

REFINING THE INFLUENCE OF ORGANIZATIONAL CULTURE ON INDIVIDUAL IS ADOPTION

Research paper

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Abstract

Organizational culture (OC) was found to be a major critical factor for successful IS adoption, yet research on the effects of OC as a contextual factor in IS adoption at an individual level is limited. Research to date that has focused on the influence of OC on IS adoption, has specified OC as either moderator or antecedent to technology acceptance models or as an independent variable directly influencing the adoption decision. This has resulted in a multitude of models based on varying underlying assumptions on how OC influences adoption. As the results of previous research suggest, the influence of OC on technology adoption is more complex than previously assumed and calls for a more in-depth understanding of how OC influences IS adoption on an individual level. To refine the influence of OC on individual IS adoption, we applied a qualitative research approach. Our interviews suggest that cultural values influence individual IS adoption in multifaceted ways but to systematically differ in the underlying mechanisms. By relating our findings back to literature and theory, we developed three propositions to guide future research on how to model cultural values into IS adoption models.

Keywords: Organizational culture, IS adoption, Higher-level context, UTAUT.

1 Introduction

The topic of information system (IS) adoption has been occupying IS researchers for decades with ever more elaborated models emerging to fully grasp the phenomenon. In recent research, a multi-level framework of technology adoption has been proposed that distinguishes between individual-level contextual factors (e.g., user attributes) and higher-level contextual factors (e.g., organizational attributes) that influence IS adoption at the individual level (Venkatesh et al., 2016). Multi-level research on IS adoption in particular has been under-researched and cross-level research on the influence of higher-level contextual factors on technology acceptance at an individual level was found to hold promising research fields (Venkatesh et al., 2016). This seems surprising, as the common notion in literature is that organizational attributes like organizational culture (OC) are one of the most critical factors for successful adoption and use of technology (Leidner and Kayworth, 2006).

Understanding the influence of higher-contextual organizational factors on individual IS adoption would thus be essential for the success of IS implementation projects, yet only a few studies have investigated the effect of OC as a contextual factor in IS adoption at an individual level (Venkatesh et al., 2016). The influence of OC on individual IS adoption is not only heavily under researched, the question of how OC influences IS adoption on an individual level remains unclear. As our literature overview reveals, existent research that has focused on the influence of OC on IS adoption, specified OC either as moderator of or antecedent to technology acceptance model constructs or as an independent variable directly influencing adoption. This has resulted in a multitude of models with varying assumptions on the influence of culture.

The multifaceted way in which OC is treated in adoption literature indicates that the contextual factor influences individual IS adoption via various pathways, thus its influence being more complex than previously assumed. This calls for a more in-depth approach to deepen our understanding of how OC influences individual IS adoption. With our research, we intend to refine the role of OC as a higher contextual factor for individual IS adoption by answering the question: *How does organizational culture affect IS adoption at an individual level?*

In order to gain the necessary in-depth understanding of the underlying mechanisms behind the influence of OC on individual IS adoption, it is essential to take a qualitative research approach. We interviewed 33 staff members of a corporation that had recently implemented an enterprise social network (ESN) system and found that cultural values influenced individual IS adoption through various pathways by acting as antecedents to UTAUT constructs, moderating the construct's effects or directly influencing the individual's use intention. Unlike previous quantitative studies, our in-depth approach allowed us to investigate the mechanisms behind these influences and we uncovered common mechanisms behind the values' influence on IS adoption. By abstracting these mechanisms and relating our findings back to literature and theory, we propose three pathways through which OC influences individual IS adoption as orientation for future quantitative research, which can be used as a guideline on how to model cultural values in IS adoption frameworks.

The remainder of this work is structured as follows. First, we review the relevant literature on the concept of OC in IS research and its application in adoption literature. Next we describe the qualitative method approach we used and present the findings of our interviews. Third, by setting our findings in the context of relevant literature, we offer three propositions. Finally, we conclude by outlining the contribution and limitations of our study and offer suggestions for further research.

2 Theoretical Background

2.1 The concept of organizational culture in IS research

An extensive body of cross-cultural research has emerged that sheds light on the links between IT and culture on a national level, gaining insights from cross-cultural studies (Leidner and Kayworth, 2006). In a second stream of IS research, the role of OC has been examined as a dependent, moderating or independent variable in relation to IS adoption success (e.g. Abraham and Junglas, 2011, Bradley et al., 2006, Kivinen and Lammintakanen, 2013, Kummer and Schmiedel, 2016). While the two streams have emerged as largely discreet and experience little overlap, they share a value-centric approach in defining culture (Leidner and Kayworth, 2006). Although the concept of culture is familiar to IS literature, it is challenging to research given the multitude of divergent definitions, conceptualizations and measures used to study this concept (Straub et al., 2002). OC contains both implicit elements, such as beliefs and norms, and explicit elements, such as structures and practices. The in literature commonly established cultural model by Schein (1990) comprises both elements and models culture on three levels. According to Schein, basic assumptions are the essence of OC and represent the underlying belief system towards behaviour, relations and reality. Basic assumptions are manifested in values that become apparent in visible artefacts such as behaviour, language and technology. In corporate settings, organizational values form the foundation of OC (Deal and Allan, 1991). It is therefore not surprising that the vast majority of theories and models of OC focus on values as its core (Leidner and Kayworth, 2006). Organizational values are defined as the shared beliefs of the organization's members about what is considered desirable, that is, ideals and norms that impact the members' actions by setting expectations and boundaries for appropriate behaviour (O'Reilly, 1989, Schein, 1990).

2.2 Organizational culture in IS adoption research

Since the introduction of the technology acceptance model (TAM) (Davis, 1989), research on technology adoption and use has been central to IS literature and continues to draw new research attention (Allen, 2015). While some research exists on how groups and organization adopt technology (e.g., Sia et al. (2001) who studied the adoption of an inter-organizational EDI system by organizations)

research on IT adoption on an individual level focusing on the influence of individual factors remains one of the most established and mature streams in IS literature (Venkatesh et al., 2016). Since the introduction of TAM, various models have been proposed to explain individual user acceptance of IT that were synthesized by Venkatesh et al. (2003) into the unified theory of acceptance and use of technology (UTAUT). More than a decade after its introduction, UTAUT is firmly established within IS literature. Many researchers apply UTAUT-based research with other theories or extend the model.

In an attempt to develop possible areas for further research on IT acceptance, Venkatesh et al. (2016) systematically evaluated the contributions of existing UTAUT-based studies and developed a multi-level framework adding higher-level and individual contextual factors. Venkatesh et al. (2016) found that multi-level studies that take into account the influence of higher-level contextual factors, such as the effects of organizational, locational or environmental attributes on technology acceptance at an individual level, were particularly under-researched. This seems surprising, as the commonly held assumption among scholars is that organizational attributes, such as OC, are one of the most critical factors for successful adoption and use of technology (Leidner and Kayworth, 2006), and it has been argued that not taking into account OC when introducing new IS can lead to the system’s failure (Choudrie and Zamani, 2016, Ruppel and Harrington, 2001). We therefore conducted a literature review to examine the role of OC as influencing factor in technology acceptance models. With the keywords “organizational culture” or “corporate culture” + “IS adoption” or “UTAUT” or “TAM”, we searched in following databases: AISEL, Business Source Complete, EconLit, Web of Science and Science Direct. We then focused on papers empirically testing the influence of OC on IS adoption or use. As our following literature overview shows, there seems to be disagreement among scholars on how OC affects IT adoption at an individual level with culture being modelled in various ways. Interestingly, despite research suggests other possible influencing mechanisms, none of the research we discuss below took a combined approach in modelling culture, for example, as moderator and antecedent, or discussed other specification possibilities.

Author, Year	Modelling of OC	Measurement of OC
Bourdon and Sandrine, 2009	Direct influence	Cultural Value (sharing culture)
Chai and Pavlou, 2004	Moderator	Cultural value (uncertainty avoidance)
Ciganek et al., 2009	Antecedent	OC measurement (Hofstede et al., 1990)
Dasgupta and Gupta (2005, 2009, 2011)	Antecedent	Culture traits (Denison and Mishra, 1995)
Herrero et al., 2018	Antecedent	Cultural value (customer orientation)
Hwang (2005)	Antecedent	Cultural value (uncertainty avoidance)
Ruppel and Harrington, 2001	Direct influence	Competing Values Framework (Quinn and Rohrbaugh, 1981)
Schaper and Pervan, 2006	Moderator	Set of values
Silic and Back (2013)	Antecedent	Competing Values Framework (Denison and Spreitzer, 2001)
Tseng (2017)	Moderator	Competing Values Framework

Table 1. Overview of adoption literature on organizational culture

While all studies took a value-centric approach in measuring culture by either focusing on single cultural values or using value-based measurement models, they differ in their approach how culture was modelled into IS adoption frameworks. While some studies in line with Venkatesh et al. (2016) specified culture as moderating factor, influencing the effect of the UTAUT constructs on user adoption, others modelled culture as having a direct effect on user adoption. But as seen from the table, OC is specified as antecedent to TAM or UTAUT in the majority of research on OC’s influence on technology adoption. These three different approaches in literature of how to model OC rely on very different assumptions of how culture, specifically cultural values, influence IS adoption. When viewed as an antecedent to UTAUT constructs, in the logic of structural equation modelling (SEM), OC has a direct effect on the construct that can be formulated in a clear causal if/then relationship (Hair et al., 2016). For example, if

the OC trait of “mission” is higher, the user will evaluate the system as more useful (=higher PE) (Dasgupta and Gupta, 2011). As an antecedent, OC thus leads to a different evaluation of UTAUT constructs. A moderating variable by definition systematically modifies the form and/or strength of the relationship between an independent variable and a dependent variable (Baron and Kenny, 1986, p. 1174). To be modelled as a moderator of an UTAUT construct’s effect on the adoption intention, OC thus would have to strengthen or weaken the construct’s effect on the user’s intention to adopt the system. For example, users perceive the system as highly useful because it allows them to work faster (high PE). In an OC that values efficiency, the question of whether the system is useful or not will have greater importance for users, and their high performance expectancy evaluation of the system will have a stronger effect on the adoption intention, that is, they will be more likely to adopt the system than if they were in cultures that valued efficiency less. As a moderator, OC therefore does not influence the evaluation of the UTAUT construct, leading, for example, to higher or lower perceived PE. But it does influence the effect strength of the construct’s evaluation result on the user’s intention to adopt the system. To be viewed as a distinct independent variable, OC would have to directly influence the user’s intention to adopt the system. For example, a higher degree of clan culture (Cameron and Quinn, 2005) would have to result in a higher or lower likelihood of the user adopting the system.

As the mixed modelling of OC’s influence in literature shows, OC as a contextual factor influencing technology adoption at an individual level seems to be more complex than previously assumed and calls for a more in-depth approach to deepen the understanding of how OC influences user’s IT adoption.

3 Method

3.1 Thematic analysis of interviews

We decided to use a qualitative research approach as our aim was to understand the underlying mechanisms of *how* OC influences individual IS adoption. Qualitative research methods are best suited to explore questions of the how and why of studied phenomena, are able to provide the in-depth understanding of underlying mechanisms we are looking for and are best suited to help us take into account social and contextual factors like OC (Myers, 2013).

As our research setting, we selected the implementation of an enterprise social network (ESN) in a German automotive and mobility service corporation. The ESN was implemented as a pilot project in one division of the corporation, thus it would be more correct to speak of the division as the research setting and of divisional organizational culture, yet for readability reasons we will refer to culture as simply organisational culture (OC). ESNs are “web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit, and sort text and files linked to themselves or others; and (4) view the messages, connections, text, and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing” (Leonardi et al., 2013, p. 2). The ESN in our case included all of the four ESN functions. As a pilot project, the ESN implementation received a high degree of attention and support within the division, and members were supposed to use the system, yet the organization reported that the adoption seems to be hindered by a strong OC. As OC becomes especially evident in conflicts (Leidner and Kayworth, 2006), the case presented an ideal research setting to explore how OC influences individual IS adoption. To provide an empirical basis for our research, we conducted semi-structured interviews with individual staff of the division as interviews can provide detailed information on people’s motivations, their rationale and the context of their actions (Myers and Newman, 2007). We based the evaluation and analysis of our obtained data on the thematic analysis approach. Thematic analysis is a well-established data analysis method that enables the researcher to identify, cluster and analyse underlying patterns within the data (Braun and Clarke, 2006). It has been successfully employed in related research in the IS field, e.g. to uncover the cognitive processes that lead users to the usage decision of location-based services (Constantiou et al., 2014) or to reveal user perceptions of health IS (Kari et al., 2016). As thematic analysis further allows for the development of a detailed description of the data set

and interpretations in line with various aspects of the research topic (Patton, 2002), it presents a highly appropriate analysis method to address the complexity of our contextual research question.

3.2 Data collection

We conducted semi-structured interviews with members of the division in which the ESN system was piloted. The division consisted of a number of sub-departments differing in their task focus and day-to-day job requirements. We made sure to interview members from all sub-departments of the division and on all hierarchy levels to increase variety in our data set and ensure that we established a holistic understanding of the system's implementation. Furthermore, we significantly paid attention to include expats and associates that have a high global mobility. We only selected interview participants who had worked within the division for at least two years to ensure they all had sufficient work experience to describe and evaluate the OC. Moreover, we determined that two years of working in the division was sufficient for the interviewees to have been socialized to the extent that the OC would influence their perceptions and actions (Schein, 1990). In total, we interviewed 33 members of 8 sub-departments of which 11 interviewees held supervisory positions. A semi-structured interview guide with open-ended questions was used for the interviews. The interview guide was based on scholarly literature and consisted of four parts: 1) Open-ended questions on the individual's perception of the OC in general, its perceived merits and drawbacks; 2) Open-ended questions on the individual's usage habits and perception of the ESN; 3) Open-ended questions on how interviewees perceived divisional culture is influencing their and their colleagues' usage and perception of the ESN system; 4) Specific questions asked in order to solicit opinions on the perceived cultural influence in relation to the four UTAUT constructs. All interviews were conducted in person, tape-recorded and transcribed following Miles et al. (2013) and lasted, on average, 45 minutes. This allowed for the inclusion of commentary on context and emotions and provided us with a good way to familiarize ourselves with the data.

3.3 Data analysis

We analysed the interview data following a thematic analysis approach as per Braun and Clarke (2006) under a constructionist epistemology, as understanding the socio-cultural context of individual IS adoption is at the heart of our research. We applied a multi-staged hybrid approach of inductive and deductive coding and theme development with the ultimate goal to identify cultural constructs, set them in relation to the UTAUT framework and identify common underlying patterns. The themes were developed using a theoretical and latent approach in which we sought to go beyond the purely semantic content of the data. Otherwise for content analysis, common indicators for methodological quality like inter-coder reliability are not applicable to thematic analysis especially under a constructivist paradigm because the coding process is inevitably subject to interpretation and bears the mark of the researcher (Braun and Clarke, 2006). To adhere to the scientific rigor of qualitative research, we followed established coding procedures and recommendations from literature: the coding steps were conducted by two researchers who regularly discussed divergent coding and doubtful cases while constantly referring to literature in order to iteratively match evolving codes and themes with existing constructs (Boyatzis, 1998, Braun and Clarke, 2006, Fereday and Muir-Cochrane, 2006).

We began by familiarising ourselves with the data and then went through the data repeatedly searching for all statements containing references to OC. The first round of editing consisted of separating out descriptions of the OC from cultural statements setting the OC in relation to the system and its adoption. In a first round of coding we assigned the latter group of statements to five themes related to the UTAUT constructs. We coded cultural statements to the UTAUT constructs based on their references to Venkatesh et al.'s (2003) quantitative measurement model of constructs. For example, cultural statements referring to the usefulness of the system or increased productivity/effectiveness from using the system were clustered under the "performance expectancy" theme. The fifth theme contained all cultural statements that could not be clustered under a UTAUT construct, and we expected to derive potential cultural constructs having a direct influence on IS adoption under this theme. In the second round of coding, we analyzed the cultural statements of each theme and clustered them according to their underlying values. The values were derived by grouping similar statements on culture, resulting in

a total of seven values. Based on their content, in a first step we developed definitions that were subsequently matched with definitions of values in literature to name and define the values accordingly. In a final step, the value statements were analyzed with the aim of obtaining the value's relation to one of the five themes of step one. The value statements were coded as moderator, antecedent, or determinant according to Hair et al.'s (2016) and Baron and Kenny's (1986) definitions as outlined at length in the theoretical background section. In other words, values were categorized as an antecedent to a UTAUT construct if the underlying statements indicated that the extent of the espoused cultural value resulted in a different evaluation of the system, for example, a higher or lower perceived usefulness of the system. A values was categorized as a moderator if the underlying statements indicated that the value modified the strength of the relationship between the UTAUT construct and the user's adoption intention. Values were categorized as determinant if their underlying statements indicated that the value directly influenced user adoption, i.e. leading a greater probability of system adoption.

Figure 1 depicts the staged process of our coding and theme development, which is outlined in detail in the remainder of this section. Subsequently, the findings of our structured data are presented and the underlying patterns of our three final themes subsequently discussed in section 5 of the paper.

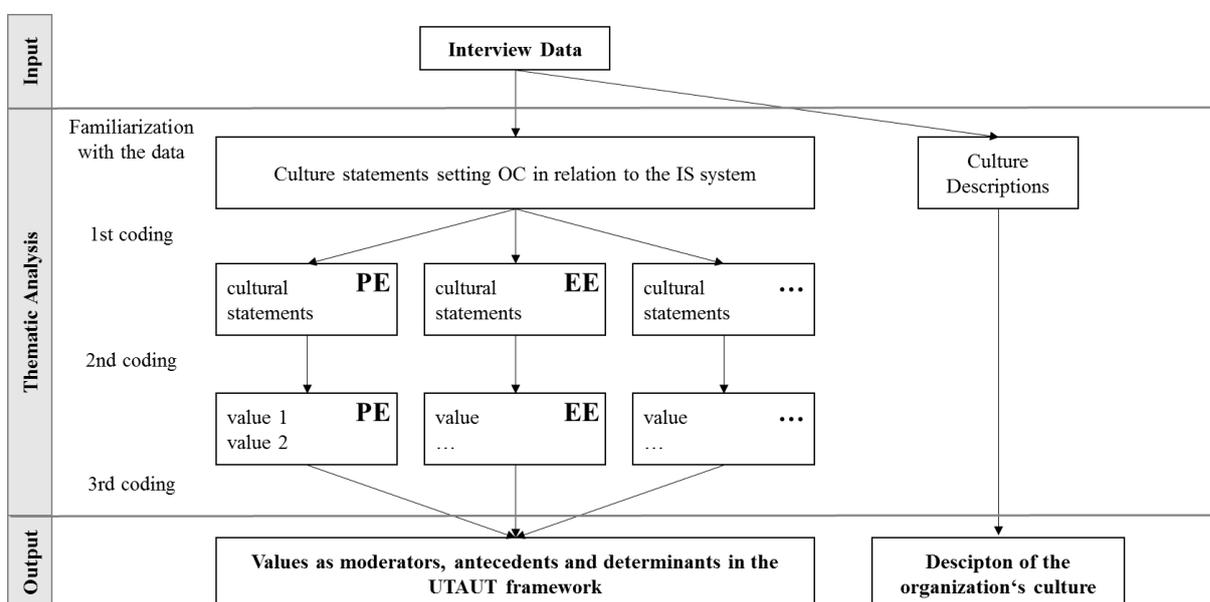


Figure 1. The staged coding procedure of our thematic analysis

4 Findings

Our interviews paint a picture of the division's OC as overall individualistic and hierarchical and one that values processes, stability and direct, one-on-one contact and communication. From our interviews it became evident that users had varying impressions of the system's primary functionalities and predominant use cases. Some users thought that the system was merely an alternative drive for saving and sharing files, while for others, the system was a tool for knowledge-sharing, an innovation platform, a news venue to obtain the latest information, a communication tool or a Q&A forum. As outlined in Davis's (1985) development of the TAM, the user's cognitive response to the system, that is, the user's assessment of the system's perceived usefulness or ease of use, is based on an evaluation of the system's design features. Our findings show that the perceived primary functionalities of the system indeed heavily influence the users' perceptions of the entire system, and interestingly, also the extent to which they perceive OC to have influenced their decision to adopt the system. Summarizing our findings, we found values of OC to influence individual IS adoption by acting as antecedents to UTAUT constructs, moderating the construct's effects or directly influencing the individual's use intention. In the following, we will present these found relations and in the subsequent section of the paper discuss the underlying pathways through which OC influences individual IS adoption.

4.1 Cultural values as antecedents

The influence of the system's perceived primary functionality became especially evident in the influence of cultural values as antecedent to the UTAUT constructs. In the logic of SEM, to be modelled as an antecedent to the UTAUT constructs, cultural values would need to have a direct effect on the construct that can be formulated in a clear causal if/then relationship (Hair et al., 2016). For example, the higher the OC values information-sharing, the more useful (=higher PE) the user will perceive the system to be. We found the cultural values of information-sharing, collaboration, personal exchange to function in this way as antecedent to the construct of PE. Performance expectancy (PE) refers to "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447). Users that saw the system primarily as an alternative file depository stated that they perceived the system to be highly useful because it provided them with easier ways to access and share files, whereas users that saw the system as a tool for knowledge-sharing stated that the system was basically useless for them. Interestingly, the interviewees' statements about their perception of cultural influence on their system evaluation varied according to what they perceived the main design feature to be. Users that saw the system as an alternative file depository never related culture to the system's PE, whereas every interviewee who saw the system as a tool for knowledge-sharing argued that the system was useless because they did not expect anyone to share valuable knowledge.

The majority of interviewees described the OC of their firm as "knowledge-hiding rather than knowledge-sharing." [Interviewee 2] Having knowledge was perceived as having a competitive advantage over colleagues, as a symbol of power, and as a basis for good job performance. Interviewees felt that sharing knowledge would result in a threat to the person's job legitimacy. As a result, interviewees did not expect their colleagues to share valuable knowledge in the ESN and rated its performance expectancy as a knowledge-sharing tool as very low: "knowledge is treasured and no one must get it—how can [the ESN] as a knowledge-sharing platform be useful when no one is willing to openly share their knowledge?" [I 2]. According to the interviewees, the value of knowledge-sharing, or better, the OC's lack thereof, led to users perceiving the system as unhelpful for accomplishing their work. The found value shares similarities with the concept of *information-sharing*, the within the organization commonly shared perception that information sharing is "usual, correct, and socially expected workplace behavior" (Constant et al., 1994), directly influenced the system's perceived PE in that users evaluated the system's PE as lower for lower espoused value of information-sharing. The organizational value thus did not moderate the effect of PE on the user's adoption intention but led to a low rating of PE in the first place and functioned as an antecedent to PE.

We came to similar conclusions for other cultural values in relation to the system's design features. Interviewees who understood the system's primary functionality to be a tool for cross-team collaboration argued that the system was useless for their work because the OC did not value cross-team collaboration. They did not expect their culture to support potential uses for the system as a collaboration tool: "Unfortunately, the organization's culture is characterized by single teams clearly drawing their team borders, and only little cross-team collaboration takes place. How is a system that builds upon collaboration supposed to survive in this environment?" [I 16]. Other interviewees who thought the system was to be used primarily to contact colleagues or to ask questions also rated the performance expectancy low because of a culture that "highly values personal contact, and [the ESN] is simply too abstract and impersonal to be useful for contacting colleagues directly." [I 10]. Both cultural values of *collaboration*, i.e. the shared agreement that collaboration is an efficient way of working and work is best accomplished in groups (Jones et al., 2006) and *personal exchange*, i.e. the shared preference for personal social exchange for which the primary concern is the relationship itself and not necessarily potentially following extrinsic benefits (Bock et al., 2005), lessened the user's perceived usefulness of the system thus directly influenced the system's PE. The values should therefore be modelled as an antecedent to the construct.

4.2 Cultural values as moderators

A moderating variable by definition either systematically modifies the form and/or strengths the relationship between an independent variable (in our case the four exogenous UTAUT constructs) and a

dependent variable (in our case the users' adoption intention) (Baron and Kenny, 1986, p. 1174). We found the cultural values of self-reliance to moderate the influence of FC on adoption intention and the values of individualism and authority to moderate the influence of SI on adoption intention.

In terms of facilitating conditions (FC), defined as the "degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003, p. 453), the interviewees almost uniformly stated that they did not know enough about the system to confidently use it and that they did not receive any support (= low FC). This lack of available knowledge about and support for the system seemed to be common for the organization's culture: "No, of course there was no support. I taught myself how to use the system and this is to some degree typical for [the company]: this attitude that no support is needed and the employees will work it out by themselves" [I 10]; "we have the philosophy that everyone has to cope with technological innovations by themselves and have to individually deal with how to use the system" [I 3]. However, even if the perception among interviewees was that the FC were low, this perception did not seem to influence the interviewees' intention to use the system because regardless of the level of support or prior knowledge, they perceived the cultural expectation was that they have to cope with the system nevertheless. The cultural value of *self-reliance*, i.e. the within the organization shared expectation individuals when in need should depend on their own resources rather than ask for help from others (Aycan et al., 1999), thus seems to moderate the influence of FC on the user's adoption intention in a way that the influence is weakened with higher-valued self-reliance.

When it comes to social influence (SI), defined as the "degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451), the interviewees drew a distinct line between two groups of important others: their colleagues and their supervisors. Regarding their colleagues' support for the system, interviewees stated that most of their colleagues did not support using the system nor did they encourage others to use the system (=low SI). But some of the interviewees stated that their colleagues' opinion of the system was irrelevant for their decision whether they would use the system: "even if my colleagues would encourage me to use the system, I wouldn't care." [I 24]. Asked to explain this, interviewees traced their statements back to a culture that values *individualism*, i.e. the shared agreement on prioritizing individual goals and focusing on one's own performance is desirable (Chatman and Spataro, 2005). In individualistic cultures, individuals are rewarded based on their own achievements therefore the opinion of colleagues is likely to be not considered as important and hence not influential for their decisions. In contrast, the interviewees perceived their supervisor's support for the system as highly influential for their intention to use the system, as it legitimized the use of the system: "most of us won't dare to spend their time on [the ESN] without the manager's permission" [I 20]; "sitting down for half an hour and getting started with (the system) feels like personal entertainment." [I 14] Asked why system legitimacy was essential, the interviewees stated that in their very hierarchical and process-focused culture, innovations were implemented top-down. Without top-level support, many would not see the use of the system as legitimate and would not dare to try it out. The value of *authority*, i.e. the shared acceptance of control by unequal power distribution leading to legitimization by and obedience to hierarchical authority (Kabanoff et al., 1995), thus seems to moderate the effect of SI on the user's adoption intention. In other words, the higher the organization values authority, the greater the influence of the supervisor's system support on the user's adoption intention.

The contrasting moderation effects of the two values (individualism and authority) can be traced back to the fact that the values refer to two separate groups of the user's important others (Venkatesh et al., 2003) that differed in terms of their social relationship to the user. We found individualism to moderate the influence of the user's perceived system support by his colleagues, whereas the value of authority moderated the influence of the perceived system support of the user's superiors. The quantitative measurement model for the SI construct as proposed by Venkatesh et al. (2003) includes items for both, the perceived system support by important individuals (items 1 and 2), and supervisor and organizational support (items 3 and 4). In previous research, the argument has been made that when studying multi-level adoption it would be more suitable to separate the existing UTAUT constructs into individual and higher-level variables (Park et al., 2011). Our interviews suggest, that this separation might prove

especially superior for conducting research on IS adoption in highly hierarchical cultures in which the user awards different importance to the influence of peers and superiors and thus might distort the results found for the original SI construct comprising both groups of important others. Summarizing our findings, we conclude that the values of self-reliance, individualism and authority are all related to the underlying idea behind an UTAUT construct. As the values modify the importance of the construct for the user's adoption intention, i.e. they modify the effect's strength, we propose these values to be modelled as moderators.

4.3 IT values: direct and indirect effect on the user's attitude

Next to the four exogenous UTAUT constructs, the first round of coding of our thematic analysis resulted in a fifth theme of cultural statements that we expected to reveal a direct influence of OC on adoption intention. Those statements can best be clustered under the concept of *IT values*, the "values that a group ascribes in general to IT" (Leidner and Kayworth, 2006, p. 374). IT values reflect how IT systems in general are commonly perceived by organizational members, a shared attitude towards IT in general. We found the OC to promote a negative stance towards IT in general and specifically towards new systems that resulted in a negative attitude towards the implemented ESN: "We've missed the opportunity to accustom our people to change [...] now there's an unwillingness to deal with new systems" [I 2]; "In our culture, people always have a lot of prejudices towards new systems like XY. Often the prejudices are totally unfounded" [I 23]. By promoting a negative stance towards new IT in general, the OC thus negatively influenced the individual's attitude towards using the ESN in particular. With IT values directly impacting the overall attitude towards the system, that is, whether or not the system and system use is perceived as overall positive or negative, we argue that IT values should be modelled as distinct determinants into adoption models, directly influencing the adoption intention.

Interestingly, we found IT values in the second coding round also within the theme of EE. Yet these interview statements differed slightly in that they indicated IT values to function as antecedent to the EE construct. Effort expectancy (EE) is defined as the "degree of ease associated with the use of the system" (Venkatesh et al., 2003, p. 450). The overall rating of the system's usability was poor. Yet some of the interviewees admitted that despite the system being non-user-friendly, after an initial familiarization phase in which they got to know the functionalities, the system became easy to use. The interviewees blamed the OC for their initial critical assessment of the system's usability: "so far our culture had never expected us to deal with a similarly complex system, leading to a culture in which new systems are in general perceived as complicated and not user-friendly" [I 7]; "I think in general, we just perceive new IT as something time-consuming and related to great effort" [I 17]. This deeply in the OC routed general critical attitude towards new systems apparently shaped the prejudices of users towards the specific system, resulting in a biased evaluating of the system as being overly non-user-friendly. Thus IT values do not moderate the effect of EE on the user's willingness to use the system but function as an antecedent, by leading to a biased evaluation of the system in the first place. Our findings suggest that in addition to direct effect on the user's adoption intention, IT values also have an indirect effect over mediation by UTAUT constructs by shaping the user's prejudices towards the specific system, resulting in a biased evaluation of the system. We therefore propose, that depending on the causal pathway of influence, IT values should be modelled as either antecedent to adoption models or as distinct determinant of adoption intention.

5 Discussion of Themes

We found organizational culture values to influence individual IS adoption by acting as antecedents to UTAUT constructs, moderating the constructs' effects or directly influencing the individual's use intention. Contrary to previous studies that modelled OC as either antecedent, moderator or having a direct influence, we thus found OC to influence individual IS adoption in a multifaceted way. Concluding from our findings that the effect of OC is multifaceted would be valid, but oversimplified. Contrary to previous quantitative studies on the effects of OC on individual IS adoption, we conducted this study with the intent not to prove *that* OC has a hypothesised influence on IS adoption, but to

understand *how* OC influences individual users' decisions. In the following, we therefore leverage on the in-depth insights we gained from our qualitative research approach and discuss the underlying mechanisms behind the influence of OC. Within each group of moderating, antecedent and determinant values, we found common patterns in the values' influence on IS adoption. Abstracting these patterns and relating them back to literature and theory, we uncover three pathways through which OC influences individual IS adoption, on which we will elaborate in the following section. We propose these pathways as orientation for future quantitative research on how to model values in adoption frameworks.

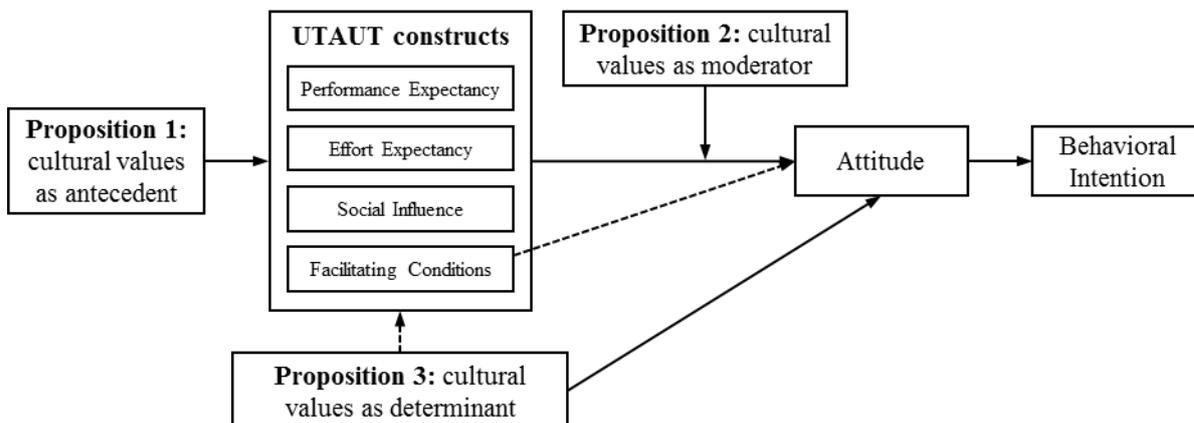


Figure 2. The propositions of our research in the UTAUT framework.

5.1 Providing the context for suitable use cases

We found the cultural values of information-sharing, collaboration, and personal exchange values to function as antecedents to the UTAUT constructs. The values were found to function as antecedents to distinct UTAUT constructs, yet share a common causal pathway in the way they influence the individual's adoption intention. As outlined in the findings section, users had different perceptions of the ESN's main function and rated the system systematically differently. Users who perceived the ESN's main functionality to be an alternative drive perceived the ESN as useful in helping them to accomplish their work quicker (=high PE). Users who perceived the ESN to be primarily a communication tool or tool for knowledge-sharing rated the system's PE as low. The latter group stated cultural conflicts as the reason for their low evaluation, arguing that the prevalent OC hindered an efficient use of the system.

In his original development of TAM, the precursor of UTAUT, Davis (1985) modelled the system's design features as antecedents to the main TAM framework with the underlying logic that the user's perception of the system as useful or easy to use will be derived from an evaluation of the system's design features. In line with the tradition of research on affordances (Gibson, 1979), we argue that not only the technical design features of the system, but also the system's affordances, the possibilities a system offers for action resulting from its technical features, will influence the user's perception of the system as useful, easy to use, etc. Affordances might differ from context to context, in our case the context of OC, ultimately leading to different perceptions of the system. To provide a concrete example: the ESN includes technical design features that allow users to work on the same document simultaneously, thus providing users with the possibility to collaborate (=affordance). In an OC that values teamwork and collaboration, thereby providing a suitable use context for the offered affordance, individuals would be expected to evaluate the system as useful because it helps them accomplish their work (=high PE). In contrast, within an OC that emphasizes the contrary value of individualism, the system's functionality as collaboration tool is perceived as not having suitable use cases, therefore the affordance for collaboration won't be realized and turned into action. Within an OC that does not value and support cross-team collaboration, the individual expects no increased efficiency for using the system, as there is no perceived need for collaboration, and thus rates the system's PE as low. All the antecedent cultural values found in our study are related to the system's design features, i.e. values that provide either a supportive or cumbersome use context for the system's affordances to be realized.

Abstracting these findings by setting them in relation to affordance theory and the specifications behind TAM, we argue that OC influences individual adoption intention via altering the realizability of affordances. Different environments and contexts influence whether or not the affordances offered by the system's technical features find suitable use cases, thus are expected to be turned into action. Whether or not the individual expects the system's affordances to be realizable within the OC alters the individual's evaluation of the system. Based on this unveiled pathway through which OC influences the adoption intention of individuals, we propose future quantitative research to specify cultural values related to the realizability of a system's affordances as antecedent to adoption models.

Proposition 1: Cultural values related to the realizability of affordances offered by the system's design features will alter the system's use context, thereby influencing the user's evaluation of the system and thus should be specified as antecedents to the adoption model.

5.2 Importance of the system's evaluation outcome within the organization

The value of self-reliance was found to negatively moderate the effect of FC on the intention to use the ESN and two cultural values, individualism and authority, to moderate the effect of users' perceived SI on their adoption intention. The moderating values share a common pattern in the way they influenced the individual's adoption intention: they are all directly related to the underlying idea of the respective UTAUT construct, either supporting or negating the importance of the UTAUT construct for the individual's adoption intention. We found the moderating value of self-reliance to stand in direct relation to the perceived importance of an existing support system, as central to the definition of FC. As the OC does not value the existence of facilitating conditions, whether or not they exist for this system, i.e. whether or not the ESN was evaluated as such, is irrelevant for the users' adoption intention. We found the moderating values of individualism and authority to both stand in direct relation to the underlying idea behind SI: the perceived importance of the opinion of others. Our findings indicate that within more individualistic OCs, the effect of SI on the individual's adoption intention would be lower than within OCs that would value collectivism. In contrast, the effect of SI on the individual's intention to use the IS will be stronger in highly hierarchical OCs.

Abstracting these findings, we argue that the common pathway through which these values influence user adoption is their relation to the underlying idea behind the UTAUT constructs. The UTAUT constructs, or adoption model constructs in general, propose criteria along which a system is evaluated. Our found values referred to whether or not the criteria itself is perceived as important or not within the organization, e.g. whether or not the opinion of others is perceived as important. As OC guides individual's behaviour and influences individual's decisions (Schein, 1990), the within the OC perceived importance of a criteria will be mirrored in the importance of the criteria for the individual's adoption intention. In our example, when valuing the opinion of others is perceived as highly important within the OC, the opinion of others will be influential for the individual's adoption decision. Thus values referring to the perceived importance of the underlying evaluation criteria of UTAUT constructs either highlight or diminish the construct's importance for the individual's adoption intention. As this pathway is by definition a characteristic of moderator variables (Baron and Kenny, 1986), we would expect also other cultural values in relation to UTAUT constructs to influence use intention through this causal pathway. For example, within an OC that highly values efficiency, we would expect the evaluation outcome of a system as helping to accomplish work faster as being more influential for the user's intention to use the system as within an OC that promotes an indifferent stance to work efficiency. We would therefore propose to specify cultural values related to the importance of the exogenous UTAUT construct's underlying idea as moderators within adoption models.

Proposition 2: Cultural values related to the system's evaluation outcome as covered by adoption model constructs, either highlighting or diminishing their perceived importance for the individual's adoption intention and thus should be specified as moderators to the respective adoption model constructs.

5.3 First and last impression: shaping prejudices and attitude

Our thematic analysis resulted in a group of cultural values that were grouped under the term “IT values”. These values reflect how IT systems are commonly perceived by organizational members, a shared attitude towards IT in general. We found the organization’s IT values to indirectly and directly alter the individual’s adoption intention of the ESN via two causal pathways. By shaping the individual’s prejudices toward the ESN, IT values lead to a biased evaluation of the system, thus their effect is mediated by the UTAUT constructs. We further found IT values to influence the individual’s adoption intention directly via shaping the individual’s attitude towards new systems in general.

We found IT values to influence the adoption intention by mediation via the construct of EE. Several interviewees stated that their colleagues’ evaluation of the system’s usability as very low (low EE) is caused by prejudices towards the usability of new systems in general. This finding indicates that the influence of IT values on the users’ attitudes towards the IT system might be mediated by the UTAUT constructs. Based on our findings, we would assume IT values, which transmitting prejudices towards specific IT characteristics that are reflected in UTAUT constructs, to bias the individual’s evaluations of such. For example, we argue that an OC that perceives IT in general as useful will shape the individual’s prejudice towards systems to be generally perceived as useful. The individual’s prejudice towards the usefulness of systems will in turn lead to a bias in the evaluation of a specific system, resulting in the system being evaluated overly high in usefulness.

We further found IT values to directly influence the individual’s adoption intention via shaping the individual’s attitude towards the system, independent from the individual’s evaluation of the system – so to say, the individual’s “lasting impression” of the system. The OC of our studied implementation case showed a negative bias towards new IT systems in general (=IT value) and interviewee’s commonly stated this bias to negatively influence their attitude towards the ESN. With the ESN being a new system, the organizational members evaluated the system as overly negative, regardless of how useful or user-friendly the system was otherwise evaluated. An overall negative evaluation of an implemented system is expected to lower the individual’s likelihood of intending to adopt the system (Davis, 1989). The IT values held by the organization thus also seem to directly influence the individual’s adoption intention via alteration of the individual’s attitude towards IT system in general.

Abstracting these findings, we would assume that IT values reflecting the underlying idea behind the UTAUT constructs, for example, a general bias towards IT being non-user-friendly (EE) might be mediated by the UTAUT constructs whereas other IT values would have a direct influence on the user’s attitude towards the IT system. We therefore argue that IT values held by an organization influence the individual’s adoption intention via two pathways and come up with two propositions for future quantitative research of how to model IT values into adoption frameworks:

Proposition 3a: IT values reflected in UTAUT constructs bias their evaluation by influencing individual’s prejudices towards the system, thus should be specified as antecedent to adoption models.

Proposition 3b: IT values related to IT in general bias the individual’s attitude towards the implemented system, thus should be specified as direct influence on the individual’s adoption intention.

6 Conclusion and Future Research

The findings of our study show that the influence of OC on individual IT adoption is more complex and not as clear cut as previously assumed in quantitative research. We found organizational culture values to influence individual IS adoption by acting as antecedents to UTAUT constructs, moderating the constructs’ effects or directly influencing the individual’s use intention. Based on the in-depth insights we gained from our qualitative research approach, we identified common patterns underlying the mechanisms in which cultural values influence IS adoption and by abstracting our findings and relating them back to literature propose three causal pathways through which OC influences individual IS adoption that provide orientation for future research.

From a theoretical point of view, we contribute to the scarce body of research on multi-level IS adoption by refining the current knowledge on the influence of context factors (Whetten, 2009), specifically the

influence of OC as higher-level contextual factors on individual IS adoption. Contrary to previous studies that modelled OC as either antecedent, moderator or having a direct influence, we thus found OC to influence individual IS adoption in a multifaceted way. By taking a qualitative approach, we were able to gain more in-depth findings on the mechanisms behind the influence of OC on individual IS adoption. Abstracting the patterns behind these mechanisms and relating them back to literature and theory, we identified three causal pathways through which cultural values influence individual IS adoption. We thus refine the existing knowledge on the influence of OC on individual IS adoption by gaining a deeper understanding of the underlying mechanisms and causal pathways through which OC influences individual IS adoption. We propose these pathways as orientation for future quantitative research on how to model values in adoption frameworks. Our results thus lay the groundwork for future quantitative research on OC and individual IS adoption by providing a guideline on how organizational values should be modelled into IS adoption frameworks in order to account for the underlying influence mechanisms. By preventing the misspecification of cultural variables, our propositions thus hold the potential to improve the quality of future research results. Our study also provides interesting insights for practitioners dealing with culturally difficult IS implementation projects. We found OC to impact the perceived affordances offered by the system in close relation to the system's perceived main design feature. Users who thought the system's main functionality served as an alternative drive did not experience any cultural clashes with system use and more often stated to use the system than users who perceived the system's main functionality to be knowledge-sharing. Latter users perceived their OC inhibited use of the system and they more often stated that they did not or would not use the system. Our findings suggest that practitioners implementing IS systems can increase the likelihood of the system's acceptance by framing the perceived system's main functionality. By marketing the system to the organizational members according to design features in line with the OC, practitioners could increase the initial acceptance of the system under the promoted functionality.

Although our research extends the existing research on IS adoption by refining the influence of OC on individual IS adoption, this study is subject to several limitations. Our study shares the in qualitative research common limitation of lacking generalizability (Myers, 2013). Our sample size is not large enough to show statistical significance of the found cultural values effects' on individual IS adoption constructs. Moreover, the question remains how strong this influence is and without a quantitative examination we are not able to ultimately decide whether IT values served as a moderator or distinct independent variable directly influencing the user's attitude towards the system. We therefore encourage future research in this area to quantitatively validate our results. While generalization in qualitative research is not possible from a single case to a wider population, it is possible on the theoretical level (Myers, 2013). As the influence of OC on individual IS adoption is highly dependent on the respective information system and organization under study, our research case of an ESN implementation in the division of an automotive company holds further limitations. Obviously, our findings on the effects of cultural values on IS adoption are limited to the implementation of an ESN in a specific organizational division and might therefore not be generalizable to other systems or cultural contexts. By relating our findings back to literature, we were able to uncover general mechanisms behind the influence of cultural values on individual IS adoption and thereupon built three propositions that hold potential for generalizability. We therefore encourage future research to test our propositions. Next to a quantitative evaluation, we propose to set our propositions in relation to findings from research on the adoption of different systems in companies from different industries to increase the external validity of our derived propositions. Nonetheless, we believe that in this early stage of research on the influence of higher-level contextual factors on individual IS adoption, the benefits of our qualitative approach - the ability to provide more detailed and in-depth findings on underlying mechanisms and the suitability to account for social and cultural contexts (Myers, 2013) - outweigh its limitation and enable us to refine the influence of OC as higher-level contextual factor.

Overall, our study is a first step towards a more in-depth understanding of the influences of higher-level contextual factors on individual IS adoption and a first step in closing the research gap in multi-level IS adoption research. Nonetheless, we call for further research in this area and seek to validate our propositions with a quantitative research approach.

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