

Digitalization Experiments – Does Support Needed Equal Support Offered

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Abstract

Seems that many organizational needs are to be matched with a simple solution of digitalizing the operation or a part of it in order to support and to develop it. The information technology (IT) -related skills and capabilities are different in different organizations and the level of know how varies similarly. In practice this interprets to the operation needing support to realization of the intended digitalization measures, basically in every case. We present two cases of digitalization. One, in which a smart city initiative was introduced and implemented to a city in Finland, large in its context and another in which a web-based open source service was implemented for municipalities and companies that enables digital application of construction permits and other permits related to infrastructure. The cases show that the quite technical-sounding issues require simultaneous human aspect to be taken into account. The support needed covers the technological aspect, but it is advisable not to forget the human side either. The organizations offer various kinds of measures to match the needs of their employees, but the ability to take on the support needed and presumptions to assess the need for this are different resulting in various amount of support offered, needed, expected, and accepted.

Keywords – Digitalization, Experimenting, Smart city, Support

Paper type – Practical Paper

1 Introduction

Digitalization is a ‘buzzword’ one encounters in many contexts and surroundings these days. In public discourse and in everyday news but also occasionally in more official statement’s digitalization is sometimes seen as an omnipotent solution for many a problem

and an answer to various challenges both in private and in public sector organizations. In our paper we focus on the phenomenon in the public sector and services related to public services to keep the observations within a manageable scope. The previously mentioned problems and challenges may have something to do with the rigid and unyielding organizational structures or with costly ways of offering public services. The public sector is largely just about providing services to the citizens (De Vries et al., 2016; Higgins, 2017). One is also able to read news about digitalization being a solution to match a growing need of improved service offering; services come in various shapes and forms. This is obviously quite easily said. At the same time, the public sector in general is faced with a growing pressure to streamline its operation and to reduce costs. All these factors: the citizens' increasing expectations for better and more refined services, the public pressure to gain more outcomes from different operations and the pressure to reduce the use of resources, form a situation that gives a very difficult problem to solve. In order to respond to the demand public organizations have launched multiple various digitalization and smart city initiatives (Bakıcı et al., 2013; Denhardt and Denhardt, 2015; Taylor Buck and While, 2017). Digitalization, by definition to create and execute "changes associated with the application of digital technology in all aspects of human society" (Stolterman and Fors, 2004, p. 23), may indeed change the way employees interact with one another, their places of employment, and their actual objectives and goals of working as well as to how they perform their tasks (Parviainen et al., 2017). A fundamental question is whether this may be made into an 'everyone wins' type of situation, giving employees larger personal freedom and enable creativity at work, while simultaneously increasing productivity in organizations, and providing citizens with improved (self-)services. If this is indeed the case, how can it be achieved, what kind of support does it take to make this happen?

2 Cases and background

2.1 Case Digiprogram

The *Digiprogram* was a subprogram of a smart city initiative. The larger initiative was originated by the city's top management of which the CIO is a member of. The *Digiprogram* was initiated in the city's CIO's office where the headquarters of the program would be. A program manager was appointed along a few other staff members at the CIO's office, but the main focus would be elsewhere, in the service areas. Already in

the planning phase some areas proved to be more eager, some at least willing, to take part in the initiative were recognized. The *Digiprogram* then committed a number of city employees from these areas to act as project managers, another number of people to be related development managers. In addition to these, there were also steering groups to oversee and guide the endeavors.

The program itself consisted of numerous experiments in the various service areas of public administration in the city. The ideas for the experiments stemmed from the service areas as there was the outlook and vision on what and how the digitalization could be made the best use of. The objective of these experiments was to scout whether there would be emerging service innovations that may be later applied and upscaled to permanent service offerings of the city administration (Hellsten and Pekkola, 2019). In addition to the mere experimenting, the overall attitude towards improving the city administrative operation through experimenting with digitality was regarded as an additional target for development. Goes almost without saying, but these executed experiments varied by their nature. They came in various shapes and sizes; some were smaller (how to conduct day-to-day conferencing more effectively by using econferencing, such as Skype), some rethought their whole operational process anew.

The people involved were ordinary workforce of the service areas. Perhaps with the exception that they were more eager than average person in the city's payroll to participate in such initiative (as at least some of them volunteered to this program). Not necessarily always when it comes to their technical capabilities, but their attitude was the key. To summarize, the program aimed at finding out whether it would be possible to come up with innovations providing interoperable, high-quality public sector services via digital channels to improve cost-efficiency, create savings, and generate benefits. As beneficiaries may regarded everyone, from citizens, to businesses, to organizations and to local and government authorities. All these need new solutions that are easier to use for the end user but also cheaper to produce and use for the offering side (Helander et al., 2020; Hellsten and Pekkola, 2020).

2.2 Case Lupapiste service

Lupapiste is a web-based open source service that enables digital application of construction permits and other permits related to infrastructure. *Lupapiste* service was developed as a part of Action Program on eServices and eDemocracy (SADe programme)

set by the Ministry of Finance in Finland (Saarijärvi et al., 2016). The program aimed at providing interoperable, high-quality public sector services via digital channels to improve cost-efficiency, create savings, and generate benefits to citizens, businesses, organizations and local and government authorities. Special attention was paid to the achievement of cost benefits to municipalities. *Lupapiste* was one of the sub-projects in the program coordinated by Ministry of Environment. After a competitive bidding, Solita Inc. was chosen as a service provider for *Lupapiste*. *Lupapiste* service was developed in cooperation with municipalities that worked as pilots in the project, and later during the evolution of the service the ownership was transferred to Evolta Inc. a spin-off company from Solita Inc (Helander et al., 2020).

Lupapiste service is today used in about 60 % of Finland's municipalities and there are currently about 100.000 users ("Lupapiste" 12.06.2020). In this case 16 interviews were conducted with corporate representatives operating in construction, city planning, architecture and electric engineering (Table 2.). The interviewees used *Lupapiste* service in their work regularly and applied for permits in various fields (architecture, electric engineering etc.) and in different municipalities in Finland. The overall user experience was positive and the interviewees felt that the service has lightened the application process of different permits.

3 Research settings

In this paper, we report findings from two single case studies (Yin, 2008) involving *Digiprogram* in the city of Tampere, Finland (with appx. 230,000 inhabitants and 15,000 employees in +2,000 sites) and *Lupapiste*, a nation-wide service aimed at streamlining the building permit application and following up the possible granting thereof for various parties around this theme. The city officials recognized and acknowledged existing systems and services being no longer up-to-date or even appropriate.

The city has set up a smart city program, of which the *Digiprogram* is a part, to modernize its operations. The *Digiprogram* in the longer run aims at developing digital services to facilitate the everyday life of the city residents, improve their wellbeing and security, promote smoother migration to and mobility within the city, and create new businesses by enabling cooperation among various stakeholders ("Smart Tampere," 2017). Similarly, the authorities overseeing the area of services among the building and

construction permit in the national ministry level together with *Lupapiste* administrators saw the need for updating the service model and possibilities to streamline the services as a whole through well-planned digitalization initiative. Various other development schemes and aspirations about digitalization also exist at the national level.

In the case *Digiprogram* the city CIO's office manages and provides ICT services to different departments and units, ranging from the top management to the city customer service. The stakeholders have different needs and capabilities in using various technologies for their work. The number and the complexity of the ICT systems pose challenges for users and the management as well as to the citizens. To understand the potential impacts of the smart city program as a whole and its *Digiprogram* in particular, we conducted a set of semi-structured interviews to collect qualitative data from different parts of the city. The CIO recommended interviewees from various projects within the *Digiprogram*. Snow-ball sampling (Morgan, 2008), ie. asking the interviewees to recommend potential candidates for future interviews, stakeholders with knowledge to share, was also used to seek the best sources of information. In total, 20 face-to-face interviews visible in the Table 1. were conducted.

Table 1. *Digiprogram*; interviewees in the city administration.

Position
CIO
Program manager
Productivity controller
ICT manager (AK)
Service designer
Enterprise architect
Digimarketing manager
Development manager (city planning)
Development manager (customer service mgmt)
Development manager (employ. services, SO)
Project manager (city concept)
Project manager (city planning)
Project manager (customer service)

Project manager (early education, pre-school HK)
Project manager (employment services, JT)
Project manager (employment services, MV)
Project manager (grammar school)
Project manager (infrastructure; tram project)
Project manager (space allocation, JS)
Project manager (town planning)

The interview themes were discussed with the CIO and some of his key staff member before starting the actual project and suggestions were dealt with in order to clarify the best ways to approach the theme. The studied themes were based on the city strategy and reflected the program objectives and their ‘surroundings’. After the initial talks, the objectives were formulated into themes and subsequently questions. A plan on how to execute the interviews was made. The interviews focused on the initial phase and the foundations of the *Digiprogram*, including the resources, participants, and impacts. Additionally, questions about the process itself were included. The interviews, lasting 60 minutes on average, were audio-recorded and transcribed.

The data analysis followed the interpretive research approach (Walsham, 2006). The first author in the project acquainted himself with the material to form an overview of the topic and each interview. The issues identified as potential impacts and their background were labeled and listed for later use. Process diagrams and stakeholder maps were also drawn and iterated with the city representatives to see how they corresponded to the eventual issues. All findings were collaboratively discussed among the authors and with the city representatives to ensure the accuracy of the interpretations and the conclusions. Finally, the findings were compared with those of the existing literature.

The *Lupapiste* service empirical data consist similarly of qualitative interview data. The qualitative interviews (altogether 16, depicted in Table 2.) were semi-structured and they were mostly conducted by one researcher, whereas content analysis and multiple researcher triangulation was used in the analysis of interview results. The interviews contained a small survey (more later in Table 3) with the Likert number-scale to help to tackle especially the analysis of feelings regarding support and communications about and within *Lupapiste* service. This survey was analyzed by going through the empirical material

and recognizing and classifying the themes pointing towards various formats of support and other emerging phenomena.

Table 2. Lupapiste service; interviewees in companies.

Company	Roles of interviewees	Number of interviews per company
Architecture office	Construction design Design/Architect	2
Engineering office	Project manager	1
Energy company A	Project managers	2
Energy company B	Regional manager, Field planner	2
Energy company C	Network engineer	1
Energy company D	Developers of district heating, Network engineer, Developer manager of electronic network, Designer of electronic network	5
Infrastructure company A	Technical assistant	1
Infrastructure company B	Project designer, communications network, Planner, documentation	2

4 Findings

The *Digiprogram* entailed a number of experiments testing a number of various approaches to ease the operation with digitality-related tools. The experiments comprised both functional and technological ideas, novel in their surroundings. This manifested itself through the fact that the idea of the ‘digitalization’ concept varied significantly between the departments. In some areas and departments, digitalization meant that they used Skype for conferencing or customer contacts while in others the whole process itself was considered when digitalization was planned to be implemented. The planned benefits of Smart city program were mostly the experiences from the experiments: how these issues should be

addressed in the city operations and on what organizational level, not direct and simultaneous benefits for the citizens.

The support offered to different experimenting 'teams' thus varied significantly. Similarly, the level from which the personnel started their 'journey into digitalization' was quite heterogeneous. The CIO's office offered technological and technical support to consult and assist when and where needed as the area to which the digitalization was to be implemented varied as did the type of intended digitalization itself. This support was in forms of various technologies regarding the intended case-specific need. The CIO's office needed to use their resources to assist the project managers in their tasks, which meant familiarizing themselves with some newer features and technologies in addition to those they already had in their disposal.

The support in *Digi*program became physical in 'the program days'. Every Thursday was dedicated to the program issues. The project managers thus assembled on Thursdays on the invitation and under the command of the program director. The Thursdays contained training, for example in procurement and acquisitions in the public sector and to discuss current issues and urgent emerging matters, i.e. offer and get peer support for and from one another. The program days were very well-liked feature. The interviewees were in unison that this particular activity, trainings and discussions, gave them the most important support. Even if the precise training on a given day wasn't quite the most urgent theme, they were accepted because during the day the thoughts and opinions could be discussed with project managers in the similar situation. Also, the possibility that the issues in the trainings would emerge in one's own project was seen a noteworthy one, thus motivating the participation in the shared experiences.

We were able to recognize that the overall experience with the usage of *Lupapiste* was positive in the various companies and fields (Table 3). All the interviewees recommended the *Lupapiste* service to other companies. The system in itself was easy to use, most of the users only participated in the initial introduction seminar held usually together with the municipality and the service provider. The *Lupapiste* service survey reveals that nine out of 16 responders have not used the *Lupapiste* service customer support at all and at the same time 13 of them found the user experience satisfied (values 4 and 5).

Table 3. *Lupapiste* service survey.

Answer/responders 16	0 (zero = has not used)	1	2	3	4	5
Lupapiste-service helps significantly building license application process				5	6	5
I am satisfied with the features of Lupapiste-service				3	13	
I am satisfied with the Lupapiste-service providers willingness to develop the Lupapiste-service				5	6	5
I am satisfied with the company accounts characteristics and features				5	7	4
I am satisfied with the user experience of Lupapiste-service			1	2	10	3
I am satisfied with the customer support and help of Lupapiste-service	9			1	3	3
I am satisfied with the user training of Lupapiste-service	5		2	3	4	2
I am satisfied with the communications regarding the Lupapiste-service				8	7	1
I am satisfied with the municipalities' efforts regarding the implementation of Lupapiste-service and the efficient use of Lupapiste-service (one respondent did not want to give an estimate)		1	1	5	8	

I would recommend the Lupapiste-service to other companies

Yes=16 No = 0

The communication in the system (front page news and chat) and from the system provider (emails, newsletters) was considered good and sufficient. However, the cooperation between the authorities within the various institutions of the municipalities was perceived as a challenge, and the operating methods were not the same in the municipalities. This lead, to that the corporative users had to deal with a different set of rules depending on the municipality although the information system remained the same in each case (Helander et al., 2020).

The networks inside *Lupapiste* service as well as outside with project group, were considered essential and significant. The *Lupapiste* service is only a part of the construction project, but the network remains almost the same in the *Lupapiste* service during the project. The communication and chatting with the project network inside the service with the different participants was considered useful, for instance the municipality could inform the applicant that a new document was needed, or experiences were shared etc. The *Lupapiste* service was used in some cases as communication base for the different actors in the projects, and this was possibility perhaps not originally recognized when creating

this digitalization project. A specific, more permanent, user group, ie. a network of related parties did not spur overwhelming interest, even if it was not completely rejected. Mainly the respondents were shy of this because it represented yet another time-consuming endeavor to an already packed daily life of everyday business. Instead, an annual gathering, a conference of a sort organized by *Lupapiste* itself was proposed.

5 Conclusions

We conclude that the support, whenever digitalization is concerned, cannot well be defined conclusively without acknowledging the intended target of implementation. Having said that, there are a few issues that stand out: sufficient technological expertise and consultancy to support emerged ideas, well executed communication about and around the operation, and sufficient peer support to give space to uttering the sentiments and getting confirmation to one's thinking from one's equals.

Perhaps the biggest impact of digitalization was that the objects benefited from learning a new culture and how to make this happen. The processes and the attitude towards the innovations as a whole were largely perceived positive. The city operations are now more visible for internal stakeholders, and the city's organizational culture has moved towards a more modern, innovation friendly atmosphere. Similarly, the *Lupapiste* has taken a step towards more modern modus operandi through the same motions and notions.

The change towards digitalization requires vision, knowledge, and technical skills, but also understanding of an overall situation as well as the context. The organizational culture and the processes facilitating the actions are essential. Thus, a need to replace the old ways of working with the newer ones emerges. Still, before this can happen, old practices need to be unlearned and new ways of working need to be learned instead. This whole process needs support from the organization. The support is needed from the organization itself, the management and the peers in order to make the innovation successful and the change happen. Some issues need to be further developed. These include for example the support to recognizing the uncertainties in the individual tasks and their connections as well as to make them even. Similarly, defining and setting expectations and objectives need to be clear for all stakeholders, sometimes they cannot do this by themselves. Even if the improvement actions were commonly agreed, the actual steps how to meet them, were not always clear. For example, the mere definition on what is meant by digitalization varied; is

it about the processes or the tools? And again, when something is ‘good enough’ and ‘what is enough’. These kinds of initiatives are a combination of technological innovations with a change to prevailing attitudes. The relief of the humane resistance for change can be supported by actively involving the personnel into the initiatives and empowering them to active members of the operation.

There are several limitations for this paper. This is just of two cases, even if the other one has more experiments. However, we argue that it is plausible to assume that similar settings would provide comparable results. Hence, further research is needed. Secondly, we derived the conclusions from the data. This needs more validation.

6 References

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