Maneuvering a Pilot Implementation to Align Agendas Across Sectors

Troels Mønsted[a], Morten Hertzum[b], Jens Søndergaard[c]
[a] University of Oslo, Norway
[b] University of Copenhagen, Denmark
[c] University of Southern Denmark, Denmark
monsted@ifi.uio.no, hertzum@hum.ku.dk, jsoendergaard@health.sdu.dk

Abstract. A prerequisite for pilot implementations in complex organizational settings is that the agendas of the stakeholders of the system are maneuvered into alignment. In this paper we present a study of the pilot implementation of the IT-supported, preventive intervention TOF (Tidlig Opsporing og Forebyggelse). A core element of TOF is an IT system that stratifies citizens into risk groups on the basis of self-reported lifestyle information and data retrieved from the medical records of the general practitioners (GPs). In addition, the system facilitates cross-sectoral coordination between preventive offers at the GP and at municipal health centers. We find that TOF succeeded in maneuvering the agendas of the involved stakeholders by gaining the foothold, legitimacy, and GP motivation required to carry out the pilot implementation.

Introduction

In systems development, pilot implementations aim to improve system quality and reduce implementation risk through field trials of properly engineered, yet unfinished, systems (Hertzum et al., 2012). When the organizational settings are complex, pilot implementations must maneuver and obtain alignment among the various groups with a stake in the system. This is laborious, but highly important.

In this paper we investigate the pilot implementation of an IT-supported intervention developed by the project TOF (Tidlig Opsporing og Forebyggelse, Danish for 'early detection and prevention'). The purpose of TOF is to enable

local healthcare authorities in the Region of Southern Denmark to detect citizens at risk of developing a lifestyle-related disease and to initiate preventive activities. A core element of the intervention is an IT system that *automatically stratifies* citizens into risk groups on the basis of self-reported data about their health and lifestyle combined with data retrieved from the medical records of the general practitioners (GPs). Depending on their health profile, citizens are then offered preventive care either by their GP or in a municipal health center. Hereby, the system facilitates *cross-sectoral coordination*. With automatic stratification and cross-sectoral coordination as two of its features the system assumes infrastructural characteristics (Monteiro et al., 2013), which pose a challenge for pilot implementations. Collaborative systems in healthcare tend to bring out organizational politics and institutional logics (Egger & Wagner, 1992; Pine and Mazmanian, 2015), which are a potential source of tension and disagreement. Therefore, information infrastructures must maneuver in a web of diverse relations and succeed in bringing them into some sort of local alignment. Williams (2016) argues that success in such efforts is endangered by a weak learning economy in the healthcare sector when it comes to the design and implementation of IT systems.

In the case of TOF, a pilot implementation was launched with the specific purpose of learning about the end-user training, practical usefulness, organizational consequences, and scalability of the intervention, prior to full-scale implementation in the region. The purpose of this study is to analyze how the pilot implementation maneuvered among the agendas of the involved actors and to give examples of challenging issues that emerged in the process.

Pilot implementations

A pilot implementation is not just the period during which a system is in pilot use. Hertzum et al. (2012) propose that pilot implementations consist of five activities: planning and design, technical configuration, organizational adaptation, pilot use, and learning. The three first activities are preparations. During the preparations the focus and scope of the pilot implementation are defined, the system is configured for the pilot site, operational data are migrated to the system, interfaces to other systems are established, work procedures at the pilot site are aligned with the system, users receive training, safeguards against breakdowns are set up, and so forth. The preparations may consume more time than the period of pilot use, during which the staff at the pilot site uses the system for real work. Finally, learning about the system, its implementation, and use occurs during the preparations as well as during the period of pilot use.

Pilot implementations are conducted to learn prior to system finalization and full-scale implementation. However, previous research shows that the learning objective is often difficult to fulfil. For example, Hertzum et al. (forthcoming)

find that learning from pilot implementations is situated and messy. Pilot implementations assign key importance to subjecting the system to the real conditions of the pilot site. This situated view of change is at odds with the premise that the learning from a pilot implementation will be valid beyond the pilot site. Difficulty in telling the particulars of the pilot implementation from generic insights about the system creates uncertainty and, possibly, confusion about what can be learned from the pilot implementation. Winthereik (2010) extends this argument by showing that the actors in the pilot implementation of an electronic maternity care record perceived the opportunities for learning quite differently. The organization that steered the pilot implementation tried to keep things stable – like in a controlled experiment – to avoid confounding the learning from the pilot implementation. The nurses who had to adjust their practices in order to use the maternity care record felt peripheral to the learning objective; to them the pilot implementation was largely a ritual. Lastly, the clinicians who were involved in designing the maternity care record saw it as a malleable object that could, and should, be changed on the basis of the learning from the pilot implementation.

Hertzum et al. (2012) point out that because a pilot implementation involves using the system for real work, the learning objective may also become secondary to concerns about getting the daily work done. The temporary nature of pilot implementations likely adds to this secondariness.

The TOF system

The TOF intervention was developed in a research-and-development collaboration headed by the Research Unit of General Practice, University of Southern Denmark. In TOF the targeted citizens received an electronic invitation to take part, and those who accepted filled in a questionnaire about their lifestyle and gave permission for the TOF system to retrieve specific information from their GP's medical records. On the basis of this information, the stratification model divided the citizens into four risk groups: (1) Citizens with a pre-existing diagnosis and/or in current treatment for a lifestyle-related disease. (2) Citizens at high risk of developing a lifestyle-related disease, who were offered a targeted intervention at their GP. (3) Citizens engaging in health-risk behavior, who were offered a targeted intervention at their municipality. (4) Citizens with a healthy lifestyle. The intervention was supported by a web-based system that was used by citizens to enter their health information and by GPs and municipal health workers to access citizens' health profiles.

After several years of preparations, the TOF system was in pilot use for three months in 2016. During the period of pilot use the TOF system was used by 47 GPs and by municipal health workers from two municipalities. In addition, 3587 citizens gave consent to participate and 2661 used the system to create a health

profile. We investigated the pilot implementation of the TOF system through 31 interviews with stakeholders at the project level (e.g., the project leader and several project participants), practice level (e.g., GPs, municipal health workers, and citizens), and regional/national level (e.g., the Danish Medical Association and several patient associations). Our study protocol and interview guide were presented to the TOF research steering group. Informed consent was obtained from each interviewee, including permission to audio-record the interviews.

Analysis

The pilot has definitely contributed to breaking the ice by showing what makes sense. There are no one among my colleagues [i.e., GPs] who are not happy to do things that make sense.
<div align="right">Member of the TOF research steering group</div>

The pilot implementation demonstrated the ability of TOF to maneuver the agendas of the involved parties and bring about a functioning alignment between the activities related to preventive care in general practice and in the municipality. However, achieving this alignment involved a substantial amount of work during the preparation phase. We found the following events particularly decisive for the establishment of the TOF pilot implementation.

First, TOF *gained foothold* both among GPs and municipal health workers by framing the outcome as a cross-sectoral intervention rather than a stratification model. This framing emphasized coordination across sectors and deemphasized automation. In recent years the provision of better offers for disease prevention has received considerable attention – including economic resources – in general practice and in the municipalities. Currently, the municipal health offers are however underutilized, partially because many GPs do not refer citizens to them. TOF addressed this issue by developing procedures for this cross-sectoral collaboration through a participatory process. Two work groups were established to define how the collaboration could be organized and accomplished. The result was the cross-sectoral concept of the TOF intervention, supported by both the GPs and the municipalities.

Second, TOF *gained legitimacy* among GPs by finding an alternative to the original data extraction model based on Sentinel (an IT system already in widespread use for other purposes). In TOF, Sentinel was to extract data about citizens from the GPs' medical records for use in the stratification. However, in late 2014 a database created through one of the other uses of Sentinel was ruled not approvable and consequently deleted, which increased skepticism among GPs toward data extraction through Sentinel. Instead of awaiting a full evaluation of the future of Sentinel, the TOF steering group decided to develop an alternative data extraction model, in which the GPs were directly involved in defining the

extraction criteria. The increased transparency of the alternative data extraction model helped rebuild legitimacy with the GPs.

Third, TOF *fostered motivation* among GPs by changing from mandatory to voluntary participation. Originally, it was agreed in the steering group that participation was mandatory for GPs in the participating municipalities. This decision became a source of discontent because a general shortage of practitioners meant that many GPs found themselves unable to free up the time required to participate. To accommodate to this situation, the steering group decided to make participation voluntary in spite of the risk that this could cause GPs to desert. However, in the end, the result was a level of GP participation that fully enabled the project consortium to assess and learn about the TOF intervention. As much as 47 GPs participated in the pilot implementation out of a total of 68 GPs in the two municipalities (the project consortium had set 35 participating GPs as the critical threshold).

Discussion

At an abstract level a pilot implementation is successful if it provides valuable input to decisions about the technical finalization and full-scale implementation of the system (Hertzum et al., 2012). That is, success is determined by whether important learning ensues, not by whether the system performs well during the pilot implementation. It may be an important learning that the system does not perform well. In this perspective, the TOF pilot implementation can be described as successful because it gave, at least, three answers of importance to the wider implementation of the TOF system. First, the stakeholders were brought into alignment. This alignment was probably the main achievement of the pilot implementation, and it was achieved during the yearlong preparations for the period of pilot use. In this relation the period of pilot use merely provided the practical proof that a functioning alignment was in place. Second, a large number of citizens, GPs, and municipal health workers participated in the pilot use. Apart from serving as evidence of the functioning alignment, the volume of users from the different stakeholder groups also provided the basis necessary for assessing the stratification model. The aim of providing such a basis made the pilot implementation substantially larger than most other pilot implementations of IT systems (e.g., Hertzum et al., forthcoming; Winthereik, 2010). Third, the stratification model did not work to the GPs' satisfaction. About half of the GPs found that they had consultations with citizens who should not have been offered a consultation. In the evaluation that completed the pilot implementation this finding led to the realization that the task of motivating citizens to change their lifestyle was new to many GPs. Instead of a requirement for revising the stratification model prior to the wider implementation of the TOF system, the finding led to a requirement for offering the GPs courses on how to motivate

citizens to change their lifestyle in order to prevent chronic disease. The finding also led the municipalities to clarify that their continued support of the TOF intervention would depend on broad support from the GPs, thereby showing that the obtained alignment might be temporary.

With this study we illustrate how a pilot implementation in a complex and cross-sectoral setting needs to maneuver among the agendas of the involved stakeholders. By doing this, the pilot implementation of the TOF intervention gained the foothold, legitimacy, and GP motivation required to go forward with the wider implementation of the TOF system. However, the pilot implementation also provided data for more concrete discussions of the performance of the stratification model. These discussions resulted in important learnings that must be resolved prior to wider implementation.

Acknowledgements

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