Improvisational Change Management in the Public Sector

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Abstract

This paper deals with the issue of how the use of a plan can improve change management when introducing groupware in the public sector, using an improvisational perspective. The research is based on an empirical study at a municipal administration investigating changes in the work situation after the implementation of groupware. When an improvisational model of change management was applied certain development possibilities of the model and it's use appeared. Firstly, the model does not acknowledge anticipated changes that do not occur in practice. Secondly, we argue that a more active utilization of a plan enables guidance of the process. Finally, we emphasize the necessity of translating a plan into a local context.

1. Introduction

Successful introduction and use of information technology in organizations has a potential to generate several kinds of change processes. Introducing groupware, if managed adequately, can result in organizational changes towards collaborative work. According to Macredie and Sandom [12], this potential makes change management a core issue for studies in the field of information systems. "The unstable environmental conditions in which modern organizations operate mean that the ability to successfully manage organizational change has become a key competitive asset" [12: 247].

There are several studies of groupware introductions where the achieved changes, for various reasons, do not coincide with the expected results concerning collaboration e.g. [17, 21]. Therefore, in line with Macredie and Sandom [12] we argue the need for a critical discussion about models for groupware introduction in the light of practical experiences from organizations of today.

1.1. Previous research

The following piece of research pertains to the research field of Computer Supported Cooperative Work, which has a focus on how groupware is used for collaborative work; see for example [3]. The majority of the conducted studies concerning the introduction of groupware and groupware-enabled change processes were carried out in the private sector [2, 10, 17, 18, 21]. However, the use of groupware involves an increasing number of public as well as private sector environments. Each of these environments has their specific characteristics. The public sector can be characterized as a nonprofit organizational environment with a high level of restraint through laws, regulations, limited budgets, and hierarchic organizational structures. These conditions are reflected in the organizational culture formed by a bureaucratic inheritance. The public sector organization is also obligated to manage the demands from both the citizens and politicians in society. Researchers such as Macredie and Sandom [12] have studied the introduction of groupware in the public sector. In this work, they study a military organization with a special focus on the adoption and use of a workflow system. Pipek and Wulf have focused on the lifecycle of a groupware system, from its introduction to its removal in a government organization [20]. In the work by Josefsson and Nilsson the evolving use and utilization of groupware in a municipal setting is discussed from the perspective of the specific driving forces identified that supported the process [9]. The main focus of these studies within the private and the public sector alike, deals with how cultural and other features have affected the results of the processes of introduction, albeit at a rather general level. For example, one can find discussions on what extent the organizational culture in a particular organization supports the use of groupware. Another common feature is the persistence of an evolutionary perspective on the processes of introduction as such, as well as on the emergence of groupware enabled changes. This means that the focus in previous

studies has been on the appearance of emergent organizational and technological changes rather than on change management.

As a contrast to this focus in previous research, a perspective that combines an evolutionary perspective on the technological change process with more active planning ambitions, as within change management is largely absent [12]. Due to the specific work environment in the public sector, there is a need for further studies addressing these issues and the particularities of groupware enabled change processes in this particular kind of environment.

Our point of departure for this article is the *improvisational model of change management* as outlined by Orlikowski and Hofman [19]. This model can be characterized as a descriptive model for analyzing how organizational and technological changes occur in practice. It includes a characterization of various kinds of changes that appear in such processes (anticipated, emergent, opportunity-based) at the same time suggests how they should be managed. Traditional *Lewinian* models imply that technological change is an event that should be managed during a specific period as a contrast to be viewed as an ongoing event [7, 11]. In addition, models such as these indicate that the intention with the change process can be determined in advance. In other words, the evolutionary and improvisational perspectives are almost absent. On the other hand, there are recently outlined models of technological change focusing on emergent changes in the form of drifting [4]. Drifting refers to any kind of shift away from preassigned uses. However, these models promote strongly against any form of planning and change management when implementing and using groupware [4]. In contrast, the improvisational model of change to a certain extent combines drifting and traditional perspectives through its focus on anticipated changes as well as emergent and opportunity based changes [19].

Orlikowski and Hofman suggest that their improvisational model is less compatible with public sector organizations [19]. As has already been shown by Macredie and Sandom improvisational changes do occur in hierarchical public sector organizations and, consequently, improvisational models of change management are applicable to these kinds of environments [12]. Our general focus in the following is the tension between the need for guidance on the one hand, and the enabling of improvisational changes on the other. In order to describe changes occurring due to the implemented groupware in the investigated organization we applied the improvisational model of change management [15]. However, when using the model, possibilities of development within the model became apparent. Against the background of our experiences and our use of the improvisational model, we will discuss the role of a plan in a change management situation. Orlikowski and Hofman put forward the necessity of a plan and emphasize that the use of the plan should be as a guide rather than as a blueprint [19]. However, how this is to be attained is not discussed in detail. Instead, their focus was on the improvisational perspective and changes that characterize as emergent and opportunity-based, rather than on the anticipated ones. Our focus is on the role of the plan, i.e. the organizational vision, in change management. The aim of this paper is to discuss how the use of a plan can improve change management when introducing groupware in the public sector, using an improvisational perspective.

1.2. The research site

During 1999, we conducted empirical studies at four local government districts in a municipal administration in Gothenburg, Sweden. The local government districts are semi-autonomous administrative units of the municipal administration. In total, the municipal administration of Gothenburg is comprised of 21 local government districts. The work performed at these offices varies, yet maintains a clear focus on public service.

The introduction of the groupware in the municipal administration is a process extending over several years. In 1996 two of the participating local government districts introduced the system while the other two districts introduced the system in 1998. The decision to introduce this particular groupware in the local government districts was taken at the central management level at the municipal administration.

The groupware focused on in this study is an adjustable standard system for case and document management based on the platform of Lotus Notes Domino. The system consists of available components; the Diary, the Electronic Archive, the Work-Group-Databases, the Project-Team-Databases, the Common Information Databases, the Handbook Databases, the Notice Board, the Web Publication and the Discussion Databases.

During the introduction, local project-teams established at the local government districts created the structure of the different databases and other components available in the system. Therefore, the basis of the system is the same all over the municipal administration with some local differences between the districts in choice of structure and available components.

2. Method

The need for longitudinal studies of change processes when introducing groupware has been recognized in previous research [10, 20]. The rationale is that the particularities of groupware technology and its potential develop gradually. In contrast, it is argued that studies covering shorter periods like Vandenbosch and Ginzberg [21] are unlikely to find changes in line with the potential of groupware [10, 20].

The empirical data reported in this article has been collected through three activities; sessions for staff in systems training, interviews and feedback sessions, and attempts to reflect long-term experiences of groupware introduction. Although the data was collected during a relatively short period the longitudinal approach was in a sense achieved by the participation of interviewees representing two groups of users. One group has three years of experiences of using the system, and the other has less than a year of experiences. The fieldwork started with participation at sessions aimed to introduce and educate personnel in the use of the system.

The interviewees were chosen in collaboration with a contact person at each local government district. The rationale was the need for local knowledge to select people who actually use the system. The contact persons were instructed to select interviewees representing the broad span of attitudes towards and experiences of the technology.

In total, we conducted twenty semi-structured interviews, collecting data on how the users perceive their work situation and the use of the new technology. The interviews covered questions on the influence of the system on the work situation, patterns of communication and collaboration as well as any changes in the information flow in the organization. The interviews were conducted at the local government districts during the spring of 1999, each interview lasting approximately one hour. The interviewees in the study are civil servants representing several different areas of public service such as school, geriatric care and childcare as well as various administrative units.

As a complement to the interviews, a session for feedback was arranged at each of the four local government districts. During these sessions, the interviewees participated providing a possibility to present feedback to the interviewees as well as to confirm the tentative analysis.

3. Theoretical framework

3.1. Improvisational model of change management

The improvisational model of change management draws on several longitudinal case studies of projects in which groupware such as Lotus Notes has been implemented [17, 18, 19]. This model claims to show how organizational and technological change occurs in practice. Consequently, it can be characterized as a descriptive model of change management [19]. The core of the model is the contrast between changes and strategies planned in advance, and changes and strategies developed gradually against the experiences of the change process as such.

The model rests on two major assumptions: "First, the changes associated with technology implementations constitute an ongoing process rather than an event with an end point after which the organization can expect to return to a reasonable steady state" [19:12-13]. This is a way of arguing against traditional models that depict technological change as a three-stage process that includes unfreezing, changing and refreezing with a fixed beginning and end of the process as opposed to an improvisational perspective [7]. Also, there is a second major assumption in the improvisational model of change management that: "…all technological and organizational changes made during the ongoing process cannot, by definition, be anticipated ahead of time" [19:13].

Intuitively, these two major assumptions seem to be valid for processes in which Lotus Notes is implemented like the one that is studied here. The most important argument for this is that the very nature of groupware technology such as Lotus Notes seems to be plastic and adaptable. As is argued by Orlikowski and Hofman; "Not all groupware technologies are flexible and customizable (e.g. fixed-function e-mail systems). We are here interested in those that are (e.g. Lotus Notes)" [19:21]. In addition, an obvious feature of the implementation process studied is the fact that it has been going on gradually during several years (1996-2000) and continues to do so today. In other words, it is highly relevant to characterize it as an ongoing process. We will now continue with a short description of the three kinds of changes depicted by the improvisational model of change.

3.2. Characteristics of the three types of change

The first kind of change induced by the introduction of technology is 'anticipated changes', which according to Orlikowski and Hofman are planned ahead of time and occur as intended [19]. In other words, despite the incremental nature of technological change processes some sort of plan or vision is a necessity. This kind of change is compatible with both more traditional models of change and strategy formation that have been described above [7], as well as with more modern, descriptive, and improvisational models [7, 14, 19]. However, as was pointed out above the plans for the anticipated changes should, according to the view of Orlikowski and Hofman, function as a guide rather than a blueprint. As such, deviations from the plan should not be seen as symptoms of failure, but as a normal activity that needs to be actively managed. We share this view but recognize the need to elaborate further on aspects concerning the use of plans.

There are also two kinds of change, which arise spontaneously, as a result of the experiences made during implementation. One of these includes an instance of deliberative action as in the concept 'anticipated changes' and the other does not. Firstly there is 'opportunity-based changes'; a concept that refers to changes that occur without being planned in advance. However, when they do occur they are treated in a deliberative and planned mode of action. An opportunity-based change can for example be a discovery of an unexpected use of the technology appearing in the organization. As a further step, this opportunity of change is introduced on a larger scale than the local work place where it is discovered. Secondly, there are also the 'emergent changes' that occur spontaneously and locally, but which are not taken care of in a deliberative manner as opportunity based changes. As shown in figure 1, according to the model these types of changes might appear in an arbitrary order.

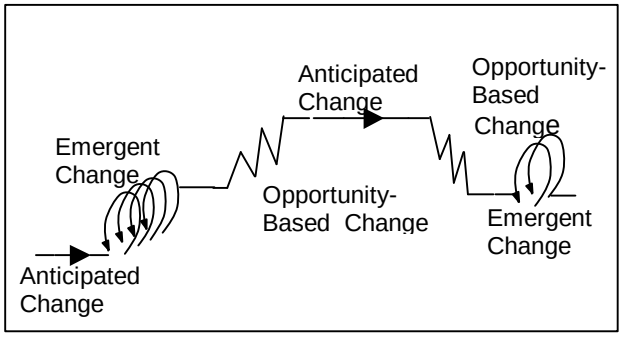

Figure 1. The improvisational model of change management over time [19].

3.3. Critical enabling conditions

In the model, various kinds of critical enabling conditions of importance are presented. The first critical enabling condition for the improvisational model of change management to function is that dedicated resources exist with the capacity to handle and take advantage of the incremental changes when they occur. Especially the opportunity-based changes depend on being recognized, as well as handled in a purposeful manner. In other words, the constructive experiences have to be taken care of, and made use of, outside their place of origin. Technological support staff dedicated to supporting users is mentioned as one possibility. Meetings and various forms of communications are also mentioned as potential resources that might function as enabling conditions [19].

A second form of critical enabling conditions for the model has a focus on organizational features: "Another enabling condition is the interdependent relationship between the organization, the technology and the change model" [12:249]. Orlikowski and Hofman's research suggested that the interaction between these key dimensions must ideally be aligned or at least not in opposition. More specifically, "A flexible change model, while likely to be problematic in a rigid, control-oriented, or bureaucratic culture, is well suited to an informal, cooperative culture…" [19:18]. However, as stated previously, we will not focus on the alignment between public sector organizations and improvisational models of change management, such as the one suggested by Orlikowski & Hofman [19]. As has already been shown by Macredie and Sandom improvisational changes occur in hierarchical public sector organizations and, as a consequence, improvisational models of change management are applicable to this kind of environment [12]. Instead, our focus is on the role of plans and anticipated changes in situations applying an improvisational perspective to a local government environment.

4. Plan utilization in change management

4.1. Achieved changes vs. the plan

We will begin this analysis by looking at anticipated changes in the municipal administration. The intention with the groupware was summarized in a document stating the organizational vision or plan with the following objectives; efficient collaboration, shorter lead-time, quality assurance, decreased costs and a growing experience database [1]. The anticipated change towards more collaboration was emphasized. This is partly due to

external demands to streamline the organization. The intention of the organization was to obtain a more efficient organization through process-oriented and collaborative work.

One of the objectives with the introduction of the groupware was to provide new ways to distribute and access information in the organization. People working at different hierarchical levels of the organization are supposed to access, independently of others, relevant information whenever they need it. This change is supported mainly by various information databases, covering different areas of information in the organization. The new forms of distribution and access to information throughout the organization have had a large impact on the users work situation. The respondents describe the change as one that has constructively affected their work. One of the interviewees depicts the change of information access like this: "…the part of the system that I use I think has improved [the work] since I can get the information whenever it pleases me. I can send a message when I want to. And I think that is important…I still think a lot has changed since there is information that I need which is easy to access".

An additional objective of the groupware was to serve as an enabling tool for collaboration and supporting people's ability to share knowledge and experiences. The different databases and the interactive facilities of the system are set out to be the technological means to enable the development of these new work forms. Thus, there were expectations on the technology to support the growth of process oriented and collaborative work in the municipal organization.

However, the study shows that development of collaborative work only rarely occurs. The potential of the system, enabling people to collaborate, share knowledge and experiences, are used to a very limited extent. During the interviews, several different reasons were presented as to why this change of work practices had not occurred. Some of the interviewees believe that it is 'too early' to use the system in this way or that they are not yet familiar with all the facilities of the system. Some spoke about being too busy learning to use the system in order to perform their everyday work tasks in a proper way. Claiming that they have very little time left to develop their use of the system towards a process oriented work form. They also emphasized that they do not have the knowledge of how to initiate and build cooperative work processes across the organizational boundaries of the municipal administration using the system facilities. Further, some of the interviewees reported having difficulties to see the benefit of this kind of collaborative work using the groupware system. They stressed the importance of having physical meetings and viewed an increased use of computers as potentially threatening the social dimension of their work environment.

In other words, the results of the study shows that the introduction and use of the system has not led to new ways of working. Instead the users have focused on how to learn to use certain components of the system (e.g. the various information databases) to support the traditional ways of work. In addition, there is a need for the employees to discuss the uncertainties they might experience during the development of the process-oriented ways of work. The doubts about the potentials of the system and the limited change of work is expressed by one of the users as follows: "…I think my work is unchanged […] it is the same people that I have contact with now…".

As a conclusion, the first difficulty with the improvisational model we would like to address concerns the lack of a type of change in the model. This assertion is based on our empirical study where the organization was aware of anticipated changes that did not occur in practice as intended. Using the improvisational model of change [19] the improved access to information on the one hand, and the development of collaboration on the other hand, can be described as two different anticipated changes of the introduced groupware system. However, it is only the first kind of change that actually occurs. This occurring change corresponds to the category of anticipated changes depicted by the improvisational model. The case of the anticipated development of collaboration is more difficult to categorize using the model. Within the scope of the model, anticipated change not occurring in practice is not considered. We argue that this is a weakness in the model and that this type of change needs to be included. This would contribute to the dynamics of the model and further increase its usability. In addition, it would serve the process of change management by providing a means with which to analyze and discuss the development of occurring as well as non-occurring, anticipated changes in the organization.

4.2. Improvisational change process vs. the plan

Through our example, in the previous section, concerning the non-occurrence of anticipated change towards collaboration, we can illustrate the advantages of using a plan. The utilization of a plan serves as a tool to discover the absence of an anticipated change. In a similar model of change processes outlined by Mintzberg [14] the concept of an unrealized strategy is launched, see figure 2. With this model, we can explain the need for an additional concept in the improvisational model of change. Namely the 'non-occurrence of anticipated changes', which would be similar to Mintzberg's concept

of 'unrealized strategies'. We suggest that this might be a valuable support for analyzing the ongoing process of change, enabling those who are managing the change process to actively take measures in order to realize these anticipated changes.

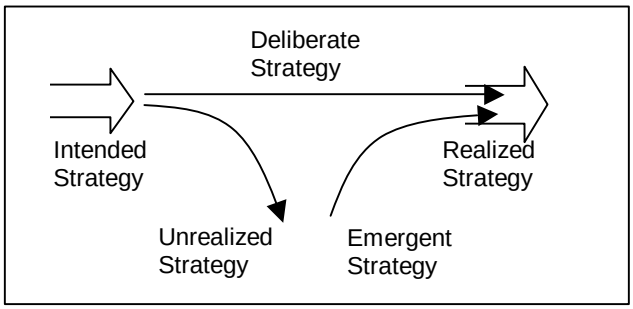

Figure 2. The types of strategies as outlined by Mintzberg [14].

Plan utilization has the added advantage of allowing the manager of the change process to follow actively the ongoing process. In a plan there might be anticipated changes not occurring in practice that are well worth following up. This could actively support the realization of the anticipated changes. The improvisational model, in its current form, does not support this, which we argue is another shortcoming in the model.

It is, however, equally important to maintain a flexible attitude towards the plan. If experiences gained during the ongoing process show that the anticipated change is actually an unrealistic objective or an undesirable change the plan should be revised. This is what we mean by a flexible plan. In other words, we argue that the plan itself is a necessity and that it should be used actively to support the process and provide guidance to the ongoing process. Nevertheless, we also stress that the plan should be handled in a flexible manner, allowing for revisions based on experiences from the ongoing process of change.

Adding the 'non-occurrence of anticipated changes' to the model increases the versatility of the model since it can now be utilized in the situation when the organization sees that desired changes which have not occurred would in reality have led to undesirable results. In such situations, the model helps manifest the fact that the choice not to take action (not to correct the non-occurrence) is a conscious choice to revise the plan rather than a serendipitous lack of activity. In this manner, a deviation from the plan can be made explicit in the organization, as a contrast to an indecisive non-occurrence without any further notice in the organization.

There is yet a further advantage to expect from plan utilization in an improvisational process of change in the public sector. The plan could also facilitate the organization of critical enabling conditions, such as support and education provided for the employees. The municipal administration conducted the education in larger groups comprised of individuals with varying competencies in both fundamental computer skills and the groupware. The support and education given when introducing the system focused largely on the technical aspects of the use of the system, leaving the organizational issues of changed work procedures without discussion. According to our empirical study, many employees in the organization were unfamiliar with the document presenting the organizational vision and plan. The communication of the plan to the employees during the change process was incomplete and the anticipated changes outlined in the plan were not common knowledge among the employees. This means that the change towards process-oriented and collaborative work, which is a significant change from the existing work procedures, was neither presented nor discussed with the employees. There was very little support for the employees to help them understand the correlation between the introduced groupware and the anticipated changed work procedures. In the beginning of an introduction of groupware, it is generally very difficult for users to imagine the potentials of the technology [13]. Ciborra and Lanzara address a similar phenomenon using the words of 'formative context' [5]. This refers to both organizational and cognitive dimensions influencing employees' understanding of the current work situation as well as limiting their ability to imagine new ways of work. This seems to be an even more serious problem in cases like ours due to the employees' limited experience of technology. Consequently, the employees were learning a very limited part of the system placing their focus on the technical functions. The utilization of the plan with its objectives could support an adequately organized education during the process. We argue that this is especially important when managing change processes in an organizational environment such as the municipal administration and other public sector environments where employees have limited experiences of technology. Due to the specifics of this environment with its typical bureaucratic culture and structure, the need for support and guidance during the process of change is crucial.

In addition to the two expected benefits of plan utilization described above there is a third beneficial aspect. This concerns the types of changes labeled emergent and opportunity-based changes. To make an opportunity-based change into a realized change requires handling the opportunity in a deliberative way [19]. In order to manage this opportunity in a deliberative way there are two aspects to be taken into consideration.

Firstly, a need to be aware of the opportunity arisen. Secondly, the word deliberative itself calls for a plan. Our point of view is that not only can the plan serve as a tool to discover absent anticipated changes but also serve as a means to simplify discoveries of opportunities that emerge in the organization. As an example, the duplication of work caused by the mismatch between the technology and the unchanged organizational structure e.g. the filing regulations can illustrate this. Due to old regulations of paper based archiving, and the lack of directives concerning this system, coupled with the new technology, employees struggled to maintain the old work system as well as the new. This caused frustration and called for deliberative actions from the organization. Another example concerns the discussion databases, intended for sharing knowledge and experiences. The use of these was rare. However, a potential was discovered among the employees who could see the benefits of these if setup differently across organizational boundaries. This potential could then be realized as an opportunity-based change. This is yet another argument for our suggestion that the plan should take a more central role in the management of a change process. We found in our empirical study that there is a strong need for guidance in order to involve employees and to achieve anticipated and desired changes. We argue that this is especially important in organizations operating within the public sector such as the municipal administration in our case. As stated before it is generally very difficult for users to imagine the potentials of the technology [5, 13]. This difficulty becomes even more apparent when the employees have limited experience of technology. These types of organizations seem less inclined to attempt any spontaneous changes.

Even though our suggestions are formulated against the background of a descriptive model, i.e. the improvisational model of change management [19], we find it appropriate to contribute with our suggestions of more normative character. This is in line with Orlikowski and Hofman's own approach when presenting their model and discussing the management of a change process [21]. Similar to Orlikowski and Hofman [21] the advice given in this paper is to a large extent based on empirical findings.

4.3. The translation to local context vs. the plan

In an essay on organizational change Czarniawska and Joerges [6] discuss the interesting issue of how plans, visions and ideas created on one level of an organization turn into action in new localities. They emphasize how organizational studies tell us rather little about the issue of how ideas turn into substance. It is argued that all ideas, organizational visions or plans must be translated to be received by local levels in order to materialize into concrete actions and changes. Naturally, the translation as such is pursued by people: "… there seem to be 'idea-bearing' organizations and professional roles which deal mainly with translations" [6: 36].

In our case, a computer-support company called ADB-kontoret, owned by the city of Gothenburg, has played an important role in the process. During the process of implementation, as well as afterwards, this organization had an overall responsibility of handling and supporting the implementation process at large. They have been the main providers of education of the groupware. In addition, they formulated the organizational vision in association with the implementation process against the background of the IT policy of the city of Gothenburg. Lastly, they have been the organizational unit with the main responsibility to disseminate organizational visions and plans. Consequently, the ADB-kontoret can be, in our case characterized as the idea-bearing organization.

Another important role is that of the professional translators who have closer links with the various districts or organizational units. The district managers have mainly played this role in the various semi-autonomous units in which the groupware is implemented. Their role has been somewhat different from the computer support company. As argued by Czarniawska and Joerges, ideas must take root in local knowledge to materialize into action: "As more and more people are persuaded to translate the idea for their own use, it can be materialized into collective action… The idea is enacted: other people are persuaded to join in, decisions are formally made" [6:44].

In our empirical study the organization carried out the change process by following a plan created from a central management level. At the same time the implementation of the groupware as such took place in various semi-autonomous organizational units. Thus, the factor of autonomy further complicated the general problem of translation of organizational visions and plans. The autonomy possessed by each local administrative district is partially limited, since they are obligated to consider regulations and decisions from the central management level of the municipal administration. More specifically, the actual decision to use this particular groupware was a central level issue of the organization. However, the local administrative districts through their district managers are in a position to decide when they want to commence this process as well as how they want to proceed. Consequently, there were diverging views regarding fundamental aspects such as the level of diffusion of the groupware in the organization, at large, as well as in various parts of it. A further example is that in those districts where the local manager has actively been

promoting the use of the groupware and new ways of work, the results has also been more radical than otherwise. An example of this is the how email is appropriated by various parts of the organization. During an early phase, there was excessive use of email for all sorts of work, as well as for non-work related information. The duplication of email messages was substantial. The employees' unawareness of the effect from forwarding and sending messages resulted in receiving the messages several times. After a while the need to limit the use of email became apparent. At that point of time, the district managerial level communicated directives with the intention to increase the use of databases as a way of decreasing email. In other words, here the collaborative capacity of the technology as outlined in the organizational vision has materialized into concrete instructions. In parts of the organization where the local managers have been more active, the process of changing the use of email has been more successful. The problem of translation, combined with the local autonomy, emphasizes the importance but also the complexity of communicating plans and organizational visions in this particular kind of organization.

In other words, in addition to the problems associated with the role of plans in improvisational models of technological change, we have here discovered a further problem not emphasized sufficiently in previous research. To realize plans and organizational visions in practice, knowledgeable actors must act upon them [16]. Such actors might be situated on higher levels of the organization (senior managers) [16], on lower levels (lead users and local champions) [8], as well as on intermediate levels as in our case here (district managers). This is in line with our research, as well as with the research of Czarniawska and Joerges [6]. A complicating factor in our case is that these actors might possess certain levels of independence in relation to the organizational visions and plans behind the process. For example, some of our actors played a more proactive role in order to promote collaboration than others. This refers primarily to the district managers, who were found a central driving force for the evolution of the groupware use in this setting [9]. We mean that the phenomenon of autonomy concerning the translation of plans must be treated in a more open manner than has actually been the case. In summation, we have here treated a further aspect of importance for the result of groupware use, compared to technological [12] and cultural aspects [10, 19]. As our case shows this aspect might, if not handled properly, result in a limited change of work practices in a collaborative direction compared to the potentials and plans.

5. Conclusion

To conclude, we would like to emphasize what we mean are important aspects to consider when introducing groupware in a public sector organization. Our study shows that in settings such as the municipal administration at case, i.e. where the majority of the employees have limited experience of technology, there is a need to support improvisational changes and to provide guidance for the process of change. Due to the character of groupware technology change management requires an improvisational perspective in order to realize the full potential. However, the organizational setting at case is complex and due to its culture it possesses a certain inertia concerning changes and therefore it needs active guidance throughout the process.

An attempt to illustrate our ideas is shown in figure 3, where we have elaborated on Orlikowski and Hofman's improvisational model of change management by adding the type of change "non-occurring anticipated change". In the figure two types are added, labeled A and B. A refers to non-occurring anticipated changes that after consideration are determined as "still desired" and worth following up. It may become an occurring anticipated change if handled with deliberative actions and further support. This is illustrated by the loop (A). On the other hand B refers to non-occurring anticipated changes that after consideration are determined as "undesired", for instance due to unrealistic expectations or misjudgments about the environment. This way the model supports both the reintroduction of changes deemed desirable, as well as the flexibility to revise the plan discarding undesirable changes.

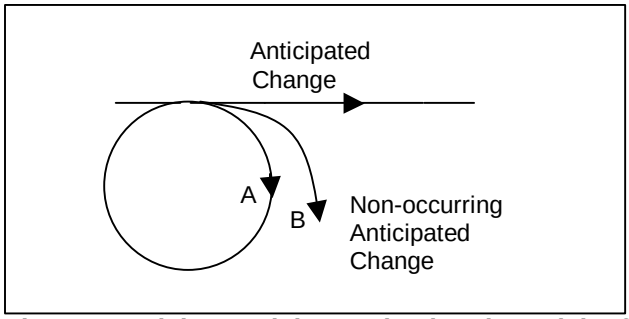

Figure 3. Elaborated improvisational model of change management.

However, it is necessary and crucial that the management actively use the plan in order to improve the management of the change process. The utilization of the plan must take into account both anticipated changes as well as emerging changes over time. Following up the process and revising the plan becomes essential.

Finally, we also like to emphasize the need for communicating and translating the plan into the local context and to consider the factors of autonomy in this environment. Since the plan can function as the central means for guidance, it is crucial that all levels in the organization understand it.

6. Acknowledgements

We would like to thank ADB-kontoret in Gothenburg, Sweden, the local government districts for their participation and The Swedish Council for Work Life Research for funding our research.

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