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1. Introduction

What type of information that is preserved or how much of the information that is preserved often have bearing on the legal, operational or cultural reasons. It will in all cases be necessary to argue for the importance of information or benefit. It will also become increasingly important to be able to demonstrate long-term sustainability of skills, finance or service. So in order to preserve and rely on information in the future you must be able to demonstrate the value on both the information objects and the repository. To create a long-term and sustained trust to the digital information requires not only technical and legal requirements, but also a clear vision for economic sustainability and a focus on communicating the benefits of the preserved information among the several stakeholders of public preservation services. As you can understand, a study of benefits realization management have many different approaches.In this study we have the focus on modes of collaboration for realizing E-government benefits.

E-government aims at improving the efficiency and effectiveness of public organizations and at increasing the quality of public services through applying information and communication technologies (ICT) [1, 2]. However, several e-government initiatives have provided little impact and the envisaged benefits are not always realized [3]. We adhere to a stream of research, which argues that potential benefits of IT investments need to be systematically managed in order to secure their realization [4, 5]. Benefits realization means "the process of organizing and managing such that the potential benefits arising from the use of IS/IT are actually realized" [6, p. 384].

Collaboration has been considered as an essential issue for realizing a great many benefits of e-government [7]. By collaborating public sector organizations intend to co-create value [8] and achieve benefits such as economy of scale in IT investments and information integration across government agencies [7]. In a few countries, such as Sweden, governmental and municipal organizations have traditionally been co-operating only on voluntary basis, which has hindered realization of benefits that could have been reached through tighter collaboration [9].

While the benefits realization concept and several related methods were introduced in the mid-1990s, empirical studies, especially in the public sector, have remained rare [10-12]. Larger adoption of methods and practices for benefits realization in the public sector has thus emerged only recently, e.g. in Norway [13], Denmark [14], and Sweden [15]. Among the reported cases, e.g. [16], the main focus has been at the level of one organization. Recently, Flak and Solli-Saether [13] addressed the importance of understanding interoperability at the government level and described how a central actor coordinates a portfolio of government service providers through a standardized benefits reporting approach. There has been an increasing focus on understanding hindrances and

incentives for inter-organizational collaboration on e-government initiatives [7] and initial speculations on how some collaboration dimensions (such as voluntary versus mandatory, [9]) may impact on expected benefits. However, the role of inter-organizational collaboration in relation to benefits realization has remained as an under-researched issue.

Recently, several Swedish governmental and municipal organizations have started collaborating on acquisition and implementation of systems and services for digital archiving. For example, 117 Swedish government agencies plan to invest approximately 60 million Euro in a shared service for digital archiving [17]. This can be compared to 140 to 200 million Euro in estimated costs if each government agency would implement digital archives independently. Similar initiatives have also started in the municipal sector [18]. Due to this emerging opportunity to study multiple acquisition cases on one particular type of e-government system between varying types of collaboration, this report aims at delving deeper into the question whether and how the selected mode of collaboration (or non-collaboration) may impact on the expected benefits from the investments. This report contributes by identifying five different modes of inter-organizational collaboration on e-government investments that can lead to varying expected benefits, depending on the selected mode of collaboration.

The report is structured as follows. The next section sets up our research background related to inter-organizational collaboration for e-government. Thereafter the research method is described and we present the five identified modes of collaboration. Our analysis results in observations on how modes of collaboration have implications on expected benefits and their realization. The report ends with conclusions and suggestions for future research.

2. Inter-organizational Collaboration on E-government

Inter-organizational collaboration in the public sector has become more common and today it is more or less considered a self-evident virtue of advanced societies [19]. Common drivers for collaboration are efficiency, sharing of knowledge, and financial imperatives [20]. The underlying purpose is to achieve collaborative advantage that is not possible to achieve alone [21]. The purpose of collaborating is often instrumental, for example to conduct a particular project. Also, collaboration could have ideological intentions, such as participation and empowerment [20]. The effect of collaboration increases with complexity, i.e. complex policies are more effectively implemented if agencies collaborate while easier tasks are better handled without inter-organizational collaboration [22]. However, collaboration is found to be difficult and failures are common [23]. Participants may often have different expectations on the goals and forms of collaboration and the costs of coordination may outweigh the benefits of collaboration [20]. To succeed with collaboration, trust between partners needs to be built over time [24] where the collaborative capacity indicates how big change a relationship can bear without the partners losing trust in the relationship [19].

E-government has emerged as an important area for collaboration in the public sector. E-government initiatives are often intended to improve citizen service and administrative efficiency and it requires seamless services and sharing of information between authorities and are costly to implement. Moreover, e-government initiatives often require that organizations develop new technical knowledge. The development of e-government has been depicted in maturity models [2, 25-26] where the most mature stages involve horizontal collaboration between organizational levels within a public organization and vertical collaboration between different public organizations. In an exploratory study of e-government collaboration among Italian municipalities *convention* was the most popular way of collaboration while establishing a *new public body* was the least common [27], see Table 1. A *convention* is a written collaboration agreement between a group of public agencies in which they define the areas and methods of collaboration. A convention is not a legal entity while a *consortium*, founded by a group of public agencies, has legal status and only serves its members and is not allowed to offer services externally. A *framework agreement* entails a common purchasing contract to which the involved public agencies make individual calls. However, Sorrentino & Ferro [27] provide few, if any, details on the differences in benefits between the forms or modes of collaboration.

Table 1. Forms of municipal collaboration for e-government, based on [27, p. 6].

Form of Collaboration	Share
Convention	42 %
Framework Agreement	26 %
Consortium	16 %
Limited Company	4 %
New Public Body	2 %
Other	10 %

3. Method

Comparative case studies [28] were performed in order to gather information about modes of collaboration where we analyzed five cases of Swedish digital archive initiatives. In line with the view that a case should be intentionally chosen based on known characteristics of the case [29], the cases were selected since they all focus on one particular type of e-government system (digital archive) and that the cases have varying characteristics in regards to collaboration. Secondary data in the form of documentation, mainly project documentation, available from the different digital archive initiatives (the cases) have been used as empirical data. The data collected from the cases were complemented with data from a focus group interview and a quantitative survey. The collected data have been analyzed through content analysis.

3.1. Five Cases

This section presents the five digital archive cases studied.

The *eARD (e-arkiv och e-diarium)* initiative has the goal to develop a common metadata specification for digital archives across the Swedish public sector. The project was carried out between 2011-2014 and the National Archives of Sweden continues to coordinate and develop the specifications in co-operation with varying public sector organizations being active in the field [30]. Data on the eARD initiative have been gathered through secondary sources and the focus group interview.

In the municipality of *Härnösand,* the GOINFO project focused on digital preservation and archiving of salary data of municipality employees. According to Swedish legislation, such data need to be preserved for 70 years, and should be available for inquiries, e.g. to set a citizen's pension. The goal of the project was to make an in-house implementation for receiving salary data from the previous and existing information systems, in which the data had been previously stored [18]. Data of this case consist of public project reports, and workshops notes.

The Swedish Association of Local Authorities and Regions (SALAR) represents and supports local authorities in Sweden. SALAR has conducted a project to establish a framework contract for public procurement of digital archives. The goal with the framework contract is to "offer a common way of working and to facilitate the call-off procedure to adopt, manage and develop digital archive" [31]. In December 2014 the first municipality made a call-off from the framework contract. Data on the SALAR initiative have been gathered through secondary sources and complemented with data from the focus group interview and the survey.

Sydarkivera is a Swedish municipal association working as a common archive organization for one county and ten municipalities. The association´s mission is to "perform archiving assignments, manage a joint archive system and act as a common archive authority" [32]. Our data of this case consist of public project reports.
The Swedish National Service Center (NSC) is a public authority that provides services for administrative support to national authorities. NSC has been commissioned by the Swedish government to establish a shared service for digital archives in collaboration with the national archives in Sweden. The aim is to facilitate management of public documentation and to improve the service quality offered to citizens. This is an ongoing project where the Swedish government also has commissioned seven authorities to participate in the project. Our data of this case consist of public project reports and workshops notes. A complete list of the documentation studied for each case can be seen in table 2.

Table 2. Documentation and sources

Case	Documentation
eARD	• Notes from focus group interviews • Project reports
Härnösand	• Project reports and project documentation

	• Workshop notes
The Swedish Association of Local Authorities and Regions	• Notes from focus group interviews • Project description • Guidelines for the framework agreement • Framework agreement related templates • Web site • Survey
Sydarkivera	• Sydarkivera description • Project report • Sydarkivera description and decision support for statement of intent • Workshops notes
The Swedish National Service Center	• Project report • Published interview with NSC director-general • Press release

3.2 The Focus Group Interview and The Survey

Focus groups are discussions about particular topics between selected individuals [33]. The perspectives and experiences of the participants are captured and the focus is on creating a holistic understanding of a specific problem [34]. The focus group interview was organized by SALAR together with two Swedish universities and conducted during one day for a total of five and a half hours. The aim of the focus group interview was to discuss benefits and success factors with digital archives. The focus group participants were selected by purposive sampling [29]. A representative from SALAR selected the participants; selection criteria were that the participants were knowledgeable informants with great experiences from digital archive. Participation was voluntary. Sixteen persons were present during the focus group interview; the participants are presented in table 3.

Table 3. Focus group interview participants

Organization	Focus Group Interview Participants
Municipalities	Seven municipal representatives considered, by SALAR, to be in the forefront of implementing digital archives in Sweden.
West Swedish	One representative from an

Municipal Federation	organization coordinating four local government federations.
SALAR	Two representatives from SALAR Public Procurement. One program manager from SALAR Center for E-society responsible for moderating the discussions.
Swedish eDelegation	One representative from the Swedish eDelegation, an expert on benefits realization.
Consultant	One consultant with experience from implementing digital archives.

The focus group interview was audio recorded and the researchers took notes during the interview. Researchers notes were reviewed and complemented by listening to the recordings and adding statements that had not been properly transcribed.

In addition, data have been collected through a survey sent out to all 290 municipalities and 20 county councils in Sweden. The survey included questions about if or when municipalities and county councils plan to implement digital archives, if and how municipalities plan to collaborate on digital archives, and what challenges associated with implementing digital archives they envisage. The survey was sent to archive managers and had a response rate of 90 %, e.g. 280 responses. The survey helps to form a broader understanding of Swedish authorities' perception of collaboration and intention to collaborate in regards to acquisition and implementation of digital archives.

3.3. Data Analysis

The data was analyzed using content analysis [35], to from meaning by analyzing and interpreting text data content [36]. In content analysis text is analyzed with the aim to arrange comparable meanings into a number of categories [37]. The sources of the analyzed data are documentation from secondary sources and notes from the focus group interview.

Through analyzing the documents and data, the modes of collaboration and benefits were identified and extracted, thereby following the form of a conventional content analysis [36]. In conventional content analysis the researcher forms new understanding by studying the data in depth [38]; predefined categories are not used. Instead, the researcher permits categories to be formed based on the data [36]. This is regarded as a suitable approach when "existing theory or research literature on a phenomenon is limited" [36, p. 1279].

A process for thematic content analysis was followed in this research to categorize the benefits [39]. The process consists of five steps [39]: (i) "familiarizing yourself with your

data", (ii) "generating initial codes", (iii) "searching for themes", "reviewing themes", (iv) "defining and naming themes", (v) "producing the report".

4. Results

This section presents our analysis of the five different digital archive cases with regard to their observed mode of collaboration and the benefits sought. Table 4 summarizes each case, the benefits sought, and the characteristics of collaboration, the responsible stakeholder for standardization, and the type of regulation considered in the cases.

4.1. In-house Digital Archive, the Härnösand Initiative

Härnösand (a Swedish municipality with ca. 25 000 inhabitants) acquires and configures a digital archiving solution of its own, in collaboration with a vendor [18]. In connection to the project, a benefits analysis was conducted. The main reason for implementing the system was to ensure compliance to external archiving legislation. Few significant gains from digital interoperability were identified and the cost savings and other benefits from digital archiving were also identified to be relatively minor [18].

The Härnösand case indicates that an in-house archive solution is quick to implement independently by an individual government agency or a municipality, who can select a desired system and the vendor by one's own choice. Here, in-house development focused on a small-scale implementation and small-scale benefits in the very context of a particular and not directly interoperable digital archive solution. The challenge with the in-house development can be ignorance of other re-use and service re-organization possibilities that would be of interest when adopting more standardized and interoperable solutions [18]. If benefits are to be analyzed and realized only within the scope of one organization and one software application, the identified cost savings and efficiency gains within the narrow scope of analysis do not necessarily warrant investment in the digital archive. On the other hand, adherence to archiving standards, which would increase the interoperability of preserved data beyond the scope of one particular organization or application of interest, would not become significantly more expensive in connection to a new investment effort, if the public sector organization and the vendor would be aware of the wider scope of expected benefits resulting from the interoperability gains and existing opportunities to utilize readily available standards and standardized solutions.

4.2. Vendor-driven Solution Standards

While many e-government systems have been developed in-house, vendor-initiated ready-to-install products may become de facto standards in some application domains [40]. In the case of digital archive this means that a public organization acquires and implements a standard solution instead of developing an in-house digital archive. Standard solutions are built to meet the requirements of many users and using organizations [41]. Potentially, they provide economy of scale and cost less to acquire and implement than an in-house developed system. They also include tested experience

and knowledge from earlier implementations due to the large number of users. Large vendors of standard solutions may also be better positioned than using organizations to keep up with technical advancements [42]. Moreover, suppliers of standard solutions can provide a broader skill-base to support in implementation than the using organization is able to provide [43]. Today there are a several standard application packages available for digital archive, from vendors as *Formpipe, Ida Infront, BancTec AB, CGI Sverige AB IT-Fabriken Sverige, Knowit AB, Lemontree Enterprise Solutions, RISE to Bloome R2B Software, Tekis, Tieto Sweden, Visma Consulting* [31]. Several of this digital archive suppliers also provide their software as a service [44, 31].

4.3. The Swedish Association of Local Authorities and Regions (SALAR) Initiative

SALAR has established a framework agreement to simplify public organizations' procurement of digital archives. A framework agreement forms a general-level basis for future procurement. Public organizations can procure digital archive as a product or service, and associated consultant services by making call-offs from the agreement. A total of 535 government agencies and municipalities are entitled to make call-offs from the agreement and the survey (in 2014) showed that 22 % of the organizations intended to do so.

Delivery models, payment models, terms, and conditions for future procurement have been established by SALAR and negotiated with several digital archive suppliers. SALAR has negotiated on the behalf of a large number of public organizations. This collaboration initiative thereby promotes economy of scale in regards to lower administration costs for procurement since each individual public organization doesn't have to carry out and bear the full cost of a complete procurement on their own. SALAR possesses negotiation competence and skills, which in combination with negotiating for a vast number of organizations contributes to negotiation power and a strong position against the suppliers. Thereby SALAR can negotiate favorable prices for digital archives, which is another aspect of how economy of scale is promoted through this initiative.

Through the framework agreement individual public organizations can hence benefit from SALAR's strong negotiation position without themselves engaging in negotiations. Digital archive procurement is further simplified by the use of common and structured call-off procedures and support. SALAR has created a checklist of activities that need to be carried out when implementing a digital archive. They have also defined guidelines for making a call-off and created templates for call-off requests, requirements specification, delivery and pricing model and contracts. Call-off requests have to be sent to all framework agreement suppliers, within a segment (product or service), and the supplier that meets all the mandatory requirements and with the most economic beneficial bid gets the contract. Making a call-off by following SALAR's guidelines for procurement individual organizations can ensure they are compliant with the public procurement laws. In this initiative, a requirements specification for digital archives has been developed by SALAR. The requirements specification is shared with and used by public organizations when making call-offs. SALAR has screened the digital archive market based on the

requirements, ensured that the included fifteen digital archive suppliers can provide the requested functionality. Through the requirements specification knowledge is also transferred from SALAR to the public organizations thereby simplifying their requirements engineering processes. All requirements in the requirements specification don't need to be included when an authority makes a call-off from the agreement. Authorities can remove requirements, change the priority of the requirements and specify them in detail but they are not entitled to add completely new requirements. Authorities should however analyze their needs to determine what requirements they should include in a call-off. One important system requirement, that has been specified by SALAR, is that the supplier system should be compliant with integration standards for data input. The framework thereby promotes interoperability in regards to delivering data to the digital archives.

4.4. The Sydarkivera Initiative

Our survey showed that 28% of local public organizations intended to collaborate on digital archive through an association. In the Sydarkivera initiative a jointly owned association governed by a board has been formed by a number of public organizations. Each of the association member organizations has a representative on the board. The board has been assigned to act as a common archiving authority for its members; it allows a shared archiving responsibility where the association can take over legal responsibility for archiving from its members. The organization will thus provide digital archive as a service and some other archiving authority functions as a service(s) for its members. This collaboration initiative promotes economy of scale in regards to reduced IT operation costs, reduced archiving costs and reduced IT procurement costs. The association takes over the responsibility for the final storing and preservation of digital public documentation from its member organizations. The member organizations can thereby reduce their own IT operation costs by terminating IT systems, save costs for technical operation and licenses and improved IT architecture and reduced costs in the handling of information when changing system. Archiving costs can be reduced by decreased growth of paper archives facilities and related administration of papers. Archiving costs and digital archive operation costs can also be reduced due to cost efficiency in sharing and maintaining one digital archive service for several organizations. The member organizations, i.e. municipalities, split the costs for the service based on the population size in each municipality.

The shared organization will focus on the core activities of archiving; common capabilities will be built up over time, allowing for an effective and specialized archiving organization to be established. IT system maintenance competence will be developed and offered to the member organizations. The organization will also focus their competence on archiving and offer it as related services to the members. For example support services, information delivery from other systems, education and advice. Buyer competence of IT-systems and archiving specialists that can participate in member organizations' procurement of new IT systems will also be offered. Laws and regulations competence and authority competences will be established in the organization and common standards and guidelines for archiving will be implemented. Member

organizations will thus be supported in complying with archiving laws and regulations and ensuring secure information handling. Support will be offered as document plans, document handling, document review and clearing, and control of decisions (to be taken in accordance with current legislation). As stated in a Sydarkivera project report, this kind of digital archive related competence and capabilities are often not present in the member organizations and there is a shortage of traditional archiving competence. Through this initiative the member organizations can source these capabilities from the association instead of acquiring it locally.

The shared service will use open interfaces and thereby promote interoperability. It fosters information quality and availability through a defined information structure, structured handling of archived information and enhanced information search possibilities. By managing archived information from several organizations the cooperative organization can offer the same information availability to external stakeholders regardless of what organization the information originally belonged to. It facilitates for users to search information thereby fostering the concept of open data.

4.5. The Swedish National Service Center (NSC) Initiative

The Swedish National Service Center (NSC) is a public organization developing digital archive as a service that will be offered to all authorities at the national authority level. The digital archive service is an intermediate archive used before final archiving at the national archives. An authority using the service will still be the responsible archiving authority and thereby keeping the information owner responsibility.

NSCs archiving service fosters economies of scale, in the short and long term, both for individual authorities and the national administration as a whole. The acquisition, operation, maintenance and development of digital archive systems are centralized. It's a cost effective alternative by better use of resources when a number of authorities share a service.

In the short term, it is more cost-effective to establish one common digital archive service centrally; the investment cost for digital archive can thereby be reduced. Resources for specifying requirements, procurement, development and implementation are concentrated centrally. In the long term, cost efficiency and the relative cost can be reduced in operation and maintenance of the digital archive and by the use of common business processes and standards related to archiving. eBuilder for instance forecasts the solution to lower the total investment cost for digital archiving by 80 percent [45]. Individual authorities can also save costs through terminating systems (technical operation and licenses) and reduce costs related to paper handling and archiving facilities. The digital archive service that NSC procures and establishes can potentially be used by the entire national administration. NSC is thereby a strong buyer with a strong negotiation power. This initiative enables specialized archiving competence and capabilities to be formed through competence accumulation and a learning effect within a single organization. Besides from offering a digital archiving system as a service, NSC will also offer services related to all aspects of the archiving process, customer service, and possibly other

support services and consultant services. Authorities can source this competence and capabilities from NSC.

In the NSC initiative interoperability is promoted by adopting integration standards and by taking into account interoperability aspects such as legal, organizational, semantic and technical. Through integration and standardized storing of information, the digital archive facilitates the transfer of information to the national archives for final archiving. It will also facilitate access to information for authorities, citizens and companies; information availability is thereby promoted. Information availability is further strengthened by new e-services and better information search possibilities. The service also fosters information quality through secure and correct storing of information and established processes for archiving thereby minimizing risk of loss of information.

5. Analysis of Collaboration Modes

In this section the derived collaboration modes are summarized in table 4. Thereafter, the different modes are discussed. In the *In-house* collaboration mode an archive is developed and maintained by the individual public organization either through in-house development or through a software developing company. In this mode there is no collaboration connected to procurement, implementation and operation of IT systems among public organizations, although collaboration in the form of information sharing can exist. Benefits with in-house development are that a full autonomy can be kept, and a customized system can be implemented rather quickly responding to a primary purpose at hand. However, the scale of benefits identification (and later on benefits realization) may remain at a low level, forgetting the larger-scale benefits that could be reaped from interoperability and the potential of data use for secondary purposes beyond the primary requirement of legislative compliance.

In the *Vendor-driven* collaboration mode a standard IT system is developed by a vendor and offered as a product or service to several public organizations. Benefits with this collaboration mode are related to economy of scale, tested experiences and knowledge from previous implementations, keeping up with technical advancements and a broad skill-base provided by vendors. However, if the dominating vendors would not follow open standards, potential benefits from digitally archived data beyond the vendor's solution sphere could be hindered.

In the *Cooperative technology* collaboration mode a public organization establishes a framework agreement with conditions for acquisition of IT systems and negotiates with one or several vendors. Public organizations can procure IT systems (as a product or service) and related support services by making call-offs from the agreement. Benefits with this collaboration mode are mostly related to simplified procurement through pre-negotiated conditions for procurement, support and standard procedures for making call-offs. It also promotes economy of scale since procurement is carried out centrally; leading to reduce costs for procurement and IT systems. Another benefit that can be achieved in this mode is simplified requirements engineering for public organizations.

Table 4. Comparison of collaboration modes

Mode	I	II	III	IV	V
Name	**In-house**	**Vendor-driven**	**Cooperative technology**	**Cooperative authority service**	**Public organization service**
Rationale	IT system developed and maintained by the individual public organization either through in-house development or through a software developing company.	Standard IT system developed by a supplier and offered as a product or service to several public organizations.	Established framework agreement with conditions for acquisition from which several public organizations can procure an IT solution.	Jointly owned organization governed by a board or committee managing a specific area of responsibility and IT support system for its member organizations	Public organization, offering IT system as a Service to a number of authorities.
Benefits	Full autonomy Primary purpose System customization	Economy of scale Tested experience and knowledge Latest technology Broad skill-base for support	Economy of scale Simplified procurement Shared system requirements	Economy of scale Common capability Interoperability and information availability Open data	Economy of scale Specialized archiving competence and capabilities Interoperability, information availability and information quality
Characteristics of collaboration	Limited collaboration	Technology	Technology, contract	Technology, cooperation agreement, service	Technology, control, service
Responsible for standardization	Individual public organization	Vendor-initiated de facto standard	Group of public organizations	Central authority	Central authority
Level of regulation	What	What, how influenced by vendor's functionality and information model	What, how influenced by chosen technology and standards	What, how influenced by chosen technology and standards	What and how

In the *Cooperative authority service* mode a jointly owned organization governed by a board or committee (association) is managing a specific area of responsibility and IT support system for its member organizations. The association can form an independent common authority enabling the association's organization to take over the legal responsibility (partial or full) for a specific area from its member organizations. This collaboration mode promotes economy of scale due to a shared service where costs for IT procurement, IT operation and maintenance can be reduced. In this mode common

capabilities can be developed and focused on a specific area. It allows for an effective and specialized organization with capabilities that can be sourced by its member organizations. This collaboration mode can also promote interoperability, information quality, availability and open data.

In the *Public organization service* mode an independent public organization provides an IT system as a service to a number of authorities. In this mode the operation, maintenance and development of the IT system is centralized. This mode shares many of the benefits with the cooperative authority service mode, i.e. economy of scale, interoperability, and information quality and information availability. One main difference is that in this mode the organization responsible for the service is an independent organization, as the customers are not co-owners of the service organization. Further, the organization is not a common authority and thereby doesn't take over partial or full responsibility for a specific area. Thereby, even though law and regulation compliance can be fostered, the service organization doesn't take over legal responsibilities.

6. Discussion

Our analysis above shows how inter-organizational collaboration (or non-collaboration) modes for acquiring and implementing digital archive solutions and services vary. Some of the modes resemble the forms of collaboration in the Italian context [27]. For example the mode III Cooperative technology is similar to their "Framework Agreement". Our mode IV Cooperative authority service is a combination of "New Public Body and "Consortium" but also includes the provisioning of a software service. Sorrentino and Ferro [27] report on vendor-driven solutions but do not consider it a form of collaboration as we do in the Vendor-driven mode II. We did not identify a mode similar to "Limited Company" in the Swedish context. Further, the mode V Public organization service does not resemble any of the Italian [27] modes and the modes proposed are not restricted to local governments, but are instead based on initiatives on both local and national level.

Alongside observing variations among the collaboration forms, the expected benefits sought by the initiatives varied as well. The analysis shows how benefits expected from digital archive initiatives vary, and can be, to some extent, related to the chosen mode of development collaboration. That is, the chosen collaboration mode may have impact on which benefits are sought in the first place – or, the expected benefits may have impact on which collaboration mode is chosen. While our analysis at this stage does not yet provide clear hypotheses in this regard, already these initial observations will inspire our further research aims to explore the relations of chosen collaboration modes and expected (and, furthermore, realized) benefits in more detail. That is, we aim at creating more testable hypotheses through further data collection and analysis.

Based on our initial findings, we expect that further research efforts on these cases (and beyond) could result in a more in-depth precursory theory for varying modes of inter-organizational collaboration on e-government investments that can lead to varying expected benefits, depending on the selected mode of collaboration. Analysis of digital

archive development cases and collaborations in the Swedish context represents a rare opportunity where we actually can simultaneously study several cases on one particular type of e-government system while the modes of collaborations to acquire and implement such systems vary. This makes theorizing of relationships between varying modes of collaboration and variance of benefits-to-be-realized possible. As such, our research brings the aspect collaboration modes into the discussion in connection with benefits realization methods, practices and strategies in the public sector, which have so far largely focused on the level of one organization [cf. 16], or only one mode of collaboration, where a dominant actor in a public sector coordinates overall development of e-government services in one domain [13].

7. Conclusions and Future Work

The aim of this paper is to investigate whether and how the selected mode of collaboration may impact on the expected benefits from e-government investments. We conclude that public organizations use different modes of collaboration and that the expected benefits vary between the modes. We contribute with five modes of e-government collaboration.

Our future work aims at deepening our analysis and follow the selected cases until they can report also on the realized benefits. We will also try see if we can find initiatives which are possible to map in this five modes or complement with one more. [46] A shortcoming of the current piece of research is its focus on the expected and justified benefits in the analyzed projects, while the on-going investments naturally cannot yet document the actual realized benefits. One important area of analysis is to identify the costs of collaboration, or coordination costs [20] and how they are affected by the mode of collaboration. This requires a set of longitudinal case studies, which we have now started to get committed into. Our results should also carry interest beyond the digital archive researchers. For example, such domains of information systems and infrastructural e-government issues as electronic patient records, e-government platforms (e.g. the x-roads in Estonia), broadband investments and use of personal computers in schools could well be operationalized through varying modes of inter-organizational collaboration in the public sector. Here, an emerging theory in the field of digital archive (which, in our mind, represents an infrastructural e-government investment) could be further refined and validated with replication studies on other domains of infrastructural e-government programs. As development of e-government and related inter-agency collaborations are unlikely to stop in the foreseeable future, this type of theorizing would carry also practical importance and value for the future practitioners and researchers alike. Anyhow, our next step will be the longitudinal validation of whether the expected benefits and their variations under the diverging collaboration modes will be realized.

References

[1] Moon, M. J. (2002). The evolution of e-government among municipalities: Rhetoric or reality? Public Administration Review, 62(4), 424-433.

[2] Layne, K., & Lee, J. (2001). Developing fully functional e-government: A four-stage model. Government Information Quarterly, 18(2), 122-136.

[3] Millard, J. (2010). Government 1.5-is the bottle half full or half empty. European Journal of ePractice, 9, 1-16.

[4] Ward, J., Taylor, P., and Bond, P. (1996). Evaluation and realization of IS/IT benefits: an empirical study of current practice. European Journal of Information Systems, Vol. 4, No. 1. pp. 214-225.

[5] Remenyi, D., Sherwood-Smith, M., and White, T. (1997). Achieving Maximum Value from Information Systems: A Process Approach. Wiley, Chichester.

[6] Ward, J., & Daniel, E. (2006). Benefits Management - Delivering Value from IS & IT Investments. Chichester, England: John Wiley & Sons Ltd.Ward, J.,

[7] Gil-Garcia, J.R. (2012). Towards a smart State? Inter-agency collaboration, information integration, and beyond. Information Polity, Vol 17, pp. 269-280.

[8] Flak, L., Solli-Saether H., and Straub, D. (2015). "Towards a Theoretical Model for Co-Realization of IT Value in Government." Proceedings of 48th Hawaii International Conference on System Sciences. IEEE, pp. 2486-2494.

[9] Grönlund, Å. (2009). "It's the Economy Stupid" – Why the Swedish e-Government Action Plan Will Not Deliver Better Government, and How It Could. International Journal of Public Information Systems, Vol. 2009, No. 2, pp. 61-75.

[10] Ashurst, C.A., Doherty, F.N.D. and Peppard, J.P. (2008). Improving the impact of IT development projects: the benefits realization capability model. European Journal of Information Systems Vol. 17, No. 4., pp. 352-370.

[11] Päivärinta T. and Dertz, W. (2008). "Pre-determinants of implementing IT benefits management in Norwegian municipalities: cultivate the context", in Wimmer, M et al. (Eds.), Electronic Government, LNCS Vol 5184, Springer, Berlin, pp. 111-123.

[12] Flak, L., Dertz, W., Jansen, A., Krogstie, J., Spjelkavik, I. and Ølnes, S. (2009). What is the value of e-government – and how can we actually realise it? Transforming Government, vol. 3, No. 3, pp. 220-226.

[13] Flak, L. and Solli-Saether, H. (2013). "Benefits realization in e-government: Institutional entrepreneurship or just hype?" Proceedings of 46th Hawaii International Conference on System Sciences. IEEE, pp. 2062-2071.

[14] Hertzum, M., & Simonsen, J. (2011). Effects-driven IT development: Specifying, realizing, and assessing usage effects. Scandinavian Journal of Information Systems, 23(1), 3-28.

[15] E-delegationen. (2014). Vägledning i Nyttorealisering. Retrieved 12 January 2015 from
http://www.edelegationen.se/Documents/Vagledningar%20mm/Nyttorealisering%202.0/VNR_2.0_Huvudrapport%20och%20bilagor.pdf

[16] Flak, L. (2012), Gevinstrealisering og offentlige IKT-investeringer, Universitetsforlaget, Oslo.

[17] Rydberg, O. (2014). Staten Bygger e-Arkiv för en Halv Miljard. Retrieved 15 January, 2015 from http://www.idg.se/2.1085/1.578793/staten-bygger-e-arkiv-for-en-halv-miljard.

[18] Päivärinta T., Samuelsson G., Jonsson E., and Swensson E. (2014). Nyttorealisering av FGSer. Delprojekt 2. Riksarkivet, Stockholm.

[19] Hudson, B., Hardy, B., Henwood, M., & Wistow, G. (1999). In pursuit of inter-agency collaboration in the public sector: What is the contribution of theory and research?. Public Management an International Journal of Research and Theory, 1(2), 235-260.

[20] Huxham, C., Vangen, S., Huxham, C., & Eden, C. (2000). The challenge of collaborative governance. Public Management an International Journal of Research and Theory, 2(3), 337-358.

[21] Huxham, C., & Macdonald, D. (1992). Introducing collaborative advantage: Achieving inter-organizational effectiveness through meta-strategy. Management Decision, 30(3).

[22] Lundin, M. (2007). When does cooperation improve public policy implementation?. Policy Studies Journal, 35(4), 629-652.

[23] Bryson, J. M., Crosby, B. C., & Stone, M. M. (2006). The design and implementation of Cross-Sector collaborations: Propositions from the literature. Public administration review, 66(s1), 44-55.

[24] Vangen, S., & Huxham, C. (2003). Nurturing collaborative relations Building trust in interorganizational collaboration. The Journal of Applied Behavioral Science, 39(1), 5-31.

[25] Australian National Audit Office. (1999). Electronic service delivery, including internet use, by Commonwealth Government Agencies. Canberra, Australia: Auditor General, Australian National Audit Office.

[26] Belanger, F., & Hiller, J. S. (2006). A framework for e-government: privacy implications. Business Process Management Journal, 12(1), 48-60.

[27] Sorrentino, M., & Ferro, E. (2008). Does the answer to e-government lie in intermunicipal collaboration? An exploratory Italian case study. In Electronic Government (pp. 1-12). Springer Berlin Heidelberg.

[28] Lillis A.M., Mundy J. (2005). Cross-sectional field studies in management accounting research—closing the gaps between surveys and case studies. Journal of Management Accounting Research, Vol. 17, pp. 119—141.

[29] Denscombe, M. (2010). The Good research guide: for smallscale social research projects, 4th ed. England: Open University Press.

[30] Kristianson G., Almalander C., Geber M. (2013). E-arkiv och e-diarium (eARD) översiktlig beskrivning. Version 2.0. Riksarkivet, Stockholm.

[31] SALAR. (2015). E-arkiv. Accessed 2015-02-22 from http://www.sklkommentus.se/inkopscentral/ramavtal/it-varor-och-tillhorande-tjanster/e-arkiv/

[32] Sydarkivera (2015). Sydarkivera – Verksamhetsbeskrivning. Accessed 2015-02-23 from http://www.vaxjo.se/upload/Handb%C3%B6cker/Dokumenthantering/M%C3%B6teshandlingar/Verksamhetsbeskrivning.pdf

[33] Beck, L., Tronibetta, W., & Share, S. (1986). Using focus group sessions before decisions are made. North Carolina Medical Journal, 47, 73-74.

[34] Bhattacherjee, A. (2012). Social sciences research: principles, methods, and practices (2nd ed.). Tampa, Florida, USA: Creative Commons Attribution.

[35] Krippendorff, K. (2012). Content Analysis An Introduction to its Methodology. SAGE Publication, Inc.

[36] Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. Qualitative Health Research, 15(9), 1277-1288.

[37] Weber, R. P. (Ed.). (1990). Basic content analysis (No. 49). London: Sage Publications Ltd.

[38] Kondracki, N. L., Wellman, N. S., & Amundson, D. R. (2002). Content analysis: Review of methods and their applications in nutrition education. Journal of nutrition education and behavior, 34(4), 224-230.

[39] Braun V, Clarke V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), pp. 77-101.

[40] Sawyer, S. (2001). A market-based perspective on information systems development. Communications of the ACM, 44(11), 97-102.

[41] Andersson, R. & Nilsson, A. (1996) The standard application package market – An industry in transition? In: M. Lundeberg and B. Sundgren (Eds.). Advancing Your Business: People and Information Systems in Consert. Sweden: EFI, Stockholm School of Economics.

[42] Hedman, J., and Lind, M. (2009) Is There Only One Systems Development Life Cycle? In Barry, C., et al. (eds), Proceedings of the 16th International Conference on Information Systems Development – ISD'2007, Vol. 1, pp. 105–116. New York: Springer.

[43] Light, B. (2005). Potential pitfalls in packaged software adoption. Communications of the ACM, 48(5), 119-121.

[44] Turner, M., Budgen, D., & Brereton, P. (2003). Turning software into a service. Computer., 36(10), 38-44.

[45] eBuilder. (2013). Förstudie Statens Service Center e-Arkiv och e-Diarium. Retrieved 10 mars 2015 fromhttp://www.statenssc.se/Documents/F%C3%B6rstudierapport.pdf

[46] Samuelsson, G red. (2015). Strategisk plattform för digital informationsförvaltning. Förstudie Tillväxtverket, mars 2015. http://www.miun.se/siteassets/forskning/center-och-institut/cedif/cedif-projekt/spif/slutrapport-for-strategisk-plattform-for-digital-informationsforvaltning-bil-1pdf. *SPIF (Strategic platform for digital information management*) was a project and initiative where CEDIF/ Mid Sweden University in collaboration with the County Administrative Board of Västernorrland and Growth Authority (European Regional Fund) received resources for a feasibility study that will identify and develop a comprehensive strategic plan for the region, with a focus on good information management. The study identifed key areas for further research and development in the domain of information management with the purpose to develop the region's capacity and ability to produce, communicate and preserve digital information