support social interaction and exchange, their benefit depends on achieving a critical mass of users (e.g. Markus, 1994) or even full group adoption (e.g. Sanderson, 1992). These characteristics pose specific management challenges with regards to the roll-out and adoption process of such technologies (e.g. Vehring et al., 2011). Especially in the context of corporate social media platforms, authors have stressed the importance of considering cultural aspects during the preparation of roll-out (e.g. Bradley and McDonald, 2011).

In the past, there has been a variety of IS literature researching the concept of culture (e.g. De Long and Fahey, 2000; Kappos and Rivard, 2008) and the notion of fit between IT and culture including concepts like (sub)cultural alignment (e.g. Ravishankar, Pan and Leidner, 2011) or culture conflict (e.g. Leidner and Kayworth, 2006). However, to our knowledge, the role of culture and cultural fit in the organizational roll-out and adoption of eCollaboration technologies has not been explored.

This paper aims at exploring the nature and role of culture as an influence factor in the organizational adoption of such technologies. We present two case studies of technology roll-out that contrast in the extent to which the technology was adopted. In both cases, managements' decision to roll out an eCollaboration technology was influenced by and aligned with the corporate strategy and aimed at a company-wide diffusion. While management in the second case had undertaken significant efforts and followed an almost textbook-like approach to implementation, many employees refused to adopt the new technology. In contrast, management in the first case pursued a much more reserved approach. Interestingly, users in the first case were a lot more willing to adopt than in the second case. Looking for an explanation for this surprising result, we did broad data collection and analysis in both cases. During our interviews, culture was stressed as an issue by many participants and thus seemed to be a factor explaining the differences in adoption.

Our case analysis and comparison confirmed the relevance of cultural fit during the roll-out and adoption process of an eCollaboration technology. Based on this, we were able to explain the different outcomes of the two cases. However, our analysis also revealed the following theoretical contributions: 1) culture and cultural fit should be analyzed as multi-level constructs, 2) research on cultural fit has to include practices as visible parts of a culture or subculture, and 3) a more dynamic view on culture and cultural fit is necessary as cultural fit might lead to the strengthening of existing subcultures. With this paper, we aim to contribute to a better understanding of the complex nature of cultural influence in the organizational roll-out and adoption of eCollaboration technologies. Thereby, we also aim to provide a better understanding of the organizational adoption of such technologies.

Our paper proceeds as follows. We begin by presenting the concept of culture in IS research. We describe our research methodology and case settings in section three and our case analysis and findings in section four. In section five we discuss our results and end with a short conclusion in section six.

#### CULTURE IN IS RESEARCH

Although culture has been studied for quite some time, no universal definition has been found: While some authors defined culture as a coherent set of beliefs, basic assumptions and a shared set of core values, others have also included more observable aspects of culture, like norms and practices, symbols or ceremony (Leidner and Kayworth, 2006). In this paper, we investigate both notions of culture drawing from cultural studies as well as IS research. For example, Jermier, Slocum, Fry and Gaines (1991) distinguish between ideational (e.g. assumptions and shared beliefs) and material (e.g. norms and practices) components of culture. Similarly, Kappos and Rivard (2008) state that "culture consists of patterns of meaning underlying a variety of manifestations" (p. 602) where some manifestations are visible such as artifacts (e.g. physical arrangements and stories) and practices (e.g. structure, technology, and procedures) while other manifestations are ideational such as values, beliefs and assumptions of the members of a collective. Based on Martin's (1992) distinction of three perspectives on (organizational) culture, they state that "researchers' conceptualization of culture diverge, however, on the extent to which most members of a given collective share the interpretations of manifestations" (Kappos and Rivard, 2008, p. 602). Authors with an integration view assume that there is one dominant culture which is shared by all members of a collective. In contrast, authors who follow a differentiation view assume the existence of different subcultures within an organization. Jermier et al. (1991) for example distinguish between an official culture that "refers to formal statements of organization's mission and standards" (p. 171) and subcultures that refer "to shared understandings about the organization's mission and standards of conduct, as well as the corresponding organized practices that emerge in a group of employees" (p. 172). Finally, a fragmentation view on cultures assumes ambiguous interpretations of manifestations. While many cultural studies of IT have followed an integration perspective (Leidner and Kayworth, 2006), we did not favor a specific one of these three perspectives. Rather, we were open to interviewees' descriptions of how they experienced culture in their organization.

Leidner and Kayworth (2006) identified six themes in culture studies of IT: 1) culture and IS development, 2) culture, IT adoption and diffusion, 3) culture, IT use and outcomes, 4) culture, IT management, and strategy, 5) IT's influence on culture and 6) IT culture. Most of these studies followed a *value-based approach*, suggesting "the study of organizational values may be particularly useful in explaining certain behavior with respects to how social groups interact with and apply IT in organizational contexts" (Leidner and Kayworth, 2006, p. 359). In addition, *cultural fit* is an important concept, which refers to the level of congruence between general values of a group and the values embedded in a given system (Leidner and Kayworth, 2006). As cultural fit might determine how the group perceives and actually uses the system, a lack of fit might lead to negative perceptions and rejection of the technology.

#### STUDY OVERVIEW

The research presented in this paper is based on two in-depth case studies on the roll-out and adoption of eCollaboration technologies. We present our case settings and approach for data collection and analysis in this section.

#### **Case settings**

#### MUFIN

Having started in the late 19th century as a regional financial service company, MUFIN (name changed) has grown into a national company operating all over Germany. Organizationally, MUFIN is divided into a front and a back office structure. The head office of MUFIN comprises a set of departments, such as the IT department and several operating departments. The latter function as a back office providing day-to-day support for the decentralized sales organizations. In 2009, after a successful pilot test in the IT department, MUFIN decided to roll out the RTC technology IBM Sametime to the company.

RTC technologies consist of communication technologies, like chat and video telephony, and various collaborative applications, like application and document sharing (Riemer and Frößler 2007). In addition, they include forms of presence signaling, i.e. status information about the availability of users.

#### INTSERV

INTSERV (name changed) is one of the largest international services provider offering security services in the world. Founded in early 20th century in Scandinavia, the company expanded its business mostly through acquisitions. The increase of global presence is one of the strategic cornerstones of INTSERV. Nevertheless every country branch acts on its own following the strategy "knowledge is global, business is local". The introduction of the corporate social media platform IBM Connections was INTSERV's first centrally guided international IT project. Connections allows people to connect with colleagues and to share information in topic-oriented communities with tools like wikis, blogs and forums. INTSERV's management is driven by a vision of being a knowledge leader. They see Connections as an infrastructure to share knowledge within the company. Before the roll-out, management interviewed nearly 200 employees globally to identify their needs and expectations and ran two pilot tests with about 100 volunteers to get user feedback for platform improvement. In the first phase, Connections was rolled-out from top to middle management and administrative staff. The employees were asked to use the platform but adoption was voluntary. No more usage guidelines were given than a categorization of content into three categories: Content to share, content to share with caution, and content not to share on the platform.

#### Data collection and analysis

In both cases, data collection was based on interviews with a set of users and non-users and with management responsible for the roll-out of the eCollaboration technology (cf. Figure 1). Driving questions of our interviews with management were company background, main rationales and organizational design of the roll-out. Subsequently, we conducted semi-structured interviews with a set of employees. At MUFIN, we talked to 12 users and 1 non-user belonging to 10 different teams of one operating department. At INTSERV Germany, we interviewed a set of 10 users and 1 non-user including persons from middle management and administrative staff. Key questions of these interviews were personal background, adoption and use of the new technology and perception of the roll-out process.



Figure 1. Overview of the Data Collection Steps

Interviews with employees were tape-recorded and transcribed. At MUFIN, interviews with management were not taperecorded in order to facilitate a candid discussion. In this case, analysis was based on detailed notes we took during the interviews. Furthermore, we drew on publicly available information describing the companies and technologies.

Our data collection and analysis followed an iterative process. We started by looking for recurrent concepts in the interviews that could help to better understand the different adoption outcomes in the two cases. Concepts that were mentioned directly or indirectly in many interviews were culture, cultural fit and conflict. Thus, we analyzed the interviews by looking for reports on culture and its role in the process. Furthermore, as practices can be ascribed to the visible parts of cultures, we also looked for descriptions of practices that encouraged individuals and groups to adopt the new technology.

#### CASE ANALYSIS AND FINDINGS

In this section, we present our findings from the case studies by reporting on the cultural setting and the role of culture during the roll-out and adoption processes.

#### The MUFIN Case

#### Cultural setting

Although MUFIN has grown steadily from a small regional to a national financial service company, its organizational structure and culture can be described as relatively stable over time. Management defines MUFIN's culture with a set of fundamental values (espoused culture): MUFIN has positioned itself as an employee-focused organization where the collaboration between upper management, employees and the workers' council is based on mutual trust. Furthermore, MUFIN provides a range of family-friendly arrangements, e.g. flexible working hours and telework. Corresponding to the culture, upper management practices a participatory style and recognizes its responsibility towards the workforce. Upper management does not only regularly involve the workers' council in decision making, but tries to achieve consensus with the council prior to organizational changes. Furthermore, upper managements' strategic idea of an integrated service unit is reflected in its service and customer-orientation and in its vision of "one big family" encompassing front and back office. These organizational values were also mentioned in several interviews with the employees (experienced culture) and confirmed an intra-cultural fit between espoused and experienced culture. Besides, some employees reported on specific team cultures (subcultures) which were grounded in the organizational culture and influenced by the individual team context. These subcultures contained team specific norms and practices, e.g. about team communication and coordination.

#### Roll-out and adoption process

Upper Management had a clear vision for possible operational use of Sametime which was aligned with the organization's strategy. By rolling-out Sametime, management aimed at improving and facilitating communication and collaboration between and within head office and sales organization. However, management's design of the roll-out process was not only influenced by strategic considerations but also culturally reflected as management perceived Sametime to be *culturally equivocal*. Sametime was well aligned with the strategy and culture of an integrated service unit and the idea of "one big family" where everyone could talk to everyone else. However, management and the workers' council feared that the presence feature of Sametime could also be perceived as an instrument for surveillance (e.g. Sewell, 1998), which would conflict with the cultural value of being an employee-focused organization. In order to cope with this, management and the workers' council designed the roll-out in line with their organizational culture and values of respect, empowerment and individual responsibility: Access to Sametime would be provided as an open infrastructure without specific usage scenarios and for voluntary use. Furthermore, management committed itself not to use Sametime for monitoring their employees.

Consequently, the culturally equivocal character of Sametime only became visible in single cases where employees experienced cultural conflicts because of the presence feature and consequently resisted adopting Sametime.

"All this telework is based on trust, I really appreciate that ... but now, it is a little bit like taking back trust."

In most interviews however, employees reported an experienced cultural fit (cf. Table 1). Interestingly, adoption was not simply influenced by an experienced fit between cultural values and values ascribed to Sametime. Rather, adoption was also affected by a perceived fit between team *practices* (subculture level) and affordances of Sametime (e.g. Gibson, 1979; Norman, 1988). By adopting Sametime, teams reinforced their practices and thereby *strengthened* their subcultures.

Cultural Fit with	Description	
Communicational values	Working at one location, meeting regularly at huge common events, having little fluctuation, and working at sales organizations for short time supported development of open communication culture where communication is not restricted to hierarchical structures.	
Value of trust	Based on arrangements like telework and flexible working hours, mutual trust developed between employees and management. Thus, for most employees presence feature of Sametime is not experienced as tool for surveillance.	
	"Yes, I think, there are many employees who use Sametime although it is voluntary this would be different in other organizations where people are afraid of being monitored. I think that they would not use it because they might say: everybody can see if I am there or not. But at MUFIN, there is a lot of trust and this is why we are more willing to use it."	
IT culture	The use of eCollaboration technology (e.g. for telework) is perceived as embedded in the organizational culture.	
Subcultures		
Team specific values	Work in the head office is organized in small teams. As communication and coordination is necessary, teams have developed common communication and coordination practices. Group adoption of Sametime allowed reproducing and simplifying these practices.	

#### **Table 1. Experienced Cultural Fits**

#### The INTSERV Case

#### Cultural setting

With its brand relaunch in 2008, INTSERV established the claim of a knowledge leader. Having its roots in Scandinavia, headquarters' guidance is less authoritarian than liberal. Nevertheless company values and a defined brand image are determined and internationally communicated via a system of physical objects each of which represents one cultural value. These objects together represent the corporate philosophy and aim to create a shared language, approach, and behavior that shapes the INTSERV culture (espoused culture). However, our interviews revealed that the organizational culture experienced by employees (experienced culture) is formed by several aspects apart from the international guidelines. Growth through continuous acquisitions was a key element of their international strategy, so INTSERV found itself in a continuous process of development. After acquiring a company, INTSERV typically left management in place. Thus, employees are shaped by the culture of their original employer. Overall, this has led to a heterogeneous mix of experienced subcultures within INTSERV Germany; a common culture hasn't formed, yet.

"INTSERV has not grown organically. 15 years ago the Scandinavians came in and bought up one company after another and essentially we are not a single organization; rather, we are 10-15 organizations in Germany that work more or less independently. In part because they have a different history and people are still molded differently, in part because there is no pressure from upper management, in part because the incentive structure does not encourage or demand it."

Furthermore, the experienced culture is characterized by industry specific values, specific regional values, the occupational culture of the employees (many of whom come from authoritarian institutions), and the organizational structure which promotes competition within the company.

#### Roll-out and adoption process

The strategic goal of INTSERV has been to strengthen the brand of knowledge leader. The company decided to provide their employees with Connections as a corporate social media platform to foster knowledge exchange across the internationally dispersed company. The driving claim for the roll-out process was "if INTSERV knew what INTSERV already knows". The decision was supported by the results of an extensive requirements analysis. Despite the exemplary introduction process including a promotion tour and extensive consideration of user feedback, interviewees reported on several *cultural conflicts* between the idea of companywide knowledge sharing inherent in the platform and existing values, norms and practices (cf.

Table 2). As a result many employees resisted using Connections or just used it to retrieve information but not to contribute to knowledge sharing.

Cultural Conflicts with	Description	
Industry specific values	Industry specific values are special regarding data protection and knowledge disclosure, i.e. sharing customer specific data might lead to potential security risks. Users are uncertain what knowledge to share and how to discuss it.	
Country specific values	Country specific values collide to some degree with Scandinavian values. Germans tend to be more reserved against sharing and discussing ideas with a bigger audience.	
Occupational culture	Germany's management mostly used to work for command and control institutions like army or police. Therefore it is not common to question or discuss orders.	
	$\rightarrow$ Combination leads to a culture of inhibiting discussion:	
	"being INTSERV Germany, we struggle [with even discussing openly], and then to write it down and send it to others? I think that's another inhibition."	
Subcultures		
Former employers' values	Mix of subcultures as a consequence of the ongoing development process through acquisitions resulted in a low communal spirit → Contradicted with an openly and unrestricted knowledge exchange.	
Business specific values	<ul> <li>ific Managers do business mainly independently and are competing with each other. Especially salespeople sometimes tend to see knowledge as their personal strength or power.</li> <li>→ Reinforced competition with low willingness to share knowledge:</li> </ul>	
	"How much of my knowledge (as a means of control) do I reveal so somebody else can use it and who knows by tomorrow he might be in my territory"	

#### Table 2. Cultural Conflicts

Nevertheless, some interviewees reported about cultural fits between Connections and *group practices*. Within INTSERV, members of international competence centers or participants in management training had established norms and practices of sharing knowledge within their groups (subcultures). These groups were of a special character. Their communication purpose has a distinct topic, a project character, and it is mostly distinct, separate from their daily work. Based on existing practices of knowledge sharing, these groups started to use Connections and to reproduce and improve their knowledge sharing practices. They have set-up communities on the platform and moved their email based communication into the new communities.

"Connections starts to make sense if you are working together on a project, if you are working together on transregional projects, it starts to be a fun thing to do."

Practices at a subculture level not only helped employees to adopt Connections – using the new platform also *strengthened* the subculture as members generally used restricted communities, in which only invited users could participate. Thus, knowledge exchange remained restricted to the subcultures.

A similar reinforcing effect was also observed related to the many non-users. Wherever practices of knowledge sharing were absent, not only was use of the platform refused but the implementation also revealed the "speechlessness" of the employees (we don't have anything to share). Before the introduction of the software, the absence of exchange practices was not noticeable if they weren't important for the daily business. With the platform the lack of knowledge sharing became visible because entries became searchable and predefined categories or communities remained empty.

#### DISCUSSION

The discussion of our findings is led by the following questions: What are similarities and differences between the two cases (cf. Table 3)? How can we explain the different outcomes of the cases using a culture perspective?

In both cases, management's decision to roll out an *eCollaboration technology* was influenced by and aligned with the corporate strategy and the espoused organizational culture. eCollaboration technologies are open to diverse modes of use and can support and simplify communication. Communication is a culturally charged element of an organizational or team environment as its members usually share common values, norms and practices specifying appropriate communicational behavior. Consequently, the technologies in both cases have to be treated as *culturally charged*. As reported by our interviewees, employees in both organizations experienced some forms of cultural fit or conflict after the roll-out. Both cases demonstrated the relevance of a fit between existing *practices* (the more visible parts of a culture) and affordances of eCollaboration technologies. Accordingly, employees belonging to a specific subculture adopted the technology whenever they experienced it as matching established practices of communicating and sharing knowledge. Furthermore, in both cases we were able to observe *strengthening effects* of cultural fits or conflicts.

	MUFIN	INTSERV		
Similarities	Technology roll-out			
	eCollaboration technology that is culturally charged			
	Roll-out was strategically grounded			
	Cultural fit between espoused culture and technology			
	Adoption			
	Cultural fit between practices on a subculture level and technology			
	Strengthening effect of cultural fit or conflict			
Differences	Stability of organizational structure and culture			
	Relatively stable organizational structure	Process of development		
	Strong organizational culture	Espoused vs. experienced culture / subcultures		
	Management reflection on technology			
	Main focus on culture	Focus on functionality		
	Adoption			
	Only few cultural conflicts	Plenty of cultural conflicts		

#### Table 3. Case Comparison

Besides these similarities, we identified a set of *differences* which help to better explain the different adoption outcomes in the two cases: At MUFIN, many employees adopted and integrated Sametime into their daily communication practices right from the roll-out. In contrast, nearly one year after the initial roll-out, a large number of employees still refused to use Connections or just used it to retrieve information at INTSERV.

The first difference concerns the organizational background and *stability* of structures and cultures. MUFIN is a national financial service company with a relatively stable organizational structure and a strong organizational culture. In contrast, INTSERV is an international service provider operating that has grown by acquisitions and is still situated in a development process. Although management has defined a set of core values as part of their espoused culture, several *subcultures* exist. Furthermore, employees perceived intra-cultural conflicts between experienced and espoused culture. A second difference existed in how *management reflected* on the new technology during the preparation of the roll-out process. At MUFIN, management's reflections were in a large part culturally shaped and influenced by management's aim to find a design for the roll-out that employees would perceived to be in line with the organizational culture. As management's reflection at INTSERV focused especially on functional aspects, such as finding the right technology to fit with the organizational strategy and employees' requirements. The third difference concerns the amount of experienced conflicts between culture and the new technology. While at MUFIN only a few employees were faced with *cultural conflicts*, employees at INTSERV had to deal with various conflicts on a subculture level. Such cultural conflicts occurred within subcultures, where values, norms,

and practices did not fit with the idea of sharing knowledge without any barriers. Consequently, members of these subcultures resisted adopting Connections. Furthermore, employees not only experienced conflicts on a subculture level, but also between the experienced culture and the new technology. This was due to the fact that few norms and practices about sharing and discussing knowledge existed on the organizational level.

#### CONCLUSION

Our case analysis has confirmed the relevance of using a culture perspective to examine organizational IS roll-out, adoption and appropriation. Thus, we contribute to the existing literature on IS adoption and on the role of organizational culture and cultural fit during the roll-out and adoption process. In this context, we focused on one specific form of technology, namely eCollaboration technology. As our cases revealed, such technologies are perceived as being culturally charged and possibly as culturally equivocal. Our study provides detailed insights from two cases that underscore the role of culture and cultural fit in the roll-out and adoption of such technologies. Our analysis confirms the importance of culture not only as an antecedent of the introduction but also as explanation for the ongoing dynamics of appropriation and use. Specifically, our study makes three theoretical contributions.

First, by contributing to the ongoing discussion on what particular level of culture one should study (Leidner and Kayworth, 2006). As a result of our analysis, we identified different levels of culture (e.g. on the organizational and group level) as well as forms of intra-cultural conflicts (e.g. between organizational values defined by management and experienced by employees). Building on authors like Ravishankar et al. (2011) who have analyzed the influence of organizational subcultures on the alignment of an IS, we state that a *multi-level* research approach on culture and thus on cultural fit is needed as it yields additional insights.

Second, our research illustrates the relevance of fit between existing *practices* and the affordances of eCollaboration technology. While existing literature has mainly focused on implications of a fit between values of a group and the values ascribed to technology (Leidner and Kayworth, 2006), we claim that research on cultural fit should also take into account the more visible parts of an organizational culture or subculture, i.e. established norms and practices.

Finally, prior research has mainly stressed the consequences of cultural fit on adoption. Our analysis demonstrates the necessity of a more dynamic view as it also reveals a *strengthening effect* of eCollaboration technologies on the existing subcultures, i.e. technology acts as an amplifier that can promote existing subcultures or reveal conflicts between espoused and subcultural values. In this sense, eCollaboration technology does not just simply fit or not fit to an existing culture or set of subcultures and is otherwise neutral, it rather has the potential to go beyond this by further reconfirming existing patterns and constellations. We base this claim on our observations of how the new technology and culture became intertwined during the roll-out and adoption process. This observation is especially relevant for managers who might be aiming at changing existing culture by introducing eCollaboration technologies to support social interactions. The roll-out and partial adoption of Connections did not help to change INTSERV's culture; rather, it made cultural differences and conflicts even more apparent. That also suggests that adoption of eCollaboration technologies depends to a large degree upon whether collective values and practices of information and knowledge sharing have been established somewhere in the organization.

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