Culture of IT and Change: Nothing Changes. We Change!

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Abstract. This study is about giving ideas and concepts to IT field to deal with the emergent and overwhelming issues of change in organisations. The causes for the changes can be social, economical, technical, organisational, personal etc. but IT always seems to have an important role. Thus we are interested in the change-driven, turbulent and emergent organisational phenomena, which directly or indirectly affect work. In this study the issue of change and IT are presented in socio-technical context. Our framework includes actor-orientation, culture-orientation, and sustainable change management. The framework is applied in three cases of organisational change situations. Finally, the lessons learned from each case and the novel insights to interpret the problematic situation are evaluated.

1 Radical Changes, Organisations, and IT Personnel

"Rapidly developing IT has caused radical changes during the last two decades…." is a common phrase to start for example a call for papers for an IT conference. On the other hand, there are also statements such as a quote from a current IT magazine: "m-commerce does not change the core business, it makes it more effective". Thus, the thought of something essential and pervasive can also be found. This "something" is our object of study.

We try to reinterpret the requirements created by technological improvements, efficiency demands, competitive edge, ease of use, etc for the IT field. We approach the premises of the change itself in order to be able to offer a framework to understand the iterative, organic, and evolutionary nature of work in organisational context from IT professionals' perspective. We apply the following three perspectives to this emergent organisational change phenomenon: 1) Structure: maintenance and sustainable action (Kaila, 1997). 2) People and IT professionals (Sutton, 2000) (maintenance, planning, design i.e. understanding the context). 3) Cultural dimensions (power-distance, collectivism vs. individualism, femininity vs. masculinity, uncertainty avoidance, long- vs. short-term orientation by Hofstede, 1997).

We pursue for sustainable concepts and ways of action in organisations. The purpose of the organisation is seen more or less stable, although the actors always express "up-to-date" requirements for their environment. We use culturally emergent guidelines, and apply house-builder's guidelines (Kaila, 1997). These ancient guidelines preserve the idea of ISs and IT in organisations with sustainable changes.

The cultural aspects must be considered when evaluating the qualities of an artefact. In our approach we will support the cultural aspects by Hofstede's (1997) dimensions of culture. These cultural dimensions give more validation to the analysis. In order to understand better e.g. employees' longitudinal view on their work as a complex whole, we should apply also some profound, culturally solid approaches. This requires that the "territorial" cultural aspects are taken into account.

In chapter 2 the more technical view of organisation is presented, and after that the social context is examined. The social part contains three stories about change situations. In chapter 4 these cases are evaluated from social, technical and cultural viewpoints. The conclusions are that all changes are part of organisation's activities. Yet each change must be justified with the situation itself (culture), organisational roles (actors) and technological criteria (sustainable structures).

2 Of the Nature of Evolving Organisations

Socio-technical approach interprets organisation as people, organisation, tasks and technology and interrelations between them (Sutton, 2000). In our study a house will represent Scandinavian organisations in a socio-technical sense. We link this concept to its cultural aspects by looking at traditional house-builders knowledge on house building. The purpose of the metaphor is to make an interpretation of the behaviour of the social and technological whole by its users (workers, IT personnel, managers). The sustainable management of changes relates to 'the 10 rules for house maintenance' (Kaila, 1997). These instructions are adapted from the maintenance regulations of old Finnish rural area (UNESCO World Heritage). The cultural aspects are supported by cultural dimensions (Hofstede, 1997) and people-oriented

(Sutton, 2000). We suggest that these ideas will help to understand some of the changes in organisations.

2.1 IT professionals work and IT in organisations

Technological systems need to be understood in terms of interaction of human and material agency, and these two can be seen as constitutively intertwined (Jones 1999). ISs that looked some years ago prevalent and rigid are now a messy part of the whole organisation. We seek for sustainable solutions and respect to the artefact itself as an inseparable part of its context. Thus we use culturally "fit" framework of Kaila (1997).

It seems that currently organisational change issues are over sized, or e.g. managers want to make things work right for good, and more efficiently and effectively. However, no change can be totally irreversible, and all operations have their side effects. One suggestion could then be to do as little as possible, and relate this also to "normal" wearing out. Thus, for example, if every time "normal wearing out" is notified, a new product or method is introduced, we will end up with a messy situation with diversity of components that probably do not fit together. The changes are more about coping with than replacing the supposed object of failure. Next, we look at the adapted ten guidelines of sustainable change management based on Kaila's guidelines.

1. Do as little changes as possible in order to maintain the historical value of the system. Most of the maintenance activities are common social originated change requirements, not real failure fixing. Consider carefully what changes are worth of pursuing. If the system seems to require a total replacement, rather change the system (radical re-engineering) than fix the system to death.
2. Value of an old system is in its history. It is not just the data or hardware. The more historical material of the system is removed, the more value is lost. New system can look like an old one, but it cannot be old; to deliver of a 50 year old system takes 50 years. If some parts of the system are removed, rebuilding these parts can make the system look better, but it does not increase the historical value.
3. Do not fix something that is functioning; do not replace something that can be fixed.
4. No maintenance operation is final; it is just another link in the chain. This is why the operation itself must be able to be fixed. Do not use solutions that are later impossible to remove. Nobody makes mistakes on purpose, but they do always happen. You also make mistakes. So do not make it too hard for others to fix your unintended mistakes.
5. Try to find materials, methods and techniques that are as pervasive as the ones found in current systems and organisations. Do not use "trendy" approaches, which will be old-fashioned by tomorrow. New approaches belong to new construction production. The advantage of using "same"

approaches is that behaviour with other parts of the system and robustness are better known.
6. Most of the damages are caused by mismanagement and wrong maintenance activities. Do not neglect maintenance. Do not believe in maintenance-free solutions; rather use materials with easy-care maintenance.
7. Economical benefits and cost reductions are available at a reasonable cost if the system is seen as part of its environment. It is quite easy to improve the efficiency the main activities. For example checking out the horizontal, and especially vertical material and information flows some improvements can be achieved.
8. Accept some deviations and impracticality. Accept different approaches and "old-fashioned" solutions.
9. Discard "cheap" methodology, tool and technique imitations. In addition, discard dreams of restating the original intuitive and positive organisational work conditions. The changes made to the system are always real, and they must be taken as an inseparable part of the current system.
10. If you can afford to violate these rules, you can afford to build a totally new system according to your own liking. Nobody can afford to claim that a 50-year-old system is poorly designed.

The validity of these guidelines is based on the idea that sustainable development and maintenance of constructs, which includes social and technical requirements, relates to culture. Thus this forms a culturally coherent framework.

2.2 Some trends in socio-technical culture

New we present our cultural dimension of change management, which is based on Hofstede's work (in Marcus and Gould, 2000):

1. Power-Distance (PD): (VALUE=Low) Low PD countries tend to view subordinates and supervisors as closer together and more interchangeable, with flatter hierarchies in organisations and less difference in salaries and status. Equality is expected and generally desired. In general: low PD countries tend to have higher geographic latitude, smaller populations, and/or higher gross domestic product (GNP) per capita than high PD countries.
2. Individualism vs. Collectivism: (VALUE=Individualism) Individualistic cultures value personal time, freedom, challenge, and such extrinsic motivators as material rewards at work. Their societies and governments place individual socio-economic interests over the group, maintain strong rights to privacy, nurture strong private opinions, restrain the power of the state in the economy, emphasize the political power of voters,

maintain strong freedom of the press, and profess the ideologies of self-actualisation, self-realization, self-government, and freedom.

3. Masculinity vs. Femininity: (VALUE=Femininity) Feminine cultures tend to collapse the distinctions and overlap gender roles (both men and women can exhibit modesty, tenderness, and a concern with both quality of life and material success). Feminine work goals include e.g. good relations with supervisors, peers, and subordinates; good living and working conditions; and employment security.
4. Uncertainty Avoidance (UA): (VALUE = Average) a) HIGH: In high UA countries businesses may have more formal rules, require longer career commitments, and focus on tactical operations rather than strategy. These cultures tend to be expressive; people seem active, emotional, even aggressive; shun ambiguous situations; and expect structure in organisations, institutions, and relationships to help make events clearly interpretable and predictable. In high UA cultures what is different may be viewed as a threat, and what is "dirty" (unconventional) is often equated with what is dangerous. b) LOW: Low UA cultures businesses may be more informal and focus more on long-range strategic matters than day-to-day operations. These cultures tend to be less expressive and less openly anxious; people behave quietly without showing aggression or strong emotions. People are easy-going, even relaxed. In these cultures, what is different may be viewed as simply curious, or perhaps ridiculous.
5. Long- vs. Short-Term Time Orientation: (VALUE= Not measured). We suggest here similar to other Western countries: we are more likely to promote equal relationships, emphasize individualism, focus on treating others as you would like to be treated, and find fulfilment through creativity and self-actualisation.

It is obvious that the cultural dimensions present only trends in societies, and we cannot imply any personal behaviour based on them. The dimensions are used here to reveal "different patterns of values and thought" (Marcus and Gould, 2000, p. 43).

In addition, the core activities and stability are the starting points for our actor-oriented analysis of changes. The traditional socio-technical approach gives us solid framework, and it is fulfilled with Sutton's interpretation, where actors (people) are put in the centre of every component. The environment, in which these components are situated, is also included in the model to connect the individual and collective levels.

The four key domains and their sub-components (Sutton, 2000) are A. Organisation (mission, infrastructure, context), B. People (knowledge, behaviours, skills), C. Work (objectives, activities, resources) and D. Technology (service, software, hardware). From actor-centred view, for example, the technology component has actor(s) who have to deal with concepts of service, software and hardware in relation to other components. We use this emphasis on people as we seek for interpretations of the nature of

IT field's work environment. The concepts are used when we introduce the three cases of organisational change.

Summary: Interpreting Information Technology and Change

IT professionals' difficult situation in the turbulent environment is interpreted here as follows. The first aspect is a solid structure for the technology and an appropriate interpretation of sustainable maintenance. Second is culturally situated concepts, which help to understand social and cultural aspects. The third is actor orientation, which helps our perspective on IT professionals' work, and also brings along perspectives of the managements and workers. The three aspects are used in the following three cases.

3 Incidents of Change – Three Cases

First we explain shortly each change case as a contemporary saw it. Our goal is to make analysis of these three "usual" incidents. This "usual" is something that we seek to understand in our framework. The names of companies, and, in some cases even the environment are rewritten. Yet, all cases are based on actual situations.

3.1 Wireless World Communications Inc.

Wireless World Communications Inc. (WWC) is a small, rapidly growing, company specialized in wireless services. WWC is an international company. The main part of its turnover comes from foreign projects. As a company it does not yet have a firm position in the market, but it has been widely recognized for its consultants and for its personnel's competence in relatively demanding lines of business.

The first three employees were carefully selected from different organisations with very different organisational cultures. Each of the employees was a specialist in his own field of expertise. The employees created a well working autonomous team with good, close relations to the management. After some time, as one of the managers started an internal project for creating a system that would closely follow the hours spent on projects, the tranquillity stirred and conflicts occurred rapidly. This case will briefly describe how the working time system was designed, implemented and later on developed.

Design process of the working time system

There were two persons responsible for the design process. One was the manager who ordered the system to be developed, and the other was the designer. The manager was determined to create a strict, almost rigid, organisational culture where every minute was counted. Purpose of the system

was to be his tool in creating such a culture. The designer who was used to work in an organisation that encouraged individualism and followed projects relatively loose, found the purpose of this system something he appalled.

The whole design process was something that can be described as two dogs engaged in a territorial fight. The designer was furiously defending the autonomy he used to have and the manager was rubbing in his vision about the time keeping. As a result, design specifications fulfilled the basic time keeping requirements, but with modifications, which ensured that some of the liberty the designer used to have was also included in the system.

Implementation Process

Two of the three new employees were responsible for the implementation of the system. One of the programmers was from the same company, but different division, as the designer. The other programmer was from an advertising agency, which had a very similar organisational culture that the manager was aiming for. Programmer who was used to work under strict surveillance at the advertising agency was content with the modifications that designer had managed to slip into the specifications. The other programmer who was originally from the same organisation as the designer was dissatisfied with the compromise that the other designer and manager had reached. He started to blame the design specifications as unrealistic and too arduous. As manager and designer were both supporting the current specifications and programmer who was originally from the advertising agency was satisfied, the other programmer had no choice but to give up. Even though he yielded to the public opinion, he started to interpret specifications to meet more his likings. As a result, the implemented system was even more deviated from the one proposed by the manager.

Development Process

Over time, only one of the three original employees remained – the designer. As new employees came, they all were under the influence of the time keeping system. When new employees suggested changes to the system, the designer found out that he was so accustomed to it and the way of working it provided, that it had became hard for him to even consider a change.

Nowadays the system, currently known as WWC Information System (WWCIS), is developed rapidly and it covers almost every work process in the organisation. It acts as a clock card system, bulletin board, task scheduler and many others. Manager and designer develop the system together to further strengthen the organisational culture they originally created with two programmers during the design process.

Summary

Intended purpose of this system was to enable time keeping of the project hours. What happened was that a totally new organisational culture emerged. As all the employees were from different organisational cultures and WWC

did not actually have one, the working time system acted more like an aid for creating a culture of its own, a solid base for performance that is in place even today.

3.2 Merging companies… what about employees?

Transportation and Railroad Company Kullervo Inc. is one of the major players in a national railroad industry. They have nationwide railroad-network, carrying both cargo and personnel. Few years ago they came to the conclusion that they needed a whole new way to handle logistics and customers. They wanted their customers to find information in the Internet about the best, the cheapest and fastest routes. They also wanted to make buying the tickets available from the web. After reviewing various suppliers' offers, they decided to buy the solution from a large foreign consulting company, Insidiator Inc. After the first tentative analyses the companies came into the conclusion that the project would be very large, and that time span and magnitude of this effort would actually require a joint venture. So the consulting company Invor Inc. was founded.

The system was originally designed in a way that enables interacting with the system from many different channels. Not only were the customers able to reserve the tickets in the office and in the Internet, but the system was supposed to provide reserving-opportunity from mobile phones also. This idea was quite new at that time.

After five years of the birth of the project, Kullervo Inc. and a large national airline-company Leicester Inc. decided to merge. The decision was made because the combined company would cover much more of the transporting industry than one alone. Trend in business markets was to form bigger companies by mergers. Few months earlier Insidiator had merged with another big consulting company, Cooper & Monroe, now forming a new company.

Let us return to Invor, the company that was founded to build the large system, and then continue in other projects in Kullervo. The project had setbacks and failures, it had exceeded its budget many times over, and in the time of mergers it was still struggling. When the new CEO of the combined transportation company declared that personnel-transportation was not in the main focus of new corporation, the dire need for new system was to be re-evaluated. Both the parent companies underwent tremendous changes, including a change of mission. The future of Invor project was uncertain. Nobody knew whether it would fit into the new strategy of client-parent as it was, or were radical changes needed? What if the joint ventures did not belong to strategy of the new consulting-parent?

The mergers also caused the organisation charts major changes. For example, the new consulting company designed new charts to provide flexible ways to form 'task-forces' from best available human resources. When presented to the employees, one of the most common questions was 'how is

this new chart going to affect my daily life?' The new companies had the same answer: 'it changes basically nothing. Everyone is needed, no one is laid off. So don't worry.' And so the workers of Invor continued their work as usual, and their project proceeded in (although already delayed) schedule, despite the fact that the future of the work was very uncertain.

Summary

The mergers shook both companies tremendously, but the actual impact to the worker was quite nonexistent. The way of doing the work was not changed in the process.

3.3 People in organisational change

A couple of years ago a telecommunication company, called JCN, decided to divide into two divisions: mobile and network operations. In this case, the focus is on the network division that was later separated in to several subsidiary companies.

The base: centralized information

Before the organisational change the network division worked as a whole. All the data, vital for business, was gathered in to the massive system that was called "the central system - CES". CES is a huge data storage that delivers information to anybody whoever needs it inside the corporation. However CES is not only a database – there is also an artificial intelligence core that is used to automate tasks.

Network related information was stored into the vast database. Orders from customer service unit went to CES that generated a task list needed for delivery (i.e. what equipments, fixed network connections and services were to be delivered and installed). After the whole task list was completed the system gave permission for billing the customer. All network changes were stored into CES. Billing, customer information system and fixed network component steering system worked automatically with CES. Every piece of information was always available for every person in the delivery chain.

The main point was that all units worked with the same goal in their minds: fast and cost effective customer service with efficient fixed network construction and maintenance. The information management provided all software components needed for effective business, and made sure that new products were on the market in time. IT departments took care for every common interest for all these different business units.

The big organisational change

Management of the network operations division saw that the business in this large network sector could be separated into several different categories and subsidiary companies.

Fixed network operations-company got all the base network related business – especially fixed telecommunication network and digital network. Subscriber customer oriented company got the business related with individuals or companies (i.e. analogical telephone connections or ISDN Internet connections). And the network construction and maintenance company was created to handle very employee based part of the network business, which main goal is to maintain, repair and build new connections – both fixed network and subscriber connections.

Each of those companies got its own management and IT-administration, and they became accountable for the corporation. Still, CES system was in common use with the old structure.

These subsidiary companies created their own goals. Nobody was anymore interested in what other subsidiary companies do. However, information in CES was still vital for all of these companies. Inside the corporation the change was significant. People felt that “we” did not include anymore all employees in JCN – not even all employees in the previous network division. Each subsidiary company became more important than the whole corporation.

After the change

The subsidiary companies started to build their own systems to support their own specific business. Managers had a clear vision what they wanted in the future. IT was mentioned to be a supportive function, and all IT-departments were forced to solve several organisational problems. CES worked still under the fixed network business.

Most of the problems were common to the subsidiary companies, for example: “Who is the customer?” For customer service unit the customer is "the real subscriber customer" outside the company, while for the fixed network company the customer could be the customer service company or some other instance. CES couldn’t handle all these new customer relationships. New customer systems were build. There were now separate subsidiary systems that solved those “organisational problems”. New connections were made between the new systems and CES.

In this business all produced network information is vital for every subsidiary company, although the business itself is very different kind in each company. However they all operate within the same network with same connections and equipments. In general, everybody in these companies did want to do their work as good as possible. Because the information was not available in CES, employees begun to use more email and phone calls between companies and employees. Niche for additive information became very important for good customer service.

Summary

What had happened? Organisation had changed and IT couldn’t follow the new business environment. Most employees changed the way they worked

and took the power into the their own hands. Information was memorized by heart and gathered in email inboxes. New systems were useful but they couldn't provide important related information. The employees at the IT-departments confronted some remarkable questions: what went wrong and how this could have been avoided? What should we do now to improve efficiency of these systems?

4 Social and Technological Aspects of Change

Next we analyse the three cases. In the analysis we first take IT professionals' concern from actor-centred view, and then continue to the environment from cultural aspects.

4.1 We change? – Wireless World Communications Inc.

Intended purpose of the system was to enable disciplined time keeping of the project hours. Our evaluation revealed that the system had a more significant impact on the social organisation than on the working processes. As all employees and the manager were from very different organisational cultures and since WWC did not actually have one, people who were reluctant to change used technology to change the work and the newborn organisation more to their liking. This can be seen as social determinism, which states that it is the wider cultural and social structural patterns of specific societies that determine the way in which technology is used in organisations (Jones 1999). The change was triggered by the timekeeping system – yet originating from the people affecting all of the key domains of the socio-technical system, work technology and the organisation. The triggering can also be interpreted as unpredictable social behaviour affecting organisational contours (Barley, 1986).

Even though it was technology that triggered the change, it does not explain its intensity. To understand why the change was so intense, we must look into the source of the change, the people, in the context of the environment. The cultural dimensions by Hofstede suggest that WWC was a very typical representative of our culture. The company had a very flat hierarchy and the employees were in close relation with the management. The introduction of the time keeping system violated some employee's perception of freedom, and it was relatively easy to oppose the manager's objective in a culturally feminine atmosphere with a low power-distance. This observation is something that can be useful for IS developers.

When the system was introduced all ten rules of sustainable approach were violated – a totally new system was built according to the likings of the employees and the manager. The role of the system was much like one of a

stone base – as it gradually evolved covering various different areas within the company, the company evolved with it. Now the system has a great historical value for the company, and when the next generation of employees takes control in the system, rules presented will become of the utmost importance. What will the IS developers do in future? Will they preserve the historical value of the system, or will they take the easy, all too frequently used way of scrapping the system down and building a new one? If so, they destroy a piece of organisational culture and history in the process that could have worked.

4.2 Who is we? – Interpretation of merging companies

Based on Sutton's model, we can see that in the middle of merger-turmoil one thing was not altered by command: the employees. The fundamental change in the organisations has to come through individuals (Stacey, 1996). Organisations changed, new mission statements were given, technology-component changed, nobody knew what was to be done and with what even the work itself changed. Further objectives where not clear anymore and amount of available resources increased vastly in some areas, and in some areas the fear of the denial of funding became the main concern. Is it possible for people in the middle of these components to remain the same?

The workers of Invor Inc. were quite invincible in their work, even when they knew that their work could be for nought. But the optimism is quite understandable, at least if we view it in regard to Hofstede's studies. The low power-distance suggests that the hierarchy was flexible from the start, and the changes were not viewed with strong suspicion. It basically does not matter whom to report, as long as the worker himself can do what and how he sees best. Medium uncertainty avoidance implies that people are not afraid of doing something risky, at least if it is something that has been done already for a while. In feminine culture the employment security and good working conditions also swayed the scale towards calmness. The workers understood the situation quite realistically. If the project were to finish few months of thumb twiddling would not help in achieving that goal, and the chance for a total abandoning of the project was quite theoretical. Workers' knowledge would be needed anyhow in other projects of the new companies. The workers did not the feel the need for change, because nobody has questioned their ability.

The work of Invor Inc. employees did not become obsolete, even if the objectives became blurred. That was mainly because they succeed in following some crucial rules by Kaila (1997). When the system was designed to be flexible and easily changed and maintained properly from the start, it was relatively easy to make adjustments and meet e.g. the demands of new strategy. However, we consider it is essential to produce a new interpretation of IT, organisation, people, culture and change.

4.3 We change – Change and an IS

In the JCN case the organisation changed with severe consequences. The main idea was to make clearer mission thru infrastructure change. For example people inside the organisation domain (Sutton, 2000) couldn't realize that the change, which makes the clearer mission possible, could be harmful for employees way to do their work.

People had the knowledge and skills to do their daily tasks. The cultural aspect explains somehow why people in JCN case changed the way doing their work. Goal to do good quality work efficiently is remarkable motivator to change behaviour. Several changes to CES were asked. However IT-personnel were unable to fulfil those requests in decent time or at all. Consequences were quite fatal. People took the power in to their own hands. Changes to CES were not anymore asked and subsidiary companies begun to solve some of those problems by them selves. The result was that thru whole network sector employees begun to use email, phone and other possible ways to do their work, i.e. they start to work around the system (Gasser, 1986).

Work-related objectives became clearer even though there were no more collective guidelines for the network sector as a whole. This led in to the situation where the resource provider (CES) could not anymore response to demands by people. While the work it self remain unaltered employees changed the way to do their daily tasks. On the other hand, IT departments could not anymore provide service needed by people. Hardware and software were in good shape but changes wanted by people were too inconsistent. IT personnel could only watch the corruption happening to CES.

This could have been avoided if IT personnel could have noticed the change in people's behaviour. Employees had enough skills and knowledge to see those different ways to do their work. Unfortunately, behind that work were a large organisation managed by IT department. We have to realize that even IT professionals have to be ready to observe their environment thru people's perspective. And when we notice something is happening within people domain we have to react immediately. Those alarming signals can be interpreted also with Hofstede's dimensions. Altogether, Kaila's rules can provide suggestions to management of the JCN case. For example, they can provide new insights of this kind of complicate situations to IT personnel.

5 Conclusions

The complex demands for changes have become everyday life in organisations. We feel that the context of IT, organisation and people need to be reinterpreted from a sustainable and humanistic perspective.

Generally, if task, technology and organisation change, also people change. However, we do not have any deterministic approach to deal with this view, so at least we can try to understand the situation in proper terms.

People-orientation is useful, but not enough. With cultural sensitivity we are a way ahead for more sustainable interpretation. The building itself is a natural part of social activities. The perspectives of actor-orientation and culture-orientation seem to form a framework for sustainable change management.

The cultural aspects are important. Old systems are not just some products to be updated; they do have social and cultural values, which should be taken in to account when development activities are considered. Maybe this framework helps us to understand better what we confront in organisations.

The third case showed us how the socio-technical actor-orientation helped to interpret the culturally solid indecent of organisational change. Further, the idea of sustainable change management could provide some interesting thoughts for IT goals or objectives of IT in organisation. The actor is the primus motor of the change.

We offered thoughts on sustainable ISs maintenance culture from actor-oriented perspective. The results provide some potential for interpretation of culture of IT and change. However, the framework gives us also a tool, which can be used for coping with issues of change. Thus we feel enthusiastic about this framework, and we will pursue for future research on the issue.

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