Public Information Directive (PSI) implementation in two Swedish municipalities

Proscovia Svärd

Department of Information Science, University of South Africa, Pretoria, South Africa and Södertörn University College, Stockholm, Sweden

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Abstract

Purpose – This paper examines the implementation of the Public Sector Information (PSI) directive in two Swedish municipalities amidst a changing information management landscape impacted by e-government development. Government information is currently looked upon as a "gold mine" and "raw material" to be explored by interested parties. The PSI directive grants European citizens a right to access government information flows (PSI) in order to develop new electronic services. The Swedish government implemented its PSI directive in July 2010. Swedish municipalities have to embrace the directive and make the PSI available to the general public. The literature review highlighted a number of critical issues that should be addressed if PSI initiatives are to succeed. This study revealed that the two municipalities had different resource capacities, and the levels of e-government development varied. This meant that the implementation of the PSI directive also varied. The bigger municipality with a bigger budget had implemented the PSI directive and was publishing data sets on its website, while the smaller municipality with a smaller budget only published a few documents. This paper, therefore, argues that the municipalities should have the same capacity if the PSI is to be a democratic endeavor to serve all citizens. Good quality PSI will also require the municipalities to embrace a records and information continua thinking, which highlights the necessity to proactively and holistically manage the information for pluralization in different contexts.

Design/methodology/approach – This paper builds on interviews that were conducted with four municipal officers. The number of respondents is quite small because the focus was specifically on people who were responsible for the implementation of the PSI directive in the municipalities. The respondents were identified through their fellow colleagues and they also recommended each other. Pickard refers to this kind of approach as a snow-bowling approach. Through interviews and observation, one participant advises on issues that need further inquiry and, hence, directs the researcher to another person who might offer more answers. A general interview guide approach was used to solicit answers to issues such as the implementation of the PSI directive, guidelines for PSI publication, if terms such as big data and open data were being used in the municipalities, if the municipalities had an information governance plan and how it was understood, if the information systems were well aligned to meet with the requirements of the PSI directive, how e-government development affected information management and information security and if the municipalities had information security guidelines.

Findings – The Swedish government requires its administrations to engage in e-government development. This development has led to increased amounts of information that the municipalities have to effectively manage and make available to the general public. However, the municipalities operate under different conditions. Municipalities that are financially stronger are better placed to invest in measures that will lead to better quality PSI. All municipalities are, however, expected to implement the PSI directive. The two municipalities that were the subjects of this study had different information management environments and the capacity to invest in information management systems that would facilitate the management of their information resources. The budgetary constraints faced by smaller municipalities might impact the implementation of the PSI directive and, hence, hinder the publication of the PSI. e-Government is meant to be an inclusive project, and the PSI is meant for all citizens with innovative ideas. There is a risk that citizens

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who belong to poorer municipalities might not be equally privileged compared to those living in resourceful municipalities. This poses a democratic challenge that should concern all people interested in an open and inclusive society.

Originality/value – Little research has so far been published on the implementation process of the PSI directive. The discourses that have started to emerge discuss the challenges of open data without paying much attention to the creation, capture and the management aspects of the PSI. The originality of this paper, therefore, lies in the application of the records and information continua thinking, which highlights dimensions that enhance information management and the democratic challenges that will be caused by the data divide, as municipalities have different capabilities when it comes to the publication of the PSI.

Keywords e-Government development, Public Sector Information, Records and information continua

Paper type Research paper

Introduction

This paper examines the implementation processes of the PSI directive in two Swedish municipalities amidst a changing information management landscape which is due to e-government development. European governments are encouraged to develop e-government to establish a common framework where technologies can be deployed to expand services, increase transparency, efficiency and inclusion (United Nations Department of Economic and Social Affairs, 2012). The implementation of e-government has therefore, led to an increase in information, especially digitally born records, which puts new demands on information and records management practices (The International Records Management Trust, 2004). Government information is currently looked upon as a "gold mine" that should be explored by various stakeholders to boost national development through the creation of new electronic services. For example, Fornefeld *et al.* (2009) argued that in most European public administrations, making information available to the private sector is an indication of a cultural change. They further argued that previously the private sector had to purchase government information.

Ideas about information and content management have fundamentally changed and developed as a result of increased digitalization. The exponential growth of digital information has resulted in words such as "big data", "open government data" and public sector information (PSI). "Big data" refers to the tools, processes and procedures that allow an organization to create, manipulate and manage very large data sets and storage facilities (Knapp, 2013, p. 215), while "open government data" are data that can be freely used, re-used and distributed by anyone, only subject to (at the most) the requirement that users attribute the data and that they make their work available to be shared as well (Ubaldi, 2013, p. 6). Therefore, movements such as open-data movement are pushing for the opening up of data in the information societies to support democratic developments and individual liberty (Johnson, 2014). The open-data movement emanates from access to information, the transparency and accountability culture and the PSI directive (Shepherd, 2013). Government data is "any data and information produced or commissioned by public bodies" (Ubaldi, 2013, p. 6). Open government data require the protection of privacy and, therefore, all restrictions to access and re-use of authorized data – including legal, financial and technological issues have to be overcome.

As government institutions engage in e-government development and use information technology, they are generating a huge amount of information referred to as the PSI. The PSI can be defined "as any kind of information that is produced and/or collected by a public body and it is part of the institution's mandated role" (Dragos and Neamtu, 2009, p. 4). The PSI, for example, constitutes data in geographical information systems (GIS), land registry, public weather services and other types of information that are created by public administrations. According to a report published by the European Commission (2018), PSI is

crucial to the well-functioning of the internal market, free circulation of goods, services and people. Lundqvist (2013) postulated that European markets derived from PSI have been estimated at a turnover of 30bn Euros per year. Access to PSI is meant to stimulate the development of information markets and to improve the quality of e-government services.

To innovatively use the PSI, the European Union enacted the European PSI directive in 2003 on the repurposing of government information. The directive was to be implemented in the member states by July 2005. The directive focuses on the economic aspects of public information re-use (European Union, 2003). Sweden constitutionally guarantees its citizens readily access to government information and is one of the leading e-government development countries (Bohlin, 2010; Jørgensen, 2014). In 2010, the Swedish government enacted an act on the re-use of its PSI. The purpose of this act is to promote the development of an information market that will facilitate the re-use of government information by the citizens (Finansdepartmentet, 2010). Currently, Sweden has a portal that can be found at öppnadata.se (Eklund and Jansson, 2013).

Governments around the world are now opening up their information flows in an effort to promote transparency, accountability and to boost national development (European Commission, 2018). However, the institutions that publish the PSI need the necessary resources to deliver high quality PSI to the general public. The PSI has to be reliable, complete and trustworthy (European Commission, 2018; Thurston, 2012). Robust information management regimes are crucial to the quality of PSI. e-Government development is an area that has profoundly impacted the information landscape and continues to do so. The involvement of the Swedish state in e-government development has put information management issues at the center of the process. Institutions need to collaborate and share information to explore it innovatively. State and local institutions in Sweden are currently working together to develop common solutions that will enhance the management of information and, at the same time, promote its use as a national resource (Svärd, 2010). Efforts are currently being made to merge government information flows in an attempt to create a one-point access for citizens and efficient public service administrations. This, however, will require a transformation of the stovepipe information systems into integrated and searchable systems to achieve the one point-access objective (Samuelsson and Svärd, 2011).

Municipalities have to deal with this changing information landscape that does not only require improved information management skills and understanding but also technology that is aligned with the business processes and that enhances effective information management. Therefore, the current information landscape requires among other things, undertaking process management to identify key information resources, dealing with mobile devices to promote information security, effective search tools especially given the dispersed information resources, enhancement of social interaction through social media, cloud deployment to cut IT costs and, at the same time, the consolidation of the information systems into a single enterprise-wide system that will manage all the information resources (Svärd, 2011, 2014).

Information Governance (IG) is an emerging multidisciplinary field proposed by authors such as Smallwood (2014) as a solution that organizations need in today's digital environment. He argues that IG is about managing information in a way that ensures compliance with regulations, improves its quality and accessibility, ensuring its security and preservation. It is an encompassing term for how organizations manage all their content. Smallwood (2014, p. 6) contends that IG includes, "the set of policies, processes, and controls to manage information in compliance with external regulatory requirements and internal governance frameworks". This means that the contexts in which the PSI is created

need to be prioritized. The challenges in the current information management landscape require embracing information management's best practice. This paper examines how the two Swedish municipalities were coping with the implementation of the PSI directive in the light of the issues discussed previously. This paper presents an introduction that gives background information on the study, a literature review, the method applied for the execution of the study, the research findings and a discussion and conclusion.

The research problem

The Swedish government requires its administrations to engage in e-government development. e-Government development has led to increased amounts of information that the municipalities have to effectively manage and make available to the general public. All Swedish municipalities are further expected to implement the PSI directive that was enacted in 2010. However, the municipalities operate under different budgetary conditions. Municipalities that are financially strong are better placed to invest in measures that will lead to the creation of better quality PSI and its publication. The two municipalities that were the subjects of this study had different information management environments and capacities to invest in information management systems. The author therefore argues that the budgetary constraints faced by smaller municipalities might hinder the efficient implementation of the PSI directive, and the publication of the PSI. This disadvantages certain sections of the society as far as access to the PSI is concerned and, hence, impacts the development of new electronic services. e-Government is meant to be an inclusive project, and the PSI is meant for all citizens with innovative ideas. There is, therefore, a risk that citizens that belong to poorer municipalities might not be equally privileged as those living in resourceful municipalities. This poses a democratic challenge and will result in an information divide.

Method

This paper builds on the interviews that were conducted with four municipal officers. The respondents were identified through their fellow colleagues and they also recommended each other. The target group of the study included officers who were involved in the implementation of the PSI directive and, hence, the small number of respondents. Pickard (2007) referred to this kind of approach as a snow-bowling approach. Through interviews and observation, one participant advises on issues that need further inquiry and, hence, directs the researcher to another person who might offer more answers (Pickard, 2007). A general interview guide approach was used to solicit answers to issues such as the implementation of the PSI directive, guidelines for PSI publication, if terms such as big data and open data were being used in the municipalities, if the municipalities had an IG plan and how it was understood, if the information systems were well aligned to meet with the requirements of the PSI directive, how e-government development affected information management and information security and if the municipalities had information security guidelines.

Turner (2010) argued that the strength of this approach lies in the ability of the researcher to pose the same questions to the respondents and that it enables the collection of the same set of data. Interviews are a common means of collecting qualitative data (Merriam, 1988). Interviews facilitate a deeper understanding of the issues being researched. Two of the interviews were conducted face-to-face and two were answered via email. Two of the officers were responsible for the PSI issues in the municipality and the remaining two were responsible for information security issues. A researcher collects detailed descriptive data through the interactions and conversations with the respondents. Patton (2002)

postulated that the collected data are the content analyzed to identify the patterns of experiences. The interviews were transcribed, analyzed and facts relevant to the study were extracted for use in this paper.

The municipalities are referred to as Case A and Case B to protect the identities of their respondents. Municipalities have similar functions even though they vary in size but have different budgetary capacities to execute their work. These two municipalities were chosen as research subjects due to their easy access and because they varied in size and budgets which signaled an interesting contrast. The respondents are referred to as 1, 2, 3 and 4 respectively. Case A, Respondent 1 was a Principal Registrar but also worked as an archivist on a 25 per cent basis. She had the overall document management responsibility in the municipality. Case A, Respondent 2 worked as an Information Security Officer. The Case B, Respondent 3 worked as an e-Strategist and was responsible for the municipality's digitization process and the development of digital services and data access issues. His area of responsibility was to lead the digitization process to create better and more useful electronic services and increase the municipality's internal efficiency. This work also included increasing transparency toward citizens and businesses and participation through open data PSI. Case B, Respondent 4 worked as an Information Security Officer and had been newly recruited.

The literature review

The literature on the implementation of the PSI directive is only emerging. The research presented below highlights the challenges that need to be addressed if PSI is to be of benefit to individuals and communities.

Zuiderwijk *et al.* (2015) argued that despite the fact that governments around the world are undertaking initiatives to open up government data, there is still paucity in the research and practice regarding the success of such initiatives. They confirmed that there are impediments to the use of government data and that it is only a limited number of data sets that are explored. They attributed the low exploration of the government data sets to the fact that there are a few open data infrastructures that provide user support. They further confirmed that there are three dimensions that are indicative of a successful open data initiative and these include:

(1) quality of open data, that is its accuracy, completeness, timelessness and consistency;

(2) use of open data; and

(3) emerging impacts and benefits.

Their research identified context-specific critical success factors for open data publication and their use. They posited that some of these identified factors are universally applicable, while others are context bound. They also confirmed that there is currently no holistic framework of critical success factors in relation to open data publication and their use. The identified critical success factors included:

- legislation, regulation and licenses;
- strategy and political support;
- management support and publication processes within governmental agencies;
- training of and support for civil servants;
- evaluation of the open data initiative;
- sustainability of the open data initiative;

- collaboration;
- open data platforms, tools and services;
- accessibility, interoperability and standards; and
- data stewardship and the development of a management plan for it. (Stewardship here refers to assuring accuracy, validity, security, management and preservation of information holdings).

Kucera (2015) also confirmed that it is a very small portion of the open data that is truly open due to the requirement of open licenses and that the data is not packaged in a manner that facilitates its discovery, understanding and re-use. He emphasized the need to promote best practices and methodologies in the publication of open data. Scassa and Singh (2015) who explored the challenges of open data initiatives within a bilingual or multilingual jurisdiction contended that less attention has been paid to the challenges posed by such a context. Using the Canadian federal state as a case study, they explored whether:

- open data initiatives might be used as a means to outsource some information analysis and information services to an unregulated private sector, thus directly or indirectly avoiding obligations to provide these services in both the official languages; and
- the Canadian government's embrace of the innovation agenda of open data leaves minority language communities underserved and under-included in the development and use of open data.

They concluded that open data is likely to shift the responsibility for providing tools and services based on government information to the private sector. Even if documentation related to open data was available in French and English in the Canadian context, it was not so clear whether the strategies to create opportunities and incentives for the use of open data were available on an equal basis.

Keller *et al.* (2014) examined the amendment made by the European Union to the Public Sector directive in 2013. The amendment of the directive brought publicly funded libraries, museums and archives into its scope. They argued that though the amendment offered a general framework for sharing Europe's cultural heritage, that the changes could have done more harm than good where the digitized cultural heritage was concerned. This is due to copyright legislation. They, therefore, recommended that member states should ensure that all documents that are not covered by third party intellectual property rights should fall within the scope of the directive and that the re-use of the works that are made available should not be charged for.

Dander (2013) was of the view that the effective use of PSI is still concentrated in the hands of a few, that is the state, business and academic users. This is because to meaningfully explore the PSI, one needs to be in possession of skills that can turn the data into a useful product and must have the software and hardware to process it. He stipulated some elements that are key to the exploitation of PSI for non-experts and for the broader community as follows:

- internet access sufficient to support making the data available and barrier-free;
- computers and software sufficiently powerful, having sufficient time;
- computer/software skills to use the software and hardware;
- content and formatting – having the data available in a format such as to allow for their effective use at a variety of levels of linguistic and computer literacy;

- interpretation/sense making sufficient knowledge and skill to see what data use make sense (and which do not) and to add local value;
- advocacy – having supportive individual or community resources sufficient for translating data into activities for local benefit; and
- governance – the financial, legal, regulatory or policy regime required to enable the use to which the data would be put.

Davies and Bawa (2012) viewed the online publication of structured data sets by governments as a promotion of transparency and accountability. This is a development that fosters increased civic participation and stimulates economic growth and development. They explored the historical trajectories of government policies with respect to openness, data management and its use and examined the different approaches to the publication, creation and use of data relevant to the process of governance. They contended that open data activists must account for the differences in people's capacities to access and use government data because it impacts the benefits that can be derived. Janssen (2012) was, however, of an opposite view to that of Davies and Bawa (2012) because she did not believe that an open government necessarily improves access to information as required by the freedom of information laws. She also highlighted the fact that open data does not offer intellectual accessibility, that is skills and knowledge required to interpret vast amounts of data sets. She, therefore, concluded that it is unlikely that the benefits of open data such as transparency, accountability and public participation will be realized. This is because there is a risk that open data reinforces or increases inequalities in accessing government information and, hence, increases the data divide. There is a need to create tools that should convert data into information if it is to be understood and used by the broader public.

The theoretical and conceptual framework

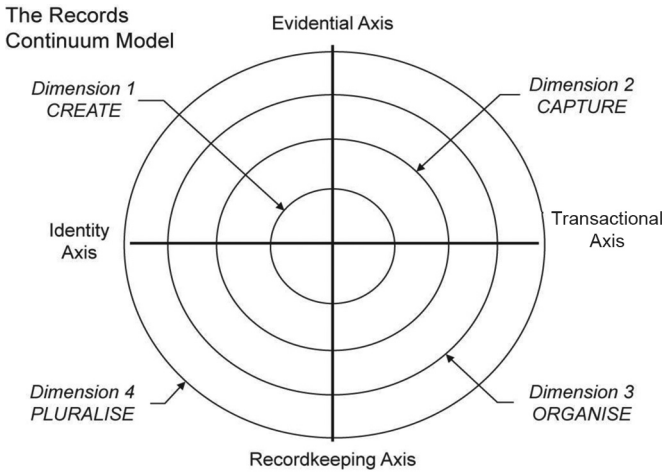
The current information management environment requires holistic, proactive and collaborative enterprise-wide information management approaches and should engage different professions such as the IT, business process managers, business process analysts, information architects, record managers, archivists and lawyers (Eriksson, 2014). This would facilitate the management of all content in an organization whether structured or unstructured. Information as evidence is characterized as structured, and unstructured information is that information that falls outside what records management captures and manages as transactional evidence but that is useful for the day-to-day activities of the municipalities. All this information makes up what is referred to as the PSI. The PSI environment requires progressive ways of managing information and the continuum thinking seems to be appropriate.

The records and information continua models are theoretical frameworks meant to facilitate an understanding of records and information management activities. Upward (2009) argued that the records continuum model (RCM) is a time/space model and not a life-of-the-records model. He contended that records continue to play different roles in a life/space model. The information continuum model (ICM) is based on the RCM and the difference between the two continua lies in the fact that the RCM focuses on information of evidence, while the ICM focuses on general information. At the heart of the ICM is the recognition that information is managed for different purposes (Oliver, 2004; Oliver and Foscarini, 2014). The continuum thinking promotes the idea that information management activities are recurring. It challenges the traditional view that separates non-current information from current information as distinct entities. It therefore does not separate archives and records management responsibilities but views them as integrated. It therefore

offers a framework for thinking and practice that promotes an integrated view of information resources where information is recalled to be used in different contexts (McKemmish, 1997).

The continuum thinking, therefore, suits the PSI environment where all types of information have to be managed for re-use. The PSI directive's objective is to avail information that is created for the government administrative processes to the general public for further exploration. This means that the information is used in different contexts, by different stakeholders and, therefore, always is in the process of being re-created. The records and information continua models have four dimensions, namely, to create, capture, manage and pluralize (Oliver, 2004; Upward, 2009) as explained below:

- *Dimension 1 – Create*: It represents the locus where all business actions take place. In this dimension, documents exist in versions and can be moved beyond this locus.
- *Dimension 2 – Capture*: It is when a document is communicated or connected through relationships with other documents, with a sequence of actions. The records in this dimension are captured as evidence of transactions and can be distributed, accessed and understood by others involved in the business transactions.
- *Dimension 3 – Organize*: It represents an aggregation of records above the individual instances of sequences of actions. Here the records are invested with explicit elements needed to ensure that they are available over time that exceeds the immediate environment of actions. Here the records join multiple other records deriving from multiple sequences of actions undertaken for multiple purposes. This is the archive, or fond, that forms a corporate or personal memory.
- *Dimension 4 – Pluralize*: This dimension represents the broader social environment in which records operate. The legal and regulatory environment which translates social requirements, different for every society and at every period, for records' management. This dimension further represents the capacity of a record/records to exist beyond the boundaries of a single creating entity (Reed, 2005) (Figure 1).



Source: McKemmish (2001)

Figure 1.

All the RCM/ICM dimensions have to be effectively managed if government administrations are to generate and make accessible quality information to the general public. While the RCM focuses on records, the same thinking has to be applied on the entirety of the PSI. Meaningful PSI has to be complete, reliable, trustworthy and authentic.

Research findings

The municipalities

Case A was a young and expanding municipality with a population of 17,056 inhabitants. It was established in 2003 and had about 140 employees. Case B was established through amalgamations that took place during the late 1960s and early 1970s. Case B had a population of 21,100 inhabitants and about 15,000 employees. The population figures are according to the Swedish Statistics Bureau as on 30, June 2016.

Implementation of the public sector information directive (PSI)

Terms such as "big data" and "open data" were discussed in both municipalities. Respondent 2 from Case A, however, argued that they ought to be discussed in conjunction with the procurement of database applications and implementation. Respondent 1, Case A confirmed that the municipality had not yet fully embraced the PSI directive. She understood that PSI was about making information available to the citizens. The municipality published documents of committee meetings on their website and also endeavored to publish as much information as possible. It did not have any searchable registries on the internet, but citizens interested in accessing the documents could take the contact from the municipality. The respondent argued that:

> It is clear that we think about the PSI directive and that the public should utilize the information that we have but as far as I know, we do not have any fully developed system that facilitates access (Case A, Respondent 1).

The municipality made available geographical maps on the website. Citizens had to physically visit the municipality to access the more detailed maps. This respondent was leading a comprehensive municipal-wide document management project that is supposed to change the current document management structure. The aim of the project was to make information more accessible both internally and externally. Respondent 2 added that the PSI is a good initiative but that it was hard for him to see its usefulness where small municipalities such as Case A are concerned. He further argued that the municipality had not yet implemented guidelines concerning the PSI directive because it requires financial resources.

Case B's Respondent 3 understood the PSI directive as a directive based on a European law and that had been implemented in the Swedish law. He also confirmed that the PSI legislation required Case B to honor information requests from the public and to provide data in its operational systems. Responding to the question of whether everyone in the municipality was aware of the PSI directive he confirmed that:

> I think we have challenges ahead to explain and describe to the entire municipal organization what the PSI is all about so that people can understand the benefits of it, but also that there are legal requirements behind it. We have to work hard to raise awareness (Case B, Respondent 3).

He argued that they have tried to sensitize people on a daily basis especially the directors of the different departments. Case B was a big organization with 14,000 employees and, therefore, reaching out to everyone was a challenge. The municipality had adopted guidelines for open data that were decided on in 2014 by the municipal administration. The

guidelines defined the basic requirements for the data and who had the responsibility to ensure compliance with the PSI Act. In this case, it was the municipal administration unit. This unit was responsible for identifying, publishing and updating data sets and checking whether they had the right quality. The unit was also responsible for the costs that the provision of such data entailed. The municipality started implementing the PSI directive in 2010. It started off low key by providing PDF documents but had now developed and went beyond providing just the requested information but proactively provides open data. The municipality published statistics that it collected on areas such as sustainable development, gender equality, employment and levels of absence from work. The statistics are nationally reported but the municipality also uses them for its own activities.

e-Government development

Case A, Respondent 1 confirmed that e-government had increased the amounts of information that the municipality had to manage as communication with the citizens is through different channels. Case B, Respondent 3 confirmed the increase in information but did not view it as a problem. Respondent 3 instead argued that e-government development had increased awareness regarding the value of information and was positive that this development would lead to a mature understanding of information as an organizational resource. Respondent 4 of the same municipality confirmed that e-government development had put information security issues in focus. The management of personal information in electronic services has, for example, led to tougher regulatory requirements.

Case A, Respondent 1 identified the building permit application process, daycare service, citizens' opinion registration box as examples of the electronic services being enjoyed by the citizens. The delay in the development of electronic services in Case A was attributed to the old systems that make the effective management and use of information difficult. The respondent contended that the municipality must be in a position to efficiently handle both incoming and outgoing information if it is to deliver full-fledged electronic services. Case B, Respondent 3 confirmed that municipality had developed a good number of electronic services. Some were of a simpler kind as they only avail fill-in forms, and some were more developed. Even the forms-based services required bank identification to ensure high security. The more developed electronic services included the building permit application process, school and daycare application processes.

Information governance in the municipalities

Case A, Respondent 1 confirmed that they were working hard to get rid of the paper mindset in order to promote information access. The municipality is only 12 years old, and it has during the last 8 to 9 years been trying to create structures to facilitate the management of its information resources. The municipality has only had basic document management structures. It is only in the last few years that it has begun examining ways of enhancing what it has so far built up to achieve a well-functioning information management infrastructure. The municipality had made a decision not to print digitally born information on paper. What is received on paper is scanned and the paper records are retained in the physical archives. About 70-75 per cent municipal information is digital. Respondent A understood what IG was but argued that:

> I cannot say that we use that term. Maybe it is used by the IT but it is not something I fully know.

Respondent 2 of Case A who worked as an Information Security officer argued that information was a very important part of the municipal operations and to have information that is accessible, relevant and handled with appropriate confidentiality was of paramount

importance. Responding to the question of whether Case B espoused IG, Respondent 3 confirmed that the municipality did and had a project that was working with the implementation of an electronic archive. The project was also to take into consideration the various aspects of information governance such as, how to work with information as a long-term strategic resource. He further postulated that information governance was having principles to guide information management and ownership, ensuring the maintenance of the value of information and creating and maintaining good quality information. This respondent further contended that it entailed that information management guidelines are followed by everyone in the organization. The respondent argued that it was also a matter of maturity for his organization. There were officers charged with the responsibility to manage the information systems but not the information that the systems contain.

In 2008, the National Archives issued a regulation requiring all government agencies to embrace process-based archival descriptions by the year 2013 (Riksarkivet, 2008). It was argued that process-based archival descriptions suit the digital environment better and link the information/records to the processes they emanate from (Samuelsson, 2018). However, as the national archives only has an advisory role toward the municipalities, they were not obliged and were implementing this work at their own pace. It is the Swedish Association of Local Authorities and Regions that issues rules and regulations that govern the management of information in the municipalities. Both respondents confirmed that the municipalities have started thinking about the business process-oriented way of managing archives. Case A had started working with the issue, while Case B was to seriously consider it during the e-archive project that was under implementation.

Case B's Respondent 4 confirmed that the municipality had an information security policy and various guidelines and instructions regarding its different areas of operation. It, however, lacked a formal process for reporting and handling of security flaws and incidents related to information security. Reported cases were, however, dealt with via the help desk. By the time of the interview, the municipality was undertaking a project to revamp information security regulations. The intent was to create an information security management system in accordance with the international standard (ISO 27000).

The information management systems that exist in the municipalities today are functionally aligned, and several of them are, therefore, silo systems. Yet, the current information landscape requires integration of all information platforms from social, mobile, enterprise information systems and the Web. Case A respondent argued that when the municipality procured its recent case and document management system, it also developed a plan to specifically integrate the various systems. The municipality had about eight to ten big systems and numerous small ones. However, units such as the building permit were still struggling with old systems which they fed with data but had to struggle to get out. Additionally, it costs a lot of money to buy new systems and Case A did not have enough resources to do so. When a system is so old, it sometimes requires more integrations to be able to export data from it. The inheritance of systems from Case B that it detached from in 2013 was considered a cheaper solution instead of acquiring totally new systems. This has, however, meant that the municipality has many old systems that require integrations and upgrades. Some of the systems cannot be integrated, and the municipality will need to look for resources to migrate the information resources in them.

Case B had a total of about 450 information systems. Some of the systems were not aligned with the business processes though shared by the different units. The disparate information systems environment was blamed on the IT governance that the municipality had before undertaking changes. Different units are used to procure systems without consultation, and, as a result, the municipality had about 18 case handling systems and

seven accounting systems. This created an environment that was hard to integrate and that is economically a challenge to manage. The municipality was working with its IT governance, to consolidate and standardize the procurement procedures that will lead to the reduction of information systems. The municipality had also implemented a "change board" that oversaw the procurement process.

Discussion

The PSI directive is meant to enhance transparency and accountability of public institutions and to promote information markets and the creation of new electronic services. This is also in line with the e-government development objectives. The emerging literature related to the PSI initiatives highlights some critical factors that need to be addressed if the PSI is to be enjoyed by all citizens. The literature points to issues of copy-right legislation, challenges of making PSI intelligible, lack of skills and knowledge, lack of hardware and software, challenges posed by bilingual and multilingual communities and the fact that PSI does not necessarily lead to increased transparency and access to government information. The stewardship of information was one of the identified critical factors, and it is quite central to this study. If the municipalities are to successfully implement the PSI directive, they need financial and technical resources that will enable them to fully engage in the development of e-government which is intrinsically linked to the PSI. Case B was more advanced in e-government development compared to Case A and, therefore, produced more information to publish. They further need an information management infrastructure that is built on continuum thinking. The continuum thinking promotes a view that considers the entire chain of information management from creation, capture, organization and pluralization for re-use.

The records and information continua models, would through the four dimensions of create, capture, manage and pluralize facilitate the thinking that needs to be embraced when dealing with the PSI. Each dimension of the records and information continua is crucial to the proactive and holistic management of information in a digital environment. At dimension 1 for example and prior to the acquisition of information systems, information needs to be planned for to facilitate its capture, management and re-use. It is at this dimension where the packaging of the various data sets should be planned for prior to the acquisition of database applications as argued by one of the respondents. Information security is a critical issue in a situation where huge amounts of information are published. The two municipalities had hired information security officers to focus on information security issues.

For the PSI to be made available to the public, it has to be captured and managed effectively. To make it retrievable and understandable, it has to be tagged with metadata and this is in line with the capture and manage dimensions of the records and information continua. Both municipalities had an IT environment with disparate systems, but Case B's information systems facilitated a more effective capture and management of its information resources. It had also started publishing data sets, while Case A was still struggling with old information systems. Case B further had a unit and guidelines for the publication of the data sets, while Case A was still publishing individual documents. Both municipalities lacked electronic archives, which is a setback when it comes to the effective integration of information resources.

The pluralization of public information as per the records and information continua requires well organized information and integrated systems. Case A was undertaking a document management project that would facilitate access to digital information both internally and externally. This project did not include the development of electronic archives

due to financial constraints. Case A had inherited old systems from its mother municipality and could not afford to replace them with new ones. Case A's many old systems were a threat to its information resources, but it could not afford upgrading them all or migrating the information. This also complicated the development of electronic services and the management of the information flows. Case B had had an on-going project to implement an e-archive. Since it had better information systems, it also had more developed electronic services and was able to publish data sets on its website as per the PSI directive. A successful implementation of the PSI directive requires the deployment of information management systems that are well aligned with the business processes of the municipalities.

Currently the municipalities operate functionally oriented information systems, while electronic services require business process oriented systems. System integration was problematic in both cases but that was being addressed. The interviews confirmed that most of the systems were not integrated. Case B's information systems procurement process was ungoverned for a long time which resulted in a substantial number of silo systems that are difficult to integrate. Case B implemented what it referred to as a "change board" to co-ordinate the procurement process. Despite the fact that information has become a strategic resource, it is still not managed and used to its fullest potential. Both municipalities still lacked electronic archives even if a project was under way in Case B to create one. In Case A, there were not enough resources to even start investing in an electronic archive. A project was being undertaken to create a document management infrastructure. Lack of electronic archives and integrated information systems complicated the development of fully fledged electronic services in Case A.

Conclusion

e-Government development is supposed to increase transparency and accountability through the free flow of information. Currently, e-government development is uneven in the municipalities and this has an impact on the PSI generated. The study revealed that the citizens of the bigger municipalities seem to be the winners when it comes to the publication of the PSI because these municipalities have the budgetary capacities to implement the PSI directive. While the bigger municipality had resources to address risks posed by the PSI publication and could ensure that it is of good quality before making it available to the citizens, the smaller municipality was still struggling with the creation of an internal document management structure that would facilitate the flow of information both internally and externally. If the publication of the PSI is to be regarded as a democratic endeavor, both small and big municipalities should be given enough financial and human resources for its efficient publication.

There were discernible differences between the two cases examined. The differences included the size – small and big, budgets, levels of e-government development and engagement in the implementation of the PSI directive. The bigger municipality could afford to hire a person who worked as an e-strategist and who fully understood the implications of PSI, while the smaller municipality, Case A directed me to the Principal Registrar who also worked as an archivist. To be able to pluralize the PSI as per the records and information continua and in a democratic manner, the municipalities will have to achieve equal development of e-government and an information management infrastructure that will effectively deal with some of the risks posed by the PSI publication such as information security issues. The two studied municipalities will need to have the same capacity to create, capture and manage the PSI to pluralize it and to avoid creating a data divide.

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About the author

Proscovia Svärd is a Senior Lecturer at Södertörn University College in Sweden and a Research Fellow at the Department of Information Science, University of South Africa in Pretoria. She was between 2016-2017 a Post-Doctoral Fellow at the University of South Africa (UNISA) at the Department of Interdisciplinary Research and Postgraduate Studies. In 2015, she was the Co-ordinator of the Nordic Africa Research Network based in Sweden and has earlier worked as an Archivist, Research Administrator for the Program on Post-Conflict Transition, the State and Civil Society and as a Project-Coordinator for a Nordic Documentation Project on the liberation struggles in Southern Africa (www.liberationafrica.se) at the Nordic Africa Institute, Uppsala, Sweden. She completed her PhD at the University of Amsterdam. She has a Licentiate Degree in Data and Systems Sciences, BA and MA in Archives and Information Science from Mid Sweden University and a BSc in Media and Information Science from Uppsala University. Her research interests include enterprise content management, records management, information culture, e-government development, public sector information (PSI), long-term preservation of digital information, truth and reconciliation commissions and their documentation processes, the role of archives in enhancing accountability and transparency in government institutions, information access and the link to democracy and development. Proscovia Svärd can be contacted at: Proscovia.Svard@sh.se