A Creative and Useful Tension?
Large Companies Using "Bring Your Own Device"

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Abstract. This paper looks at processes of embedding of computer systems in four organisational case studies in three different countries. A selective literature study of implementation of computer systems leads the authors to suggest that seen from a top down managerial perspective employees may be assumed to accept and use new computer systems, for example an ERP system but what happens deep down in the organisation are a reshaping, domestication or appropriation of the software for example through developing workarounds. The authors further suggest that traditional implementation models may incorrectly assume that the computer systems has been embedded in the organisation because things appear to be running smoothly when in fact software and/or processes have been reshaped by employees to suit their local needs. These social shapings appear to be done for a multitude of reasons. However, from the qualitative case studies it appears that most workarounds are done to make work easier and/or to overcome perceived inflexibilities in existing enterprise mandated systems. The ubiquitous access to cloud technologies and an increasing workforce of tech savy "digital natives" using their own devices (BYOD) has exacerbated the situation.

Keywords: Domestication, Adoption, Bring your own device (BYOD), Management of IT.

1 Introduction

There are strong indications from the literature [1], [2] that employees are developing IT artefacts or just software elements outside the accepted ICT infrastructure of their organization, usually as a workaround to existing systems. In the past, this has been controlled to some extent, as these developments have been confined to corporately condoned software applications. While these artefacts or software functionalities have caused some concern to centralized IT departments, they have been able to be accessed from time to time and this has usually resulted in a purge of these systems. In this paper we are referring to these workarounds as feral information systems (FIS), based on the work of [2]. These audits of FIS have resulted in a better understanding of what people have developed and why they were developed it and

why decisions are made whether to keep the system or remove them. However, we contend that given the greater access to the internet and cloud computing and the increasing number apps available for use by anyone as well as the large number of employees who now have their own devices, the game is changing and IT departments are finding it harder to exercise the same amount of control over FIS applications as they have in the past.

We suggest that this represents a major paradigm shift for corporate computer technology in both usage and how these 'innovations' affect corporate IT governance and systems security. The large-scale adoption of devices such as iPads and smartphones for example, has shown that individuals from Generation Y are very quick to digest new computer technologies and systems. In many cases these "digital natives" are very "techno-savvy" and not only want to use the technology they want to "create with it" [3], page 41. They are continually customising how they gather and share information [3] and in many cases are able to adapt software they know about to their own work situation. However, whether this adaptation is in the best interests of the organization can be debated. There may well be advantages with respect to greater agility for the organization and this could lead to innovation, however there could also be problematic situations with unbridled use without proper controls leading to errors in software outputs and subsequent reporting. Examples of this can be shown in work by [4] who showed that user developed Excel spreadsheets had many errors.

The title of this paper infers differentiation between characteristic manners/ways of implementing of software and in this context, domestication [5, 6] is defined as a process in which actors shape technology, even when supposed to merely consume it. Here we use domestication as term for employees shaping software in a way that allows them to do their task on their own device, at their own place and in their own time (home, on the road, or at work). Domestication appears as an unstructured customization of software at the level of tasks relevant to the employee or his/her workgroup and limited to an individual's IT expertise. Managerial controlled implementation on the other hand is a structured customization at the process level of an organization and is related to the IT expertise of the organization's implementation group [7] [8]. Therefore we contend that the domesticated computer technology to fit the task is in contrast to the managed implementation models presented in the past and this may require a re-think on how effective the managed implementation models are in today's ever changing, cloud based world. Therefore the research questions we pose in this paper are:

1. How comprehensive are managed implementation models examined in the light of the new environment of internet based applications and cloud computing?

2. How does this new trend influence IT management in organizations?

This paper is divided into the following sections. The next section is a selective literature review looking at domestication and how it relates to this research. The next section identifies inconsistencies in the managed implementation models predictive capabilities, this followed by an analysis of the domestication process couched in terms of a paradigm shift to BYOD.

2   Literature Review

The reshaping of software through newer technologies such as cloud computing and ubiquitous access was not considered when the various variants of technology implementation models were first devised and subsequently modified. The traditional view has been that the adoption of technology has been an important aspect of enterprise wide systems implementation with information systems being considered to be effective and efficient tools to gain organizational competitiveness [7, 8]. However for quite some time and continually reactualized an important question has been "why have sufficient results not been achieved in spite of the fact that the organization has made huge investments in information technology?" [9, 10, 11, 12].

This has opened an avenue of research which seeks to evaluate the information systems from different perspectives. [13] suggest that the way computers have been used has changed substantially over time and a much broader range of people are using computers. This extends to knowledge workers who now have the ability to work from home using increasingly sophisticated computing equipment that enables them to modify and/or develop applications to help them with their work. One such perspective on this is the concept of Domestication [5, 6, 14], domestication involves "taking technologies and objects home, and in making, or not making, them acceptable and familiar." [14], page 45.

However [14] also suggest that the term not be limited to the home and that domestication should have a wider relevance and this is further expanded upon by [6, 15] with an up dated definition, namely "Domestication is defined as processes whereby people encounter the technologies and deal with them, either rejecting the technologies or fitting them into their everyday routines" [6, 15]. It is this wider relevance, namely the development of new artefacts or the modification of or even complete rejection of corporately condoned IT artefacts that we discuss in this paper. These developments or modifications can be done equally at home or at the workplace, however we suggest that the increasing use of bring your own devices (BYOD) and cloud computing has given employees more flexibility to undertake these projects.

[13] have also provided another perspective that fits within our research propositions, namely the thoughts and actions of the end user. Silverstone and Haddon suggest that "Users are not just technical users" [13], page 45 and that manufacturers refuse to accept that the user is not a impassionate user of the technology but in many cases an enthusiastic, engaged individual who wants to do the job effectively using the tools provided in a way that suits their own unique style. However the ability to engage with the technology in other, more diverse ways is denied due to the inflexibility of the IT system. We contend that it is this lack of flexibility that leads end users to develop new artefacts or modify existing systems.

The concept of domestication has also been used in other areas such as with students on a wireless network using laptop computers [14]. In this case aspects of how students domesticated their personal laptop computers on a wireless campus were investigated. It was found that it was important that students were able to configure the computer to be compatible with their own individual learning experience and that the computer needs to be more than a tool for learning but an integral part of the student's digital environment. The authors suggested that the best

test of successful domestication was how comfortable the student was with their use of IT. In summary, [14] concluded that domestication of individual personal laptops was an important consideration to ensure student's felt comfortable with IT and enhanced their learning experience. We therefore suggest that there is a natural inclination for people (students and employees) to want to modify inflexible IT artefacts to suit their own personalized requirements.

2.1 Evidence of Domestication Rather than Managed Implementation of Software in the Workplace

Several case studies have been conducted in the area of understanding why end users develop workarounds (in this context called Feral Information systems – see [16] in order to shape their work with the workplace information systems rather than completely adopting the system as intended by the corporation at the time of implementation. We suggest that this is a form of domestication in that it provides end users with enough flexibility to allow them to use the system (apparent adoption) yet only use components they are comfortable with or to circumvent components they do not understand or are uncomfortable with.

3   Method of Analysis

In order to test the level of domestication in a business setting, four case studies designed to investigate workarounds are reported in this paper. The objective was to provide insights into the social aspects of ICT usage in a mandated ICT environment. The case study approach [17], [18] was selected and qualitative methods were used as the investigation centred on exploring how stakeholders accommodated their ICT usage to "get the job done". As we were concerned with organizational rather than technical issues, the case method [17] was considered highly appropriate for our purposes. All four case studies took an explorative approach since the adaptation of the mandated ICT was considered to be local and emergent rather than a priori. Therefore the approach to understanding is primarily abductive, looking to existing theories to provide plausible explanations but not aiming to build or test theory. The cases were all qualitative in nature and included Australian, United Kingdom and Danish organizations and business. Table 1 shows the details of research undertaken.

Table 1. Overview of the case studies

Case Pseudonym	Location	Type of Enterprise	Interviews
TRANS	Australia	Transport company	15
UNI	Australia	Tertiary Education	4
DOT	United Kingdom	A UK training organisation associated with a UK University	13
SUP	Denmark	A large supermarket	5

With all these cases, the research approach was the same; namely an interpretative case study approach [19], [20]. Interviews were conducted with key decision makers in each of the 4 cases described (see table 1). The interview transcripts were analysed for relevant themes using the software package Leximancer.

Transcripts from research conducted on all four research locations have been used to gain some insights to the domestication of existing information systems from a variety of perspectives and cultures. The following extracts from transcripts demonstrate the various examples of how end users attempt to shape technology to suit their own work needs rather than attempt to adopt the technology as expected by the organization.

4   Case 1 – TRANS

This case is about the domestication of existing technology in a heavily industrialized (transport corporation) setting. It describes workarounds or FIS and how employees have used domestication of ICT to make changes to existing systems to suit their own needs.

There were many examples of the potential to develop workarounds through the domestication of various technologies in this organization. For example; there appeared to be extensive work around of technology through the use of applications other than the mandated system (in this case the enterprise system, SAP). This is confirmed through statements by workers (in this case an engineer) such as "… we've got a diary that tracks all material usage on a daily basis so it will have on there [the IT system] how [much product] we unloaded today so Bruce will come in write in the diary in that section, how many items of [product] he does. That diary then goes into a database internally within here and onto a spreadsheet…" These databases and spreadsheets were developed internally and away from the SAP system. They were examples of domestication of technology to either supplement the SAP system or replace it. This domestication uses traditional technology (Spreadsheets on workplace computers), however the expectation is that more technology aware employees will accommodate the speadsheet to a cloud based application in the future to enable more remote applications of the technology.

In another example an employee expanded on a common theme throughout this research, namely the perceived need for a complete analysis of SAP and its role within the organization, for example the quote "Better metrics needed – that is better ways to apply models of analysis etc." indicate a degree of discontent with the organisation and the ERP implementation and a possible lead into software domestication further down the track. Other cases included the entry of data into a spreadsheet before it was entered into SAP. This quote is from a manager in TRANS "So the new approach is to vet the data first in an Excel spreadsheet and only load into SAP what is valid catalogued material and I see that as a good process because we are not putting rubbish into SAP. Everything that gets put in has been vetted and approved." This process may be a valid approach but it still involves the development of another system (a spreadsheet) to effectively use the mandated SAP system. There is not the same level of quality control in user developed spreadsheets as there is in the SAP system and this could end up being a data quality problem further down the track.

5   Case 2 – UNI

This case is about the concerns management have about the domestication of technology in an academic setting. It describes the concerns management have about these processes and the security issues they have to contend with.

The university case was based on questioning security issues and how employee computer usage (access to the cloud and software) affected the governance and security of the organization. The transcripts reflected the views of the information technology manager's perspective on security and cloud computing and three people were interviewed at the same time. They were the Director of information technology services, the manager of Information Technology Services (ITS) and the ICT Infrastructure Team Leader and data security manager.

The director of security for ITS considered security to be very important for the university with the introductory statement suggesting that "The most fundamental aspect of security is accountability through the audit function of the institution, we are held responsible for the custodianship of financial data" and …"ICT security at the most fundamental level in terms of being audited as an organisation". The Director further asserts that "The place that the auditors will go is IT to determine how secure the financial data is…. This is extended to all assets associated with the university's core business" She then posed the question "Does increased use of non-corporate cloud based applications affect the organization's ability to provide auditable secure financial data?"

The Data manager suggested that a major challenge for the University was maintaining information security in a mobile world and this is not so much the technology but the behaviour pattern of staff and students. He went on to ask the question "How do we know if the person accessing the information is the person they claim to be?

The director went on to suggest that cloud computing is the next threat because although systems can be locked down within your own environment, the problem is the accountability the University has when a service that is not housed on the campus. IT staff have no capability to control over what is done "in the cloud" by academic staff and students. The director was concerned that nothing is done about "the cloud" until there is a security problem and then it is fixed but the industry is always in catch-up mode.

This case example demonstrates the concern the centralized IT function has with respect to employees and students adapting technology to suit their own requirements. The industry appears to be always in "catch up mode".

6   Case 3 – DOT

This case provides an example of how a lack of feedback and potential misunderstandings leads to employees want to undertake domestication of an ICT artefact (namely an Excel spreadsheet). The end user is in a difficult situation as he wants to make changes (domestication) but could find even more difficulty and misunderstandings if he did. In this case the end user needs to accept the existing situation and not change things despite the flaws in the software that he has identified.

The accommodation of technology to "fit" within the existing system was prevalent in this organization. For example, the deputy director of DOT had concerns about the financial system and how the lack of feedback was particularly problematic for him. He stated that "Financial systems are an example where the financial information is entered

and stored and managed by a separate finance department …… They give us a printout which is designed to suit their purposes and not necessarily designed to suit our purposes in managing the team ….The finance department have produced an outline spreadsheet which is very course in the way that the data is presented so we have short courses that we budget so much – then they ask us "does that look OK?" and we don't know what assumptions underpin that particular number [and] what courses are included [and] what the associated risk of these courses. Does it include courses that are 100% certain to run or does it include aspirations and to what level so our interpretation of that can be difficult – it could also mean that other department's interpretations can be different to ours which means that they're not getting a good picture of what our financial situation is and as a result we are not getting the right information in which to manage our activities to best effect to deliver the financial performance targets of [DOT]". [Deputy Director of DOT]

This is an example of the frustration expressed about systems lacking in feedback capability and how the continued use of the existing system is more acceptable solution rather than the adoption of a flawed system (at least perceived to be flawed by the respondent).

7   Case 4 – SUP

This case study is an example of a generation Y employee simply downloading an application that can do a job that his employer did not provide software for. This is an example of creating new software through domestication; in this case an understanding of what software could do the job and make his work a little easier.

The e-business manager of a large supermarket chain in Denmark provided an excellent example of his domestication of existing software. His example involved the downloading of software from the Internet. He elaborated "…downloaded from the Internet as you could say public software available on the Internet that we download and integrate with our own systems in order to have an easier day. An example of that, we have our Notes calendar and email. So, calendar, as today my meetings are wall to wall, all morning. So, I'm very dependent on knowing where to go next and at this point of time the business or the organisation doesn't offer [an] electronic calendar that you could carry around. We only have the calendar here. But in 2012 it's pretty convenient to have the calendar on your mobile phone. So, when the organisation doesn't offer that, what do we do? It's only top management who has this feature. So, middle management like me and a lot of my colleagues, we find [a] work-around. It's not authorised, but we do it anyway. So, I downloaded this application here called AweSync. It's a product that can take my Notes ID Calendar here and put it into my Google account. Okay? So, when it's on Google Calendar, I can set up my smartphone and that I can hook up with Google. So, now I have an updated calendar on my phone with business information."

This demonstrates a situation where a prevalence of Internet based software makes it easy for end users to extend and thereby domesticate their corporate system to suit their own needs.

8   Lessons Learnt from the Cases

The TRANS case showed examples of domestication of software to fit individual tasks in order to make their work easier (in this case the development of an Excel

spreadsheet application). There appeared to be a clear case of SAP not being able to emulate the material usage process within this work group effectively or the task associated with the process was not aligned with the standard approach developed during the implementation and adoption of the SAP software (see table 2). In addition, the statements about looking for "better ways to apply models of analysis" appeared to be a further indication that the SAP system did not fit the requirements of the workgroup. The lessons learnt from this case relate to the people directly involved with specific tasks and how well those tasks reflect the enterprise wide process that the ERP was supposed to cater for (see table 2).

The UNI case provided an example of how IT management were concerned about the domestication process with employees' computer usage possibly effecting governance, security and risk management profiles of the University. The director of IT services considered the IT infrastructure to be a vital component of the University's governance structure and suggested that any audit of any aspect of the University will start at the IT services level and that the university executive needs the system to be accurate and accountable. Therefore the concern about adaptation of software and cloud computing is that there may be some inadvertent or even deliberate attempts to alter the integrity of the IT systems in place. Naturally there are safeguards in place and the technology is very good, however the IT director was more concerned about the behaviour pattern of staff and she posed the question "How do we know if the person accessing the information is the person they claim to be? ". The lessons learnt from this case are related to domestication causing possible concerns about governance, security, privacy, liability and risk management (see table 2).

The DOT case provided an example of the problems with inter-organizational information systems and how an inter-organizational IT application did not provide the required level of detail. This resulted in a temptation to reshape the application to suit the specific requirements of the case study department. Lessons learnt from this case relate to the IT abilities of the individuals concerned. In this particular case the individuals have very limited knowledge and expertise in spreadsheet development and this situation could have led to a risk of inaccurate calculations, inadequate privacy and problematic security (see table 2).

The SUP case provided us with an example of domestication from a true BYOD perspective. In this case the person actually downloaded an app to allow him more flexibility in his appointment scheduler. The lesson learnt from this case is in relation to a requirement for flexibility in tasks and a need for the BYOD ideal of access to his diary and scheduler at any time, any place and on any device. In this particular case it was his smartphone. The implications to security and privacy are unknown at this point in time, however there were no security checks on the software for malware or keyloggers etc.

While the first three case examples may have been related to the workplace environment, they could have equally been achieved under a BYOD environment. For example Excel spreadsheet can be easily developed and/or edited on any device, at any time and at any place. It is entirely possible that these domestications were done at home (!) on an ipad, smartphone or a personally owned notebook computer. In fact it would seem more likely that it was done in a BYOD environment thus allowing for more flexibility and freedom from the pressures of work in a home setting.

9   Domestication: A Paradigm Shift towards Bring Your Own Device (BYOD)

Although domestication has been around for quite some time, we suggest that the concept of BYOD will help accelerate domestication of ICT in businesses. The recent advances in ubiquitous technologies have brought the attention of some businesses into the concept of anywhere, anytime and any device, as a possible promise to reduce cost and seek more efficiency by asking employees to use their own devices and in a time and place they feel most comfortable in with respect to the given task. On the other hand many other businesses are struggling with the BYOD concept due to many factors, associated with the old model of a centralised IT department and the perceived need to have tight IT controls to ensure proper governance structures and to ensure the network is secure. Regardless of how conservative the organization is with respect to governance and security issues, employees from all walks of life and industries are embracing the concept of BYOD because it provides them with benefits such as work satisfaction, and a flexible working environment. This has led to a growing trend among employees looking to gain access to their workplace networks on their own devices, in their own place and at their own time to get their tasks done.

Table 2. Domestication versus Managed implementation

		Domestication	Managed Implementation
School of thought		BYOD: Characteristics - Any time - Any place - Any device	Enterprise software Characteristics: - During working hours - At the place of work - On a work station
Definition of Customization	Who	Individuals or local work groups	Enterprise wide
	What	Tasks	Processes
	How	- unstructured - kept secret	- highly structured - corporately deployed
	IT abilities	IT expertise of employees	IT expertise of implementation group
Implications	Governance	No support of governance processes	Governance processes are strategically supported
	Security	Low level of security	Highly secured (relevant security software and policies are in place etc.)
	Privacy	Determined by individuals	Determined by enterprise policies
	Liability	Individuals' responsibility	Supported by the legal infrastructure of the enterprise
	Risk management	- handled by individuals - reactive	- handled by enterprise - proactive
	Ownership	Who owns the work?	Enterprise wide ownership
	Efficiency	Highly related to the context of development	Highly related to the context of development

Employees, having brought their own devices, may no longer seek corporately purchased technologies, rather they may look for reshaping the given task with the technology that they are already familiar with and use regularly. According to the above described cases and the lessons learned from them, Table 2 provides a comparison between domestication and managed implementations.

10   Discussion

The discussion addresses the two research questions posed. First are managed implementation models comprensive seen in light of BYOD and second what does it mean for IT management. Above the paper has provided examples of how employees use domestication approaches to existing, adopted and usually mandated software to suit their own requirements or download Internet based applications to support their own work related tasks. This trend appears to be much more prevalent over the past few years and we argue that this is possibly due to employers wishing to continue with the implementation of enterprise wide systems that some employees consider inflexible systems. An external factor could be the loose labour market after the global financial crises leading to people needing to stay with existing employment. Whatever the reason, the net effect is that users could be developing workarounds in order to make their job easier and this workaround approach is further facilitated by greater access to cloud computing and other Internet services. In this research we have described the customization process in terms of domestication. We suggest that domestication is becoming more prevalent with increased knowledge of the technology and the BYOD phenomena. We also suggest that managed implementation is related to enterprise wide applications and is mostly done in the work environment by trained IT professionals. On the other hand the domestication process is much less controlled with developments being undertaken by people who may not be professionally trained but have adequate knowledge. This domestication process is likely to occur at home or some other non-work related location.

We suggest that the managed implementation models mentioned in the literature review may have inherent problems as they are not able to cater for this domestication process. In the situations we outlined in our case studies, employees did not actively reject the technology but on the other hand they did not actively adopt it either. The managed implementation model may indicate acceptance and adoption of a certain technology but in fact end users are happily using workarounds, reshaped or alternative technologies in order to get their work done and due to the clandestine nature of many of these systems, they may not be detected by the centralized IT department at all. This domestication rather than managed implementation could in part explain the negative results with respect to technology adoption reported by Legris et al. [21]. However we also suggest that when users do appear to have adopted the technology they might in fact have only reshaped and domesticated it and other technologies to suit their specific job requirements or tasks. It may also be that actors are taking up and shaping technology in order to more fully understand and complete their tasks because of other external factors such as: fears of job security, shifts in global markets, increases in layoffs adversarial relations between employees and management and between employees and the IT-department and other related issues.

In answer to our second question about change in IT management, we suggest that this new world of Techno-savvy, digital natives [3] and their ability to domesticate software to their own requirements needs to be accounted for by managers, IT managers, IT departments and IS researchers. Managers need to be aware of and either stamp out the resultant software domestications or cater for the new approach. There are obvious risks with catering for domesticated technologies (although there may be no other option), for example the domesticated software is only as good as the IT abilities of their author and they may contain errors. Research by McGill [4] demonstrated that spreadsheets in particular can be problematic with respect to end user errors [4]. On the other hand, the domestication of software can bring agility and innovation for the organization and can lead to new ideas and ways of doing business. From an IS research perspective, there appears to be a need to reconsider the domestication of technology to cater for digital natives and their natural affinity to actively shape rather than passively accept the technology. From an organizational perspective, this phenomenon could be particularly problematic if the board and upper management is expecting reports and forecasts to be obtained from the "a single point of truth", namely the implemented ERP system.

The domestication of mandated enterprise systems may also be of concern to centralized IT departments with rigid command and control structures. However if a less rigid structure is adopted, a more flexible workforce could lead to greater agility and innovation for the organization. Companies such as Intel have demonstrated an awareness of this phenomenon through their acknowledgement of a BYOD workplace [22]. Intel has suggested that this is the future of IT and that, by our inference, the domestication of corporate software is here to stay.

10.1   Contribution to Theory and Practice

This paper contributes to domestication theory by providing examples of how employees become unsettled with existing corporately condoned software and develop their own versions through the process of domestication. It also provides a practical link between workarounds, Feral Information systems and domestication of ICT systems in a business environment.

11   Conclusions

The paper set out to answer two questions:

1. How comprehensive are managed implementation models examined in the light of the new environment of internet based applications and cloud computing?
2. How does this new trend influence IT management in organizations?

Although this research is looking at emergent behaviours, we suggest that it does provide enough evidence to suggest that the present implementation models may be lacking in providing an explanation for the domestication process and that this phenomena may be subsumed within the model and simply assumed to be genuine adoption of the technology under study. In this research we are suggesting therefore

that the Managed implementation type models be modified to allow for adaptation or domestication of software as another factor in the adoption process.

We suggest, re the first question, that the domestication process should be catered for as mentioned above, the existing technology implementation models may be reporting complete adoption by employees yet many employees may be adapting technology to suit their purposes and giving researchers and management the impression that they have adopted the system completely. This could be a flaw in the model with quite serious repercussions for both the company and the end users if the non-recognized software purchases and/or modifications cause problems further down the track. This is apart from our obvious position of requiring models that can accurately predict outcomes and allow for as many contingencies as appropriate. In this research we are suggesting that an understanding of the nature of software domestication is an important consideration when applying managed implementation models in the real world.

With respect to the second question regarding the influence on IT management, the domestication of corporate software could lead to innovation for the organization, or it could lead to erroneous reporting due to spreadsheet errors or problems with downloaded software (for example). Whatever the case, the domestication of software is here to stay and both managers, IT managers and IS researchers need to be aware of the phenomena and any implications it may have on the organization. In relation to potential errors, it is important that consideration be given to the quality of work that may come from domestication of software by people who do not have a deep understanding of software development processes. Although digital natives may be very familiar with the technology, it does not mean that they are necessarily very good at the process. It may be that they have knowledge a mile wide but only an inch deep and end up developing inappropriate of flawed software. This is an area that could warrant further research.

In concluding our analysis of we argue that there is a need to study the phenomena of technology domestication further. In particular, more research is needed to understand how modern software platforms increase the problems of risk, software adaptation and FIS creation. This research leads to the question, what are the implications of these issues on the modern enterprise? We have argued here that these systems are a natural response given that technology to facilitate these actions is increasingly available through the internet and that the new generation of employee is much more technologically aware of possible digital solutions. However, more research needs to be conducted so we can understand the phenomena of technological domestication better.

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