Policy, Process, People and Public Data

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Abstract: The aim of this paper was to analyze an implementation of the public data agenda to address the lack of empirical research on the subject. The focus of the paper is on the interplay between policy, process and people. The approach was qualitative, interpretive research and data was gathered through interaction, interviews and observations over a period of 20 months. Findings showed that the policies are a bit opportunistic and that it is not clear what data that should be made available to attract citizens to take part in the agenda, raw data or processed data? Furthermore, the incentives for citizens to engage in the public data agenda were not obvious. I therefore wonder, do we believe too much in information? Are we being information determinists?

Keywords: Public Data · Open Government Data (OGD) · Public Sector Information (PSI) · E-government · T-government · Public Sector Reform

1 Introduction

According to the Digital Agenda for Europe there are structural weaknesses in Europe's economy [1]. The primary goal today must therefore be to get Europe back on track and one way to do that is through making public data available for re-use. It has been estimated that by opening up public data overall savings could amount to €40 billion a year in the EU making public data a major asset [2]. However, public data is not just an economic asset, it is also expected to be a key driver in the promotion of transparency and accountability and the view is that opening up public data will foster the participation of citizens in political and social life. The expectations are huge, public data is seen as an unprecedented opportunity enabled by the use of new technologies that will "turn Europe's public data into a motor for innovation, growth and transparency" [2].

The public data agenda is persuasive. However, the history of government is replete with policy failures [3]. When it comes to new technology and new ideas, governments are not slow to catch on. Important to keep in mind is, nevertheless, that there is a huge difference between what is technologically possible and what is actually realistic if you look at the big picture. Technology changes faster than most everything else, for instance, the law, administrative power, culture, organizational structures, government structures, political arrangements, society and, last but not least, human behavior [3]. If we look at the faith in technology to contribute to public sector reform, this faith have existed for at least 50 years traced back to Leavitt and Whisler 1958 [4]. The big discussion about public sector reform that had to do with information and communication technologies (ICTs) was, however, initiated in the 1980s [5]. The goal of the reform was to decentralize the public sector as this was seen as a

way to make it more flexible. It was also believed that ICTs could support this and use of ICTs became, consequently, intertwined with these objectives. The result was the rise of e-government, a generic term for research on the use of ICTs in the public sector [5].

The outcome of the reform was not the expected. Fragmentation increased as individual government agencies became accountable for their own activities and tasks. The result was, consequently, more organizational borders creating barriers to cooperation instead of making coordination easier [5]. Accordingly, the reform did not live up to the expectations. The wished for transformation is defined as "multi-level, multi-dimensional, and long-term organizational change, through the implementation of IT for reform purposes in order to achieve a situation that is qualitatively different than before" [5]. The promise of this transformation has been repeated over and over in the literature (for example, [6]) but there is no empirical evidence of it actually happening [3, 7-10]. To make it happen it has been considered important to see government and citizens as one decision-making entity, i.e. to get away from the view that government is a service provider and citizens are customers. Accordingly, citizens should take part in and guide the development [11].

The drive for transformation is the primary explanation to why initiatives such as the public data agenda are proposed. The active promotion of open government policies and open data was initiated around 2009 and has since then spread quickly [12]. Today, 63 countries are connected to the Open Government Partnership, an international platform for governments committed to become more open, accountable, and responsive to citizens [13]. The public data agenda is, consequently, fairly new and there is a lack of empirical research because of this. This knowledge gap has managerial and public policy implications [12]. One strategy proposed for working with the public data agenda is arranging open innovation competitions [2] and I study one such effort to address this lack. What I specifically direct attention to is the interplay between policy, process and people in this work. The public data agenda is expected to lead to transformation. For this to happen there is a need for a productive interaction between these three parts: policy to set the agenda and process to make data available and attract people to take part. Because policy without process and people is only visions, not reality, and process without people is only data made available. If data is not used there are no benefits. There is hence a need for understanding the interplay and the research question asked is consequently: "How do policy, process and people interact when implementing the public data agenda?"

2   The Three Interrelated Themes – Policy, Process, and People

In this section I address policy, process and people as three interrelated themes. With *policy* I refer to a statement of intent used to guide decisions to achieve desired goals. In this case the public data re-use vision, the expected benefits and identified challenges according to the report from the European Commission [2]. With *process* I refer to the actions performed to make public data available and the promotion of its re-use. With *people* I refer to the people involved in the described process and the re-users. Re-users could, for example, be citizens, businesses, media, etc. In this paper I focus on re-use by citizens because of the requirement that citizens should take part in

and guide the development [11] and because citizens were the main target group in the studied case.

The aim of policies is to address particular problems. When new challenges arise changes are made to policies. Usually the changes are small and incremental but there can also be major changes when established systems are judged inadequate [14]. This is called policy change and is, according to many researchers, initiated by bottom-up approaches in some way [14-17]. Hajer [17] says that nowadays, policy making is as much a matter of citizens and enterprises acting as it is a matter of direct government intervention. Policy changes are, consequently, seldom controlled from the top; they are rather the result of informal actors (peoples) complex processes [15].

2.1   Policy

The drive for public sector reform is the primary explanation to why initiatives such as the public data agenda are proposed. According to the European Commission report *Open data - An engine for innovation, growth and transparent governance* there are many benefits of open public data re-use [2]. The major purpose of the EU 2020 strategy is to put Europe's economies onto a high and sustainable growth path. To this end, Europe will have to strengthen its innovative potential and use its resources in the best possible way. One of these resources is public data. Opening up public data will, according to the report, foster participation of citizens in political and social life. However, the existing regulatory tools and their implementation, the lack of awareness of administrations and businesses and the slow uptake of innovative technologies are holding back the development of a true market for the re-use of public data. What must be done is, therefore, to: "create the right framework conditions for the re-use of public sector information across the European Union, and to support the projects and infrastructures that can turn Europe's public data into a motor for innovation, growth and transparency". Since public data are produced at all levels of government, there is a need to act at all levels: local, regional, national, and EU level [2].

2.2   People

Today, more and more public data are made available [18-22] and there is a lot of talk about potential benefits. Expected benefits are, for instance, transparency, collaboration, participation, economic and social value [23] which will result from innovative service development [24]. This innovative service development should be performed by people seeing value in taking part in the agenda. However, according to existing research there is a need to entice people to participate. For instance, Lofi and Krestel [25] proposed combining information processing techniques with microblogging to increase transparency in political processes and to encourage internet users to participate. Furthermore, use of open data requires knowledge found in different communities, that is, across core stakeholder groups in the public data community [18]. The data needs to be interpreted and interpretation is always a function of a collective which makes it difficult for people to take part [18, 26]. Graves and Hendler [20] therefore claim that there is an important portion of the population who

could benefit from the use of public data but are unable do so because they cannot perform the essential operations needed to collect, process, merge and make sense of the data. Public data can be powerful, plentiful, and relevant to citizens' concerns [24] but there is a need to extend knowledge on strategies to facilitate and attract businesses and citizens to participate, collaborate and re-use public data [27]. Jorge et al. [28] claim, for instance, that the way information is made available does not tend to promote citizens' independent analysis.

2.3 Process

Because of the difficulties of interpretation Cornford et al. [26] stated that the availability of public data solves nothing. Public data covers valuable information about our society [29], which has the potential to empower citizens and create a digital content industry if challenges are dealt with properly. One key challenge is, consequently, to make sense of the data [19, 20, 22, 26, 30]. Public data are frequently offered in heterogeneous formats missing clear semantics that clarify what the data describe [30]. To make it easier to understand the data, one proposed solution is visualization [19, 20].

Furthermore, another barrier to overcome is the challenge posed by public access to public data which is challenging due to the complexity of the public information ecosystem [29]. It is not stand alone information that is the focus of interest but information that is part of a whole in which different data sets needs to be linked and connected to other data sets and services. Many researchers are, thus, addressing the need for integration and linking [31-33]. Linking data is seen fruitful and good for promoting re-use and transparency [31].

Making public data available imposes new burdens on the public sector. Davis and Frank [34] reflect upon the circumstance that many datasets are constructed in the process of being opened. They are not pre-existing artifacts waiting to be transferred, which it can appear like when talking about public data. To convert from raw data to high quality linked data on a large scale requires resources that are not always available [35]. These new burdens are just additional burdens if making public data available does not lead to the desired benefits which are dependent on re-use. There is, hence, a need for understanding the whole process of making public data available, understandable, usable, and the consequences of doing so.

3 Research Approach

The research carried out was qualitative, interpretive research [36] in which the empirical material was gathered through interaction, interviews and observations. Kendall and Kendall [37] argues to work closely together with people in the field helps us understand a phenomenon in its context including its members (people), its interactions (processes), its purpose, how it manages to survive, and what good it does for society and individuals (which is related to policy goals). That is, a much needed holistic approach to information systems research. In order to understand human behavior we need to understand the social context where they occur [38]. The main data collection method for this paper was therefore observation through participation. I

took part in the organization of an open innovation competition and also conducted interviews with the other organizers; the project leader and representatives from the municipality, County Administrative Board, and a local IT business. This made it possible to capture multiple perspectives. The participation consisted of 17 project events, the aim of which was initially to create the competition, thereafter to plan its implementation, and eventually to launch it. The interviews (n=7) were of narrative character [39] in which the interviewees were asked to narrate about their experiences of participating in the project and their work with promoting open public data. In average, the interviews lasted for about one hour each and they were recorded and transcribed. The participation material, in turn, were minutes from meetings, i.e. records of the happenings during the meeting and the decisions taken. The collection of empirical material started in April 2012 and lasted to December 2013, a period of 20 months.

After gathering of the empirical material, a "story" (see section 4) was developed from it, i.e. a description of the process taken place and the outcomes. The aim of the story was to capture and present the competition process in as much detail as possible. When developing the story different empirical materials were put together to capture the process. The step after the development of the story is to use it as a unit for analysis. This was done in the discussion part of this paper in which the story was reflected upon in relation to the policy documents and existing research. Regarding my interaction in the case, I was one of the initiators of the competition and I was actively involved in setting it up for the first time. However, once it was set up I stepped back and left the rest of the work to the other project members. So I did work in the domain in close collaboration as proposed by Kendall and Kendall [37] with more intense interaction during the first competition and less interaction during the second competition. During the second competition 2013, I was not involved in organizing the competition. However, I attended the Kick-off and Hackathon to observe and I took part in the jury work when the competition was completed to get insight into the outcome of it.

4 The Open Innovation Competition

The case studied is a local effort of making public data available and promoting its re-use. This case took place in Örebro, a Swedish municipality. Örebro has a population of approximately 140 000 citizens making it the 7th largest municipality in Sweden. Open public data is a relatively new phenomenon, but public access to government held information is not. In Sweden Freedom of Information laws have existed since 1766 to guarantee public access to government documents [41]. However, this municipality decided, recently, to include work with open data in their strategies on how to carry out the public work. The ambition is to create open data that is free and without limiting licenses to contribute to openness, transparency and easily accessible service. The belief is that this allows for the development of apps and external web solutions rooted in users' different needs [42].

The approach to promote re-use of public data was to arrange an open innovation competition. The initiative for the competition was taken in spring 2012 after an open data seminar held at the County Administrative Board. After the seminar I and a col-

league arranged a meeting with a representative from the municipality who on a daily basis works with open data. Together, we decided to hold a competition to promote re-use of local public data. To create the competition a project group was needed. The next task was, thus, to find people interested in taking part. At the university I turned to the department working with external relations. This turned out fortunate as they, at the time, already was working with promoting open innovation. They became, consequently, very interested in the idea. Besides, also the County Administrative Board and a local IT business became involved. The competition was, consequently, a result of collaboration between the university, the municipality, the County Administrative Board and a local IT consultant business. We all had our own reasons for participating. My reason was to get input to my research, the representative from the municipality participated because the municipality had taken the strategic decision to work with open data, the County Administrative Board was involved because of their work with the Digital Agenda and the local IT business saw it as an opportunity to promote the own company and brand. The work was, however, voluntary. It was in line with regular work duties for most of us, but it was self-imposed.

The first competition was arranged in autumn 2012. The preparations for it consisted of 12 project meetings. Public data was provided by the university, by some of the municipalities in the county, and by the County Administrative Board. All municipalities (n=12) in the county were asked to contribute with open data. The task was to make five data sources available, sources considered relatively easy to publish. Four of the twelve municipalities succeeded with the task, one municipality published one data source, the others did not contribute. Regarding the selection of data we provided the contestants with maps, invoices, lists of schools, fishing waters, nursing homes, car and bicycle traffic flows, income support, grades in school, course evaluation data, visitor data to the largest municipality in the region and minutes from the city council for several of the municipalities in the region, etc.

To market the competition we used social media (Facebook, Twitter and LinkedIn) and a web page was set up. Besides, there was advertisement in the local newspaper as well as posters put up at the project members' work places and at the campus at the university. Also, e-mails were sent out through the Chamber of Commerce and Industry to all IT companies in the region. At the university we also talked to students, asked teachers to inform before class and we sent out information about the competition through the university's learning system. Also, a Kick-off and a Hackathon was arranged at the university.

In 2012 the competition was mainly promoted through social media, the web page, and advertising. The promotion was, thus, meant to reach out to a broad audience. With this we, however, did not succeed. At the Kick-off there were only a handful of people and none of the participants showed interest in the Hackathon. When the registration period expired we had few contestants which led to the decision to extend the registration period. This turned out to be counter-productive as it did not result in any new contestants, just the loss of some previously interested. The contestants could participate in two categories: a) by developing a completed service, or b) by sending in an idea to a service that could be developed in the future. In total, we received six contributions, four apps and two ideas. Some of these contributions were, however, the result of pressure, i.e. people was directly asked to contribute. In the project group we thought that the marketing that we had done would have been enough, but we

were forced to learn the lesson that it is difficult to reach out with the public data agenda and that there is a need for even more marketing than the one we had done.

In autumn 2013 the competition was arranged again because the strategy was to make it an annual event. This year I was not involved in organizing the competition as I now wanted to be able to study the project without affecting the strategies. However, I attended the Kick-off and Hackathon to observe. I also took part in the jury work when the competition was already completed to get insights into the outcome of it. In 2013 the project group consisted of almost the same people as previous year. However, the representative from the County Administrative Board changed, and a representative from the Chamber of Commerce and Industry was added to the group. The strategy chosen, by project management, was to implement the competition so it could be coordinated with some other activities happening within the same period of time. The reason was that they wanted to make the competition visible to an existing audience, i.e. to boost from established events. The Hackathon, for instance, was this year held during the Global Entrepreneurship Week and the prize award ceremony was held at the national conference for the Digital Agenda.

When launching the competition 2013 there were some lessons learned and consequently also changes. One lesson was that the marketing needed to be more direct. One strategy chosen was therefore to turn to secondary schools in the region. The hope was that the pupils at secondary schools would be easier to reach out to if they could have the possibility to work with their contributions on school time. This was a hope by project management which they succeeded with; it was possible to make such an agreement with the teachers. The teachers thereby become intermediaries for the task as it now was their job to recruit pupils, i.e. contestants. This also meant a change in categories to compete in. In 2013 it was possible to compete in one of two categories; one for pupils and one for others. The idea class was, thus, removed. The reason was that it would be too many categories otherwise, and there was also a wish to get more services than in 2012.

Furthermore, more marketing was performed. For instance, there was an interview in the radio and presentation at two events arranged by the Chamber of Commerce and Industry etc. The outcome of the competition 2013 was a larger interest for the Kick-off. Nearly four times as many as 2012 attended the event (n=39) which indicates that the project management succeeded better this year with getting "the message" out. Two of the approached schools were present. Also the Hackathon attracted a larger audience. Present at the Hackathon were ten pupils from one of the schools and two teachers from the same school. The other school who attended the Kick-off was not present at the Hackathon because they did not manage to get the pupils interested. Furthermore, at the Hackathon were also people from several IT businesses, a representative from the Swedish transport agency, organizers of a local music festival, as well as project members. Also media attended both TV and radio. In total there were about 50 people present at the Hackathon who mingled with the contestants to see what they were doing. Of the people present, approximately a fifth was contestants, the others were people curious and with own motives. For instance, the organizers of the local music festival wanted to get hold of someone who could work with their webpage, a task they succeeded with. There was, hence, raised awareness about the competition this year but, sadly, there were not many more contestants. In the end, the outcome of the competition 2013 was four contributions, i.e. services. This can be

compared to the six contributions 2012 (of which four were services, i.e. the same amount).

5   The Interplay Between Policy, Process and People

In 2012, when I started working with the competition I and the other project members thought, perhaps a bit naively, that people would be interested in taking part. My expectation was that there would be many contestants if we just organized the competition. This assumption turned, however, out to be problematic. To have the ability to take part there is first a need for knowledge on the subject. Not many have this, because in general people do not know what public data is. Secondly, there is a need for competence to understand and use the data. Existing research says that the way information is made available does not tend to make people committed [28], the data must be processed to attract people to take part [31, 33]. Some solutions proposed are, for instance, visualization [19, 20], linking and integration [31, 32], but the question is, who should do this? Should processing of the data be performed in the re-use process or is it a requirement for re-use?

Besides, taking part in re-use requires not only understanding the data, but also knowledge about public affairs and skills in service development etc. and the question is, is it realistic to have such demands on citizens? Not only should they be interested, they must also be skilled in many areas. Furthermore, another barrier is the lack of clear incentives. The incentives for developing services are to benefit from them somehow and these benefits come from people using the developed services. However, the public interest for the service that won the competition 2012 turned out to be small, only a handful of people have used it and the service that won 2013 could, unfortunately, not be fully developed to realize its true potential because of lack of data sources needed. This is a problem because if there is limited interest for the services there are no clear incentives for building them. The reason for the low interest is that the data is local and consequently the services and their audience too.

Our selection of data made available could, of course, be criticized but on municipal level public data is usually not that much more exiting. Existing research talk about linking different sources [31-33] and this could be a solution. But it is not clear who should do it. Hence, both the assumption of ability and willingness is problematic at local government level. Local data has limitations and this is one important aspect to bear in mind. In this case, re-use of public data did not come "automatically", in fact, it did not even come with the competition's prizes. In 2012 there was a cash prize of 20 000 SEK (approximately €2300), but since that did not motivate people this was changed in 2013. In 2013 the prize was instead to have the opportunity to create business connections. The prize was to take part in an agile project at an IT company, something that could potentially, in the future, lead to an employment. However, that did, apparently, not motivate enough either.

When policies (for example [2]) write about public data there seems to be an assumption of interest in re-use. In this case, it was not so. This is, according to the representative from the municipality, a problem because re-use is believed to be important to get others to cooperate:

"It's a chicken and egg situation. So you have to have some respect for it, it does not go in two weeks, it's a few years before getting this out, and before getting up re-use it is difficult to argue for open data internally in the organization."

It is, consequently, not just an interplay, it is an "intermess" between policy, process and people in this agenda. It is not clear who should do what and where the borders of the process begin and end. Neither is it clear where the ideas and beliefs come from. Olsson [15] argues that policies are the result of informal actors' (peoples') complex processes. Consequently, on what grounds they are based is not obvious.

What is clear is, nevertheless, the expectation of transformation. This goal has, however, not been realized even though it has been a goal for many years now [4]. What is the difference now? Public data is expected to lead to increased transparency because of availability of information. The question then is, how much more available does it become if the interest for re-use is limited? Freedom of information laws have existed for long time [41] and made it possible to get hold of the information also previously if interested. So, if data is only published, does availability increase? Availability is dependent on some activity in which the data becomes easier to understand. To make something electronically available is not the same as making it understandable, comprehensible and usable. Availability is more than the act of publishing. Therefore, is it realistic to believe that making public data electronically available contributes to strengthening of the public sector? Maybe I say, but it comes down to what happens next and as previously said, this is difficult to predict.

6   Conclusions

The aim of this paper was to answer the question of: "How do policy, process and people interact when implementing the public data agenda?". The findings showed that:

- **Policies** seem to be a bit opportunistic. Transformation is an ambitious goal and according to the report from the European Commission resources must be used in the best possible way. The public data agenda is a good initiative but there seems to be an assumption that re-use will happen automatically. This case has, however, showed that this is not something that can be taken for granted.
- The borders of the **process** of making data accessible are blurry. It is not firmly established what data that should be made available to attract re-use, raw data or processed data. Accordingly, it is not clear where the process ends.
- A consequence of the above statement is that it is not clear who should do what. A belief is that citizens should re-use the data to make it understandable to others, but if they cannot understand the data themselves this is not realistic. Consequently, there is, probably, a limited group of **people** who can do this work and to make it further complicated, this case showed that their incentives for doing it are not obvious.

The findings in this paper address the research gap of empirical data on the public data agenda. The public data agenda is a good political end but as seen in this case, it can be questioned if it really is built on a realistic ground. According to the report from the European Commission there are societal challenges to solve and public data is presented as one solution. However, data is just ones and zeroes and I therefore wonder, do we believe too much in information? Many researchers have pointed out that there is a tendency for over-reliance in technology, i.e. technological determinism. Is this information determinism? Will we in the future, talk about this agenda as that? I have only studied one case and can therefore not answer such questions, but the case has shown that it is important to raise them. Accordingly, there is a need of more research.

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