



Master's Programme in International Affairs and Governance

**Exploring Potential Factors for Not Evaluating
E-Government Projects in the Swiss Public Sector**
And Possible Evaluation Approaches to Not Prevent Evaluation

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ABSTRACT

This Master's Thesis aims to understand better the possible factors that influence the non-evaluation of e-government projects in the Swiss public sector. This objective is relevant because evaluations are crucial in justifying the taxpayers' money invested in e-government projects. The absence of evaluations can lead to the failure of an e-government project. In addition, evaluations are not carried out in about one-third of Federal Offices. Against this background, two research questions were formulated: What are the potential factors for not evaluating e-government projects in the Swiss public sector? What could a successful approach to evaluating an e-government project look like so that the factors deduced from this Master's Thesis do not prevent evaluation? To tackle these questions, a systematic literature review was conducted, from which 16 possible factors that can lead to e-government projects not being evaluated were derived. Based on these factors, a survey was conducted among public administration professionals working in digitalization matters in the Swiss public sector. From the survey responses, a single sample t-test method was used to statistically determine the most influential factors in the non-evaluation of e-government projects. Further relevant additions and responses to the survey were evaluated qualitatively. Finally, an illustrative case study examined two successful real-life evaluation procedures in introducing digital relocation notifications in Swiss Cantons Zurich and Bern. The results show that lack of time, lack of evaluation skills, and problems in identifying and quantifying the benefits of an e-government project have a statistically significant influence on the non-evaluation of e-government projects. Furthermore, according to the open-ended responses of the survey participants, long investment cycles, federal structures, and unclear legal relationships and regulations can lead to e-government projects not being evaluated. Additionally, the results show that the examined Cantons of Zurich and Bern contributed to successfully implementing the digital relocation notification and counteracted non-evaluation factors with their bottom-up and top-down evaluation approaches.

Keywords: E-Government Project; Evaluation; Factors; Swiss Public Sector

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LIST OF ABBREVIATIONS

EY	Ernst & Young
FC	Federal Constitution
GDP	Gross Domestic Product
H0	Null Hypothesis
H1	Alternative Hypothesis
IC	Inclusion Criteria
ICT	Information and Communication Technologies
n	Sample Size
no.	Number
p	P-Value
PLS	Partial Least Squares
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
Rej.	Reject
s	Standard Deviation
se	Standard Error
St.	Standard
t	Test-Test Statistic
VSED	Swiss Association of Residents' Services
y	Arithmetic Mean of the Sample
ZH	Zurich

1. INTRODUCTION

"In the end, the worth of evaluations must be judged by their utility." (Balthasar, 2009, p. 486)

Governments worldwide have increasingly used information and communication technologies (ICTs) in recent decades (Ojha & Pandey, 2017, p. 1). The digitalization of public administration has been discussed since the 1960s. Web-enabled government agencies were introduced in the early 1990s (Anthopoulos et al., 2016, p. 1). These so-called "e-governments" use ICT to make public services more accessible, accountable, and effective (Sabani et al., 2019, p. 435). These goals are usually achieved through the implementation of e-government projects. These e-government projects use ICT to transform and modernize how governments operate, deliver services, and interact with citizens, businesses, and other stakeholders. E-government projects are mainly characterized by their complexity in organizational size, the underlying political processes, or resistance to change (Anthopoulos et al., 2016, p. 161). In this context, governments are investing considerable resources in e-government projects with the expectation of achieving the just-stated objectives (Luna-Reyes et al., 2012, p. 324). It is estimated that investments in e-governments account for more than 1% of the gross domestic product (GDP) in some instances, which is a significant amount (Alshawi & Alalwany, 2009, p. 193; Alalwan & Thomas, 2011, p. 1). Justification for such significant investments usually requires evaluation (Alshawi & Alalwany, 2009, p. 196). The evaluation of e-government projects entails the monitoring and measuring of a project's ability to achieve its objectives. An evaluation process enables governments to determine whether they can deliver an e-government project as expected (Anwer Anwer et al., 2016, p. 140). Thus, the evaluation involves comparing the results achieved with predetermined standards to improve future results (Qureshi et al., 2017, p. 356). A convincing definition summarizing such an evaluation is provided by Balthasar (2009, p. 486) as "a scientifically and empirically based retrospective assessment of the design, implementation and/or effectiveness of government activities [...] that assesses government activities according to transparent criteria and establishes causal links between activities and effects".

While investments in e-government projects are increasing worldwide, the percentage of failed e-government projects lies between 60 and 85%, according to statistical data from various authors (Mates et al., 2013, p. 104). The incidence of e-government project failure remains an important issue and includes a range of outcomes from incomplete implementation to project abandonment. For example, Anthopoulos et al. (2016, p. 162) state that 35% of public sector ICT projects worldwide are failures, while 50% are classified as partial failures, and only 15% are successful. In this context, Mates et al. (2013, p. 114) argue that the non-evaluation of e-government projects is a "critical failure factor" and that the lack of evaluation of e-government

projects is a reality. Moreover, there is a growing concern about justifying such significant public investments in failing e-government projects (Ojha & Pandey, 2017, p. 91). This leads Alshawi & Alalwany (2009, p. 196) to conclude that evaluation would help justify significant investments in such projects. Furthermore, according to several authors, the literature on e-government evaluation is a scarce and underdeveloped field (Alshawi & Alalwany, 2009, p. 196; Qureshi et al., 2017, p. 357)

Switzerland is a particular case when it comes to evaluations. According to Article 170 of the Swiss Federal Constitution (FC), the Parliament is mandated to ensure that the effectiveness of federal measures is evaluated. This constitutional obligation is unique worldwide (Luzius, 2009, p. 52). Nevertheless, there is no precise data on evaluating e-government projects in Switzerland. However, some studies have examined general evaluation activities in the Swiss administration. Based on a comprehensive survey of evaluations carried out in the Federal Administration, Balthasar (2009, p. 496) concludes that there is a "lively evaluation activity, but no comprehensive evaluation culture." Moreover, according to Balthasar (2009, p. 496), one-third of the Federal Offices did not conduct any evaluations during the period under review. This suggests that a significant proportion of e-government projects in Switzerland are not evaluated.

Consequently, this Master's Thesis aims to understand better possible factors that influence the non-evaluation of e-government projects, focusing on Switzerland. Therefore, the author of this thesis has chosen to answer the following two research questions:

1. *What are the potential factors for not evaluating e-government projects in the Swiss public sector?*
2. *What could a successful approach to evaluating an e-government project look like so that the factors deduced from this Master's Thesis do not prevent evaluation?*

In order to tackle these questions, the author uses different methodological approaches. In the first step, the author conducts a systematic literature review. According to the literature, this results in a conceptual framework of 16 factors that can lead to the non-evaluation of e-government projects. In the second step, these factors are quantitatively analyzed using a questionnaire-based survey in which Swiss public sector professionals were asked to rate the factors according to their personal assessment. The author then conducts a single sample t-test to determine the most influential factors in the non-evaluation of e-government projects. In a third step, further additions and answers of the survey participants are qualitatively analyzed. Finally, an illustrative case study highlights the two successful real-life evaluation procedures

for the Swiss digital relocation notification in the Cantons of Zurich and Bern that counteracted the non-evaluation factors.

The author finds that the three factors 'Lack of Time,' 'Lack of Evaluation Skills,' and 'Problems in Identifying and Quantifying Benefits' have a statistically significant influence on the non-evaluation of e-government projects, according to the survey conducted. Lack of time resources can lead to a low prioritization of evaluation activities, lack of evaluation skills of administrative staff can lead to insufficient evaluations, and problems in identifying and quantifying the benefits of an e-government project can lead to administrations not undertaking any evaluation efforts. Furthermore, according to the open-ended responses of the survey participants, long investment cycles, federal structures, and unclear legal relationships and regulations can lead to e-government projects not being evaluated. In addition, the author finds that the Cantons of Zurich and Bern follow two successful evaluation procedures in introducing digital relocation notifications. The Canton of Zurich is characterized by a bottom-up and the Canton of Bern by a top-down evaluation process.

Consequently, the findings of this Master's Thesis indicate that, when evaluating e-government projects, it is crucial to allocate sufficient time resources to the evaluation, strengthen the evaluation skills of the staff, and develop appropriate methods for capturing and evaluating the benefits of e-government projects. Additionally, it is indispensable to consider long investment cycles, federal structures, and unclear legal relationships and regulations as non-evaluation factors. Furthermore, the bottom-up evaluation approach, as in the Canton of Zurich, or the top-down evaluation approach, as in the Canton of Bern, led to a successful evaluation of the e-government project and counteracted the non-evaluation factors.

This Master's Thesis acknowledges several limitations in its multi-method approach. First, the systematic literature review's findings may be influenced by the author's subjective selection criteria and the lack of journal restrictions, potentially affecting result validity. Second, in the quantitative method, there was limited control over survey participants, language variations, and potential sampling errors in hypothesis testing. Third, subjective factors could also influence the qualitative method when categorizing open-ended responses. Fourth, the illustrative case study could introduce bias due to single-case selection, its descriptive nature hindered causal relationship establishment, and data collection relied solely on open-source data. Lastly, generalizability was constrained due to an inability to determine survey respondents' federal affiliations and the exclusion of underrepresented regions. Despite these limitations, this work can contribute to a better understanding for public administration professionals of

possible factors why e-government projects in public administration are not evaluated. Furthermore, this Master's Thesis contributes to the literature on e-government projects and their evaluation.

In order to answer the research questions, chapter two begins with an explanation and systematic review of the literature. This review is then used to derive factors that may lead to e-government projects not being evaluated. Chapter three discusses the methodology of the analysis. In particular, the questionnaire-based survey approach, the qualitative method, and the illustrative case study are explained. Chapter four presents the results. The data from the survey are analyzed, and the corresponding calculations are shown, as well as the qualitative results. Chapter five is the discussion, in which the analysis results concerning the first research question are summarized and discussed. In chapter six, the second research question considers and discusses an illustrative case study. Chapter seven summarizes the findings in a conclusion.

2. LITERATURE REVIEW

In order to answer the research question 'What are the potential factors for not evaluating e-government projects in the Swiss public sector,' this chapter will first outline the relevant literature and then conduct a systematic literature review based on the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). This systematic literature review will identify factors that, according to the literature, can lead to the non-evaluation of an e-government project. The chapter concludes by presenting a conceptual framework based on the identified factors.

2.1 Literature & PRISMA Statement

According to various authors, the literature on e-government evaluation is a "scarce" and "underdeveloped" area (Qureshi et al., 2017, p. 358; Alshawi & Alalwany, 2009, p. 196). Nevertheless, three main trends can be identified. First, e-government research focuses on evaluation frameworks for e-government projects, which present frameworks for evaluating e-government projects (Singh et al., 2020; Esteves & Joseph, 2008; Gupta, 2007; Liu et al., 2008). Second, there is increasing research on e-government evaluation from management science and economics perspectives. For example, there are various analyses on evaluating e-government projects about life-cycle management or concerning cost-benefit analyses (Wang & Ge, 2020; Sahraoui & Irani, 2008; Kachwamba & Makombe, 2011). Third, and more recently, e-government project evaluation is increasingly being considered in the computer science and information systems literature, e.g., by researchers from computer science departments or by frameworks with a technical focus (Grimsley et al., 2007; Gupta & Jana, 2003; Yusof & Yusuff, 2013).

Against this background, the author conducts a systematic literature review. The systematic literature review was conducted according to the PRISMA statement (Moher et al., 2009). PRISMA is a methodological tool for reviews and meta-analyses to help authors effectively present the results of a systematic review of different types of published research. Following the guidelines provided by PRISMA, the author follows five basic steps when conducting the systematic literature review (Huda et al., 2022, p. 32).

Step 1: Eligibility Criteria

First, specific eligibility criteria were defined to ensure that the literature included in this systematic review met the research objectives and requirements. These criteria served as a benchmark to ensure that the selected papers provided a sound basis for investigating the reasons for non-evaluation of e-government projects. The inclusion criteria (IC) are as follows:

- (IC1) The paper should be an academic paper written in English, as this is the most common academic language in the field of study of this Master's Thesis. Additionally, the paper should be accessible in full format via the university login.
- (IC2) The paper should use at least one of the pre-defined keywords in its title or abstract (see Chapter 2.1.3).
- (IC3) The paper should focus on the study of e-government evaluation.

Step 2: Information Resources

Second, the author chose the online educational research databases Google Scholar, Web of Science, and SCOPUS to search for relevant papers. Due to the interdisciplinary nature of this Master's Thesis, the author considered articles from public policy and administration, project management, and computer science. Nevertheless, the most important papers for this thesis belong to the field of public policy and administration, such as the 'Government Information Quarterly,' 'Public Management Review,' 'Public Administration Review,' 'The American Review of Public Administration' or 'Journal of Public Administration Research and Theory.' Studies that were not accessible were excluded from the study. The author also examined the references cited in these articles to identify related research.

Step 3: Study Selection

Third, the author used a keyword string in line with the research interest to identify relevant e-government evaluation papers. This search string included the terms 'evaluation,' 'assessment,' and 'performance' concerning 'e-government,' 'electronic government,' 'digital government,' 'mobile government,' and 'project.' The selection of papers was guided by the eligibility criteria provided explicitly by IC1&2, i.e., papers had to be written in English, be fully accessible, and use at least one keyword in their title or abstract.

Step 4: Information Collection Process

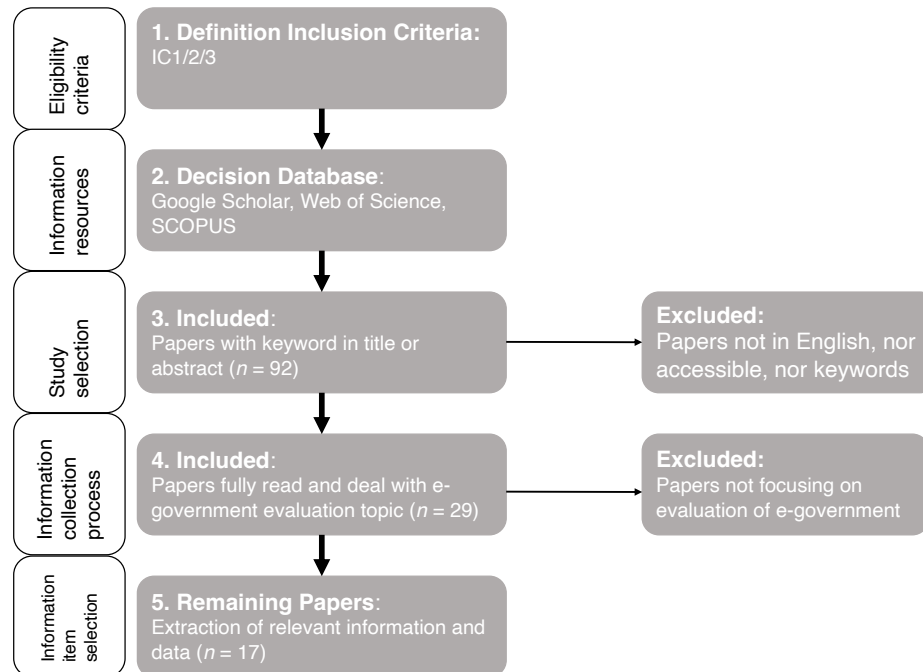
Fourth, a comprehensive review of the full texts of those papers not excluded in the previous stages was carried out. This step allowed the author to re-evaluate the articles, paying particular attention to compliance with the criteria, mainly whether the papers addressed the topic of e-government evaluation (IC3). During this process, all relevant information was extracted from the selected papers to provide a solid base for analyzing possible reasons for the non-evaluation of e-government projects.

Step 5: Information Item Selection

Relevant information on potential factors contributing to the lack of evaluation in e-government projects was extracted from the remaining articles. This information included specific findings, data, and arguments relevant to addressing the research questions and identifying key issues

related to the non-evaluation of e-government projects. The selection of this information from the selected papers formed the basis for the subsequent analysis and synthesis of the findings in this systematic literature review.

Figure 1: PRISMA Flow Chart 3



Source: Own Depiction Based on Huda et al. (2022, p. 32)

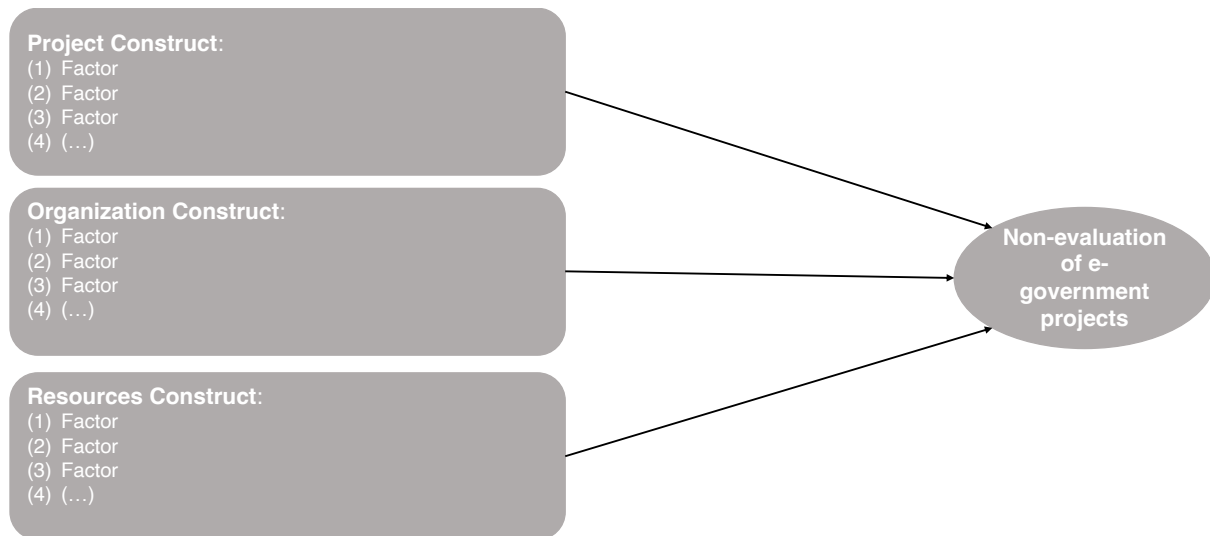
Figure 1 shows the flow chart after applying the PRISMA guidelines to the presented issue. In the first step, the author defined the inclusion criteria for the literature review. In the second step, the author decided which databases to search for relevant papers. In the third step, studies were selected by searching the databases using the specified search terms. Only fully accessible English language articles (IC1) and articles with at least one keyword in the title or abstract (IC2) were included in the review ($n = 92$). The next step was for the author to read the articles that had not yet been eliminated, mainly to check whether they dealt with e-government evaluation (IC3) ($n = 29$). In a final step, the author extracted the relevant information from the remaining papers to analyze possible factors that could lead to the non-evaluation of e-government projects ($n = 17$).

2.2 Results of the Literature Review

As a result of the literature review, the author identifies three construct groups. These construct groups serve as conceptual categories for analyzing the factors that might contribute to the non-evaluation of e-government projects in the public sector. The author expects these construct groups to influence the non-evaluation of e-government projects in the public sector. The three construct groups are project, organization, and resources. In addition, the construct

groups consist of concrete factors that the author believes hinder the evaluation of e-government projects, as depicted in Figure 2.

Figure 2: Outline Conceptual Framework



Source: Own Depiction based on Visualization of Guenduez et al. (2023, p. 4)

2.2.1 Project Construct

The project construct group alludes to e-government projects implemented within the public sector. It encompasses these projects' planning, development, implementation, and management. This construct group focuses on how project-related factors may contribute to the non-evaluation of e-government projects. It identifies the factors of size of an e-government project, identification and quantification of benefits, timing of evaluation, lack of data and information, diverse group of stakeholders, and lack of project management approaches. This construct is explored in the literature, e.g., Anthopoulos et al. (2016, p. 162) highlight that considering the project life cycle is crucial when it comes to e-government projects, and Al-Ahmad et al. (2009) and (Nawi et al. (2011) look more broadly at project management factors.

The first factor in this group is the size of an e-government project. Wang & Ge (2020, p. 658) argue that it is more impractical to evaluate large-scale e-government projects because they last for a long time. Ke & Wei (2006, p. 46) support this argument by stating that e-government projects face the challenge of large project size. Furthermore, Esteves & Joseph (2008, p. 124) stress the importance of identifying the size of an e-government project. According to Esteves & Joseph (2008), size is crucial to define a unit for evaluation and thus make an e-government project manageable. Thus, the first factor states that a large e-government project will result in no evaluation.

Factor 1 – Large e-government Project:

A large e-government project will result in no evaluation.

A second factor in this group is identifying and quantifying benefits in evaluating e-government projects. Grimsley et al. (2007, p. 176) see the problem of identifying and quantifying the benefits of e-government projects as the main obstacle to evaluation. This view is shared by Alshawi & Alalwany (2009) and Beynon-Davies (2005). Beynon-Davies (2005, p. 16) emphasizes the difficulty of determining the exact costs and benefits of e-government projects. Alshawi & Alalwany (2009, p. 194) argue that, in practice, e-government initiatives have different objectives; the benefits achieved by these initiatives are also different, and therefore, the evaluation of these benefits is also different. Several authors further elaborate on the problem of identifying and quantifying benefits. Gupta & Jana (2003), Gupta et al. (2007), and Alalwan & Thomas (2011) all acknowledge the challenges of hard and soft measures in evaluating e-government projects. Moreover, Gupta & Jana (2003) highlight the distinction between tangible and intangible benefits. Furthermore, according to Irani et al. (2005, p. 72), an organization does not collect data for evaluation if benefits are challenging to measure. In addition, Kachwamba & Makombe (2011, p. 109) point out that not all e-government projects can be measured or quantified in monetary terms, while Kertesz (2003, p. 12) considers it essential that not all e-government projects aim to maximize profits. This factor states that problems in identifying and quantifying the benefits of e-government projects hinder its evaluation.

Factor 2 – Problems Identifying and Quantifying Benefits:

Problems in identifying and quantifying the benefits of an e-government project hinder its evaluation.

A third factor in this group is the timing of the evaluation of the e-government project. Several authors highlight the importance of the timing of an e-government project and distinguish four evaluation points in time (Damoah & Akwei, 2017; Heeks, 2006). First, the ex-post evaluation analyses the impacts, outputs, and outcomes of an e-government project (Sorrentino, 2009; Sahraoui & Irani, 2008). Second, ongoing evaluation (in itinere) is the continuous monitoring of an e-government project and analysis of performance during project implementation (Alalwan & Thomas, 2011; Sorrentino, 2009; Sahraoui & Irani, 2008). Third, ex-ante evaluation is carried out before the development and implementation of an e-government project begins (Sahraoui & Irani, 2008; Sorrentino, 2009). However, the literature emphasizes that e-government evaluation is mainly carried out post-evaluation, which may hinder the evaluation of e-government projects (Wang & Ge, 2020; Irani et al., 2005). In response, Wang & Ge (2020, p.

658) note that an e-government project is closely linked to various risks. For example, problems that occur in one phase are likely to lead to a series of problems, and post-evaluation does not support the feedback and adjustment of the project during the implementation process. Thus, this factor states that if an e-government project's evaluation occurs at the end rather than throughout the project, the evaluation will be prevented.

Factor 3 – Evaluation Time at the End instead of throughout the Project

If the evaluation of an e-government project occurs at the end of the project rather than throughout the project, the evaluation will be prevented.

A fourth factor in this group is the availability of relevant data and information about the project. Grimsley et al. (2007, p. 176) mention the lack of data and information as a significant obstacle to evaluating e-government projects. The importance of the quality of existing information and data for the evaluation of e-government is also acknowledged by Luna-Reyes et al. (2012, p. 327). In addition, Gupta & Vasishta (2007) highlight the non-availability of baseline data as a significant constraint to evaluating e-government projects. Thus, this factor is that a lack of data and information prevents the evaluation of e-government projects.

Factor 4 – Lack of Data and Information

A lack of data and information prevents the evaluation of e-government projects.

Another factor in this group is the stakeholders to whom e-government projects are intended to deliver benefits. According to Gupta (2007, p. 259), an e-government project has internal and external, direct and indirect stakeholders for evaluation. A stakeholder could be an organization or individuals associated with or affected by the e-government project. Therefore, Gupta (2007) stresses the importance of consulting these stakeholders at the beginning of an e-government project. Furthermore, Haass & Guzman (2020, p. 574) state that each project must be treated differently based on the conversation between the stakeholders involved in the evaluation process. However, as Alshawi & Alalwany (2009, p. 194) point out, the challenge in evaluating an e-government project is having different stakeholders' perspectives. Thus, this factor states that diverse e-government project stakeholders might result in non-evaluation.

Factor 5 – Diverse Group of Stakeholders

A diverse group of e-government project stakeholders leads to non-evaluation.

The final factor in this group is the lack of project management approaches to evaluating e-government projects. For example, Al-Karaghoul (2009, p. 4) sees the lack of a comprehen-

sive, holistic project management approach as a significant challenge for evaluating e-government projects. Irani et al. (2005, p. 65) point out that most organizations do not have management processes to capture and measure the results of e-government projects, nor do they have processes to determine what benefits have been achieved. Accordingly, Gupta & Vasishta (2007, p. 217) point out that the lack of a comprehensive evaluation framework limits the evaluation of e-government projects. Furthermore, Sahraoui & Irani (2008) and Gupta & Jana (2003) see the lack of relevant approaches and models as a significant reason for the lack of a sustainable approach to e-government evaluation. Finally, Grimsley et al. (2007, p. 176) highlight the lack of familiarity with evaluation techniques as an obstacle to the evaluation of e-government projects, and Irani et al. (2005, p. 69) argue that there is confusion about the evaluation techniques available to decision makers. Thus, this factor states that a lack of project management approaches to evaluating e-government projects leads to no evaluation.

Factor 6 – Lack of Project Management Approaches

A lack of project management approaches to evaluating e-government projects leads to no evaluation.

2.2.2 Organization Construct

This construct group focuses on the structure, processes, and culture of public sector organizations evaluating e-government projects. The organization construct group examines how organizational factors influence the lack of evaluation of e-government projects and thus identifies the factors of organizational culture, political and governmental decisions, lack of visibility of evaluation reports, departmental structure, lack of evaluation experience, and unclear responsibilities. In this context, Esteves & Joseph (2008, p. 127 & 327) point to the importance of the organizational dimension in evaluating e-government projects and see management characteristics as essential determinants in evaluating e-government.

The first factor in this group is culture. Gupta & Jana (2003, p. 367) attribute the lack of an adequate evaluation framework for e-government projects in India to "an administrative culture that may not be able to cope with the demands of a digital world." Similarly, Singh et al. (2020, p. 42) point to the importance of organizational culture and the attitudes of public employees, and Grimsley et al. (2007, p. 176) see the lack of interest in a public organization as a significant obstacle to the evaluation of e-government projects. Furthermore, Sahraoui & Irani (2008) suggest an opportunistic attitude within the public sector for the lower need for evaluation, and Jones et al. (2007, p. 4) state that e-government evaluation is only carried out to satisfy external audit bodies. Thus, this factor states that an organizational culture in the administration that is disinterested in evaluation will prevent it.

Factor 7 – Organizational Culture

An organizational culture in the administration that is disinterested in evaluation will prevent it.

A second factor in this group is the organizational environment. Grimsley et al. (2007) and Grimsley et al. (2005) stress the importance of environmental capital in the evaluative design of e-government projects. Yusof & Yusuff (2013) state that the organizational environment is a factor that influences the effectiveness of the evaluation of e-government systems. In addition, Yusof & Yusuff (2013, p. 905) specify that the organizational environment consists of politics and government. Other authors also emphasize the influence of politics on the evaluation of e-government projects. Singh et al. (2020, p. 42) point to the need for political leadership, and Irani et al. (2005, p. 72) see a barrier to e-government evaluation as it is often overtaken by political action. Thus, this factor states that political and governmental decisions result in e-government projects not being evaluated.

Factor 8 – Political and Governmental Decisions

Political and governmental decisions result in e-government projects not being evaluated.

A third factor in this group is the visibility of an e-government project evaluation within an organization. For instance, Gupta & Vasishta (2007, p. 260) see the lack of high visibility of evaluation reports as a significant challenge for evaluating e-government projects. According to these authors, it has been observed that evaluations of e-government projects are often conducted primarily to fulfill mandatory project requirements, and once this task is completed, the evaluation report is filed away and forgotten. However, if the evaluation report is given substantial transparency and exposure within an organization, it would provide learning for the e-government project. Irani et al. (2005, p. 70) conclude that evaluations do not return learning to the organization. Thus, this factor states that a lack of visibility of evaluation reports in the administration results in non-evaluation.

Factor 9 – Lack of Visibility Evaluation Reports

A lack of visibility of evaluation reports in the administration results in the non-evaluation of e-government projects.

A fourth factor in this group is the departmental structure within a public sector organization. Irani et al. (2005, p. 71) recognize that departmental structures are an obstacle to evaluating e-government. The departmental structure can lead to confusion about organizational roles and responsibilities. It also affects the ability of the organization to act on an enterprise-wide

basis and leads to departmental autonomy challenging evaluation procedures. Furthermore, Irani et al. (2005, p. 70) describe departmental structures as "tribal boundaries between departments," which prevent cooperation in information sharing and adequate evaluation of e-government. Thus, this factor states that a departmental structure with autonomous administrative units leads to e-government projects not being evaluated.

Factor 10 – Departmental Structure

A departmental structure with autonomous administrative units leads to e-government projects not being evaluated.

Another factor in this group is an organization's lack of evaluation experience. Irani et al. (2005, p. 69) suggest that the decision not to invest in e-government evaluation could be explained by "inheritance" of past investment decisions. Gaudino & Moro (2010, p. 55) see resistance to change within a public sector organization as a legacy government process that is also a possible barrier to evaluating e-government projects. In other words, a lack of evaluation experience in a public sector organization in which evaluation of e-government projects has not been carried out will continue to refrain from evaluation. Thus, this factor states that since an administration has never evaluated e-government projects before, no evaluations will continue to be carried out.

Factor 11 – Lack of Evaluation Experience

Given that an administration has never evaluated e-government projects before, no evaluations will continue to be carried out.

A final factor in this group is the responsibility for evaluating e-government projects within an organization. In a study by Jones et al. (2007, p. 4), the authors concluded that the responsibility for e-government evaluation was not evident in the organizations surveyed. It was assumed that e-government evaluation was the responsibility of the ICT specialist. However, ICT management was unaware of its perceived responsibility, leading to a situation where e-government evaluation was not given priority. Thus, the lack of clearly defined responsibility for evaluation is a significant barrier. Thus, this factor states that unclear responsibilities for evaluation lead to e-government projects not being evaluated.

Factor 12 – Unclear Responsibilities

Unclear responsibilities for evaluation lead to e-government projects not being evaluated.

2.2.3 Resources Construct

The resources construct group focuses on the availability and allocation of resources necessary for evaluating e-government projects. It includes financial, human, technical, and time resources required for evaluation activities. This construct group explores how resource-related factors may influence the decision not to evaluate e-government projects and examines the factors of funding, skills, technological infrastructure, and time. The literature has primarily explored this construct by looking at different dimensions of project resources, such as tangible and intangible resources, or by speaking more generally about the constraining nature of resource availability for e-government evaluation (Eja & Ramegowda, 2020; Irani et al., 2005).

The first factor in this group is funding as an economic resource. Gupta & Vasishta (2007, p. 218) and Gupta (2007, p. 260) stress the importance of a holistic evaluation of an e-government project. However, these authors recognize that such an evaluation would require much time for surveys and interviews, travel costs, and expertise to analyze the evaluation data, which would require abundant funding and is usually unavailable in a public organization. Similarly, Irani et al. (2005, p. 71) describe the lack of available financial resources as a barrier to evaluation. Thus, this factor states that a lack of funding for evaluating e-government projects prevents them from being evaluated.

Factor 13 – Lack of Funding

A lack of funding for evaluating e-government projects prevents them from being evaluated.

A second factor in this group is skills as a human resource. Grimsley et al. (2007, p. 183) emphasize the need for technical skills, which applies to evaluating e-government projects. However, they also acknowledge that the set of skills required by public sector employees goes beyond technical skills. It also includes interpersonal skills, such as communication skills or relationship management skills. Thus, a lack of evaluation skills in the public sector staff could lead to the non-evaluation of e-government projects.

Factor 14 – Lack of Evaluation Skills

A lack of evaluation skills among administrative staff leads to the non-evaluation of e-government projects.

A fourth factor in this group is technological infrastructure. Grimsley et al. (2007, p. 182) point to the importance of infrastructural capital, i.e., computer and communication hardware, in the context of evaluative designs of e-government projects. Similarly, Luna-Reyes et al. (2012, p.

327) highlight the importance of an adequate technological infrastructure. Furthermore, in evaluating an e-government project, Gaudino & Moro (2010, p. 55) see the lack of adequate IT infrastructure as a significant technological barrier. Thus, this factor states that an inadequate technological infrastructure in the administration leads to e-government projects not being evaluated.

Factor 15 – Inadequate Technological Infrastructure

Inadequate technological infrastructure in the administration leads to e-government projects not being evaluated.

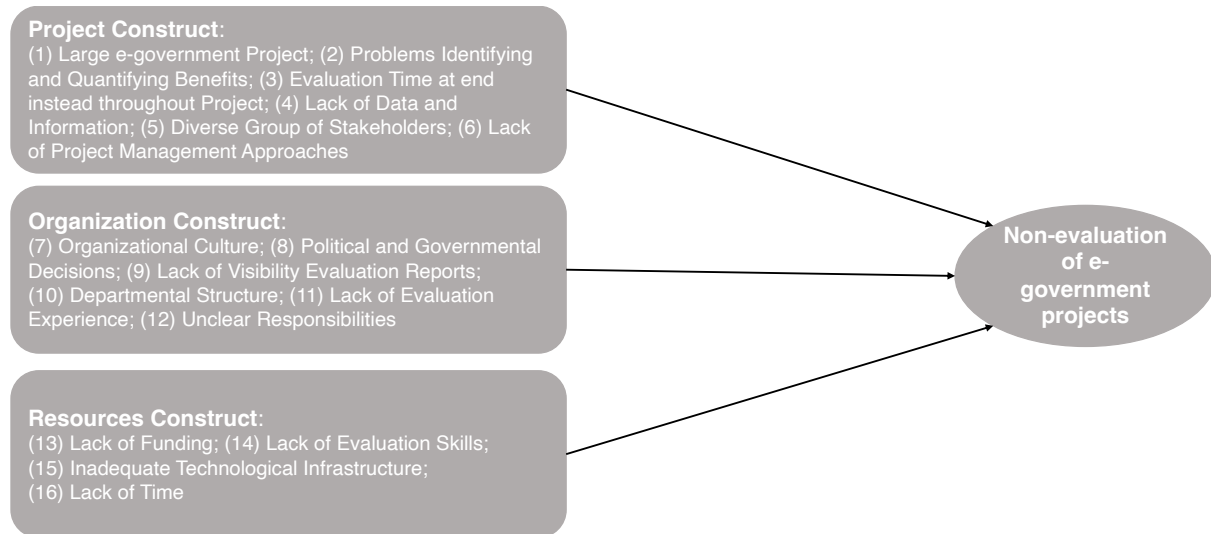
A final factor in this group is the time resource for evaluation. Grimsley et al. (2007, p. 142) highlight the lack of time as an obstacle to evaluating e-government projects. Gupta & Vasishta (2007) argue that evaluating an e-government project is a significant challenge that needs to be addressed and that sufficient time must be devoted to this exercise. In addition, according to the above authors, it is crucial to understand the time-consuming collection of data and information required for evaluation and, therefore, needs to be taken seriously by top-level policymakers when allocating time resources. Otherwise, the evaluation exercise will become another regular task, and no e-government project evaluation will occur. Thus, this factor states that a lack of time to evaluate e-government projects prevents them from being evaluated.

Factor 16 – Lack of time

A lack of time to evaluate e-government projects prevents them from being evaluated.

2.4 Conceptual Framework

The above-described construct groups serve as conceptual categories for analyzing the 16 factors that might contribute to the non-evaluation of e-government projects in the public sector. Based on the three construct groups identified, the author wishes to analyze the following factors, summarized in Figure 3.

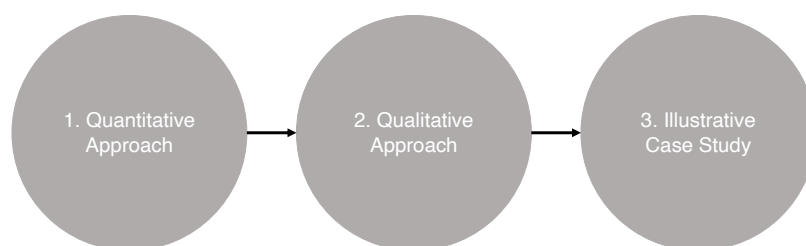
Figure 3: Initial Conceptual Framework

Source: Own Depiction based on Visualization of Guenduez et al. (2023, p. 4)

3. RESEARCH METHOD

In this chapter, the methodology used for this Master's Thesis is highlighted. In order to obtain viable results, the author combines quantitative and qualitative methodological approaches, as depicted in Figure 4. First, a quantitative approach is conducted by a questionnaire-based survey and a single sample t-test to determine the most influential factors. Second, a qualitative approach is taken by qualitatively analyzing further additions and responses from the survey to identify additional factors. Third, an illustrative case study presents two successful real-life evaluation procedures that counteract the non-evaluation factors. The multi-method approach used by the author is comparable to other studies in related fields, such as the evaluation of ICT projects conducted by Ebad (2018).

Figure 4: Multi-Method Approach



Source: Own Depiction

3.1 Quantitative Method

In a first step, a quantitative approach is conducted to answer the first research question, ‘What are the potential factors for not evaluating e-government projects in the Swiss public sector?’ For this purpose, the author created and conducted a questionnaire-based survey. The questionnaire-based survey was based on the 16 factors of the systematic literature review to identify the most influential factors causing the non-evaluation of e-government projects using a single sample t-test method.

3.1.1 Survey Approach

The survey was conducted using a structured questionnaire to explore possible reasons for not evaluating e-government projects. As elaborated in Chapter 2.2, these reasons included project, organizational, and resource factors. The survey was created on the platform Unipark.com. The questionnaire consisted of three parts. Part 1 collected information about the participants, including the organizational level at which they work in the public sector (federal, cantonal, or municipal) and their position in their organization in the public sector (upper management, project manager, entry-level position). Participants had to agree to the privacy policy before their data was collected. Participants were informed that the survey was voluntary and anonymous. They were also informed that the anonymized data would only be used to prepare

this Master's Thesis. Without consent, participants could not take part in the survey. In part 2, participants were asked to rate the 16 factors related to the non-evaluation of e-government projects according to the literature review. Participants rated each factor on a 5-point Likert scale ('strongly disagree,' 'disagree,' 'neutral,' 'agree,' and 'strongly agree'). In part 3, participants were presented with an open-ended question inviting them to add additional thoughts or crucial factors. The responses received in this section were subjected to qualitative analysis in the following section (see Chapter 3.2). The survey was conducted in German during June and July 2023.

3.1.2 Description of the Survey

The 16 factors, elaborated in Chapter 2.2, were included in the survey as depicted in Table 1. Participants were asked to indicate 'strongly disagree,' 'disagree,' 'neutral,' 'agree,' and 'strongly agree' according to their assessment of the impact of each factor on the non-evaluation of e-government projects.

Table 1: Survey Description

1. Large e-government Project
2. Identifying and Quantifying Benefits
3. Evaluation Time at the End instead of throughout the Project
4. Lack of Data and Information
5. A Diverse Group of Stakeholders
6. Lack of Project Management Approaches
7. Organizational Culture
8. Political and Governmental Decisions
9. Lack of Visibility Evaluation Reports
10. Departmental Structure
11. Lack of Evaluation Experience
12. Unclear Responsibilities
13. Lack of Funding
14. Lack of Evaluation Skills
15. Inadequate Technological Infrastructure
16. Lack of Time

Source: Own Depiction

The listed factors were grouped into three broader constructs, namely the project construct (no. 1-6), the organization construct (no. 7-12), and the resource construct (no. 13-16). The questionnaire was sent by E-Mail to 133 possible participants of the target group. A cover letter, which briefly explained the framework of the Master's Thesis, was added to explain the

purpose of the study. It emphasized that there were no right or wrong answers in the survey but that each person's personal opinion, judgment, and experience were required. It was also noted that the survey could be shared with co-workers.

In total, 64 participants participated in the survey. The highest number of survey discontinuities was recorded on the start page of the survey (28.29%). The average time taken to complete the survey was 5 minutes 52 seconds. Most survey traffic was recorded in the first 14 days after sending the invitations.

3.1.3 Participants

The target group for the survey consisted of professionals working in the public sector on e-government projects at the federal, cantonal, and municipal levels in Switzerland. Out of the 64 completed questionnaires, 19 people (29.96%) work for the Confederation, 25 people (39.06%) for the Cantons and 20 people (31.25%) for the municipalities. This corresponds to a balanced ratio of administrative affiliation of the respondents. Moreover, the 64 responses came from 39 people (60.94%) in upper management positions, 17 people (26.56%) who work as project managers, and eight people (12.5%) working in entry-level positions.

The procedure for inviting potential participants from the Confederation, Cantons, and municipalities to participate in the survey was the same. All potential participants had to meet two criteria.

1. Their function in the public sector had to be related to 'e-government' or 'digitalization.' The decisive criteria were jobs in the function of 'Chief Digital Officer,' 'Chief Information Officer,' 'Head,' 'Project Staff,' or 'Specialist' with titles such as 'Digitalization,' 'Digital Transformation,' 'Digital Administration,' 'Information Technology,' 'ICT,' or 'Smart City.'
2. Their function in these areas is publicly identifiable, for example, through information on specific homepages of the administrative unit, through newspaper articles, or descriptions on social media such as LinkedIn.

Potential participants from all seven Federal Departments and the Federal Chancellery were considered in the federal government's case. Based on the Swiss Confederation's digital strategy, the individual Federal Offices have digital transformation projects within the seven Federal Departments. Therefore, the most critical Federal Offices of the respective Federal Departments and the associated General Secretariats were screened for suitable potential participants according to the abovementioned criteria.

In the case of the Cantons, a prioritization of potential survey participants was carried out. According to the Digitalization Index of Schmid et al. (2018), potential participants from Cantons with above-average digitalization levels were considered, as a higher level of digitalization activity was expected in these Cantons. The prioritization corresponds to the twelve Cantons of St.Gallen, Aargau, Zug, Neuchâtel, Bern, Solothurn, Nidwalden, Basel-Stadt, Thurgau, Lucerne, Zurich, and Obwalden. The Digitalization Index measures the level of digitalization in the Swiss Cantons based on weighted indicators. Therefore, potential survey participants were identified in the twelve most digitalized Cantons according to the abovementioned criteria.

Municipalities with a population of more than 10,000, i.e., cities, were generally considered at the municipal level. Due to the limited resources available for the Master's Thesis, municipalities (>10,000 inhabitants) were limited to just the most populous Canton in the country, Zurich. This corresponds to the municipalities of Adliswil, Affoltern am Albis, Bassersdorf, Bülach, Dietikon, Gossau (ZH), Hinwil, Horgen, Illnau-Effretikon, Kloten, Küsnacht, Männedorf, Maur, Meilen, Opfikon, Pfäffikon, Regensdorf, Richterswil, Rüti (ZH), Stäfa, Thalwil, Urdorf, Uster, Volketswil, Wädenswil, Wald, Wallisellen, Wetzikon, Winterthur, Zollikon, and Zurich. In these municipalities, potential participants were sought according to the abovementioned criteria.

3.1.4 Pretest

Two pre-tests with two different test persons were conducted before the survey invitations were sent to the relevant federal, cantonal, and municipal representatives. These took place with two representatives of the Confederation who are involved in digitalization projects.

The first pre-test was carried out using the internal pre-test function of the Unipark software. The test person received the link and could click through the questionnaire. The test person could leave comments on each page of the questionnaire. The comments were used to improve the individual questions' comprehensibility and make them more straightforward. This input proved very helpful as the survey was created in English and then translated into German.

The second pretest followed the same steps but included a follow-up interview with the test person. Based on this, several suggestions for improvement were implemented. The cover letter was shortened and made more concise. The questionnaire layout was divided into two pages with the 16 factors for a better user experience. The aim was to limit the survey to no more than five minutes to keep it attractive to busy participants. It was also discussed whether a five or 7-point Likert scale would be more appropriate for the survey. The author decided to use a 5-point Likert scale for simplicity, i.e., it is easier for respondents to understand, reducing

the likelihood of confusion or ambiguity in their response, and time-saving, i.e., it is more convenient for respondents and potentially leading to higher response rates.

3.1.5 Single Sample T-Test Method

According to the survey participants' responses, the author conducted a single sample t-test method to find the most and least influencing factors in the non-evaluation of e-government projects. Thus, the collected questionnaires were analyzed using descriptive statistics with hypothesis testing with the following steps:

Assumption

The author assumed that the data collection is based on random elements and that the largest possible sample improves the validity of the hypothesis test. Participants in the questionnaire rated the factors according to the 5-point Likert scale (strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree). The Likert scale was then coded (0 = strongly disagree; 0.25 = disagree; 0.5 = neither agree nor disagree; 0.75 = agree; 1 = strongly agree).

Hypothesis

The hypothesis test stated a null hypothesis (H0) and an alternative hypothesis (H1). In this case, the null hypothesis said that the parameter takes the value of a specific interval ($\mu < 0.5$; respondents disagree or strongly disagree that the factor is relevant for not evaluating an e-government project). According to the survey participants, the null hypothesis corresponds to the unimportance of whether a particular factor is decisive for not evaluating an e-government project. The alternative hypothesis stated that the parameter falls within a different interval of values ($\mu \geq 0.5$; respondents are neutral, agree, or strongly agree whether the factor is relevant for not evaluating an e-government project). According to the survey participants, the alternative hypothesis refers to the importance of a specific factor for not evaluating an e-government project.

The hypothesis test examined the sample evidence for the null hypothesis and investigated whether the data in the sample contradicted H0 and thus supported the validity of H1. The applied mode of analysis was 'proof by contradiction,' analyzing the support for the alternative hypothesis (H1).

- H0: $\mu < 0.5$ (null hypothesis)
- H1: $\mu \geq 0.5$ (alternative hypothesis)

Test Statistic

The test statistic summarized how far away the point estimate was from the null hypothesis. This could be indicated by the number of standard errors between the point estimate and the

parameter value of the null hypothesis (t-value). This was determined by the t-statistic and the standard error as follows:

- $t = \frac{y - \mu_0}{se}$ with $se = \frac{s}{\sqrt{n}}$ ($t = t\text{-test statistic}$; $y = \text{arithmetic mean of the sample}$; $\mu_0 = H_0 \text{ value}$;
- $se = \text{standard error}$; $s = \text{standard deviation}$; $n = \text{sample size}$)

P-Value

The p-value was generated as a probability value using Excel software to interpret the value of the test statistic. This value summarizes the empirical evidence against the null hypothesis. The sampling distribution of the test statistic was used under the assumption that H_0 is true. The aim was to determine how unusual the observed test statistic is compared to the prediction in H_0 . In summary, the smaller the p-value, the more substantial the evidence against H_0 . The threshold for deciding whether to accept or reject the null hypothesis was set at 0.05, in line with the accepted academic significance level.

3.2 Qualitative Method

In a second step, a qualitative approach was taken to further elaborate on the first research question. The qualitative analysis refers to part 3 of the survey, where participants were asked an open-ended question inviting them to add additional comments or factors (see Chapter 3.1.1). The aim was to identify any missing factors not included in the conceptual framework of 16 factors, elaborated in Chapter 2.4. The author's approach was based on a three-step qualitative analysis following the accepted methods in this research field, such as Ebad (2018, p. 148) and Saldaña (2021, p. 175). First, those comments that did not directly or indirectly refer to the factors of the conceptual framework were sorted out. They were excluded as they did not represent additions to the content or further aspects of the already existing factors but merely a repetition of these factors. Similarly, those comments that did not refer to further factors or additions were eliminated. Second, the remaining comments were grouped into 'themes.' According to Saldaña (2021, p. 175), "a theme acts as a way of categorizing a set of data into an implicit theme that organizes a group of recurring ideas." It was also possible for a theme to emerge from a single comment only. Third, based on the thematic grouping, a discussion occurred, drawing on quotations from the respondents' answers and additional inputs from the author. Finally, factors that may lead to the non-evaluation of e-government projects could be derived from the discussed themes.

3.3 Illustrative Case Study

In a third step, an illustrative case study addresses the second research question, 'What could a successful approach to evaluating an e-government project look like so that the factors deduced from this Master's Thesis do not prevent evaluation?' The author uses an illustrative

case study to show what a successful approach to evaluating an e-government project might look like so that the evaluation is not prevented by the influencing factors in this Master's Thesis. The illustrative case study is dedicated to digitalizing relocation notifications in Switzerland, analyzing the two Cantons of Zurich and Bern cases. The methodological choice of an illustrative case study is accepted and widespread in e-government research, as various examples show, for instance, Virili & Sorrentino (2009), Lips (2012), Andersen & Henriksen (2006), Kalvet (2012), Choi & Chandler (2020), or Luk (2009). The illustrative case study is based on open-source research using official websites, legal documents, or academic publications.

4. RESULTS

This chapter presents the survey results on the factors that may influence the non-evaluation of e-government projects. First, the general results of the survey are presented. Second, the test statistics are discussed in more detail, and their interpretation through p-values is explained. Third, the factors that, according to the survey, have a statistically significant influence on the non-evaluation of e-government projects are identified. Finally, the result of the survey's open-ended question is presented.

4.1 Quantitative Survey Results

The author ranked the 16 factors from the literature review to identify the most and least essential factors from the respondents' perspective. A 5-level Likert scale was used to code the participants' responses with corresponding values (0 = strongly disagree; 0.25 = disagree; 0.5 = neither agree nor disagree; 0.75 = agree; 1 = strongly agree). Table 2 summarizes the descriptive statistics for the 16 factors, each with different values (mean and standard deviation). The collective average mean across all factors was 0.493, corresponding to a range between 'disagree' and 'neutral.'

Table 2: Overview Survey Results

	Mean	St. Deviation
1. Large e-government Project	0.387	0.288
2. Problems Identifying Quantifying Benefits	0.559	0.270
3. Evaluation Time at the End instead of throughout the Project	0.539	0.286
4. Lack of Data and Information	0.555	0.294
5. A Diverse Group of Stakeholders	0.457	0.294
6. Lack of Project Management Approaches	0.508	0.309
7. Organizational Culture	0.512	0.343
8. Political and Governmental Decisions	0.445	0.294
9. Lack of Visibility Evaluation Reports	0.453	0.285
10. Departmental Structure	0.473	0.318
11. Lack of Evaluation Experience	0.375	0.309
12. Unclear Responsibilities	0.582	0.632
13. Lack of Funding	0.469	0.294
14. Lack of Evaluation Skills	0.566	0.290
15. Inadequate Technological Infrastructure	0.383	0.278
16. Lack of Time	0.625	0.267

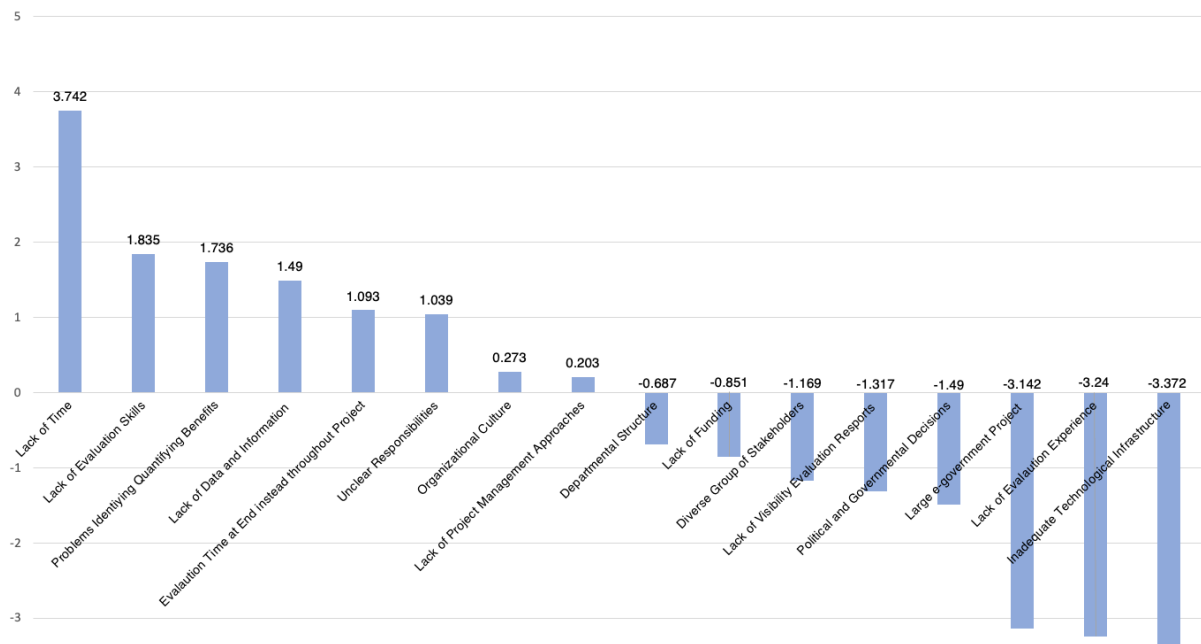
Source: Own Depiction

4.1.1 T-Values

The column chart in Figure 5 was drawn from the calculated t-values of the test statistics. A higher t-value for a given factor is associated with greater importance in the non-evaluation of e-government projects based on the survey conducted. The factor 'Lack of Time' (t-value = 3.742), and thus a lack of time resources, is rated as the most influential factor in the non-evaluation of e-government projects. The factors 'Lack of Evaluation Skills' (t-value = 1.835), 'Problems Identifying Quantifying Benefits' (t-value = 1.736), and 'Lack of Data and Information' (t-value 1.49) follow with already smaller t-values. The factors 'Evaluation Time at the End instead of throughout Project' (t-value = 1.093) and 'Unclear Responsibilities' (t-value = 1.039) follow with smaller t-values. 'Organizational Culture' (t-value = 0.273) and 'Lack of Project Management Approaches' (t-value = 0.203) are still positive. The factors 'Departmental Structure' (t-value = -0.687), 'Lack of Funding' (t-value = -0.851), 'Diverse Group of Stakeholders' (t-value = -1.169), 'Lack of Visibility Evaluation Reports' (t-value = -1.317) and 'Political and Governmental Decisions' (t-value = -1.49) already have negative t-values. This is followed by those factors with by far the lowest t-values and consequently with the least influence on the non-evaluation of e-government projects, namely 'Large e-government Project' (t-value = -3.142), 'Lack of evaluation Experience' (t-value = -3.24) and 'Inadequate Technological Infrastructure' (t-value = -3.372).

Different insights can be gained concerning the constructs 'project,' 'organization,' and 'resources,' to which the 16 factors belong according to the conceptual framework (see Chapter 2.2). The first two factors, 'Lack of Time' and 'Lack of Evaluation Skills,' which significantly influence the non-evaluation of e-government projects, belong to the 'resources' construct. The following factors, 'Problems Identifying Quantifying Benefits,' 'Lack of Data and Information,' and 'Evaluation Time at the End rather than throughout the Project,' belong to the 'project' construct. It can be seen that the constructs 'resources' and 'project' are mainly represented among the positive t-values. The factors with negative t-values, and thus the weakest influence on the non-evaluation of e-government projects, show that factors belonging to the construct 'organization' are mainly represented. Measured by the t-value, the constructs 'resources' and 'project' have a more decisive influence on the non-evaluation of e-government projects, while the construct 'organization' has a weaker influence.

Figure 5: T-Values



Source: Own Depiction

4.1.2 P-Values

To interpret the t-values of the test statistic, the author uses the calculated p-value according to Table 3. A small p-value means the observed data would be unusual if H_0 were true. This determines how unusual the observed test statistic is compared to H_0 's prediction. If the p-value is sufficiently small, H_0 is rejected. This Master's Thesis set the significance level at the most common value, 0.05 (see Chapter 3.1.5). Table 3 shows that only three factors have a smaller p-value than the specified value of 0.05, namely 'Problems Identifying Quantifying Benefits' (p-value = 0.044), 'Lack of Evaluation Skills' (p-value = 0.036) and 'Lack of Time' (p-value = 0.0002). Based on the survey, these three factors and their influence on the non-evaluation of e-government projects are statistically significant at the 0.05 level. This means that if H_0 were correct, the probability of the test statistic values for the three factors is not greater than 0.05 with the present sample. Consequently, the null hypothesis is rejected, and the alternative hypothesis is confirmed with $\mu \geq 0.5$ for the factors 'Problems Identifying Quantifying Benefits,' 'Lack of Evaluation Skills,' and 'Lack of Time.' For the other factors, the corresponding p-values are above the 0.05 threshold, which means that H_0 cannot be rejected.

Table 3: P-Values

	t-value	p-value	Rej. H0
1. Large e-government Project	-3.142	0.999	no
2. Problems Identifying Quantifying Benefits	1.736	0.044	yes
3. Evaluation time at the End instead of throughout the Project	1.093	0.139	no
4. Lack of Data and Information	1.490	0.071	no
5. A Diverse Group of Stakeholders	-1.169	0.877	no
6. Lack of Project Management Approaches	0.203	0.420	no
7. Organizational Culture	0.273	0.393	no
8. Political and Governmental Decisions	-1.490	0.929	no
9. Lack of Visibility Evaluation Reports	-1.317	0.904	no
10. Departmental Structure	-0.687	0.753	no
11. Lack of Evaluation Experience	-3.240	0.999	no
12. Unclear Responsibility	1.039	0.151	no
13. Lack of Funding	-0.851	0.801	no
14. Lack of Evaluation Skills	1.835	0.036	yes
15. Inadequate Technological Infrastructure	-3.372	0.999	no
16. Lack of Time	3.742	0.0002	yes

Source: Own Depiction

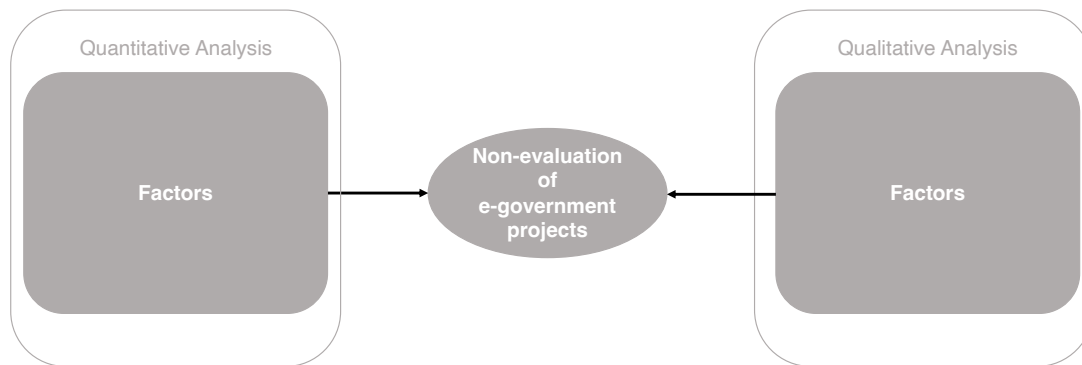
4.2 Qualitative Open-Ended Question Results

The qualitative analysis results refer to the survey's open-ended question, which invited participants to add additional comments or factors (see Chapter 3.2). The open-ended question aimed to identify possible factors for the non-evaluation of e-government projects that did not emerge from the systemic literature review in Chapter 2.2. Of the 64 respondents, 21 comments (32.8%) were received. This represents approximately one in three respondents who wrote a comment. Of the 21 comments, ten (15.6%) were discarded because they did not address additional factors, make general comments about the survey, or provide feedback. The author used the remaining eleven comments (17.9%) for grouping. Five comments (7.8%) were discarded even though they would have fitted into a thematic grouping but were too vaguely worded. The remaining six comments (9.4%) were finally grouped into three themes: 'Long Investment Cycles,' 'Federal Structures,' and 'Unclear Legal Relationships and Regulations.' These themes serve as additional factors for not evaluating e-government projects and will be discussed in more detail in Chapter 5.2.

5. DISCUSSION

This chapter discusses the results concerning the first research question, 'What are the potential factors for not evaluating e-government projects in the Swiss public sector.' It combines the factors from the quantitative analysis on the one hand and the factors from the qualitative analysis on the other, as shown in Figure 6.

Figure 6: Factors from Quantitative and Qualitative Analysis



Source: Own Depiction

5.1 Significant Quantitative Factors

From the results of the questionnaire-based survey, three factors emerge as having a statistically significant influence on the non-evaluation of e-government projects (see Chapter 4.1.2).

5.1.1 Lack of Time

Lack of time is a statistically significant factor in the non-evaluation of e-government projects. Several authors emphasize its importance and stress that sufficient time for evaluation is a challenge. Data and information must be collected and collated for a sound evaluation. In addition, e-government projects can be complex, and their evaluation may cover different aspects, such as technical implementation or staff training. These circumstances take time. Decision-makers in the administration need to be aware of the time-consuming tasks involved in evaluating an e-government project and allocate sufficient time.

5.1.2 Lack of Evaluation Skills

Lack of evaluation skills is another vital factor in the non-evaluation of e-government projects. The literature notes that the skill requirements for evaluating e-government projects consist of different components. On the one hand, public sector employees need to have the technical skills to evaluate e-government projects. This includes, for example, the ability to carry out evaluations using both quantitative methods (e.g., in the form of surveys) and qualitative methods (e.g., in the form of interviews). On the other hand, evaluators also need communication,

relationship management, and technical skills. This is because evaluating e-government projects requires communication and coordination with various stakeholders within and outside the organization. However, administrative staff may not have sufficient training or experience in evaluations. Lack of competence in evaluation methodology can lead to misinterpretation or ineffective evaluation approaches, which in turn can lead to e-government projects not being evaluated.

5.1.3 Problems in Identifying and Quantifying Benefits

Finally, problems in identifying and quantifying benefits are a significant factor in the non-evaluation of e-government projects. Identifying the exact benefits of an e-government project is complex, and the possible benefits may vary from project to project. If benefits are difficult to identify, public sector organizations may be reluctant to invest the necessary resources in evaluation. Quantifying the benefits of an e-government project is also challenging due to the diversity of individual e-government projects. The challenge of quantifying benefits is that complex measures (e.g., cost-benefit analysis) or soft measures (e.g., level of e-government) can be used. At the same time, such measures cannot be used for all e-government projects because, for example, they cannot be expressed in monetary terms or do not aim to maximize profit. It should also be noted that if benefits cannot be identified or quantified, this may lead to uncertainty in a public administration regarding how to measure an e-government project's success. As a result, the public administration may be reluctant to undertake evaluation efforts for fear of not obtaining meaningful results.

In summary, these three factors can lead to e-government projects not being evaluated. Lack of time resources can lead to low prioritization of evaluation activities, lack of evaluation skills of administrative staff can lead to poor evaluations, and problems in identifying and quantifying the benefits of an e-government project can lead administrations not to undertake evaluation efforts. Consequently, the single sample t-test with hypothesis testing leads to the conclusion that it is crucial for the evaluation of an e-government project to allocate time resources for the evaluation, to strengthen the evaluation skills of the staff, and to develop appropriate methods for capturing and evaluating the benefits of the e-government project.

5.2 Qualitative Additional Factors

This section qualitatively examines and discusses the responses of the survey participants to the open-ended question after having grouped them into 'themes' in Chapter 4.2. These themes serve as additional factors for not evaluating e-government projects as the open-ended question aimed to identify possible factors that did not emerge from the systematic literature review in Chapter 2.2. The three additional factors are: 'Long Investment Cycles,' 'Federal

Structures,' and 'Unclear Legal Relationships and Regulations.' As explained in Chapter 3.2, the following discussion is based on quotations from the respondents' answers to the open-ended question and inputs from the author of the Master's Thesis.

5.2.1 Long Investment Cycles

Additional Factor 1 – Long Investment Cycles

"Investment cycles in government still last over five to ten years. Technology and user needs evolve rapidly. Short investment cycles and smaller projects are the status quo in the industry today. This is because the rapid pace of technological development and changes in user requirements can no longer be considered in large projects."

Source: Survey Participant Response

The quoted survey participants' comment represents the 'Long Investment Cycles' theme as an additional factor and states that too-long investment cycles in government could lead to a lack of evaluation in e-government projects. Several arguments could be put forward in this respect. A first argument concerns slow adaptation to technological advances and user needs. In the dynamic landscape of today's swiftly advancing technology, both technological advancements and user requirements undergo rapid evolution. E-government projects with five to ten years of investment cycles may struggle to keep up with these changes. New technologies may evolve during this period, and user preferences may change, making it difficult to evaluate an e-government project. A second argument is related to relevance and functionality. An e-government project planned at the beginning of the investment cycle may be outdated or less relevant when implemented. Technological innovation may lead to new solutions that are more efficient or better suited to citizens' needs. As a result, an e-government project committed to long investment cycles could lose functionality and usefulness, which could prevent evaluation. A third argument concerns the financial implications. Long investment cycles can lead to significant financial resources being focused on a project that may no longer provide the best value to citizens, and thus, evaluation may be put on the back burner.

In some instances, however, long investment cycles could positively impact the evaluation of e-government projects. More extended project durations allow for more comprehensive data to be collected. With more comprehensive data sets, more valid evaluations can be carried out. In addition, some e-government projects may have long-term effects that can only be determined over time. Long investment cycles could also lead to further development and refinement of evaluation measures and methods. This could lead to a more meaningful and accurate evaluation of an e-government project.

Nevertheless, long investment cycles in government can contribute to the mismatch between rapidly changing technological developments and static decision-making and implementation processes. As a result, e-government projects may not deliver optimal benefits, and evaluation may be neglected.

5.2.2 Federal Structures

Additional Factor 2 – Federal Structures

"Federal structures make efficient and effective digitalization projects difficult (Confederation, Cantons, cities, municipalities)."

Source: Survey Participant Response

The comment of a respondent represents the 'Federal Structures' theme and points to the federal political structure of Switzerland as an additional factor that could lead to e-government projects not being evaluated. Since Switzerland is a highly developed federal state, several arguments can be made. First, the distribution of responsibilities in federal structures could make evaluation more difficult, as different levels could share responsibilities. This could lead to confusion about who is responsible for carrying out evaluations. There could be a lack of clear responsibilities and coordination between federal levels. Second, different federal levels may have different interests and priorities. This could lead to projects, and therefore evaluation, being neglected because of disagreements between levels. Third, the federal structure may make coordination and cooperation between the different levels difficult. This can limit evaluation efforts. Fourth, in federal systems, financial resources are often shared between levels. At the same time, financial matters may be a core competence of one federal level, with which other levels are reluctant to interfere. This can make the funding of evaluation activities more complex the more federal levels are involved.

The federal structure can also positively affect the evaluation of e-government projects. For example, different levels of government could try different approaches to evaluating e-government projects. This could lead to diverse methods from which other levels could benefit. A federal structure also allows the adaptation of e-government projects to each level's needs and circumstances. The same could be done for evaluation. A federal structure can also encourage experimentation. Different levels of government could try out different approaches to evaluating e-government projects. This could lead to various methods and approaches that other levels could adopt.

It is important to note that the federal structure does not necessarily mean no evaluation of e-government projects. At the same time, it is crucial to recognize that for the federal structure to impact evaluation positively, different levels of government need to work together effectively.

Nevertheless, it should be noted that a federal structure can contribute to the lack of evaluation of e-government projects.

5.2.3 Unclear Legal Relationships and Regulations

Additional Factor 3 – Unclear Legal Relationships and Regulations

“Other reasons for not evaluating: the lack of a specific legal framework, which leads to unclear legal relationships and regulations (e.g., data protection).”

Source: Survey Participant Response

According to the cited survey participant comment, unclear legal relationships and regulations may be a decisive factor in the non-evaluation of e-government projects. This quote represents the ‘Unclear Legal Relationship and Regulations’ theme as an additional factor. Various points can be raised in this context. First, and regarding the area of data protection addressed in the commentary, unclear data protection can lead to e-government projects not being evaluated. Unclear legal relationships could lead to disagreements on collecting, using, and protecting data. This uncertainty about data protection rules and privacy concerns could lead an administration to avoid or severely limit evaluation activities. Second, unclear legal relationships and rules could lead to liability issues. Questions may arise about who is responsible and liable for evaluations. An administration may be reluctant to conduct evaluations if it is unclear who can be held responsible in the event of problems. Third, an unclear legal basis for carrying out evaluations could lead an administration to be unsure of its authority and, therefore, to refrain from doing so.

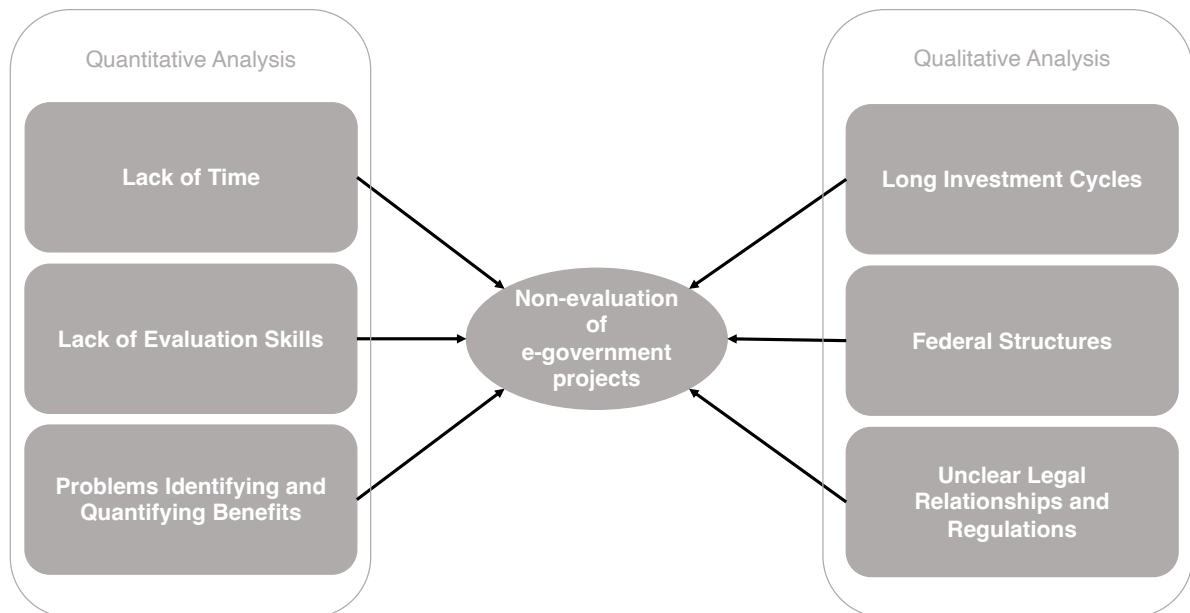
In a few cases, unclear legal relationships and regulations could positively affect the evaluation of e-government projects. For example, unclear legal relationships could give decision-makers more leeway in how evaluations are carried out. This could lead to more innovative approaches that are better tailored to the specific needs of the e-government project. Without rigid rules, evaluations could more easily adapt to changing circumstances. This could lead to evaluations becoming more flexible and agile and more willing to experiment with different evaluation methods.

In summary, however, it should be noted that the overall lack of clarity in legal relationships and rules leads to uncertainty, delays, risks, and lack of clarity, which could result in e-government project evaluations not being carried out.

5.3 Extended Conceptual Framework

If the additional three factors from the qualitative analysis of the survey responses are combined with those from the quantitative analysis, the following extended conceptual framework emerges, as shown in Figure 7.

Figure 7: Extended Conceptual Framework



Source: Own Depiction

6. ILLUSTRATIVE CASE STUDY

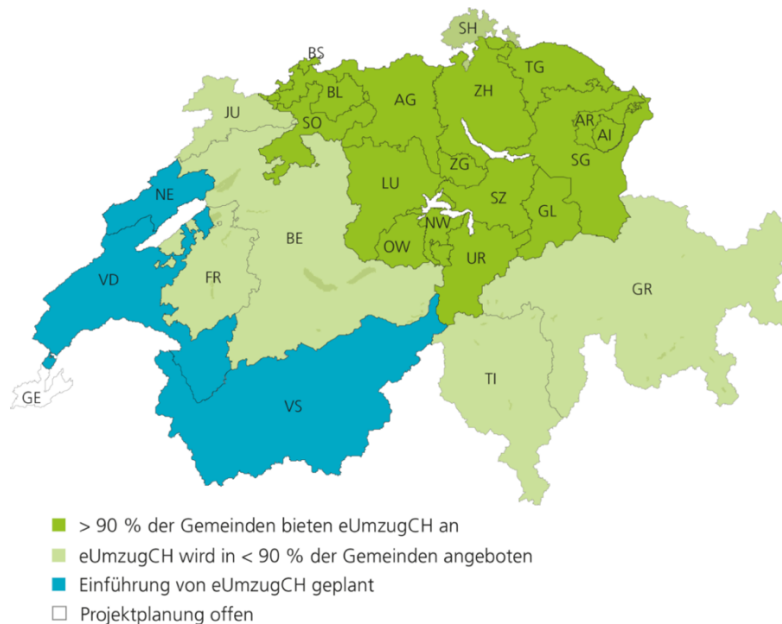
This chapter tackles the second research question, 'What could a successful approach to evaluating an e-government project look like so that the factors deduced from this Master's Thesis do not prevent evaluation?' The author uses an illustrative case study to show what a successful approach to evaluating an e-government project might look like so that the influencing factors in the previous chapters do not prevent the evaluation. The illustrative case study is dedicated to digitalizing relocation notifications in Switzerland. Specifically, the two successful real-life cases of introducing digital relocation notifications in the Cantons of Zurich and Bern are examined in more detail.

6.1 Context: Digital Relocation Notification in Switzerland

In 2007, the Federal Council adopted Switzerland's first national e-government strategy, developed jointly by the Confederation and the Cantons. The goal was "to make administrative activities as citizen-friendly, efficient, and cost-effective as possible through ICT" (Bundesrat, 2007). According to the Swiss Association of Residents' Services (VSED), the most frequently requested e-government service is the ability to carry out registration procedures electronically when moving house (Dolf et al., 2012, p. 4). This is a pressing need, given that 700,000 households move annually in Switzerland and 200,000 in the Canton of Zurich alone (Stuedler & Brucker-Kley, 2018, p. 70). At the same time, people's living conditions and mobility have changed considerably in recent decades. Many commute between home and work and find it cumbersome to register their details and new addresses with the local authorities when they move to Switzerland (Dolf et al., 2012, p. 6). Until recently, Swiss Cantons and even individual municipalities had the power to set their own rules concerning registration requirements. The municipal authorities issued notifications in paper form, which had to be submitted to the new municipality in paper form (Teucher & Lang, 2020, p. 95). The registration system and the maintenance of the population registers are sovereign tasks of the municipalities. Against this background, a priority e-government project A1.12 entitled 'eUmzugCH' was created at the federal level in 2012 (Stuedler & Brucker-Kley, 2018, p. 70). The aim was "to enable electronic, paperless relocation throughout Switzerland for Swiss and foreign nationals in Switzerland" (Dolf et al., 2012, p. 4). Today, eUmzugCH is regarded as a successful e-government project (Teucher & Lang, 2020, p. 1092). Every day, around 400 Swiss citizens use the eUmzugCH online portal to process their change of residence electronically (Digitale Verwaltung Schweiz, 2023). eUmzugCH is already available in 22 Cantons and is gradually being introduced in other municipalities. More than 90% of the municipalities offer eUmzugCH in the dark green Cantons depicted in Figure 8. Less than 90% of the municipalities offer eUmzugCH in the light green

Cantons. Implementation is planned in the blue Cantons, and only in the Canton of Geneva is the project planning still open (eOperations, 2023).

Figure 8: Digital Relocation Notification in Switzerland - eUmzugCH



Source: eOperations (2023)

6.2 Case: Canton of Zurich

Before the national eUmzugCH notification system could be introduced, the e-government project eUmzugZH was tested and introduced in the Canton of Zurich (2014–2016). The eUmzugZH project is embedded in the national eUmzugCH project and aims to electronically process relocations as well as departures and arrivals in the municipalities of the Canton of Zurich (Stuedler & Brucker-Kley, 2018, p. 70). The Canton of Zurich has assumed a pioneering role in implementing the e-government project. In terms of content, the project began at the beginning of 2014 by preparing a feasibility analysis involving representatives of the Canton of Zurich and the municipalities, commercial providers of resident control systems, and infrastructure service providers (Hegele & Lang, 2022, p. 197). As a result, the concept phase was completed in 2015, and the cantonal government commissioned the implementation of the e-government project eUmzugZH (Teucher & Lang, 2020, p. 96). Approval by the project committee followed in March 2016. The pilot in the Canton of Zurich then took place in three phases. As a first step, eight pilot municipalities were introduced to the e-government project in April 2016. In a second step, eUmzugZH was extended to other municipalities. In a third step, the comprehensive roll-out was completed by the end of 2016 (Stuedler & Brucker-Kley, 2018, p. 73). As a result of the successful pilot in the Canton of Zurich, the national network

solution eUmzugCH was finally launched in August 2017, along with the corresponding portal (Teucher & Lang, 2020, p. 96).

6.2.1 eUmzugZH Canton Zurich Evaluation Process

eUmzugZH is not only a successful e-government project but also stands out for the successful evaluation process that accompanied the introduction of the project. Various elements, namely a technical concept, a common platform, the evaluation with the pilot municipalities, a reference model, and an academic evaluation, led to the successful evaluation process of the eUmzugZH e-government project in the Canton of Zurich.

eUmzugZH Technical Concept

A crucial basis for the eUmzugZH evaluation process was the technical concept of the project. The eUmzugCH technical concept 2012 described the functional, legal, organizational, and technical requirements for introducing the national e-government project. In a way, it can be seen as a project plan for the national implementation of eUmzugCH. Already in this document, it was stated that "the pilot project [eUmzugZH] should be intensively tested and evaluated as a basis for the subsequent rollout phase" (Dolf et al., 2012, p. 4). From this, it can be concluded that an intensive evaluation was already considered in the project's early conception, so sufficient time and financial resources were available.

egovpartner.zh.ch Platform

A central pillar of the eUmzugZH evaluation process was the creation of a platform for collaborative evaluation. In the case of eUmzugZH, the interaction between the Canton of Zurich and the municipalities was ensured by the cooperation organization 'egovpartner.zh.ch.' The Canton and the municipalities founded egovpartner.zh.ch based on a cooperation agreement to implement e-government projects efficiently and use synergy potential (Steudler & Brucker-Kley, 2018, p. 71). As an independent cooperation organization of municipalities, cities, and the Canton of Zurich, egovernment.zh.ch drives the digital transformation of the administration in the Canton of Zurich. With egovpartner.zh.ch, a platform has also been created which, as an agile and partnership network organization, "evaluates the performance agreement, the impact, and acceptance as well as the organization" (egovpartner, 2023). The great advantage of egovpartner.zh.ch for eUmzugZH was that a central platform was created that made it possible to coordinate and carry out the evaluations of the e-government project in cooperation with the municipalities and the Canton of Zurich.

Evaluation with Pilot Municipalities

Another crucial element in the eUmzugZH evaluation process is the evaluation of the pilot municipalities. During the implementation of eUmzugZH, particular attention was paid to evaluating and testing the solution in conjunction with the nine pilot municipalities of Bülach, Dachsen, Fehraltorf, Kloten, Lufingen, Oberembrach, Pfäffikon, Wettswil am Albis and Zurich (Regierungsrat Kanton Zürich, 2014). Non-functional prototypes were used to gather early feedback to improve the user experience. Extensive acceptance tests, in which community representatives and implementation partners took on different roles, were used to test and optimize the system's usability, including with the population. The focus of the evaluation was to ensure that citizens could use the system intuitively. The head of the egovpartner.zh.ch office described the intensive evaluation with the pilot municipalities as follows: "Testing, testing, testing. We tested on an unprecedented scale to ensure that the system could be used intuitively and without a support organization" (Stuedler & Brucker-Kley, 2018, p. 77). The positive feedback from municipal users confirms the effectiveness of these measures.

eUmzugZH Reference Model

Another essential component of the eUmzugZH evaluation process is the resulting reference model. Based on the lessons learned from implementing eUmzugZH, a solution-neutral reference model was created for implementation in other Cantons and, thus, for the national roll-out of eUmzugCH. The reference model aims for "a largely harmonized and standardized, consistent reporting process from the point of view of the person required to report and the associated functions, interfaces, and data objects" (Zecchino et al., n.d., p. 4). In this way, the reference model serves as a guide for implementation projects in the other Cantons and contains guidelines for implementation in the municipalities (Stuedler & Brucker-Kley, 2018, p. 73). Subsequently, based on the eUmzugZH reference model, representatives of the Canton of Aargau, together with project managers from the Canton of Zurich and other Cantons, agreed on a nationwide eUmzug network solution (Teucher & Lang, 2020, p. 96). The reference model of the Canton of Zurich thus serves as a basis for evaluating the introduction and implementation in other Cantons and municipalities.

Academic Evaluation

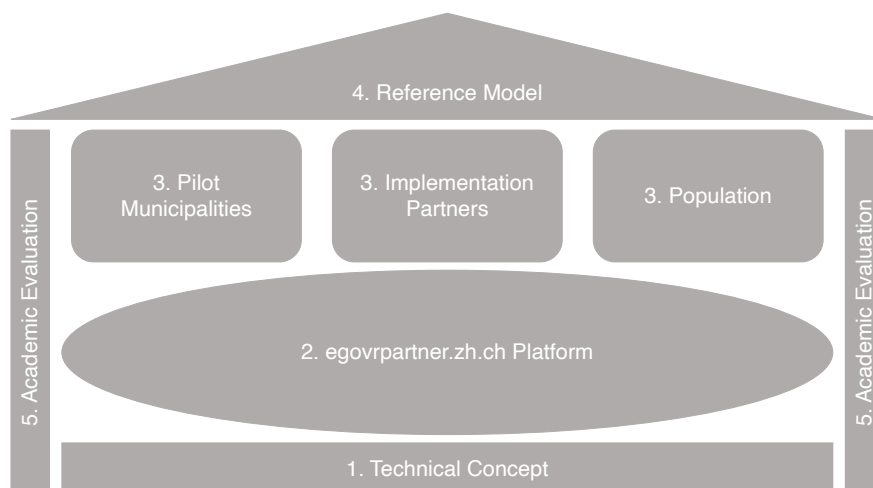
The eUmzugZH evaluation process is complemented by academic evaluations that examine the e-government project. eUmzugZH was the subject of several academic studies evaluating various e-government project aspects. Stuedler & Brucker-Kley (2018) examined the experiences with the implementation of eUmzugZH, as well as the challenges and solutions, as a case study in the Canton of Zurich. In particular, the authors assessed the project's technical, organizational, and legal requirements. Stuedler & Brucker-Kley concluded (2018, p. 78) that

with eUmzugZH, the Canton of Zurich took on a pioneering role in Switzerland and that ensuring implementation and rapid nationwide expansion via a cantonal platform was successful. Teucher & Lang (2020) investigated the impact of digitalizing the relocation process on processing times and asked to what extent the introduction affected the workload of the residents' registration office. Four residents' registration offices in the Canton of Zurich were selected for the study, where the registration of persons subject to registration at the counter or via the digital platform is one of the main activities. The authors concluded that the digitalization of the relocation process led to less work in the municipalities studied. Lang & Brüesch (2020) aimed to analyze the cooperative governance of eUmzugZH. Using a partial least squares (PLS) analysis of survey questionnaires, they derived vital success factors for a collaborative governance arrangement. Their data analysis showed that the success of project implementation depends primarily on organizational capacity and a shared understanding of goals. Hegele & Lang (2022) analyzed eUmzugZH and developed success factors and lessons learned for future e-government projects in Switzerland. They identified the role of leadership, multilateral interaction, the creation of commitments, the expertise of project management, and active communication as crucial success factors. In this way, their evaluation of eUmzugZH contributed to a guide for future e-government projects in Switzerland. In summary, it can be said that eUmzugZH sparked great interest among researchers as a subject of study. Consequently, scholars evaluated the eUmzugZH intensively and from various perspectives.

6.2.2 Summary: Case Canton of Zurich

In summary, eUmzugZH is a successful example showing how a fruitful evaluation of an e-government project could be conducted, as depicted in Figure 9. The outstanding evaluation is based on the fact that, as a first step, an intensive evaluation was defined as a priority in a technical concept before the start of the project. This was followed by the creation of the common platform egovpartner.zh.ch, which enabled the coordination and implementation of evaluations between the Canton of Zurich and the municipalities. A primary focus was the evaluation of eUmzugZH with the nine pilot municipalities, which was carried out with municipal representatives, implementation partners, and the population as supporting cornerstones. The evaluation process was completed with the reference model as a basis for the introduction and implementation in other Cantons and municipalities. In addition, various academic studies flanked the evaluation process of eUmzugZH from different perspectives. In this way, an evaluation process was created for eUmzugZH that contributed significantly to the successful introduction of the e-government project in the Canton of Zurich.

Figure 9: Evaluation Process Canton of Zurich



Source: Own Depiction

6.3 Case: Canton of Bern

In June 2023, the Parliament of the Canton of Bern voted in favor of a change in the law that will make it possible to report a move to the residents' registration office in digital form as a standard practice. The amendment of the law means that all municipalities in the Canton of Bern will be required to allow residents to register their move digitally. It should still be possible to move traditionally at the municipality level (Berner Zeitung, 2023). With this step, the Canton of Bern joins the national eUmzugCH project.

6.3.1 Canton of Bern Evaluation Report

The Parliament's decision of the Canton of Bern was based on a detailed evaluation report on the digital relocation notification, which shed particular light on the trial phase within the Canton. The Canton of Bern used the evaluation report to assess the introduction of electronic relocation notification. The evaluation procedure is characterized by a legally required report with relevant points.

Legal Requirements and Evaluation Criteria

The evaluation of eUmzug in the Canton of Bern is based on a legal requirement. In November 2018, the Government Council of the Canton of Bern passed the trial regulation on electronic relocation (Versuchsverordnung, 2018). This trial ordinance made testing the digital relocation notification possible based on the results of eUmzugZH, the reference model, and the developed nationwide eUmzug network solution. The Canton of Bern organization law stipulates that "the process shall be subject to control and evaluation" (Organisationsgesetz, 1995).

Based on these legal requirements, two trial phases took place. Eight pilot municipalities (Bäriswil, Langenthal, Münsingen, Oberburg, Steffisburg, Thun, Wohle, and Zollikofen) took

part in the first trial phase. The first trial phase lasted from February to September 2019 and served primarily to test the software during the introduction of eUmzug in the respective municipalities. The second trial phase was open to all municipalities with the necessary technical infrastructure (Direktion für Inneres und Justiz, 2021).

Points of Evaluation

The evaluation of the two trial phases focused in particular on the following three aspects of electronic migration:

- Fulfillment of the technical, information security, and data protection requirements
- The administrative processes and
- Acceptance by stakeholders

Fulfillment of the technology, information security, and data protection requirements was assessed using an external audit, including a follow-up audit. The external audit was carried out by Ernst & Young (EY). In addition, this evaluation point was assessed based on reports of malfunctions from the participating municipalities.

The administrative processes were evaluated through a written survey of the 54 pilot municipalities involved in the two trial phases and telephone conferences with the cantonal directorates. The evaluation of the administrative procedures focused on identifying the persons to be relocated, the notification of the religious affiliation, the collection and payment of the fees, and the suggestions for improvement made by the pilot municipalities.

Acceptance was evaluated among the participating municipalities, the cantonal offices involved, and the citizens concerned. Municipal acceptance was assessed through a written survey of the 54 pilot municipalities involved in the two trial phases. The survey of the municipalities focused on their overall assessment, their wish to continue, and any additions or suggestions they might have. The acceptance of the cantonal authorities was assessed by employing telephone conferences. Finally, the citizens' acceptance was evaluated based on case numbers and feedback to the municipalities. The focus was on the relationship between Swiss and foreign citizens regarding the digital move, complaints, and other suggestions from citizens.

6.3.2 Summary: Case Canton of Bern

In conclusion, the eUmzug in the Canton of Bern is another successful case for an evaluation procedure in the context of the cantonal digitalization of the relocation process, as depicted in Figure 10. The successful evaluation is based on the fact that it is required by the organization law for experimental ordinances in the Canton of Bern. Consequently, an evaluation report

was drawn up on the two trial phases for the introduction of eUmzug. This evaluation report was based on clearly formulated evaluation points that considered the requirements of the technology, the administrative processes, and the acceptance by those affected. The last point, in particular, highlights the detailed and far-sighted evaluation, which assessed the acceptance by citizens, municipalities, and cantonal authorities. Ultimately, the legally required evaluation report served as the basis for the decision by the Parliament of the Canton of Bern to introduce digital relocation notifications in all municipalities.

Figure 10: Evaluation Process Canton of Bern



Source: Own Depiction

6.4 Counteracting Factors for Non-Evaluation

The two evaluation processes in the Cantons of Zurich and Bern are not only successful cases but can also counteract the significant factors of non-evaluation found in this Master's Thesis, namely 'Lack of Time,' 'Lack of Evaluation Skills,' 'Problems in Identifying and Quantifying Benefits,' 'Long Investment Cycles,' 'Federal Structures,' and 'Unclear Legal Relationships and Regulations.'

Lack of Time

The factor 'lack of time' indicates that a lack of time resources for evaluating e-government projects leads to no evaluation. In the Canton of Zurich, an intensive evaluation of the digital relocation notification was already defined in the preceding technical concept. Therefore, it can be concluded that sufficient time resources were allocated to evaluate eUmzugZH. In the case of the Canton of Bern, an evaluation was required by law. Sufficient financial and time resources should, therefore, have been allocated. Consequently, both Cantons seem to counteract this factor with a forward-looking time allocation for the evaluation.

Lack of Evaluation Skills

The factor 'lack of evaluation skills' refers to the lack of evaluation skills among administrative staff, which leads to the non-evaluation of e-government projects. In the case of the Canton of Zurich, it can be shown that the evaluation took place with experienced people in 'expert groups.' For example, the evaluation with the test municipalities involved the respective responsible person and the implementation partners under the leadership of the responsible person from the egovpartner.zh.ch platform. This means that a diverse group of experienced people with appropriate evaluation skills was assembled under the supervision of the egovpartner.zh.ch manager. In the case of the Canton of Bern, the cantonal administration already had evaluation experience and skills due to the legal requirement for evaluation, as with the introduction of the digital relocation notification. The cleanly prepared evaluation report further underlines the existing evaluation skills in the Canton of Bern. In summary, the two Cantons demonstrated sufficient evaluation skills and were thus able to counteract this factor.

Problems Identifying and Quantifying Benefits

The factor 'problems identifying and quantifying benefits' indicates that problems in identifying and quantifying the benefits of an e-government project hinder its evaluation. In the case of the Cantons of Zurich and Bern, the respective identification of benefits resulted from the national digital relocation notification project 'eUmzugCH.' For both Cantons, the benefits of implementing the e-government project were administrative simplification, which resulted in time savings for citizens and cost savings for the administration. In addition, the Canton of Bern exemplifies how the identified benefits were translated into more concrete and measurable benefits. In its evaluation report, the Canton of Bern paid particular attention to fulfilling technology, information, security, and data protection requirements, the functioning of the administrative process, and the acceptance by the participating municipalities, the cantonal offices involved, and the citizens concerned. With these three evaluation priorities, the Canton of Bern could quantify the benefits of introducing the digital relocation notification. In conclusion, it can be said that the identification of the benefits of the digital relocation notification for both Cantons was predetermined by the overall national project. Additionally, the Canton of Bern made these benefits measurable and thus quantifiable, employing concrete evaluation points and counteracting the non-evaluation factor.

Long Investment Cycles

The 'Long Investment Cycles' factor states that long investment cycles in the administration can lead to the non-evaluation of e-government projects. The investment cycle for an e-government project consists of several phases, each with its period. It is important to note that the specific timescales for each stage can vary significantly depending on the size, complexity,

funding, and administrative processes of the e-government project. The investment cycle for an e-government project typically starts with the initial planning and design phase and ends with the operation and maintenance phase. In the case of the Canton of Zurich, the investment cycle began in early 2014 with the preparation of a feasibility analysis. It ended with the rollout in the Canton of Zurich by the end of 2016. In the case of the Canton of Bern, the investment cycle began with the cantonal government's adoption of the trial ordinance in November 2018. It ended in June 2023 with the Parliament's decision to make digital relocation notification the standard. The duration of the two investment cycles was thus less than the five to ten-year time span. In addition, both Cantons benefited because the introduction of digital relocation notification was geographically limited to their respective Cantons, significantly shortening the investment cycles. In summary, the Cantons of Zurich and Bern show that the investment cycles for introducing the e-government project could be kept short, thus counteracting the non-evaluation factor.

Federal Structures

The 'Federal Structure' factor refers to Switzerland's federal political structure, which could lead to e-government projects not being evaluated. However, in the specific case of the digitalization of relocation notifications in Switzerland, it can be seen that the federal structure is driving rather than hindering both the e-government project and the evaluation. In the effort to digitalize the relocation notification process at the national level, the Canton of Zurich took a pioneering role with eUmzugZH. As a result, the digital relocation notification was first tested in one Canton before being implemented nationwide. In this way, federalism was used as an advantage, and the Canton of Zurich served as a federal laboratory for the e-government project. This led to the successful implementation in the Canton and eventually to the nationwide introduction in Switzerland under the name eUmzugCH. At the same time, the federal test laboratory in the Canton of Zurich also enabled the development of evaluation processes. Based on the cantonal experience in Zurich, a reference model was created that served as an orientation for the introduction in other Cantons and ultimately as the basis for a nationwide network solution. The Canton of Zurich thus shows that the federal structure was not an obstacle but made it possible to test and evaluate the digital relocation notification on a smaller political level before introducing it nationwide.

Unclear Legal Relationships and Regulations

The factor 'unclear legal relationships and regulations' refers to the circumstance where a lack of clear rules and regulations can lead to a lack of evaluation of e-government projects. In the

case of the Canton of Bern, the opposite is true. The apparent legal relationship with the organization law led precisely to the fact that an evaluation report had to be drawn up. Consequently, a law requiring the evaluation of specific projects can counteract this factor.

6.5 Conclusion: Case Study

In summary, the case study with the Cantons of Zurich and Bern represents two successful evaluation procedures for introducing digital relocation notifications that counteracted factors for non-evaluation. On the one hand, the evaluation structure of eUmzugZH in the Canton of Zurich is characterized by a specialized concept with prioritization of the evaluation, a joint evaluation platform for the Canton and the municipalities, a comprehensive evaluation with a wide range of stakeholders, a reference model for implementation in other Cantons and various academic studies evaluating eUmzugZH. On the other hand, the successful evaluation process in the Canton of Bern is based on a political decision to test eUmzug through a trial regulation. For such trials, the law requires an evaluation report submitted to Parliament for decision-making. The evaluation report in the Canton of Bern is impressive, with clearly formulated evaluation points that assess the requirements for the technology, the administrative processes, and the acceptance by those affected. Finally, the evaluation procedures in the Cantons of Zurich and Bern helped identify the challenges and opportunities of the digital relocation notification, thus ensuring a successful implementation in the respective Cantons and counteracting factors for non-evaluation.

At the same time, the evaluations in the Cantons of Zurich and Bern on introducing the digital relocation notification should not be seen as separate. The Canton of Bern was able to build on the experience of the Canton of Zurich, as well as on the reference model and the developed nationwide network solution. In addition, the two digital relocation notifications are linked via the national e-government project eUmzugCH. However, it should also be noted that there are significant differences between the two evaluation procedures. On the one hand, during the introduction of eUmzugZH, the Canton of Zurich took on the role of a federal test laboratory for nationwide digital implementation. The same applied to the evaluation process in the Canton of Zurich. To a certain extent, the evaluation process had to be negotiated bottom-up with the Canton, the municipalities, the implementation partners, and the population, as there were no templates to follow. On the other hand, the Canton of Bern could draw on the experience already gained in the Canton of Zurich. In addition, the cantonal organization law stipulates, to a certain extent, top-down, that an evaluation had to be carried out to introduce the digital relocation notification. Nevertheless, the bottom-up approach in the Canton of Zurich and the top-down approach in the Canton of Bern led to a successful evaluation and counteracted factors for non-evaluation.

7. CONCLUSION

This Master's Thesis aimed to understand better possible factors that influence the non-evaluation of e-government projects in Switzerland. This was done against the background that evaluations play an important role in justifying the investment of taxpayers' money in e-government projects and that not conducting an evaluation can lead to the failure of an e-government project. Furthermore, evaluations are not carried out in about one-third of Federal Offices.

The objective was to investigate which factors could influence the non-evaluation of e-government projects and what a successful evaluation approach would look like so that these potential factors do not prevent evaluation. A systematic literature review was conducted in chapter two as a first step. This chapter examined potential factors for the non-evaluation of e-government projects in the public sector. The literature review identified three construct groups of 16 factors that may impact the non-evaluation of e-government projects. In the second step, the methodology of the analysis of this thesis was examined in chapter three. The corresponding questionnaire-based survey was introduced. The survey was based on the 16 factors from the literature review, and professionals from the Swiss public sector with a background in digitalization were asked to rate them according to a scale. Furthermore, the single-sample t-test method was explained. Additionally, the author explained the qualitative method and the illustrative case study. In a third step, the results were presented in chapter four. Therein, first, some data on the survey results were presented. Second, the test statistics were calculated, which provided information on which factors have a more decisive influence on the evaluation of e-government projects, and the factors were tested for their statistical significance using a p-value. Additionally, the qualitative results were presented. The fourth step in chapter five was the discussion. The results of the quantitative analysis were summarized and discussed concerning the first research question. In addition, open-ended responses from the survey participants were discussed in a qualitative analysis, which allowed further factors influencing the non-evaluation of e-government projects to be identified. In a fifth step in chapter six, against the backdrop of the second research question, an illustrative case study examined the two successful real-life evaluation procedures in the Cantons of Zurich and Bern surrounding the introduction of digital relocation notification in Switzerland.

With the research questions posed at the beginning of this Master's Thesis, different results were obtained. Concerning the first research question, 'What are the potential factors for not evaluating e-government projects in the Swiss public sector?', it can be summarized that three of the 16 factors from the literature review statistically influence the non-evaluation of e-government projects based on the survey conducted. First, the 'Lack of Time' factor can lead to low prioritization of evaluation activities. Second, the factor 'Lack of Evaluation Skills' can lead

to neglect of evaluations due to administrative staff's lack of evaluation skills. Third, the factor 'Problems in Identifying and Quantifying Benefits' may lead administrations not to conduct evaluations due to unclear benefits of an e-government project. In addition, the qualitative analysis of respondents' open responses revealed that 'Long Investment Cycles,' 'Federal Structures,' and 'Unclear Legal Relationships and Regulations' are other factors that can lead to non-evaluation of e-government projects. Concerning the research question 'What could a successful approach to evaluating an e-government project look like so that the factors deduced from this Master's Thesis do not prevent evaluation?' it can be summarized that the Cantons of Zurich and Bern represent two successful evaluation procedures for digital relocation notifications counteracting factors for non-evaluation. This success can be explained by the fact that both evaluations contributed to the successful implementation of the e-government project in the respective Cantons. On the one hand, the evaluation in the Canton of Zurich impressed with a specialized concept, an evaluation platform, the involvement of various stakeholder groups, a reference model, and academic studies. On the other hand, the evaluation in the Canton of Bern was convincing due to a legally required evaluation report with clearly formulated criteria that addressed technology, administrative processes, and acceptance by those affected. However, the two evaluation processes differ because the Canton of Zurich was a bottom-up process negotiated between various stakeholders and implementation partners. Conversely, the evaluation procedure is top-down and prescribed by cantonal law in the Canton of Bern. Notably, both evaluation procedures for the digital relocation notification were found to counteract non-evaluation factors identified in the Master's Thesis.

In conclusion, the evaluation of e-government projects requires that sufficient time is allocated to the task, that the evaluation skills of administrative staff are developed, and that appropriate methods are established to capture and promote the benefits of an e-government project. Moreover, it is crucial to consider long investment cycles, federal structures, and unclear legal relationships and regulations as non-evaluation factors. Lastly, a bottom-up or top-down evaluation approach, as shown in the Canton of Zurich and Bern cases, can counteract non-evaluation factors and lead to a successful evaluation.

However, the author identifies several limitations to the findings of this Master's Thesis concerning the multi-method approach used. First, the limitations relate to the systematic literature review. The inclusion criteria were set solely by the author and could, therefore, be influenced by the author's contextual and cultural background. In addition, there were no restrictions on the journals from which the articles were selected. This may affect the quality of the articles. In addition, the author extracted the final information from the articles to compile the factors

alone, which could also have a subjective influence. Second, limitations concern the quantitative method. The author emailed the survey and link to the pre-selected potential respondents. The author had no additional control mechanism to check that only the desired people participated in the survey. In addition, the survey was conducted in German, as most of the respondents were from the German-speaking part of Switzerland. However, the author took the basic principles of the survey from the English literature and, therefore, had to translate it into German for the survey. Furthermore, in hypothesis testing, the null hypothesis is not accepted but either rejected or not rejected, which means that more or less weight can be given to the alternative hypothesis. Thus, the p-value merely summarizes the support for H_0 . Furthermore, conclusions from hypothesis testing can always be flawed due to sample variance. A false positive can occur when H_0 is correct, but H_0 is rejected. The probability of such an error is equal to the significance level and can be controlled by setting it (see Chapter 3.1.5). A second type of error (false negative) occurs when H_0 is false but not rejected. The probability of this second type of error decreases as the study's sample size increases. Third, limitations affect the qualitative method. The author alone grouped the survey's open-ended question results so that subjective influences may have also affected this classification. Fourth, limitations concern the illustrative case study. The choice of case may introduce bias and subjectivity, as it was chosen by the author alone. In addition, the illustrative case study is descriptive, making it difficult to establish causal relationships. The data collection process was also limited, as the author had to rely solely on open-source data. Finally, limitations relate to the generalizability of the findings to the Swiss public sector. It was impossible to determine which Federal Offices the respondents belonged to and to what extent different Federal Offices were represented in the survey responses. In addition, among the cantonal respondents, preference was given to those Cantons that were more advanced in digitalization than the rest of the country. This preference meant that the Cantons of Italian-speaking Switzerland and a large part of French-speaking Switzerland were excluded. Furthermore, only municipalities in the Canton of Zurich were included at the municipal level. Lastly, the illustrative case study only focused on two Cantons.

Due to the specific focus of this Master's Thesis, other aspects remain to be explored. For example, the analysis could be extended to other Cantons, i.e., outside of the German-speaking part of Switzerland and to other municipalities. It would also be interesting to extend the study to public administrations in other countries and to gain possible insights into factors that influence the evaluation of e-government projects in a cross-national comparison. Another approach would be to focus more on the respective federal level and, for example, to explicitly examine which factors within the Federal Administration can lead to e-government projects not being evaluated. Another approach would be to use in-depth interviews to shed more light on

the identified factors, thus adding a more nuanced qualitative component to the research design.

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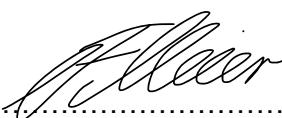
II. Calculated Values

Calculated Value \ Factor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
df = n-1; (n=64)	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
y: Mean	0.3867188	0.5585938	0.5390625	0.5546875	0.4570313	0.5078125	0.5117188	0.4453125	0.453125	0.4726563	0.375	0.5820313	0.46875	0.5664063	0.3828125	0.625
s: St. Deviation	0.2884334	0.2700022	0.2859777	0.2936793	0.2939694	0.3085062	0.3433891	0.2936793	0.2847827	0.3184698	0.3086067	0.6315996	0.2937848	0.2895062	0.2780628	0.2672612
se: standard error = (s)/√n	0.0360542	0.0337503	0.0357472	0.0367099	0.0367462	0.0385633	0.0429236	0.0367099	0.0355978	0.0398087	0.0385758	0.0789499	0.0367231	0.0361883	0.0347579	0.0334077
t-value: t-statistic = (y- μ0)/se	-3.141973	1.7360972	1.0927426	1.4897203	-1.169339	0.2025891	0.2730139	-1.48972	-1.316793	-0.686878	-3.24037	1.0390286	-0.850963	1.8350209	-3.37154	3.7416574
p-value: one-sided p-value (p<0.05)	0.9987214	0.0437176	0.1393339	0.0706437	0.8766639	0.4200545	0.3928677	0.9293563	0.903661	0.75266	0.9990459	0.1513814	0.8009936	0.0356121	0.9993593	0.0001987

DECLARATION OF AUTHORSHIP

"I hereby declare

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Zweidlen, 18.11.2023

By submitting the written work, I agree by implied action to submit the declaration of authorship, to have read and understood it, and that it is true.

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