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User-centredness in Large-scale Information Systems Implementation

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USER-CENTREDNESS IN LARGE-SCALE INFORMATION SYSTEM IMPLEMENTATION

Research paper

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Abstract

Information systems (IS) implementation often aims to ensure user satisfaction. However, achieving such user-centredness has remained ambiguous and challenging, and the results are not always those that were promised. This may result from several views and fluctuating and implicitly defined concepts. While some premises have been identified, they seem to mostly concern easily manageable settings where the number of users is limited, or where the possibility to tailor the system is significant. Especially in large-scale systems' implementations, which are in increasing amounts implementations of packaged systems products, user-centredness seems to be fuzzy. In this paper we illustrate how user-centredness unfolds in a large scale IS implementation. We conduct a qualitative case study to see what occurs when the efforts are declared user-centred. By interviewing 13 central actors from a local developer organization, we learnt that user-centredness in such context is essentially the result of joint efforts thus necessitating that each party carries out their responsibility for user-centredness and engages in collaboration with others. The paper contributes to research by sharing empirically grounded findings to be used to extend the discussion on user-centredness.

Keywords: Information systems, user-centredness, user involvement, user participation, implementation.

1 Introduction

User-centredness is a continuously debated subject in the IS research (Abusamhadana et al. 2019; He and King 2008; Hwang and Thorn 1999; Iivari et al. 2010; Iivari and Iivari 2011; McCarthy et al. 2020; Thakurta 2017; Wing et al. 2017). User-centredness, while referring to many alternative roads (Iivari and Iivari 2011), emphasizes that users should be placed in the very centre of IS implementation. This means that different actions are taken to ensure that the implementation serves the needs of diverse future users. The motivation behind this is that several benefits are associated with being user-centred (Markus and Mao 2004; Thakurta 2017). In fact, being user-centred is often taken as the main ingredient for system success (Abusamhadana et al. 2019; Bano et al. 2017; Bano and Zowghi 2015; Markus and Mao 2004), and that user-centredness is a necessity in IS projects (Butler and Fitzgerald 1997; Harris and Weistroffer 2009; Hwang and Thorn 1999; Ives and Olson 1984). However, what user-centredness means and how it may be achieved have not been unequivocally concluded (Abusamhadana et al. 2019; Iivari and Iivari 2011; Isomäki and Pekkola 2011). It has even been proposed as one of the myths of IS practice (Hirschheim and Newman 1991; Wing et al. 2017).

Markus & Mao (2004) proposed that user-centredness is the most reasonable in easily manageable contexts as otherwise the task gets exceedingly complex. For example, large-scale IS implementations, such as ERP, ES or other organization-wide systems, introduce a socio-technical environment (Sarker et al. 2019) where the task of serving the users seems ambitious as the implementation efforts often become distributed and expanded (Alter 2009; Markus and Mao 2004; McCarthy et al. 2020; Roland et al. 2017). There IS implementations unfold as collaborations of different parties (Dittrich 2014; Dittrich et al. 2009; Vilpola 2008) where vendors, supporting consultant organizations, and client organizations together produce the desired system (Kähkönen et al. 2017; Sawyer 2001). Thus, the activities and efforts

of a single party cannot define what occurs there. This context has been little studied from user centredness's perspective (Alter 2009; Hirschheim and Newman 1991; Roland et al. 2017; Wing et al. 2017). User-centredness should be considered in the current challenging IS implementation contexts (Avison and Fitzgerald 2003; Bergvall-Kaareborn et al. 2014; Markus and Mao 2004; McCarthy et al. 2020).

This absence of a thorough understanding motivated us to study user-centredness in the context of large-scale IS implementation. We seek an answer to the question: **"***what occurs when user-centredness is pursued in a large-scale IS implementation project?"* We address this through the grounded theory approach (Urquhart 2012) in an interpretative case study of the large public sector IS implementation project where a group of client organizations acquire a systems product from a large offshore vendor. We interviewed the main actors from the developer organization in the local site of the implementation. The findings imply that user-centredness is challenging as the implementation ecosystem's parties carry their own responsibilities that together create the user-centredness. The efforts are tied together and necessitate a comprehensive approach.

The paper is organized as follows: in section 2, we discuss literature on IS implementation and the concept of user-centredness. In section 3, research settings and methods are presented. Section 4 provides our case description and reveals our findings. The paper ends with a discussion and concluding sections

2 Related Literature

In this section, we discuss literature regarding IS implementations and user-centredness. The discussion on IS implementation focuses on the ecosystem that unfolds when a packaged system is implemented into client organizations. Then literature on user-centredness is reviewed to see what has been learnt about this popular topic.

2.1 Implementing an Information System

Organizations implement information systems, such as Enterprise Resource Systems (ERP) to facilitate streamlined business processes and gain operational efficiency while integrating multiple users into the shared system (Kähkönen et al. 2017; Robey et al. 2002). The systems comprise people, processes, data models, technologies, and formalized languages, that are structured to support organizational functions (Hirschheim et al. 1995, p. 11). They are designed to improve an organization's performance by improving the ability to produce crucial information throughout the organization (Beheshti 2006).

Organizations increasingly resort to packaged systems as oppose to building their own systems from scratch (Howcroft and Light 2006; Keil and Tiwana 2005; Lucas Jr et al. 1988; Sommerville 2008; Strong and Volkoff 2010; Wagner et al. 2010). The packaged, aka off-the-self products, are developed by vendors selling them to customer organizations (Howcroft and Light 2006; Sawyer 2000, 2001; Xu and Brinkkemper 2007). At the technical level, the implementation often is either deployment of a single application, constructing the system from modules, or combining different off-the-shelf products (Sommerville 2008). This is expected to help in avoiding reinventing the wheel, and in lowering costs and risks associated with developing and implementing an IS (Haines 2009; Keil and Tiwana 2005; Lucas Jr et al. 1988).

The system products are not immediately ready for use in client organizations but they require customization (Dittrich 2014; Dittrich et al. 2009; Light 2005; Singh and Pekkola 2021; Xu and Brinkkemper 2007). This refers to activities to change for instance process or data definitions in the system (Haines 2003). The activities include configuration, migration, software integration (Nordheim & Paivarinta, 2004) and modification (Haines 2009). The client organizations often resort to specialized consultant organizations to take the lead on this process (Howcroft and Light 2006; Kähkönen et al. 2017; Metrejean and Stocks 2011; Vilpola 2008).

A central issue when implementing a system product is the product's fit with the client organization (Chiasson and Green 2007; Sia and Soh 2007; Wagner et al. 2010). The products are to a large extent standardized and comprise the perceived best practices (Howcroft and Light 2006; Koch 2007; Sia and Soh 2007; Sommerville 2008; Strong and Volkoff 2010; Wagner et al. 2010). These practices often are not those accustomed to in the client organization and the system may be 'too far' or 'too close' with those (Chiasson and Green 2007). Resistance to adapt to new practices thus emerges in client organizations (Haines 2009; Kim and Kankanhalli 2009). The vendor has to manage the trade-off between making their system generally applicable in many organizations, and addressing the specific needs of individual customers (Chiasson and Green 2007; Pollock et al. 2007; Sawyer 2001; Xu and Brinkkemper 2007).

Consequently, in large-scale IS implementation the vendor, possibly several consultant organizations, and the group of client organizations, form a distributed ecosystem (Bosch 2009; Dittrich 2014; Kähkönen et al. 2017; Smolander et al. 2021) often crossing national boundaries (Levina and Vaast 2008). The vendor owns the system product and manages it (Sawyer 2001). Consultant organizations work as a third-party entity serving their clients. The client organizations live through the change that the new system introduces (Leonardi 2011).

2.2 User-Centredness in IS projects

Users have been in the centre of IS literature (Abusamhadana et al. 2019; Hirschheim and Newman 1991; Markus and Mao 2004; Wing et al. 2017) representing a topic that has attracted much interest. The first significant turn towards focusing on users occurred already in the 1980s (Isomäki 2002). The interest in user-centredness grew significantly during the 1990s and has reserved its position as a central topic ever since (Iivari and Iivari 2011).

The aim for user-centredness is often emphasized (Markus and Mao 2004; Wing et al. 2017) and seen as a key for success (Abusamhadana et al. 2019; Bano et al. 2017; Bano and Zowghi 2015; Butler and Fitzgerald 1997; Ives and Olson 1984; Markus and Mao 2004; Thakurta 2017). The premise is that users are experts of their work environment (Abelein et al. 2013), will eventually use the deployed system, and thus they should have the deepest insights into their needs which should be fulfilled with the implementation.

Despite all these efforts, user-centredness has remained an ambiguous concept (Iivari and Iivari 2006, 2011) with many approaches (Abelein et al. 2013; Abusamhadana et al. 2019; Isomäki 2002). Already the term referring to placing the users and their needs in the centre during the IS implementation has alternatives (Iivari et al. 2010). Some speak of user-centredness (Iivari and Iivari 2011) that captures a range of approaches, such as the use of personas as surrogates to average users, as well as actual development tasks conducted by the users. On the other hand, the difference between psychological user involvement and actual user participation has also been distinguished (Barki and Hartwick 1989). The term user engagement is sometimes used to include both of these (Abusamhadana et al. 2019; Bano et al. 2017; Bano and Zowghi 2015; Hwang and Thorn 1999). Then again, for instance human-centred design has been standardized with higher-level principles that emphasize reaching "a clear understanding of users" (Iivari and Iivari 2006; ISO 1999).

While a focus on users is a shared premise, the user-centredness approaches diverge in the extent they directly involve the users (Abelein et al. 2013). The approaches range from the developers' conscious acknowledgement of users to the users themselves personalizing their system (Iivari and Iivari 2011). For instance, the user-centred design focuses on identifying who the users are and embracing their heterogeneity during design (Iivari and Iivari 2011; Norman 1986). Participatory design argues for the active and actual participation of users, making them decision-makers (Bergvall-Kaareborn et al., 2014; Kautz, 2010). End-user computing sees (e.g. Cheney et al., 1986) the users as the system co-developers.

The degree of involvement that occurs in actual practice varies (Ives and Olson 1984). Users may be involved in a symbolic way where their input is requested but mostly ignored (Bano et al. 2017; Lapointe and Rivard 2007). User participation can be token participation where the users, despite their participation, have no power to influence the project (Bano et al. 2018; Harris and Weistroffer 2009; Kirsch and

Beath 1996; Martikainen et al. 2020; Wing et al. 2017). Even though there is a genuine intention for user-centredness the expected benefits may not be produced (Butler and Fitzgerald 1997).

Consequently, rather than being a specific practical method or approach, user-centredness appears as a higher-level goal. Benefits from reaching user-centredness include psychological *buy-in* of users (Markus and Mao 2004), a better system quality (Abelein et al. 2013; Damodaran 1996; Hwang and Thorn 1999; Markus and Mao 2004; Thakurta 2017) and closer user-developer relationships (Markus and Mao 2004). Achieving the user-centredness in IS projects is expected to result in success (Harris and Weistroffer 2009). Most often this success refers to user-satisfaction (Abelein et al. 2013; Bano et al. 2017; Bano and Zowghi 2015; He and King 2008). The user-satisfaction is a multifaceted concept (Bano et al. 2017) described as the extent users perceive the system meets with their needs (He and King 2008; Ives and Olson 1984) and induces pleasant use-experience (Au et al. 2008).

User-centredness seems the most attainable in projects that are easier to manage (Markus and Mao 2004; Obendorf et al. 2009). However, user-centredness is mostly considered with a narrow perspective (Alter 2009; Hirschheim and Newman 1991; McCarthy et al. 2020; Obendorf et al. 2009; Wing et al. 2017). Literature has not comprehensively analysed user-centredness in relation to setting such as large-scale ERP implementations or outsourcing (Alter 2009; McCarthy et al. 2020) although for instance Avison and Fitzgerald (2003) have argued that the size and type of the IS projects should be taken into account regarding user-centredness. The context's complexity introduces issues such as who to involve from all the possible users (Bano et al. 2018; Markus and Mao 2004). Also, the development and implementation efforts become more distributed (Markus and Mao 2004; McCarthy et al. 2020; Obendorf et al. 2009) and the number of perspectives increases. There is thus a need to study user-centredness in large scale IS.

3 Research Method

We study a large-scale IS renewal project where a patient record system is acquired and implemented for a consortium of several public healthcare and social care organizations. The system is estimated to serve around 35.000 social and healthcare professionals and influence around 1.6 million citizens. Total project costs are estimated to be around 600 million euros, from which the technology is approximately 200 million euros.

The project, launched in 2012, aimed to integrate numerous separate systems for a group of social and healthcare organizations. An integrator organization to carry out the system's acquisition and implementation was established. Its role was to serve as local developers.

Procurement began in 2013 with a shared procurement strategy. It followed the negotiation procedure (Moe and Newman 2014). The procurement resulted in that an offshore vendor with a packaged enterprise system was contracted. The vendor is a large privately-held healthcare software company. They were an experienced actor in markets and had sold their products worldwide.

Numerous client organizations from one region in [a country] formed a company (integrator organization) to acquire the system. The client organizations include primary health care organizations, run by different municipalities, being the main contact point towards citizens. More specialized services, such as surgery or cancer treatments, are provided by hospitals, own by the municipality consortium. The social care services, offered by the municipalities, comprise a wide range of services, such as social counselling, rehabilitation, and mental health work to ensure social security and wellbeing.

We wanted to understand how user-centredness (Iivari and Iivari 2006, 2011) that comprises a wide spectrum of approaches to ensure user satisfaction unfolds in this case. We utilized a qualitative single case study approach since developing and implementing an IS is essentially a social process (Newman and Robey 1992) that should be understood in its social and political context (Butler and Fitzgerald 1997; Myers 1995).

To understand how user-centredness took place in the project, we interviewed the main actors from the integrator organization. In total, thirteen thematic interviews were conducted (see Table 1). The interviewees were selected with snowballing sampling, i.e. we asked the interviewees to name subsequent, influential, and relevant people (Morgan 2008). The first three interviewees were provided by the case company. The interviewees included management level actors from the integrator organization and a consult that worked with the social care professionals. Their positions varied from the highest level of management to those who manage the development of a certain product or module or unit and those who are responsible for a certain aspect of the system or process. Thus, the perspective we attained was mostly managerial. There is however also a view into the operational level. We labelled the interviewees as either information technology (IT) specialists or business domain experts (BIZ).

Index	Title	Role
IT 1	Chief Technology Officer	Responsible for information technology
BIZ 1	Director of Development	Managing local development.
BIZ 2	Solution Architect	Responsible for local development of the operative healthcare
BIZ 3	Business Manager, Social Care	Directing the local development of the social care product.
BIZ 4	Chief Executive Officer	Managing the integrator organization
BIZ 5	Clinical & social Care Lead	Directing the development of healthcare and aligning the system with it.
IT 2	Usability Manager	Responsible for ensuring system usability in the local implementation efforts.
BIZ 6	Director of Human Resources	Responsible for managing client relationships.
BIZ 7	Consultant for Social Care	Advising the development from the perspective of operational-level social care.
BIZ 8	Business Manager, Digital and Citizens Services	Directing the development of the products for citizens.
IT 3	Head of Software Development Unit	Managing the unit of technical development
BIZ 8	Development Manager	Directing the local development of senior citizen products.
BIZ 9	(ex) Communications Director	Responsible for directing organizational communication

Table 1 Interviewees

The interviews took place between the fall of 2019 and spring of 2020. This was after the first system deployments. Each interview, organized face-to-face in the integrator premises, took approximately 90 minutes. Two interviewers were present, asking open-ended questions where the interviewees described their views on the project. All interviews were conducted and analyzed in [language name]. Only illustrative quotations were translated into English. All interviews were audio-recorded and fully transcribed.

Data analysis began immediately as the data became available. We used the grounded theory approach (Urquhart 2012) with no preliminary theoretical framework. The ideas were thus deducted from the data. This approach was chosen because existing IS literature on user-centredness is contradictory so we did not want to limit the analysis by theoretically restricting frameworks. The analysis followed the stages of the pragmatic grounded theory (Urquhart 2012), these being open, selective, and theoretical coding. First, the first author coded the data to produce initial and general labels on themes. Then, finer codes

were placed that are related to the initial themes to generate more focused ideas. Finally, the relationships between the codes were interpreted so that findings emerged. Throughout the process, a constant comparison was applied. The researchers also discussed the results throughout the process. Table 2 illustrates selected examples of this coding process.

Finding	Excerpt	Interpretation
User-centredness as user participation	[During the requirements elicitation] "*we took those clinicians from the sector to tell us about their needs"* [BIZ 5]	The developers in the local site have pursued user-centredness by making them participate in the efforts.
	"*We utilized workshops for acquiring the user-needs*" [BIZ 5]	
	"*We have continuously involved the users to define what kind of system they would need*" [BIZ 5]	
The developers working with limited possibilities	[When you are configuring the system] *"surprises emerge when you have first thought some modification as easy, but then notice that it most certainly is not easy at all…This comes from the restrictions imposed by the vendor"* [IT 2]	The developers in the local site have only limited possibilities to configure the system for their users and thus ensure user-centredness. The vendor has the ultimate capabilities for modifications.
	[It has been restricted] *"that what we can do for the system…So, we had to come up with bypasses" [on some issues]* [BIZ 2]	
	"*What is distinguishable in our case is that we are not working from a scratch. So, we have restrictions*" [in configuration] [IT 2].	
The client organizations as responsible for carrying out the change in their premises	*"The management in the client organizations, those supervisors and such, need to understand the change and carry it out into their units. It is their responsibility."* [BIZ 8]	The user-centredness necessitates that the client organizations contributed to the efforts by proper change management in their premises.
	"I believe that the significance of the change that the system has introduced into the work practices, and how much management it necessitates has come a bit by a surprise for our client organizations" [BIZ 9]	
	"The client organizations should make the decisions on certain issues. The system does not alone decide what the doctor does and what the nurse does...These necessitate decision-making on role-allocations from the client organizations" [BIZ 8]	

Table 2 Coding Examples

4 Findings

Next, we describe our case and findings.

The system implementation was indeed a multi-party collaboration (see Figure 1). The system, a specialized product for healthcare, was acquired from an offshore vendor, selling the product worldwide. It was to be implemented into a consortium of multiple client organizations where its users, the professionals of health care and social care operate. The integrator organization in the role of local developers took the responsibility for tailoring the system to the local environment. They worked as the middleman between the vendor and client organizations and configured the system by their client's needs.

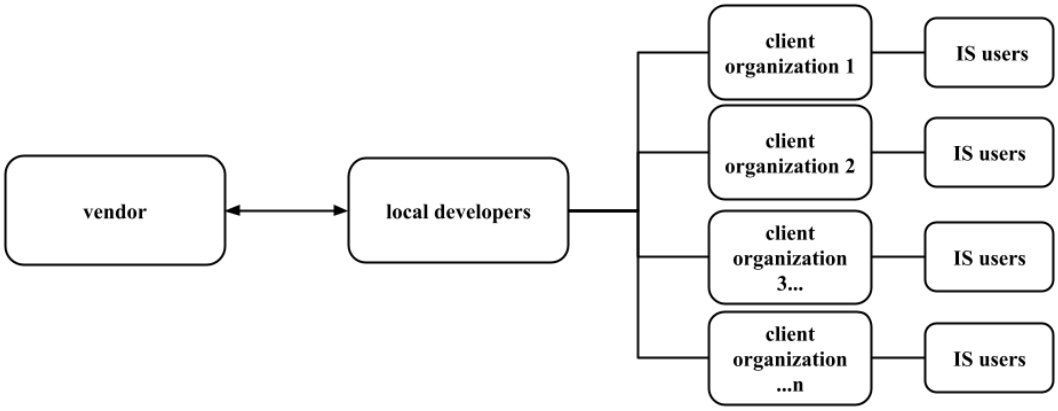

Figure 1 Implementation Ecosystem

4.1 Local Developers promoting user involvement

The local developers declared the project to be user-centred in "*exceptional amounts"* [IT 2]. Their goal was to essentially ensure that "*the users are satisfied with the system*" [IT 2]. The approach resembled user involvement as the users' inputs were gathered throughout the process. From their perspective, this involvement began already before the system's procurement when the system requirements were elicited. The clinical and social care lead in the local development organization explained that they "*took those clinicians, those employees of hospitals, into their premises, and then listened to their needs and requirements"* [BIZ 5]. These requirements were then shared with the vendor candidates so that they could offer their best solutions. Later the users were participating in grading the candidates demonstrating their products. This means the users, at least in theory, were heavily involved in selecting the system.

The local developers continued user involvement after the system was selected and it was time to work adapting the system to the local needs. Numerous workshops were organized where the users gave their opinions on design-related questions. These sessions centred on defining the users' work processes and choosing how the system could be aligned with those. The usability manager explained that in these workshops "*the users were there to evaluate if the process* [supported by the system] *meets with their needs and if they are able to do all their tasks that they are supposed to do*" [IT 2]. In addition to workshops, the local developers utilized product champions for instance. They were selected professionals from the social and health care field who were hired to mediate the communication between the users from the client organizations and the local developers. After the system was deployed into a client organization, the local developers visited the site and gathered feedback from the users. According to the HR director, such visits led to that "*more than a hundred smaller modifications were taken into development in just a couple of weeks after a visit* [BIZ 6]. Thus, the local developers actively worked to find and address the users' needs.

Consequently, the local developers worked in close collaboration with the client organizations (see Figure 2). They reacted to emerging user-needs with their capabilities. These capabilities mostly concern the system's customization activities such as selecting appropriate modules and configuring the system.

When their capabilities were insufficient, they contacted the vendor for further development and major changes.

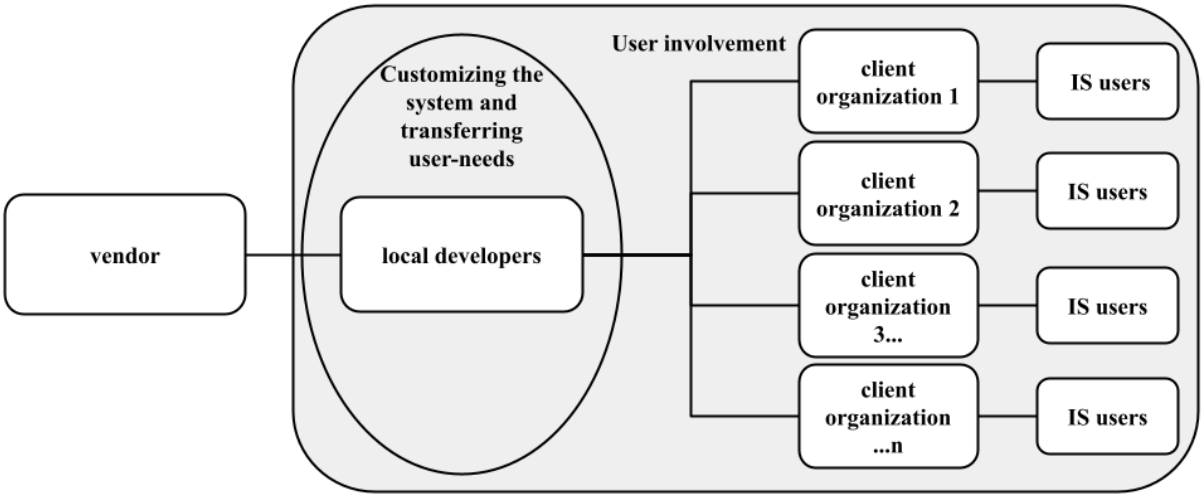

Figure 2 local developers involving users

4.2 Vendor as the system's owner

The vendor owned the system. The local developers explained that the vendor had conducted "*over 400 implementations*" around the world [BIZ 8] and had a strong "*implementation model"* [BIZ 4] driving the project. The vendor worked closely with the local developers and even sent their representatives to support the system's customization (see Figure 3).

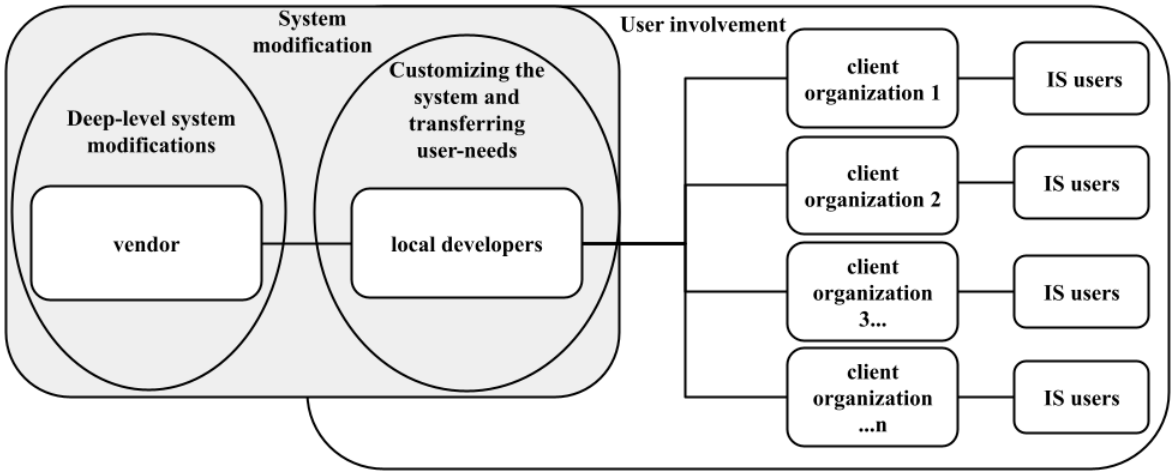

Figure 3 Vendor as the system's owner

The vendor's perception of health care and social care practices was deeply embedded in their product. They perceived that health care and social care is a business-like service, supported by their product. The local developers' head of the software development unit explained the vendor trying to ensure that *"the system works efficiently in a way that enables many customers to be claimed and charged for money… Many functions are done with money in mind*" [IT 3]. For instance, the work practices and processes were standardized and hardcoded in the system's logic. The local developers perceived that the system followed a principle that if the user "*has not done things accordingly, she may be punished*

in some way" [IT 3]. This appeared for instance in reporting the work. This logic was locally inappropriate and unacceptable and required modifications.

The vendor's ownership of the system resulted in that the local developers had to comply with "*restrictions*" [IT 2] when implementing the system. The local developers' head of the software development unit described that they are "*moulding a system*" and *"are not creating a new system*" but "*customizing and localizing"* one [IT 3]. When the local developers build the system, they "*could choose one from a set of modules, each of them with different options for customizing"* [IT 2]. The usability manager explained that they faced "*surprises in situations where they thought that some issues would have been simple to solve but then learnt that it was not easy at all. This comes to the restrictions placed by the vendor. They are not always clear* [for the local developers]*"* [IT 2]. The local developers perceived that there were situations where they had to choose the "*least bad option*" [BIZ 2] from a set of non-optimal choices.

The vendor was the one able to do changes to the system core. The local developers had to formally request such modifications from the vendor. The vendor would then evaluate if their contract obligates them to make the changes or if they could reimburse the client. The requests for modifications were not always accepted, even if deemed essential, for instance, to fix an issue with medication functionalities. The vendor perceived the current functionality as optimal. This prevented the local developers to configure the system for the users. Instead, the local developers had to create an artificial bypass. On the other hand, sometimes the local developers were happily surprised by the vendor's keenness for certain modifications. This was perhaps when the vendor "*perceived something as good and saleable, and then efficiently made the change for everyone*" [BIZ 2].

4.3 Carrying out the change in the client organizations

The change the new system introduced to the client organizations was significant. In addition to new system interfaces, the logic in operating models the health care and social professionals follow was renewed. The new logic emphasized especially standardized processes and structured reporting practices. For instance the new reporting standards were different from those used earlier. The professionals were used to much less standardized practices. After the first deployments, the user-feedback was "*quite poor*" [BIZ 4] and in general "*not as good as was hoped*" [BIZ 4]. The users for instance complained a lot about the system's "*complexity*" [BIZ 2].

The local developers had faced the radicality of the change. In addition to ensuring the system's usability, the local developers tried to remain "*patient with deploying new features*" [IT 2] into the system. The local developers explained that the users should first learn how to comply with the new reporting procedures and most simple system functionalities. Otherwise, the users would become overwhelmed. Additionally, they explained that for instance systematically training the users to use the new system is essential. However, a product champion working between the local developers and client organizations revealed her dissatisfaction with the training procedures. She explained that she had encountered situations where the users had insufficient time for participating in the scarce number of training sessions.

The local developers explained that the client organizations have a central role in how the change is executed. The local developers perceived that this process had not been optimal throughout the client organizations. They stated that the bad user-feedback in large part "*reflects how the change has been carried out*" [BIZ 4]. To implement the change, the client organizations should have clarified their processes and aligned those with the new system. The local developers argued that "*if the current state in the organization is not clear and employees there are not familiar with their situation…then the deployment will be very hard*" [B 8].

The local developers stated that the responsibility in change management has to be taken by the client organizations. They argued that there the management from different levels needs to be committed to carrying out the change on their part. Figure 4 illustrates the client organizations' position inside the ecosystem. It emphasizes that their role was to concentrate on organizational issues and change management.

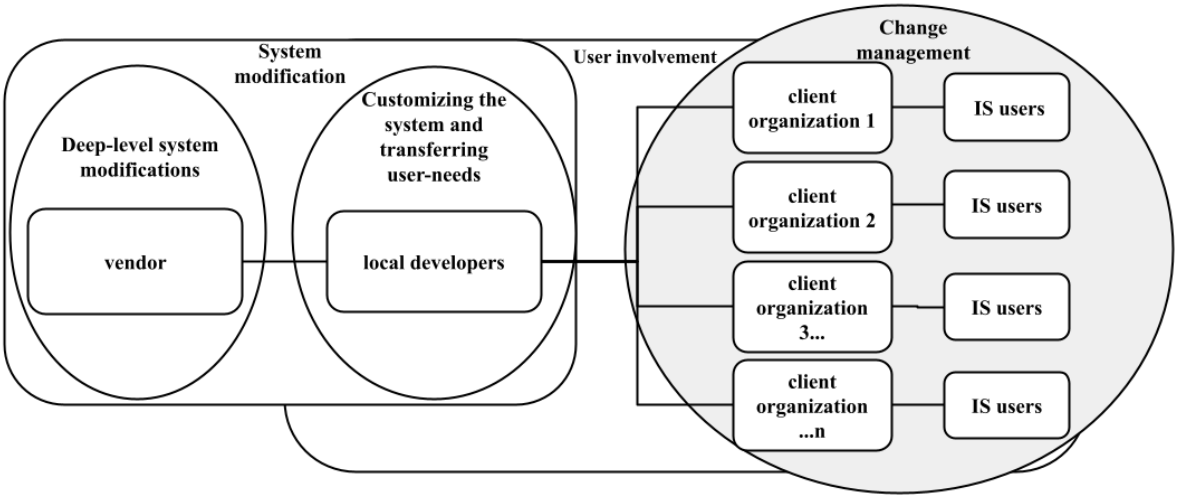

Figure 4 Client organizations and change management

5 Discussion

In the case there were sincere efforts for user-centredness, at least by the local developers. This is often conceptualized to user satisfaction (Abelein et al. 2013; Bano et al. 2017; Bano and Zowghi 2015; He and King 2008). While some activities resembled "textbook" user-centredness (Butler and Fitzgerald 1997) the activities were not sufficient to ensure the benefits the user-centredness generally promises (Lapointe and Rivard 2007; Robey et al. 2002). There were strong indications for dissatisfaction amongst the users. This forces us to question if user-centredness was ever reached.

The findings confirmed that organizations in need of a large-scale IS increasingly resort to packaged systems (Howcroft and Light 2006; Keil and Tiwana 2005; Lucas Jr et al. 1988; Sommerville 2008; Strong and Volkoff 2010; Wagner et al. 2010). Here, regarding the user-centredness we see the main issue is the collaborative context that results from the approach (see Figure 5). The ecosystem (Dittrich 2014; Kähkönen et al. 2017) comprised of an experienced systems vendor who persistently held the reins. On the other end, there were separate client organizations where the users were. In the middle, the local developers worked in configuring and adapting the system for their clients. Each party had its own view and responsibility for user-centredness. Together these defined the limits of user-centredness.

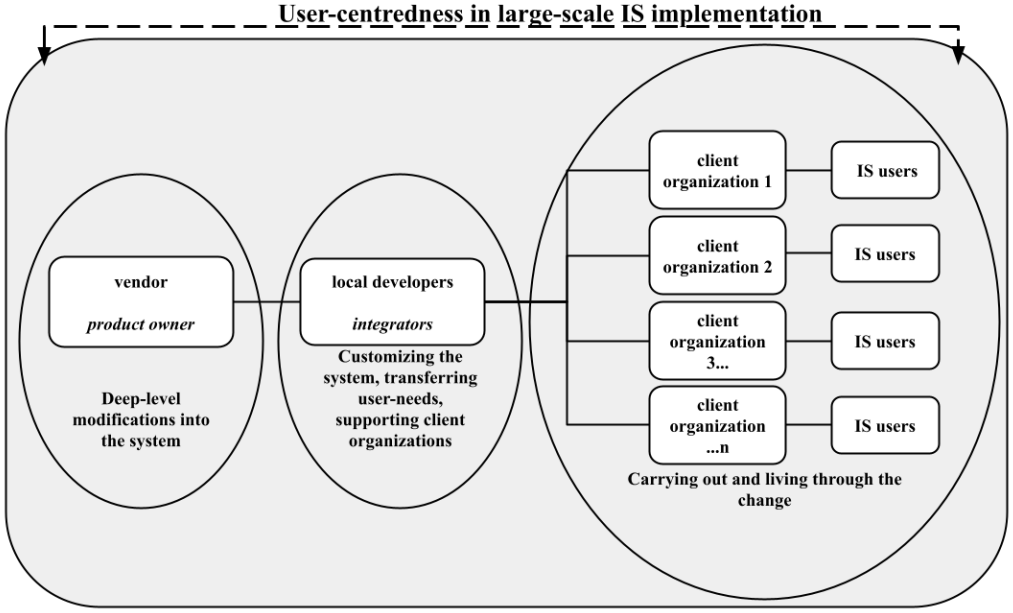

Figure 5 User-centredness in large scale IS implementation

A vendor has an influential role especially in overseeing the system's technical components. The system is their product and they have the capabilities and possibilities to modify it. As our case showed, packaged systems rarely are optimal for new contexts and users (Dittrich 2014; Dittrich et al. 2009; Light 2005; Singh and Pekkola 2021; Strong and Volkoff 2010; Xu and Brinkkemper 2007). Under the circumstances the vendor controls the changes and how those are considered. The vendor´s position poses challenges in serving the users. This is because of several reasons. First, the vendor is often distant from the users (Pollock et al. 2007; Sawyer 2000) so the users' needs reach the vendor only through intermediaries. In our case, the vendor was an offshore supplier. This means the vendor was distant from the local context both physically and perhaps also culturally (Kaplan and Seebeck 2001). This distance concretized in how they perceived the health care and social care service model. Second, the vendor´s business is not to serve individual clients but to compete in markets (Koch 2007; Sawyer 2001; Sommerville 2008). The vendor is serving various clients with their product. This reduces their willingness and ability to be flexible when a new client has unique needs. The vendor was reluctant to change the system´s logic as they risked ruining their own system architecture. Also the other clients' needs tied their hands. Concerning working towards user-centredness, the vendor had a dilemma: to serve their new customer and its users or minimize the risks towards old customers.

User-centredness spreads beyond visible technical components (Sarker et al., 2019). The system's relation to the organizational processes was evident. Our findings indeed confirm that carrying out an organizational change is a significant factor in IS implementation. Executing the changes in the operations and processes concern especially the client organizations as they need to take responsibility in carrying out the changes (Avgerou 2001). This creates a contradictory situation when the clients are expected to change the processes to something they do not want – in the worst-case worse than before as the vendor or the local developers did not follow the clients' needs.

The case highlights the local developers´ role in user-centredness. They were able to work closely with the users and engage them with their tasks. However, it became evident that their efforts alone were not sufficient to ensure user-centredness. The local developers were involved in both technical and organizational matters but only with limited capabilities. The vendor had set strict boundaries for local developers customizing the system. It seemed that the local developers were mostly allowed to work with the system´s surface level. On the other hand, they should also support the client organizations in their execution of change.

We were interested in what occurs in a large-scale IS implementation project that is declared to be user-centred by practitioners. Regarding this the case exemplified that in a large scale IS implementation user-centredness results from the ecosystem's joint efforts. Large-scale IS implementations are projects where heterogenous design constituencies generate the deployed system together (Dittrich 2014; Koch 2007). The context has not been widely considered in research focusing on user-centredness (McCarthy et al. 2020; Obendorf et al. 2009; Wing et al. 2017). The user-centredness literature has concerned the topic mostly in contexts where user-centredness is more reasonable (Alter 2009; Bergvall-Kaareborn et al. 2014; Markus and Mao 2004; Roland et al. 2017). This stream has showcased the value of being user-centred. Research on IS implementations has focused on the issues that working with packaged systems introduce (Koch 2007; Li and Nielsen 2019; Singh and Pekkola 2021; Sommerville 2008). This literature has explained the tension that formulates in the collaborative efforts (Dittrich 2014; Kähkönen et al. 2017; Roland et al. 2017; Smolander et al. 2021). These streams together arrive at the issue we exemplified in this paper. However, they seem to not explicitly discuss issues of user-centredness in the context of IS implementations. Vilpola (2008) is close with our view by stating that implementation "method should cover implementation stages from before the selection of a system until operational efficiency overtaken the level preceding the implementation" (p. 48). Nevertheless, the process view offered does not emphasize the importance of the ecosystem's collaboration. Our findings showed that the themes should be integrated to join their forces on unravelling how to make IS implementations more successful. With this study we bridge the gap between the research streams with empirically grounded insights justifying the topic's significance. The findings urge for more future research where user-centredness is considered comprehensively while taking into account the more complex contexts.

6 Conclusion

User-centredness is said to be an ingredient for success in IS projects. Achieving user-centredness is seen to include different practices that centre on close cooperation between the developers and users which should result in that the system addresses the user needs. These practices are mostly concerned in more easily manageable contexts.

In this paper we explored what occurs when a large scale IS implementation is declared as user-centred. We found that user-centredness necessitates shared efforts from all parties in the ecosystem. This defines the user-centredness. Our findings exemplified how the efforts of a one party, no matter how eager they are, are not enough to ensure that user-centredness and user satisfaction are reached. The failure of reaching user-centredness was evident in that the users were strongly dissatisfied and felt unfamiliar with the new system, even though they were heavily involved in its design.

Our findings contribute to research and practice. The paper contributes to research with empirically grounded insights that exemplify the need to extend the discussion on user-centredness. The discussion should consider the user-centredness along its practices such as user involvement and participation in contexts where the efforts are distributed. Our findings also benefit the practice. Cooperation between the parties in a large scale IS implementation is emphasized. The parties should understand and acknowledge their own and others' responsibilities for user-centredness. To enable and support it, the vendor should ensure flexibility and reactiveness with their product's modification so that it may address the local users' needs. Carrying out the inevitable change should be carried out by client organizations living through the change. The local developers should not be fixed with their assumption on user-centredness but understand the roles of others and work to supporting those from their own central position.

This paper has limitations. First, this is a single case study. More generalizable conclusions could be found by utilizing larger amounts of cases. Nevertheless, the insights from this study are considered with relevant literature and thus reflect a wider perspective than merely a single case. Second, we viewed the events from the perspective of the (local) developers. Thus, our perspective is altered by the developers' perceptions of the events and other actors. Third, our approach is interpretative. Therefore, our findings are tied to our perceptions and may embed misinterpretations.

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