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Understanding national culture effects on user behavior in integrative IS implementations

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Abstract

This study examines how national culture manifests itself in integrative IS implementations and how it influences user behavior. Adopting a case survey approach, a sample of 70 cases encompassing 18 countries/regions, 18 industries and over 25 different integrative IT systems resulted in 481 instances of national culture dimensions, manifestations and effects. These were analysed through the lens of Hofstede's five national culture dimensions. Three types of national culture manifestations were identified, namely trust and respect, management culture and conflict. Management style and implementation ownership were identified as effects of national culture on user resistance.

Keywords: national culture; user resistance; IT implementation; case survey.

1. Introduction

The user behaviors acceptance and resistance are among the most common concepts in the information system (IS) literature[1]. Scholars on user acceptance and resistance agree that contextual factors are paramount for our understanding. One of these contextual factors is organizational culture, which is studied thoroughly and acknowledged as a crucial factor impacting user behavior in IS implementation[1]. However, many scholars seem to neglect the effects of *national* culture on user behavior[3]. In this study we propose national culture as a relevant explanatory factor of user acceptance and resistance, especially in the case of integrative information systems.

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Integrative information systems, such as Enterprise Resource Planning (ERP) systems, cover many organizational units[4]. Due to their integrative and company-wide nature, ERP implementations are usually associated with multi-site implementations, which can be located in various countries and national cultures.

This study aims to contribute to our understanding of the influence of national culture on integrative IS implementations. Therefore, a descriptive analysis will be conducted in answering the following research question: *How does national culture manifest itself in integrative IS implementations and how does it influence user acceptance and resistance?* By employing a case survey approach, this paper not only addresses calls for further research on the effects of national culture on IS implementation but also for a stronger methodological basis in this research area, by incorporating different countries in the same qualitative analysis[5].

2. Theoretical background

User behavior is acknowledged to be a key implementation issue among IS scholars[6].Resistance to IS implementation depends on the interaction between the technology and the context of use[7]. If the specific technology decreases the power of users these individuals may resist, and vice versa. Rivard and Lapointe[9] emphasize that it is particularly the variety of different individual perspectives that calls for a multi-perspective approach in studying IS implementations. By employing the lens of national culture on user resistance, this paper extends the existing body of knowledge to identify and analyze resistance.

A leading theory in the cross-cultural management is Hofstede's[10] cultural dimensions theory. In the literature, these dimensions have been re-interpreted and phrased differently[12,13], however they all describe the same core characteristics that were originally identified.

Power distance refers to the differences of power distribution among countries. When there is a large power distance there is a general acceptance of the hierarchical order in which only a selected few should have a say in[10]. Low power distance can be characterized by flat organizational structures and low centralization of power and high distance indicates more hierarchy and centralization of authority[14]. Moreover, a high power distance typically has a lack of feedback and discussion among the different stakeholders involved[13].

Uncertainty avoidance is an indication for a general feeling of being threatened by uncertainty and attempting to avoid this at all costs. This is reflected in stable careers, an aversion of anomalistic ideas or behaviors and the acceptance of an absolute truth grounded in expertise[10]. In a culture with low uncertainty avoidance individuals are more willing to take risks and have a tolerance for inaccurate information[14]. The creation of more laws, rules and procedures with the goal to minimize ambiguity and uncertainty is a characteristic for a culture with high uncertainty avoidance[13].

The *individualism-collectivism* dimension refers to how people see their social network, either focused around themselves (individualism) or on their 'group' towards which they feel complete loyalty (collectivism). Individualist cultures typically support a competitive relationship among colleagues, while collectivist cultures support mutual loyalty[13]. Moreover, promotion in individualist cultures is based on levels of expertise and poor performance is punished, while in a collectivist culture poor performance is handled by changes in appointed work[13].

In the *masculinity-femininity* dimension the masculine cultures are more likely to be focused on work goals such as the acquirement of money or property rather than caring for life quality or other people[10], and, in these cultures, assertiveness is a dominant value[12]. In feminine cultures, managers are more concerned with personal goals instead of work goals only and with providing a good work environment and friendly atmosphere.

Long-term vs short-term orientation relates to how individuals consider time span in making decisions or taking action[15]. Short-term oriented cultures are typically found in Western countries and focus more on immediate impact of decisions such as quarterly business targets[12]. In comparison, long-term oriented cultures appoint more focus and value to tradition and have a more extensive consideration for long-term implications of actions and decisions[12].

Some authors have attempted to link national culture (NC) with IS implementations. However, most studies use a limited set of countries[5]. Woo[16] identifies a NC manifestation present in a Chinese manufacturer, that probably also can be found in other cultures. In their study of a different Chinese implementation, Srivastava and Gips label this manifestation *change culture* which is described as the extent to which a culture 'puts value on the past and therefore it is reluctant to change'[17]. This reluctance can be an inhibitor of perceived usefulness and therefore can, for example, induce user resistance. Another manifestation that scholars identified was labelled 'Trust & Respect'[17].

This manifestation was identified in a comparative case study between two countries by Avison and Malaurent[18] and can be comprised of multiple NC dimensions. It involved distrust of external vendors and consultants and the respect for harmony or equilibrium[17]. One effect of NC on IS implementations was suggested in a literature review by Sheu et al.[3]. They describe 'management style' as management's attitude towards key decisions in IS implementations such as prioritizing the IS implementation needs. They found that a difference in management style had a direct effect on the success and duration of an IS implementation.

3. Research approach and methods

The case survey approach has received increased attention in the IS literature[19]. Case surveys transform multiple qualitative case studies into coded semi-quantitative data, using coding schemes[21].

To achieve a comprehensive set of cases, we subsequently used the following search strategies: computer search, peer consultations, manual search, and reference list search. The computer search strategy was a very flexible one, adapting the strategy as the search progressed in order to find the most appropriate set of keywords (final set is: user, resistance, information, system, implementation). The collected cases had to meet five criteria. First, they should have been published in peer reviewed journals. Second, they needed to clearly describe an IT implementation. Third, a case should contain evidence of user resistance, dealt with or not. Fourth, a case should include a rich narrative description of events in order to identify the cultural nuances and evidence of resistance. Finally, information on the specific nationality/region of the organization should be available. All search strategies combined resulted in the final number of 70 cases, presented in 65 published articles.

Based on the literature review, within each case, patterns between identified national culture dimensions and IT implementations were identified[22]. These patterns were then compared in a cross-case manner[23] resulting in a taxonomy of NC manifestations. The manifestations were subsequently used to explain the NC effects that were identified in the cases. This means that, in analyzing a case, a deductive approach was employed. As codes of the NC dimensions we used Hofstede's[10] way of operationalization (see Table 1) and a case was analyzed to see whether these sub-dimensions could be identified. This implies that the actual observations and data were the basis of our conclusions, not the historical scores of countries on Hofstede's list of countries. In some of the cases the deductive codes did not fully grasp the meaning of the observations. Therefore "management culture" was added to NC manifestations, and similarly, "resistance" was added to the NC effects theme.

Table 1.Coding of the national culture dimensions

Hofstede's Dimensions	Sub-dimensions	Sample quote
Power distance	Work supervision	*"Some people think that this system was put into place as a way to track them and their performance."*
	De-centralization	*"Each division was asked to identify a super user for training who could be a local resource."*
	Job satisfaction	*"We're HR professionals... we're not computer jocks. We don't want to be computer jocks."*
	Hierarchy	*"The communication was: this is what is happening! Without really much opportunity for feedback."*
	Communication	*"I was not involved during the implementation."*
Individualism - Collectivism	Relationships	*"Many individuals with whom we spoke noted the turf wars characteristic of the organization."*
	Performance promotion	*"Financial rewards and incentives were provided to encourage staff to partake in the change efforts."*
	Training	*"Only one user attended the Beaufort course and she was expected to teach the others how to operate the system."*
	Company loyalty	*"These are smart, rational professionals who are all interested in the success of the company."*
Uncertainty avoidance	Degree of laws/rules	*"Rules and procedures introduced around SITS impeded them in making more efficient use of associated technology."*
	Punctuality	*"I submitted an order set and after 9 or 10 months, they called back and said they'd lost it and they wanted it again."*
	Technology & Innovation	*"Technology and innovation were associated witch costs and troubles."*
Masculinity - femininity	Goals	*"Her approach was to avoid confronting doctors and to focus her efforts where she had good*

		existing relationships."
	Assertiveness	*"Are you so stupid that you can't handle a computer?"*
Long-term vs short-	Targets	*"Training had a short term rather than long term focus."*
term orientation	Tradition	*"The motivation of Cisco was mainly based on long-term strategy."*

4. Results

The 70 cases of IT implementations took place in 18 different countries/regions, with a great variety between countries. In alphabetical order the implementations happened in Australia (3), Canada (4), the Caribbean (1), Central Eastern Europe (3), Chile (2), China (5), France (1), Hawaii (1), Italy (1), the Netherlands (4), New Zealand (4), Norway (2), Portugal (1), Singapore (1), Sweden (1), Switzerland (1), the UK (12), and the US (23).The studied organizations operate in 18 different industries and together they implemented more than 25 different IT systems, all of which were integrative systems. Of these implementations, 36 cases were in organizations active in the public sector in industries as healthcare (23) and education (11). The other 34 organizations studied are dispersed across traditional manufacturing industries (11), the energy sector (6) and aviation (2). From these cases 481 NC observations (dimensions, manifestations and effects) were drawn.

4.1 Manifestations of national culture

Driven by NC dimensions, the actual manifestation of national culture was categorized in three types: trust & respect, management culture and conflict (see Table 2). Each manifestation is shown by their subcategories and the NC dimensions that were observed to drive the specific manifestation.

Table 2. Taxonomy of national culture manifestations

Manifestations	Subcategories	Main NC dimension driver
Trust & respect	Top management respect	Power distance, Collectivism
	Inhibited feedback	Collectivism, Femininity
	Suspicious	Uncertainty avoidance, Individualism
	Not suspicious	Collectivism, Femininity
Management culture	Indifferent	Power distance
	Involved	Power distance
	Imposing	Uncertainty avoidance, Power distance
Conflict management	Avoidance	Uncertainty avoidance
	Conflict-seeking	Uncertainty avoidance, Individualism, Masculinity

Trust & respect. Many observations (42) matched Srivastava and Gips's[17] notion of trust & respect. Subcategories of this manifestation were top management respect, inhibited feedback and suspicion. Although one might expect that trust and respect are obvious necessities for an integrative system implementation to work, it had different manifestations in various national cultures. For example, in an ERP implementation in China compared to a similar one in Australia, a project champion had far less value in China than in Australia. In China, there is so much respect for top management, that it is championed automatically, as observed in one of the cases: "*the presence of a champion was considered important in Oilco (Australia) but not mentioned at all at Elevatorco (China)*"[14]. This difference can result from the difference in power distance between the two cultures. In other cultures however, trust & respect for top management was not as indisputable as in China. In a New Zealand hospital, doctors were suspicious: "*Many doctors felt that the information would be used to justify management decisions on financial grounds, ignoring clinical issues*"[24], and in a Portuguese manufacturing company this applied to the employees: "*There was a notorious loss of trust on their managers what made that most employees started showing indifference to the SAP project*"[25].

Another observation related to trust & respect was the acceptance of external consultants. This manifestation was sometimes driven by uncertainty avoidance. Data accuracy and knowledge is very important in some cultures, as in the Chinese implementation discussed before, this resulted in acceptance of and trust in external consultants: "*The implementation of SAP resulted in the development of trust - trust in experts of SAP*"[14]. In Switzerland an external

consultant had issues gaining trust, not rooted in uncertainty avoidance, but in the masculinity of some of the cultures as observed in this multi-site implementation in a Swiss multinational: "*The consultant trainer frequently experienced older male participants, especially those from Japan and Italy, questioning her competence and qualifications*"[26]. Our observations not only relate to a loss of trust in external consultants or in top management, but also the other way around. In some cases, top management had lost trust in their employees, which was identified in multiple cases: "*Howard felt that the divisions were doing things behind his back*"(US[7]) and: "*Another manager was convinced that his department was misleading him*"(New Zealand[24]). In some cases, efforts were made to regain or keep trust: such as in the UK: "*I need to convey the message, trust me*"[27], while others used external forces to regain trust, as in an Italian telemedicine implementation: "*Enrolling the scientific institutions would in fact obtain the result of entrusting the emerging practice with a great power-symbolic superiority*"[28].

In Hawaii mutual respect actually manifests itself in a situation that inhibits feedback, because in Hawaii, it is uncommon to explicate criticism. For example, a Hawaiian implementation team member states: "*If you give constructive feedback – if somebody asks for it – they get a bit of a shock if they actually get it.*"[29]. Similarly, trust issues were the downfall for a financial information system implementation in the US as observations were made like "*FIS was definitely established for political reasons, Howard wanted to take over the world... therein started the wars between the chemical company and corporate*"[7]. However, in Chile an implementation of an e-governance system was successful, specifically because of the lack of suspicion. Even though the system was designed to gain more power for its implementers: "*The SII collects an amount of personal financial information that would most likely evoke privacy concerns in Western states*" and "*The Chilec Compra and SII systems have also become intertwined to expand the power of the state*"[30].

These examples show that trust & respect plays different roles in different national cultures, in some it is a crucial factor that must be present for success (Australia, New Zealand, Portugal, Japan, Italy and the US), while in others its absence does not negatively influence user behavior (Hawaii, China and Chile).

Management culture. This manifestation category was added during the coding process to describe observations concerning the way management acted in integrative system implementations, for which 52 observations were found. Three subcategories of management behavior were identified: instances in which management was imposing, indifferent or involved (see Table 2).

The observations of management culture differ greatly among the various countries. For example, in Central Eastern (CE) Europe, a manager was able to withhold information from the board, "*In the top management team nobody really knew about the problems with the system as no problems were let to get to that high level*"[31], which shows that top management was not involved enough. While in the US, management was observed to very much involved: "*The new CEO was not only a champion [of the IS implementation], but also a master*" and "*The new practices had the strong support of the CEO*"[32]. In Portugal on the other hand, management acted different from previous examples*: "Since the SAP system was imposed, the project manager and top management did not carry out a strategic analysis of the implementation*"[25]. So, even though management imposed an ERP implementation, simultaneously they were indifferent about the implementation process. These examples show that different management cultures were present across the case sample but had different effects. In CE Europe, the implementation failed because top management was not involved enough. In Portugal, the implementation was an eventual success after a lot of interventions due to the indifference of management concerning the implementation process. In the US the project was a success after several interventions that were necessary, even though management was very much involved. Being indifferent towards an integrative system implementation can be explained by a culture characterized by a low level of uncertainty avoidance. In the US, for instance, a financial services company top management member mentions: "*If I have to get involved I have the wrong people working for me*"[33]. Imposing can be an indicator for a large power distance, such as in CE Europe: "*Authority decisions were made to implement the VLE*"[34]. However it can also be a reputation issue, related to masculinity or individuality, as in a case in the US: "*It was not just the financial sunk costs that were at stake, but also personal and institutional reputations*"[35].

Conflict management. As management culture, the manifestation of conflict management was not theorized before analyzing the cases. It relates to both avoiding and seeking conflicts in different national cultures, for which 40 observations were found. Avoidance of conflict can be explained to be rooted in the uncertainty avoidance of a culture and conflict seeking a culture's individualism and masculinity. Conflict was sometimes completely avoided:

"*Hawaii's culture is very non-confrontational, you know, just be nice, and agree*"[29], while in other situations it was sought: "*The residents say that the TDS HC 4000 system is user hostile and have mounted a feisty anti-OSCAR campaign*"(Canada[36]) or just accepted as a fact: "*Being disappointed with their experiences with Beaufort, they organized private evaluations sessions - without the participation of the project team*"(the Netherlands[37]). In some cases users took extreme measures to avoid conflict: "*Due to the lack of conveyance about upcoming training and expectations many employees felt overwhelmed and left the organization. They just assumed they would not get training*"[38]. Also, there were cases in which fear was a driver for conflict avoidance, as illustrated by the following quotes: "*The fear is that it might be used by somebody against them somewhere down the track*"(New Zealand[24]) and "*This anxiety was often described as fear of the unknown but was also frequently ascribed to anticipated adverse consequences, specifically increased burden of work on the individual user*" (US[39]).

4.2 Effects of national culture

To explore the effects of national culture on user resistance, the manifestations were used to analyze the resistance behavior and to see whether patterns could be identified. Sheu et al.[3] introduced management style as an NC effect. In this study, evidence was found for the opposite sides of the spectrum, management was either very much engaged or did not prioritize the implementation process. For example, some top management teams "*did not see the implementation project as a priority*"[16], while others "*had the strong support of the CEO*"[32].

In cases in which there was low trust & respect for management, the management style did not seem to be focused on the actual IT implementation processes (e.g. training of users, clear communication, possibilities for feedback). For example, in a US case[7], users noted that the implementation seemed to be a political game in search for more power. This observation fits the drivers behind trust & respect: power distance and individuality (see Table 2). Because the users recognized this play for power, they started resisting the implementation. The fact that they resisted can be an indicator for another manifestation, namely conflict. These users were more conflict-seeking oriented and therefore challenged management and resisted the implementation. As supported by this US implementation observation: "*It was intended to encroach upon the legitimate domain of the divisional accountants, that is, managerial accounting. Divisional accountants would resist the use of FIS for managerial accounting even if it were easy to use and in fact, their resistance continued beyond March 1978*"[7].

Although this might seem a normal response from the perspective of US users, other cultures reported different responses on a similar management style. For example, in a Chinese implementation, there was a high degree of trust & respect for top management, and an imposing management culture was identified. However, management did not focus on the implementation process, as in the US implementation. They just wanted the system to be implemented. Instead of training the end users, management decided that "*only senior managers, departmental managers and key employees would receive training. Most of the end users did not receive any formal training*". Moreover, "*the company's top management did not inform all their employees of their ERP plans and of the benefits that ERP will bring to the company*"[16]. Despite these circumstances, there were no resistance observations.

The effect of implementation ownership by management was different among cases. Some users resisted when an implementation was imposed: "*The MIS forced the center's physicians to modify their behavior in ways they disliked*"[40], while other users were used to just doing what top management wanted: "*Change is accepted if it is demanded*"[14]. Some cultures resisted when management was indifferent: "*The decision to implement ERP came from top management levels at both the company and the parent group. However, their involvement stopped as soon as they allocated the resources, formed the project team appointed the consultants and purchased the ERP system*"[16], while some liked the fact that they were empowered and autonomous: "*To support the part of the reengineering project focusing on streamlining business processes, project owners were appointed for all main business areas*"[20]. Moreover, the requirement of a champion for the project was also different among the cases, some implementations failed because of the fact they did not have a champion, while other implementations failed because of the fact they had a champion, but the user did not trust management enough: "*The double label of the program used in the organization, seems to create some suspicion among nurses*"[2].

5. Discussion and conclusion

This study aims to identify manifestations and effects of NC in integrative IS implementation processes. NC nuances surfaced which were categorized as three different manifestations. The manifestation trust & respect was found to be mainly related to the trust in and respect for top management. Some users seemed to be inherently suspicious, while other users from a different culture were so respectful towards their management that it inhibited feedback throughout the management layers. The manifestation management culture concerns the managerial actions during the IS implementations. These actions were categorized as imposing actions, being involved or indifferent. The findings show that in some cultures imposing an IS's usage results in user resistance, while in other cultures this does not cause any implementation issues. The third manifestation, conflict management, concerns the avoidance or seeking of conflict. The findings show that in some cultures users challenged uncertainty and demanded clarity from management. While in other cultures, users were driven by fear and therefore avoided conflict.

Using the identified manifestations, the cases were analyzed for user resistance effects. In accordance with the literature background, this study found that management style was an effect that originated from national culture. An interesting finding is that a management style resulting in user resistance in one case[7], did not cause similar problems in another[16]. This suggests that a management style is not only formed by the cultural dimensions, but also the perception of the users. Therefore, even though one would expect resistance to occur when, for example, users are not trained at all, in some cultures users do not find this a source for resistance. Related to the management style, the ownership efforts of management of the implementation are identified as a second effect of national culture. In some cases, ownership was actively sought by management, which is rooted in the culture dimensions power distance (hierarchical responsibility) or individualism (competitive relationships)[14,40]. In other cases however, it was decentralized[16,20]. In some cases users resisted[16,2], while in others the decentralization was a source of motivation for the users because they felt autonomous[20], again something that can be explained by power distance and individualism.

To summarize, our findings highlight that national culture indeed affects user resistance. However, national culture does not solely affect management's actions in their implementation strategy, it also affects the user's perception of these actions. This shows that the NC dimensions play a significant role at both the sending – and the receiving side of the implementation strategy.

The national culture manifestations and effects identified in this study are applicable to the research fields dealing with user acceptance and resistance to IS implementations and to which this study makes two contributions. First of all, this study addresses calls for research in the integration of IS and national culture[5,8]. Moreover, this study also answers the call from the IS field to have a stronger methodological basis regarding the sample cultures involved in a comparative case study analysis[5].

Second, this study contributes to the user resistance literature since it presents findings supporting a national culture factor influencing user resistance. This perspective can therefore be added to the existing user resistance models to support a deeper understanding of the influencing factors of user resistance. As Lapointe and Rivard[9] made a start in analyzing user resistance in a multi-level manner, this study enriches their findings by adding the NC lens to their perspectives. More generally, national culture indeed appears to be a crucial factor to consider when implementing an integrative IS.

Managers can benefit from these insights. They can identify their culture manifestations and reflect on the potential effects when implementing an integrative information system. Knowing that national culture indeed has an impact, might prevent unnecessary resistance or even implementation failure. This will be particularly relevant in multi-site integrative IS implementations, where more and more business units will become geographically and culturally dispersed due to continuous globalization[11].

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