Back-Stage User Participation in Large-Scale IS Projects

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Abstract. In recent years, both the public and private sector organizations have started shifting to large-scale information systems (IS). Still, the results of these large-scale implementations are not very promising. Ensuring user participation is considered as a (partial) solution to overcome the issues associated with large-scale IS development. Given the complexities associated with the scale, the activities happening in large-scale projects are categorized as front-stage and back-stage, and it is essential to engage users in both of these activities. The literature around the component of user participation in back-stage of large-scale projects is not very mature. We contribute to this by studying a large-scale medical record system implementation in central Norway. Our findings highlight that the back-stage activities are very prevalent in large-scale projects whereas these activities lack adequate user participation.

Introduction

HealthCare organizations have grown in size and contain a large number of users and vast volumes of data (Pilemalm & Timpka, 2008; Roland et al., 2017, Hertzum & Ellingsen, 2019). Such systems are usually introduced as large-scale suit systems with generic features and are configured according to the needs and requirements of a particular organization (Krabbel & Wetzel, 1998). Large-scale implementations are often problematic, and further research is required to better understand the associated challenges (Simonsen & Hertzum, 2008).

A challenge related to large-scale IS implementation is how to secure user participation. User participation is referred to as *"the fundamental transcendence of the user's role from being merely informants to being legitimate and acknowledged participants in the design process"* (Simonsen & Robertson, 2012). Engaging users in the development and implementation of information

systems have shown promising results (Markus & Mao, 2004; Shapiro, 2005), but this success is often limited to small-scale projects (Oostveen & Van den Besselaar, 2004). Participation in large-scale projects is challenging because these projects have to deal with a multitude of stakeholders and their conflicting needs, organizational and political complexities and the issues related to long time spans (Pilemalm & Timpka, 2008; Simonsen & Hertzum, 2008).

In this paper we investigate participation in large-scale IS projects by building upon the concepts of front-stage and back-stage activities. Front-stage activities refer to cooperative activities such as group meetings, workshops, and co-design sessions. Back-stage activities refer to organizational activities that unfold in parallel to the front-stage activities, such as planning, preparations and negotiations (Bødker et al., 2017). The back-stage activities are considered to have a strong influence on the front-stage activities happening in the project, and can potentially shape the outcomes of the entire process. However, current research within participatory design and participation mainly focuses on front-stage activities (Dreessen & Schepers, 2018). In this paper we focus on back-stage activities in a specific large-scale project by addressing the following research questions:
- How are back-stage activities defined in large-scale projects, and how are they related to front-stage activities?
- How does participation take place in the back-stage of large-scale IS implementations?

Our research contributes to the emerging literature on what back-stage and front-stage activities consist of in large-scale IS implementation projects. Our findings suggest that it is challenging to create effective connections between front-stage and back-stage activities in large IS implementation project, in particular when these projects involve third-party vendors.

In the rest of this paper, we discuss some background literature, present our findings from a case study of a large-scale medical record system implementation in Norway, and discuss our findings related to the above-mentioned framework.

Background

Scale in IS implementation is often defined in terms of the number and distribution of heterogeneous settings, users, and use of the system over time, and also depends on the organization's size (Roland et al., 2017). Some challenges related to large-scale participation are heterogeneous stakeholders, sustained participation, exchange of knowledge and information among stakeholders, and utilizing the insights from participation (Dalsgaard & Eriksson, 2013; Simonsen & Hertzum, 2008).

The goal of user participation is to let the users participate in the different processes through activities which are a collection of different methods, tools,

techniques, and decisions. Drawing on Goffman's (Goffman, 1978) concept of front and back stage, Bødker (Bødker et al., 2017) further classified these activities into the front and the back stage activities. They defined front-stage activities as the pretty images of success and back-stage as the hidden chaos of conflict and turmoil. Front stage activities include common participatory design activities such as requirements meetings, co-design workshops, prototyping sessions, etc., whereas the back-stage activities entail the processes that tie the activities together. Most of the research articles focusing on different user participation methods often describe the participation in the front-stage, whereas user participation in the back-stage is less documented (Dreessen & Schepers, 2018). Back-stage activities also seem to be overlapping with the boundary conditions of a project, as the boundary conditions are referred to as the factors that may prevent or constrain participatory activities in a project (Zahlsen et al., 2020). The critical difference between these two is that the boundary conditions always refer to the factors external to the participatory activities, whereas the back-stage activities include both the internal and external factors. A similar term *"context of design"* is used by Svanæs & Gulliksen, which refers to the factors that tend to influence and often aggravate the user-centered design process (Svanæs & Gulliksen, 2008).

Case Description

Our case is about the implementation of a medical record system in Central Norway. The system is a pre-existing packaged software that was procured through a public procurement process, and is currently being customized. To prepare requirements specification for the procurement process more than 400 health and ICT employees from all over Central Norway have participated through more than 100 workshops. The implementation of the platform will affect around 40,000 employees in municipalities, hospitals, and the private sector, and 720,000 inhabitants.

The system will be implemented in several user organizations including a major hospital, a large municipality, and several smaller municipalities. This is a challenging process as the needs of the hospital –specialist healthcare --are different than those of the municipalities –responsible for primary healthcare. A dedicated company was established in March 2019 for contract follow-up with the selected supplier, and for implementation of the system at the user organizations. Project documentation reveals that user participation in different phases of the project is an area of key importance. Different user groups like application analysts, subject matter experts and super users have participated or are expected to participate in implementation activities. The vendor company continues to play a central role in the implementation processes.

The implementation process is coordinated among four implementation projects, one joint project , residing in the newly created company and three local projects residing in the user organizations. These projects are the places where most of the back-stage activities in our case are found. This paper will mainly look at the local implementation project in one big municipality. Table I presents the details of the subprojects under this local implementation project and the focus area for each. Our paper focuses on the *organizational development* subproject. This subproject is relevant for our research questions as it is responsible for making the users ready to use and utilize the new system, and focuses on users.

Table I: Subprojects for the local implementation project

Subproject	Focus
Organizational Development	Responsible for identifying the needs of users, training and teaching them how to use the new system and ensuring that the desired targets of benefit are met
Health and Care	Responsible for the academic content of health and care in the primary healthcare service
Information and Communication Technology (ICT)	Responsible for ensuring that the necessary activities in the technical area are conducted
Data	Responsible for ensuring the necessary needs for the analysis, management and reporting of data are met

Methodology

We use case study because it allows us to understand the phenomenon in its natural setting (Yin, 2017). The phenomenon under study is user participation in back-stage/front-stage activities in large-scale IS implementation projects. Our case is the local implementation project. Currently we are in the framing cycle in our case study (Pan & Tan, 2011).

Our data includes semi-structured interviews, relevant documents, and field notes. We conducted five in-depth semi-structured interviews. Interviewee roles are provided in table II. The documents include project plans, project descriptions, stakeholder analysis reports, and benefit realization plans. Field observations were also carried out, but due to the Covid-19 pandemic, the observations lasted for only one and a half weeks. The data was collected during the spring of 2020. We obtained approval from our university ethical committee.

Table II: Interviewee Details

Interviewee	Name	Role in the Project
1	Carl	Subproject Manager (Organizational Development)
2	Martin	Researcher
3	Pete	Professional Coordinator (User Readiness)
4	Sofia	Professional Coordinator (Training)
5	Lisa	Professional Coordinator (Benefit Realization)

Findings

We present our findings based on the different activities that are being carried out in the subproject for organizational development, and focus on participation is front and back-stage of these activities. These activities are shown in the table III.

Readiness

Readiness is an area of activities concerned with identifying the needs of prospective users and making them ready to use the new system. There are five activities related to readiness presented in the project plan as described in table III. The activity present most in our data is maturity analysis. The project plan informs that this activity is about planning and conducting maturity analysis in form of digital surveys. These surveys are prepared under the guidance of the joint implementation project and are administered by the user organization.

Our findings show that the maturity analysis was focusing on two areas: the identification of user needs and future training and their Information and Communication Technology (ICT) competence. The former is completed by managers at all levels and the latter by both managers and all employees affected by the project. Carl, the sub-project manager for organization development, informs that one round of each of the maturity analyses has already been conducted: spring last year for the leaders and fall for the employees. When asked what happens to the results of the analyses, he answers:

> "[The data] enters the project manager's meeting. Processing and understanding of the result start with the two analysts looking at this from an academic standpoint. We then come up with our reasoning and present this to the organizational development team and the municipal council meeting."

He shared an example from the first survey relating to ICT competence, where the feedback showed that the users did not know where to find information about the project. This feedback resulted in improved communication through the Google+ site developed by the local implementation project.

Table III: Activities under the organizational development project

Activity	Type of Activity
Readiness	Maturity analysis Organizational change measures Skills development for managers Review, change and update of current routines Program for preparation
Training	Learning culture Super user organization Super user training Organization and implementation of end-user training
Benefit Realization	User-friendly system for employees Medication management Citizen involvement Logistics Medical distance monitoring Information management Research (advanced use of data)

Training

This activity focuses on training the future users of the new system. To facilitate the training process, a concept of "super users" is introduced. Super users are described as the go-to people in their department, and they are responsible for assisting other users. In the fall of 2019, a gathering was conducted to give the super users the information and knowledge they need to take the role of super user. The presentation on this gathering informed that the super users should cooperate with the leaders to develop a systematic and good learning culture, participate in contributing to good quality training in their unit, and transfer knowledge of use and utilization of the professional system to all employees with different needs. The concept of super user was originally defined by the vendor, as part of their standardized implementation process.

Looking at the learning culture and training plans, the project plan for training presents planned ways to give the municipality sufficient expertise to use the health platform. About the learning culture activity, the related documents show that it is mainly meetings with the units and, as commented on earlier in this section, the training of super users so they can share knowledge about the health platform with their coworkers. Leader meetings with the leaders of the local implementation project in the municipality are held to decide on the unit meetings. These meetings list the unit meetings' agenda and a list of who should participate from the project itself and the units. From the units, it says that the unit manager, department manager, and superusers should attend the meeting. When

asked which activity stands out within training, Sofia, answers that it's the systematic and continuous work with training. When asked about how the systematization of learning culture is done, she says:

> "What we do, among other things, is that we go out on meetings on each unit with the leader teams and go through how they work with training. We have a dialogue about how the focus is on training, properly system usage, documentation requirements, and how to make this even better."

She explained that these meetings are not discussing what the training should contain, but how to facilitate for it and work with it. For example, discussing when the training should be, having in mind that the training is for employees having their everyday workday running around between tasks.

Benefit Realization

The goal of the benefit realization activity is to ensure that the result meets the goals of the implementation project. The project plan for benefit realization presents that the work done on benefit realization should secure documentation and realization of benefit. Benefit realization does not have clearly defined activities like readiness and training. The fundamental pillar of benefit realization is that the desired targets of impact must be met. To accomplish the targets of impact, there have been developed eight strategic targets of benefit for the implementation project. When asked about how these eights strategic targets were decided, Lisa, the champion for benefit realization, mentioned:

> "To define these targets, we probably had half a year of workshops involving managers, subject matter experts, and user communities. We got 500 winnings and created a benefit model that categorized, analyzed, and picked the most important ones."

She also mentioned having multidisciplinary meetings to define the sub-goals for eight of the main goals. These are the meetings where the vendor, health platform management, subject matter experts, and other with relevant knowledge participate in defining and understanding the target of focus and how to reach those targets.

Other Activities

All activities discussed so far are formally defined by either the vendor or the implementation project management. During the interviews and observations, we also found some routines and activities that are ad hoc and not defined by anyone or in any plan but have a relevance with the research questions. One such activity is what was called a *work meeting* by our interviewees. Work meetings are meetings replacing or adding to already planned activities. They emerge when the ones responsible for conducting the meeting feel and think that there is a more efficient way of doing it. Pete, the champion for readiness, ends the interview with "readiness is so much more than what is described in the project plans; it is

all these little drips". An example of this is the activity related to role analysis. The process of going out on every unit and department to find and define all roles seemed tedious. The municipality decided to do this as a work meeting where they invited employees from each unit and department and thereby gathered more employees at the same time. Pete says there are two reasons for this: firstly, they don't have to facilitate, find contact information, and make appointments. Secondly, they would like to make the job least troublesome for the units/lines and of utmost utility for the health platform management.

Work meetings are a formal, albeit unplanned form of activity. Another form of activity –called afterskiing by our interviewees–is on the other hand both informal and ad hoc. Afterskiing are meetings happening after the actual formal meeting has taken place. Our interviewees described afterskiing as a place where even more decisions are taken, or you get more clarity in what the others think, what to go for, and how to relate. Pete, talking about the flow of information, says "we contribute where we can, and then there is probably a lot that happens in the formal meetings, but also in the informal." He emphasizes that informal meetings are a supplement for the formal ones. We also observed an afterskiing meeting during one of the leader meetings at a town hall that we observed. After the meeting and during the walk over to the workplace, it felt like the meeting was still going, but in a more personal way. There was a mix of personal conversations about weekend plans, personal meanings about the implementation project, and some continued discussions on the matters of the meeting itself. This phenomenon was also noticed during observations in an office environment. Over coffee machines, during breaks, and after the formal meeting were finished, the participants started to share their meanings and discussing possible solutions.

Discussion

In this research, we aimed to explore how back-stage activities are conducted in large-scale IS projects, their relationship with front-stage activities, and how user participation takes place in the back-stage activities. Our findings highlight that the back-stage activities are very prevalent in the project that we studied. As the activities and tasks in the front-stage of the large-scale projects are extensive in number dealing with the heterogenous users and their complex routines, handling these activities and tasks is often facilitated by conducting the back-stage activities. For example, the maturity analysis activity aimed to identify the needs of the users for future training and gauge their ICT competence has a clear relevance with the definition of back-stage activities presented by (Bødker et al., 2017). Similarly, back-stage activities were also present in the form of unit, leader, and work meetings to discuss how a particular task needs to be executed and decide who will be participating in the execution of these tasks.

Large-scale projects also have some informal and undocumented activities overlapping with the back-stage, one of which is referred to as "afterskiing" in our findings. These activities can be a symptom of lack of formal channels for the users to reflect around different aspects of the project. Such activities should also be taken into consideration as they might have some influence on what is happening in the project. Our findings against the first research question are very much in line with what Bødker et al. (Bødker et al., 2017) have explored about the front and back-stage activities. However, our research investigated these phenomena in the context of large-scale projects.

Our second research question aimed to address how user participation takes place in the back-stage of large-scale projects. Our findings reveal that the component of scale limits the user participation in the back-stage activities, and instead, the users are restricted to what is happening in the front-stage. For example, most of the meetings were being attended only by the managers and some user representatives, whereas the decisions taken in these meetings had a strong influence on all the users. The participation of user representatives in the back-stage activities is interesting and overlapping with the concept of managed communities (Pollock et al., 2007), but it needs to be explored further, and we plan to do it as our future research. As discussed earlier in the paper, the actual goal of user participation is to shift the user's role from being merely informants to being legitimate and acknowledged participants (Simonsen & Robertson, 2012). Some activities like the activity of maturity analysis were restricting users to only being the informants which is contradictory to the actual purpose of user participation. It was also observed that the growing size of a project demands more organizational work initiating a translation from participation to organizational work.

Conclusion

This paper gives a glimpse of our investigation around how the back-stage activities are conducted in large-scale IS projects and how user participation works in these activities. We conclude that the back-stage activities are very prevalent in large-scale projects, but there is very little user participation in these activities. Our study only shows some preliminary results, and our current data were collected by studying only one sub-project. We plan to explore the case further and learn how the managed communities can facilitate back-stage user participation in large-scale projects.

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