

# Risk and Decision in Collaborative e-Government: An Objectives-Oriented Approach

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**Abstract.** Developing e-services in the public sector is a demanding task that involves a variety of stakeholders and values. Further complexity is added by organizational and institutional challenges, especially when specialized government agencies are expected to collaborate to create seamless, integrated services. This paper focuses on decision making and risk analysis in two Swedish collaborative e-Government cases. Empirical material consists of semi-structured interviews and project documentation, which are analyzed using an objectives-oriented Logical Framework Approach (LFA). The results highlight two factors that influence the outcomes of the projects; governance for collaboration and financial models for distributing resources between government agencies. When these formal support mechanisms are not provided, they become risks for the projects and create uncertainties in decision processes. While the studied government context has matured enough to develop fully functional platforms for e-services, these uncertainties become issues when public values are to be measured and evaluated. The paper concludes by suggesting the use of public values as objectives together with measurable indicators in order to create a common language for decision making and risk management across government agencies.

**Keywords:** Risk, decision making, e-Government, objectives-oriented, logical framework approach, public values

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## 1. Introduction

The Swedish government has set up an initiative to investigate the costs associated with information technology (IT) in the public sector. In 2014, national agencies alone spent 24-31 billion SEK on IT, which represented 10-13% of their total costs (Ekonomistyrningsverket, 2014). Some of these funds have been invested in large e-Government projects for the purpose of increasing government performance and lessening costs through the use of Information and Communication Systems (ICTs). However, large-scale projects are known to be resource demanding and high in risk (Evangelidis, 2005; Flyvbjerg et al. 2003; Denker 2007; Willcocks & Griffiths, 1994). E-government is a research area that has been explored by multiple disciplines, using a variety of theories and methods (Flak & Rose, 2005; Bannister & Connolly, 2014:1). While the term "e-Government" is fairly new, IT has been used and studied in the public sector since the 1970s (Grönlund & Horan, 2005). The e-Government field is complex both in practice and theory, with large bureaucratic organizations that are supposed to meeting the needs of diverse stakeholders by creating a multitude of public values (Flak et al. 2009). Many e-Government projects have failed over the years, which has resulted in tax money being wasted and citizen trust being lowered.

Initiatives for e-Government emanate from policy makers within the European Union and national governments (e.g. European Commission, 2010; Regeringskansliet 2008, 2012). A policy can be understood as the basic principles by which the public sector is guided; it can also be seen as an enabler of change in organizational conditions (Linnefell, Hallin, Lagergren, 2014). In this paper, the Swedish national strategy for collaborative e-services is treated as the main policy document that guides cross-agency e-Government initiatives. The 2012 Swedish national e-Government strategy for collaborative e-services was a work in progress in parallel to the development of the cases studied in this paper. It contains three objectives that were supposed to be reached by 2015 (Regeringskansliet, 2012), namely:

- a) An easier everyday-life for citizens
- b) Open government that supports innovation and participation
- c) Higher quality and efficiency of government services

The strategy is essentially a further development of the objective in a 2008 national action plan for e-Government;

*In 2010 it shall be as easy as possible for as many as possible to exercise their rights and obligations and take part of the government service. Where it offers an advantage for citizens and entrepreneurs and where quality, security and productivity can be increased, government should collaborate. Then, Sweden will retain a leading position in e-Government (Regeringskansliet, 2008).*

Both documents are aimed at making it easier for citizens to use government services as well as increasing efficiency. The 2012 strategy adds an objective of openness and participation that focuses on social media and the use of open data.

The Swedish political system is characterized by weak central regulation and strong departments. This can lead to rivalries between the ministries that make each department work in “stove-pipes” instead of towards a shared strategic objective (Grönlund, 2009; Grönlund & Lindblad-Gidlund, 2010; Ilshammar et al. 2005; Melin & Axelsson, 2009). On a national level, a committee (E-delegationen) with a counselling function for e-Government was established in 2009. It consisted of sixteen general directors from the most IT-concentrated departments and one representative from SKL, an interest organization for the municipalities and counties. The committee was disbanded in 2014 because of lack of a clear mission scope and support from central government as well as difficulties in evaluating the results (Statskontoret, 2014). The members continue to meet in a more informal setting.

In this decentralized context, questions arise as to how the public values in policy documents are to be achieved, and what the conditions for collaboration between agencies look like. The policies mentioned in the introduction of this paper contain value-based objectives that can be understood as the overall goals of Swedish e-Government. These values are also at stake because of the high risk associated with the creation of public e-services.

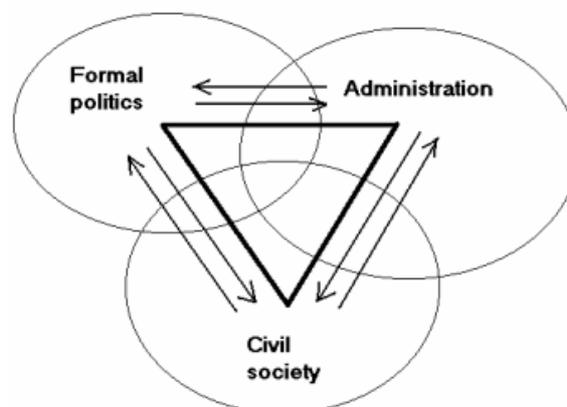
The aim of this paper is to examine how decisions are made and how risks emerge in a particular decentralized Swedish e-Government context. Applying an objectives-oriented framework (as described in 2.2) to two cases of collaborative e-Government allows the factors that directed the decision processes, the casual relations between these factors and the actors who were involved to be identified.

This paper proceeds as follows. (1) is followed by theoretical background and an analytical framework (2). Methods and materials are then presented in (3) and results are summarized and analyzed in (4). Conclusions and thoughts about future research are presented in (5).

## 2. Theoretical background

### 2.1 Risk, decision making and Public Values

Government can be roughly separated into three separate spheres in a democratic society: formal politics, administration and civil society (Figure 1). While these spheres are mutually dependent on a number of relations, they are also distinct from each other in terms of their cultures, legal status and mode of operation (Grönlund & Horan, 2005).



**Figure 1:** Different spheres of government and the relations between them (Grönlund & Horan, 2005 (used with permission))

In prior research, maturity models have tried to predict and prescribe how e-Government grows from simply being present online to offering more complex and integrated services (see for example Layne & Lee's heavily quoted paper from 2001). While such models have been criticized for being over-simplified and theoretically weak (Bannister, 2015), they usually indicate that the more e-Government and its users mature, the more challenging it is to create seamless, whole-government solutions. This puts pressure on governments to adapt and change their processes to meet new demands from citizens. Government agencies traditionally specialize in performing certain services. This specialization can create adversarial conditions both internally and between agencies when different functions are supposed to collaborate (Dawes & Pardo, 2002). When implementing large-scale e-Government projects in mature contexts, business plans with measurable goals and results become important. Business process management also becomes a crucial factor for success, since deploying holistic e-service solutions demands not only technological resources but also the reengineering of established processes (Müller & Skau, 2015).

A large-scale IT-system is a complex system that requires vast resources and offers critical functions to a large number of users. A complex system usually consists of several hard- and software components, which makes it difficult for an individual or small group of individuals to have complete knowledge of the system (National Research Council, 2000; Nelson & Ravichandran, 2004). With size and complexity, various risks are increased. Many of these risks are inherited from the information system (IS)/IT field and have to do with human resources and technical competence, security and usability. However, the public sector has some characteristics that add even more complexity to the equation. Organizational diversity, conflicting objectives, regulatory issues and intergovernmental relationships are examples of factors that can prevent successful e-Government implementation (Gil-Garcia & Pardo, 2005; Lam, 2005; Loukis & Charalabidis, 2013). A possible explanation for the high risk that is connected with large-scale IT projects is that management practice has not kept up with human ambition. This is not only a problem within the realm of IS; it also applies to other various large-scale areas, such as infrastructure megaprojects (Flyvbjerg et al. 2003).

Risk became a field of applied science in the 1960s. While there are variations in the definition of risk, it is always connected with two factors: uncertainty and impacts on human values (Hansson, 2007, Aven & Renn, 2009, Rosa, 1998). Decisions and risks are entangled and problematic because decision makers have to base their choices on knowledge about the unknown. At best, decisions regarding risk can be based on some sort of probability (Hansson, 2007). Risks are events that might have an impact on something that some or many individuals care about. Hence, risks are threats to values. This adds further challenges when studying risk, since values vary between people, between cultures and over time. While probabilities may be assessed somewhat objectively, values are highly subjective. This dual nature of risk calls for a multi-disciplinary approach when studying the field. A broad definition that links risk with negative effects on public values is used in this paper. E-government values can be seen as a synthesis of previous public management paradigms such as Weberian bureaucracy and New Public Management. Examples of such values include accountability, efficiency, transparency and citizen-oriented approaches (Persson & Goldkuhl, 2010). The definition of public values can be ambiguous. Bozeman (2009) argues that there is no need for a single definition of public values and that it is rather a question of normative ideals and consensus about the benefits, obligations and principles that exist between the government and its citizens. Bannister and Connolly (2014:2) define values as a mode of behavior; a way of doing things that is held to be correct. The advantage with this definition is that values can be expressed by verbs and thus operationalized. In order to develop theory of how public managers should behave, Moore (1995) argues that two basic issues must be resolved: what managers need to do in order to produce values and how to measure whether value has been created. In an emerging view of public administration, a broad range of democratic values are prominent. The Governments role is a guarantor of public values while citizens are problem solvers and co-creators, actively engaged in producing them. This "new" paradigm is a networked, multi-sectored, power-sharing and collaborative government. In part, this view is a response to the fragmentation caused by the New Public Management (NPM) paradigm that dominated the public sector in the 1980-1990s. According to NPM, government managers and agencies are expected to work as autonomous units in order to reduce the hierarchical structures of traditional bureaucracy (Bryson, Crosby & Bloomberg, 2014). Since technology itself is not value free, the deployment of ICTs requires that decision makers prioritize between sometimes conflicting values (Bannister & Connolly, 2014:2). Many e-Government solutions have vast target groups, sometimes even the majority of a country's population. This puts great demands on those involved in making decisions about public e-services, since there are many public values and a variety of stakeholders that are going to be affected. The literature stresses the importance of user participation as a possible remedy for some of the problems in large-scale projects (Flyvbjerg et al., 2003; Savoldelli, Codagnone, & Misuraca, 2014). Seeing the user as a stakeholder with influence on system design

has been a common practice in the IS field for some time. In e-Government, this concept is adopted in research and practice by enabling the citizens to be participating stakeholders. This can be a challenging task, however, as the users of public e-services are often a heterogeneous group (Axelsson, Melin, Lindgren, 2012). While user inclusion is not a guarantee for success *per se*, it can strengthen public values such as democracy and transparency.

When performing research on values, questions about their constitution arise. For instance, what do the internal relationships between values look like? An effective method to sort values is to create hierarchies in which end values are separated from means values. The difference is that end values are pursued for their own sake while means values are pursued in order to achieve end values (see, for example, Jørgensen & Bozeman, 2007; Keeney, 1988; Keeney & McDaniels, 1999; Gregory & Keeney, 1994). Since value prioritizing in the public sector depends on task and administrative level, Andersen et al (2012) suggest performing case studies and interviews in order to achieve a deepened understanding of public values. Witesman & Walters (2015) argue that a universal value hierarchy might be difficult to achieve, but small context-relevant hierarchies might be useful to describe, predict and explain decisions of public administrators.

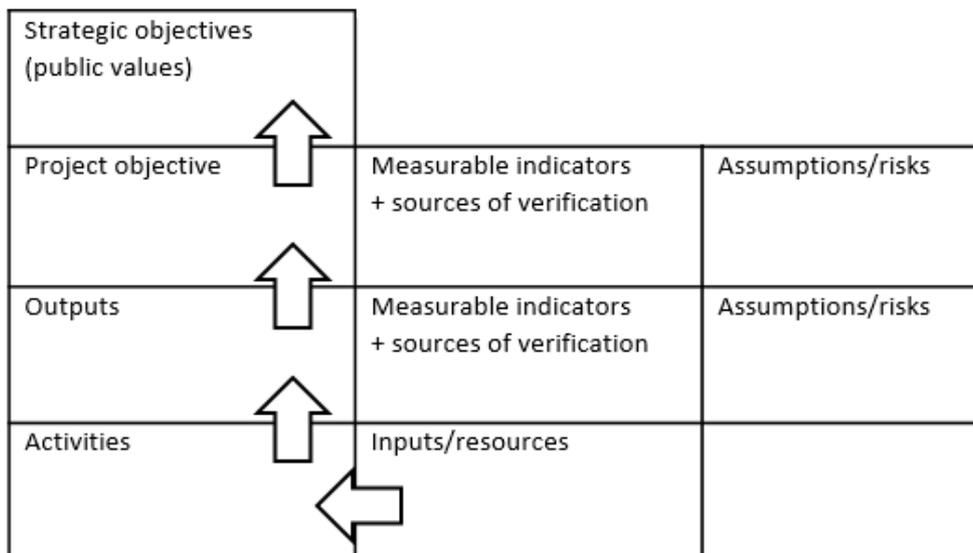
## 2.2 Analytical framework: The Logical Framework Approach (LFA)

The analytical framework used in this paper is the Logical Framework Approach (LFA), which is an objectives-oriented tool for planning, analyzing and evaluating projects. The LFA frames certain features of a project (such as problem analysis, objectives, stakeholders, indicators and risks) and helps to structure them into a logical order of cause and effect. The framework was initially developed by the U.S. military and adapted for the National Aeronautics and Space Administration in the 1960s (Bakewell & Garbutt, 2005). In 1970 the U.S. Agency for International Development adopted LFA as an evaluation tool with the goal of increasing accountability (Sartorius, 1991). Its use has since spread throughout the world, especially by organizations working with international development such as the United Nations and the Swedish International Development Cooperation Agency (SIDA) (NORAD, 1999).

The LFA can be divided into the following components:

- Analysis of the project's context
- Stakeholder analysis
- Problem analysis
- Objective analysis
- Planning of activities and resources
- Setting of relevant measurable indicators
- Identifying risks and assumptions

While there are some variations in what order and how to use LFA, the framework's main purpose is objective fulfillment through a structured process of cause and effect. Before setting an objective, a problem analysis has to be performed in order to figure out exactly what is going to be solved through the project. Relevant stakeholders also have to be identified and the context in which the project takes place must be described. Objectives can then be set and resources and activities can be planned accordingly. Two additional features of the LFA are indicators and risks/assumptions. Indicators are measurable goals that are used to evaluate objective fulfillment, while assumptions are important events, conditions or decisions that a project is dependent on. These features can be inserted into a log-frame that gives a visual overview of the project (Figure 2).



**Figure 2:** Logical framework (log-frame, adapted from Örtengren, 2004)

A *strategic objective* is an overall aim that all other objectives are supposed to support (Keeney, 1992). In order to adapt the framework to the e-Government field, this level of the framework is translated into public values. A point of departure is thus that the overall goal of e-Government should be public values, as discussed in 2.1. A *project objective* is the ultimate purpose of a project which will contribute to the strategic objective. To assess objective fulfillment, measurable *indicators* are to be specified along with the *sources of verification* that will be used to measure them. An *assumption* is a prerequisite that an objective is dependent upon. If there is a chance that an assumption will not be fulfilled, it becomes a risk. Once objectives and indicators have been set, a project can use *resources* such as human and economic capital to perform *activities* that lead to results (or *outputs*).

The logic of the framework works both horizontally and vertically. When using the framework for project planning, the objectives are set before the indicators and assumptions are identified. The planning of relevant activities and resources needed to achieve expected outputs can then be initiated: *If assumptions/risks are fulfilled and the necessary inputs and resources are available to perform certain activities, then outputs will be created. If all necessary outputs are created, then the project objective will be fulfilled (provided additional assumptions/risks at higher levels are also fulfilled).* Progress is measured by indicators that must be capable of being objectively measured from specified sources of verification (SoV). The project objective in turn contributes to the overall strategic objective.

### 3. Method and material

The two cases studied in this paper are 1) the “Verksamt” business registration portal ([www.verksamt.se](http://www.verksamt.se)) and 2) the “Mina Meddelanden” government messaging service ([www.minameddelanden.se](http://www.minameddelanden.se)). Both of these cases have a large potential user base and are demanding in terms of economic and human resources. Case 1 is hereinafter referred to as the Business Registration Portal (or BRP), while Case 2 is referred to as the Government Message Service (or GMS). The *BRP*, which is a collaboration between three national government agencies, features an e-portal that users can utilize to register their companies and manage information related to their business. The *GMS*, which is a collaboration between seven national agencies and one municipality, offers an e-portal through which users can sign up to receive electronic messages from government agencies, replacing some postal services. Both cases are relatively well documented. After reading project documentation, key informants who had coordinating or leading roles in the development of the cases were identified and interviewed. Quotes from the material are translated from Swedish by the author.

The empirical material consists of:

- Pre-studies and project plans from both cases (see Table 1); and
- Interviews with key informants who were involved in the cases’ project development (see Table 2); and

**Table 1:** Examples of documentation

Document name and date	Scope	Case
My Company (June 26, 2007)	Pre-study with context and problem analysis.	BRP
Phase 2 (September 2, 2009)	Planning for further development of the e-portal, including a spreadsheet with identified risks.	BRP
Safe messaging service for the government (March 31, 2010)	Pre-study with context and problem analysis, including appendixes of legal concerns, external analysis and cost analysis.	GMS
Architecture order (March 9, 2010)	Technical requirements of the e-portal.	GMS
Constituting meeting (November 26, 2013)	Planning for hosting and cost distribution between 2014 and 2016.	GMS
User need analysis (2012)	Results from a user survey.	GMS

**Table 2:** Interviews

Role	Involved in	Duration
Delegated purchaser (A)	GMS	60 minutes
Program manager (B)	BRP	45 minutes
Coordinator (C)	Both cases	90 minutes
Minister secretary (D)	Policy making	65 minutes
Communicator (E)	BRP	75 minutes
Municipality coordinator (F)	BRP	90 minutes
Investigator (G)	GMS	55 minutes

The methodological approach is interpretative, accompanied by ontological realism: events are treated as parts of an objective reality while humans perceive some of these events in terms of risks and values. To reduce eventual bias, data has been triangulated and gathered from both interviews and project documentation. The Logical Framework Approach described in 2.3 has been operationalized by using it as a lens through which data is structured and analyzed. The empirical material has been scanned for objectives, assumptions and indicators. Based on the components of the LFA, (see 2.3) interview questions have been structured under four themes:

#### **Background and objectives**

- Was any background information gathered before starting the project?
- How was the project initiated?
- What is the main problem that the project is supposed to solve?
- What is the long-term purpose of the project?

#### **Decision making and resources**

- How were decisions made during development?
- How were issues that arose between agencies resolved?
- What resources (human/economic) were used during development?

#### **Indicators and measurement**

- Were any specific factors set that would lead to objective fulfillment?
- Were there any measurements of objectives?
- Is there a plan for further development of the system? If yes, what actors are involved?

#### **Assumptions and risks**

- Are there any factors that can influence the project in a negative way? If yes, which of these factors have been most problematic?

- Are there any side effects (positive/negative) that can arise from the project?

#### **4. Results and analysis**

In this section, the results from each case are presented and then inserted into log-frames and analyzed. The log-frames are by no means exhaustive, especially when it comes to the lower levels with inputs and activities; however, they highlight findings that have had effects on the projects.

##### **4.1 Case 1: Verksamst – Business Registration Portal (BRP)**

###### **Background and objectives**

The decision to launch BRP was based on a problem that was formulated in a 2007 pre-study: *It is complicated to start up a business in Sweden*. The pre-study was part of a larger goal in which the agencies that were involved in providing information and services to businesses sought ways of creating collaborative solutions. This included non-electronic sources such as information folders. The initiatives came from employees at respective agency since they found that much of their information related to the same topic, e.g. how to start a business, but contained different terminology and sometimes-contradictory information. To start a business, a citizen had to contact each agency separately. A meeting with the general directors of the agencies was initiated. This was a first step towards the collaboration which would later lead to the development of BRP. A proposed solution was an online portal where users could register and manage their businesses. A project group consisting of people from three national government agencies (namely the Companies Registration Office, the Tax Agency and the Agency for Economic and Regional Growth) was established by the corresponding general directors. Development began in January 2009 and the first version of the portal was launched in June of the same year.

###### **Decision making and resources**

All development was performed using open source solutions and internal resources. According to the program manager, there was a short deadline with a limited budget since the general directors did not want to risk a large cost overrun. The survival of the project was based on getting something up and running. Initially the portal contained general information and a service for registering a sole trader online. The portal soon grew and additional functionality was added over time. Because of the short deadline, the project group used an iterative development approach. Many decisions were based on continuous user input from focus groups, live testing and communication with administrators from the Companies Registration Office. Decisions in the group were based on consensus. It was soon realized that different agencies often had different objectives: where one agency wanted high benefits for the users, another wanted more benefit for the agency itself.

*The government is sending us paintings from far above. We are supposed to interpret the paintings. One such painting can represent increased utility for entrepreneurs. The problem is, there are many different opinions on what that utility consists of.* – informant C.

If consensus could not be reached on an issue, it was to be sent up the hierarchy to the general directors; however, this was rarely – if ever – necessary. During the early phase of the project, some group members were replaced. By the end, the project group was strong and all members strove towards the same objectives.

*In the beginning it was necessary to tie loose ends together and establish the ideas within the project group. We managed to get a good group going and deliver in time, which many had said would be impossible.* – informant B.

When the e-portal was developed further, important factors for success that were mentioned in the project documentation were shared objectives, the development of models and methods for collaboration, and communication between agencies. The next step in the development of the BRP is to integrate the municipalities' e-services towards entrepreneurs with the national services. This is a separate and ongoing project.

###### **Indicators and measurement**

During the pre-study, a benefit indicator of 72 million SEK per year until the year 2012 was set for BRP. The expected benefit was divided between society (39%), entrepreneurs (57%) and government (4%). It was never measured, but it *probably was reached* (informant B), since the e-portal had more users than expected. Later, indicators were changed from absolute numbers to percentages. One such indicator was that 40% of all

company registrations should be done electronically. Another aimed at 75% user satisfaction. These indicators are measured twice per year. The government has also set a long-term goal of having more users in 2020 than in 2012.

### Assumptions and risks

A repeated phrase in interviews and documents is *the investment paradox*, which can be described as a missing standardized financial model for collaboration. If agency x invests 10 million SEK in a project and created (internal) value happens to be favorable for agency y, there is no way of allocating resources between x and y.

Apart from the tight deadline and restricted budget, the risks that were initially identified mainly concerned managerial issues such as unclear decision mandate, lack of documentation and human resources. While risk workshops were held at first, later on risks were treated as they appeared. Technological and privacy risks were not prioritized because BRP is based on pre-established agency services that have been integrated into the e-portal. Legal and regulatory issues were of a greater concern. While some laws were changed, other regulations made for the physical room had to be interpreted to suit an online environment.

### Analysis, case 1

<i>Strategic objective:</i> Creating an easier everyday life for citizens.		
<i>Project objective:</i> Making it easier to register and start a business in Sweden.	<i>Indicators/SoV:</i> 72 million SEK benefit/year until 2012 (SoV: missing). 40% of all companies registered through the e-portal (SoV: business statistics/e-portal statistics). 75% user satisfaction (SoV: user surveys). More users in 2020 than in 2012 (SoV: e-portal statistics).	<i>Assumptions/risks:</i> Relevant agencies choose to collaborate. The existence of a model for measuring values and distributing resources between agencies.
<i>Outputs:</i> The "www.verksamt.se" e-portal.	<i>Indicators:</i> Development will be finished by the deadline (SoV: published e-portal).	<i>Assumptions/risks:</i> Members of the project group are working towards the same objectives. Development is in line with current laws and regulations.
<i>Activities:</i> Establish a project group. Develop an e-portal.	<i>Inputs:</i> Human and economic resources from government agencies. Results from live testing and user participation.	

**Figure 3:** Log-frame of BRP

The aim of BRP e-portal is to make it easier to register and start up a company in Sweden. This contributes to the public value of making everyday life easier for citizens that exists in the Swedish e-Government policy. Reading the above log-frame from top to bottom, we can see that a method for measuring benefits and distributing resources between agencies is needed in order to evaluate the project objective; this is especially true for the first set indicator of 72 million SEK/year. Considering that the user base has surpassed expectations, one can conclude that some value has been created; however, as evaluation suffers from a lack of formal methods for measuring and transferring benefits between agencies, there is no source of verification connected to the first indicator. When indicators were switched, it was possible to use statistics from the Business Registration Office and BRP e-portal in order to measure what percentage of companies had registered and customer satisfaction. The log-frames used in this paper add an important dimension to risk management: They show when identified risks arise by dividing a project into stages. As seen in Figure 3, when the project is supposed to implement the overall public values, the problem with measuring becomes an issue. If this had been dealt with at the lower levels, it would not have advanced further into the value hierarchy.

## **4.2 Case 2: Mina Meddelanden – Government Message Service (GMS)**

### **Background and objectives**

The development of GMS started in 2009; it was at first a part of BRP, since the agencies involved saw common advantages for having a digital messaging service. The benefit that was primarily expected was cost reduction through a decrease in the volumes of printed paper and postage. In the project documentation, more focus is given to internal agency than user demands. GMS later became a standalone project with a separate e-portal. Informant A stated that the reason for this was that the two projects have different target groups: BRP's target group consists of entrepreneurs, while GMS's target group includes all citizens who receive government mail. The GMS can be described as a standardized infrastructure for sending messages. The government supplies one mailbox in the infrastructure but the users can also choose to receive mail from a number of mailboxes supplied by private companies.

### **Decision making and resources**

The Tax Agency was given the overall responsibility for the project since they had the most suitable infrastructure. In addition to the agencies that were already involved in the BRP, representatives from four additional national government agencies and one municipality participated in setting up the requirements for GMS. All development was done using internal resources from the Tax Agency, although some external consultants were used as counselors. Decisions taken by the group with responsibility for setting requirements were consensus-based, with one exception: if no agreement could be reached, the decisive factor would be a vote that was weighted on the basis of total agency staff salaries. While the preferred financial model from a cost/utility-perspective was (saved) postage costs, the expected volume numbers reported by the agencies were regarded as uncertain. The salary model was chosen as a *pragmatic, short-term solution* (as reported in project documentation). During development, two project leaders quit and had to be replaced. Many people who were engaged in the project complained about not knowing where the project was heading in the long run, which caused tensions both between agencies and among Tax Agency employees.

### **Indicators and measurement**

A GMS e-portal was launched in 2011, but there have been problems getting agencies and users to sign up for the service. The Company Registrations Office was the first agency that sent messages through GMS, followed by the Tax Agency and the Transport Agency. An early indicator of 11 million messages sent in 2014 was set, but the volumes never came close to that. Two user-surveys were made during the development. Many users requested being able to receive mail from big national agencies as well as from regional government offices. However, there was no way to act on this input, since the involvement of other agencies was beyond the project's control:

*We (the Tax Agency) can't measure utility for the involved agencies. That is their own responsibility. Nor can we tell other agencies that they should or must join GMS. Rather, we tell them "There is a great opportunity here that you can be a part of."* – informant A.

The number of participating agencies (namely seven national and one municipal) can be put in perspective by looking at the total number of government actors in Sweden: National government consists of around 350 agencies, while the country is divided into 20 regional counties and 290 municipalities.

### **Assumptions and risks**

Informants from both projects mention the lack of central governance as a main concern. Informant D describes the policies mentioned in the introduction (Regeringskansliet 2008 & 2012) as *strategic documents without implementation programs*. The process of producing the documents is a negotiation between all government departments. The results can therefore become somewhat diluted, with no mention of concrete activities that the agencies should undertake. No larger central follow-up of results is being conducted.

The lack of governance caused many disagreements when agencies have tended to prioritize their internal objectives over a shared project objective. Many agencies have invested in their own e-portals and do not prioritize collaboration projects. The list of agencies connected to the electronic mailbox has grown in 2015 from four to nine national agencies and from one to two municipalities. However, some of these actors are only sending one or a few types of messages through the portal. As the number of involved agencies grew, the limitations of the salary model for financing and decision-making were revealed. While the model has not been formally replaced, in practice the collaborating agencies are now seeking other solutions.

While no specific model for risk identification was used in GMS, specialized government organizations were involved in the mitigation of security and legal risks.

The National Defence Radio Establishment performed penetration tests and the Civil Contingencies Agency was consulted. Laws and regulatory risks were discussed with the Data Inspection Board. One example of a legal concern is the issue of user space: when a user is filling out an online form and saves it for later, the data is stored on a government server but is considered the property of the user. This could be resolved by a new interpretation of an old law. An unresolved regulatory issue is that private actors are prevented to send government messages through the portal. While this is not a problem on a national level, it will become an issue if a municipality or county that outsources some of its services to a private sector partner joins the list of participating agencies.

The number of users grow over time, but at a slow rate. While the e-portal has not reached its indicators and objectives, the informants refrain from calling it a failure. Informant G describes the GMS as a tactical asset for value creating from which new services and government collaboration will eventually grow. However, to create more advanced functionality such as two-way communications, some legal obstacles need to be overcome, similar to the case with BRP.

### Analysis, case 2

<i>Strategic objective:</i> Attaining higher quality and efficiency in government services.		
<i>Project objective:</i> Increasing government efficiency by establishing a digital messaging service.	<i>Indicators:</i> 11 million messages sent in 2014 (SoV: e-portal statistics).	<i>Assumptions/risks:</i> Relevant agencies choose to collaborate. The existence of a model for measuring values and distributing resources between agencies.
<i>Outputs:</i> The "www.minameddelanden.se" e-portal.	<i>Indicators:</i> Functional e-service to send messages from government agencies to registered users (SoV: published e-portal).	<i>Assumptions/risks:</i> Development in line with current laws and regulations. Mitigation of security and privacy issues.
<i>Activities:</i> Set requirements. Create an e-portal.	<i>Inputs:</i> Human and economic resources from government agencies.	

**Figure 4:** Log-frame of GMS

As seen in Figure 4, the objective of GMS supports the public value of increased government efficiency. Reading the log-frame, it can be seen that an important assumption arises at the project objective level: The project is dependent on participation from other agencies, which is voluntarily. The project is now stuck in a catch-22: If a critical mass of agencies does not join, citizens will not find the service useful. If citizens do not sign up, agencies see no point in spending resources on integration. This situation has consequences for decision making, such as:

- Decision models, such as the salary model, are used for pragmatic reasons rather than for maximizing values. For example, if it were applied, the Unemployment Office’s weight would be about 30%, while it is currently only using the system to send one type of message.
- Indicators such as 11 million messages sent by 2014 are set under extreme uncertainty and appear more like speculative guesses than prognoses.
- Meeting demands from user input is affected, since their needs are based on agency participation.

While security and legal risks were mitigated with the help of specialized agencies, the results suggest that the most important factors for this project do not have to do with technological issues, but rather with organizational flaws. The implementation of public values through e-Government must be done through a transformative process in which institutional structures are adapted to serve citizen demands. When public values serve as strategic objectives, they need to be accompanied by measurable indicators in order to be

realized. However, it is important that differentiated government agencies receive proper support mechanisms in order to enable unified interpretations of objectives and establishment of common indicators for project fulfillment. Whether these mechanisms should come from a specialized “e-agency” or from more centralized top-management for e-Government is beyond the scope of this paper. However, when they are in place, ICTs in the public sector can be used as enablers for change and the implementation of public values.

## 5. Conclusions and further research

This paper has studied decision and risk in two Swedish collaborative e-Government cases. Interviews and project documentation have been analyzed by using the objectives-oriented Logical Framework Approach. By using log-frames to recreate the projects, it has been possible to identify at what stage specific risks emerge in the studied cases and on what grounds decisions have been made. The results indicate that the most severe risks emerge when public values are to be implemented and measured. The reason for this is that many decisions are made under uncertainty given that relevant assumptions are beyond the project’s control. The results show that Swedish electronic Government has evolved enough to develop functional e-portals and mitigate security and legal risks. However, the political system has not kept up and is currently a bottle-neck that reduces value for the users. A lack of top-level governance and financial models for distributing resources between agencies creates and reinforces continuous stove-piping instead of encouraging collaboration. One of the projects suffers from this more, since it is heavily dependent on participation from other agencies. However, there are also some positive signs of collaboration in the studied context. One of the analyzed cases managed to get a strong group of competences from three different agencies to work towards the same objectives by using an iterative approach and working closely with the users. In order to give specialized government agencies a common language for interpreting objectives, it is suggested that public values are used as objectives, in combination with measurable indicators. However, this requires a government function that supplies e-Government projects with formal support mechanisms.

This study is limited to one national e-Government context and two case studies. Further studies should continue to explore public values in relation to formal tools for decision making and project planning in different contexts. While this paper is an attempt to reconstruct decision making and risk, it would be interesting to see intervention studies that convert theories of decision making and objective-oriented approaches into e-Government practice. Since public values are factors that distinguish e-Government from other research fields, future studies should continue to theorize about them; however, efforts should also be made to link existing theories with good practice.

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