THE WAIT IS FINALLY OVER…OR IS IT?

An institutional analysis of the implementation of online appointment systems in German Municipalities

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Preface

"…we cannot meet 21st-century challenges with a 20th-century bureaucracy"

Barack Obama in his acceptance speech as the Democratic Candidate for the US Presidency Election on the 28.08.2008 ("Barack Obama's Acceptance Speech - Election Guide 2008," 2008)

This quote from Barack Obama perfectly illustrates the need for bureaucracies to modernize in order to arrive in the 21st century, the age of technology. It is not a question if bureaucracies have to modernize but just a question of time until it is inescapable.

The idea to write this thesis first came when I moved to a new city and had to register there as a citizen. I tried to do that online and quickly came to realize that this is not possible. Furthermore, in that city, it was not even possible to schedule an appointment beforehand online, so I had to wait in the administration's building for almost an hour, which led to considerable frustration from my side. After some research I quickly realized that other countries are way more advanced in the field of e-Government and I wanted to know why Germany was struggling so much in this sector, especially since the technological foundation is already there and looking at the private sector, almost everything is possible online.

In addition, this thesis topic combines the fields of public administration research and technology research. e-Government is the future of the public sector and therefore served as the perfect field to get an overview over a possible future employment.

Several people aided me during the crafting of this thesis, whom I want to thank for their contribution. My thesis supervisor Dr. Brandsen, who provided me with valuable feedback and guidance along the way. In addition, without the interviewees' insights, this work would not have been possible. I also want to thank my friends Alexander, Florian and Philipp, who were willing to read my work and provide me with recommendations on language and structure as well as pointing out logical flaws.

Michael Titze, July 15, 2018

Abstract

The thesis aimed at analyzing the implementation of an online appointment policy in German Municipalities, studied by taking a closer look at how the city administrations of Düsseldorf, Bonn and Nuremberg incorporated that change. This research was done with the goal to give recommendations to other German Cities which also want to implement such an appointment system. Examination of those cities included what kinds of barriers to reform these actors ran into and which factors contributed in a facilitating manner to the successful implementation of this policy. The theoretical framework was based on the research by Bannink & Resodihardjo (2006), a model which lists several possible barriers and facilitators to reform. To verify whether those factors played a role in the reform processes analyzed, and to fit with the comparative case-study approach this thesis takes, semi-structured interviews were held with a representative of each municipality examined.

The findings indicated that none of the cities had any trouble financing the change out of their regular budget. On the other hand, responses pointed towards initial problems when the appointment system was transformed to two different possibilities (online-scheduled vs walk-ins). Employees did not resist this change because of extra effort required from them for the most part, since for most clerks nothing changed. However, in the case of Bonn, employees opposed the new policy because they feared to be replaced by technology and thus lose their job. Regarding facilitators, both employees and leaders wanted the change for a couple of reasons, including modernizing the bureaucracy as well as saving resources and reducing overtime for civil servants. Extensive communication with the employees from a leader with position power was deemed a crucial factor for change as well. On the other hand, all the cities implemented the policy as a single project and not as part of a larger reform initiative. External support was also not necessary for the reform to take place, so the latter two were no facilitators in these cases.

Recommendations for cities which want to implement an online appointment solution include to only work with appointments once the policy has been implemented. In addition, communication with employees can be crucial to prevent possible resistance to change. Also with regard to employees, if they have to work with new software, training them adequately is important as well. Especially in the beginning phase of the new policy, administrators should be more generous with the time assigned to each case. If the municipality operates multiple branch offices, it can be helpful to first test the new policy in one office and later on enlarge it to the others. This also relates to another important recommendation, which is constant learning cycles to further improve performance. Another recommendation was to engage in a public-private-partnership to acquire the new software necessary, which makes use of expertise advantages.

List of abbreviations:

ADV	Auftragsdatenverarbeitung
BAföG	Bundesausbildungsförderungsgesetz
CDO	Chief Digital Officer
eID	Electronic Identity Card
ELSTER	Elektronische Steuererklärung
IT	Information Technology
ICT	Information and communications technology
G2B	Government to Business
G2C	Government to Citizen
G2E	Government to Employees
G2G	Government to Government
NPM	New Public Management

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1 Introduction

1.1 Problem Statement

If the 21st century had to be summarized in one word up to today, it would probably be something along the lines of „Internet" or „digital transformation". Even the long-time three sector model with primary (agriculture), secondary (manufacturing) and tertiary (services) has been extended by a fourth sector, the quaternary one, which is concerned with ICT (information and communication technology). The digital revolution has changed people's lives with such a powerful impact as there rarely has ever been. It does not only influence private persons, but businesses' survival largely depends on adaption to digitization as well. Even state administrations have to engage in digital transformation of its service delivery, even though this branch is traditionally a bit slower in adapting to new changes since it also has a monopoly function and thus its survival does not depend on adaption. To illustrate how important digital transformation has become nowadays, Allen, Juillet, Paquet, & Roy (2001)(page 94) go as far as saying "IT is becoming the critical agent of change, the availability of a new digital infrastructure and the Internet's impacts on a changing set of public expectations are overtaking fiscal pressures as the primary impetus for public sector managerial reform".

For civil service delivery, digital transformation offers a wide range of advantages, both for the administration's side as well as the citizen's side. In this work, the implementation of such a digital solution will be analyzed with a case study of the possibility to schedule an appointment to register in a city after moving. This can be done online via computer or smartphone. Three German cities were chosen for this analysis, Bonn, Düsseldorf and Nuremberg.

According to reports (European Commission, 2017; Muschter, 2015), Germany lacks behind in terms of integration and application of e-Government services, especially when compared to other EU countries, which are a lot smaller and less economically and technologically powerful. The biggest issue here is the question why Germany is not as advanced as other nations with regard to supplying government services online. This paper asks this question with a perspective based on the administration's take on online services, and how this online solution was implemented. To answer this question, the analysis will focus on which factors did facilitate or hinder the successful implementation and engagement with such services. As the literature

does not fail to point out, digital transformation of the public sector is among the most important challenges for state administrations in today's world, especially Germany (Martini, 2016).

Goal statement: Researching which factors influenced the implementation of the online appointment booking policy in Düsseldorf, Bonn and Nuremberg in order to provide recommendations for other German cities to facilitate the implementation of such a policy.

Central Question: **"How did German Cities implement online appointment booking at public service institutions and with what kind of obstacles was this way paved, how were those removed and overcome?"**

1. What is e-Government?

2. How has e-Government in Germany developed up to today?

3. What were possible barriers to the reform process in the context of an online appointment policy transformation?

4. What were possible facilitators of reform in the context of an online appointment policy transformation?

5. What were the actual barriers and facilitators in the context of an online appointment policy transformation?

1.2 Theories

Reform analysis in the public sector is a complex field, there often is a vast number of blockages that have to be removed until change can effectively take place. Especially in the municipal context of a public sector reform, obstacles might be similar and strategies one municipality developed to implement reform might also work in another municipality. That is why it is important to study the change process closely, so that other cities can learn from the expertise cities gained while implementing the online appointment scheduling system. If a barrier to reform appears, this study might offer a solution. Furthermore, it could also help change agents to more efficiently facilitate the reform process. To be able to identify those obstacles and facilitating factors, the theory of Bannink & Resodihardjo (2006) will be used, who differentiate between

facilitators of reform and barriers to reform. The scholars then again differentiate between two types of both facilitators and barriers, even though in certain cases issues are ambiguous and can work as both facilitators and barriers at the same time.

The two types of barriers are opportunity barriers and preference barriers. Whereas opportunity barriers are concerned with systemic issues such as decision-making structure, policy inheritance (path dependency) and lock-in, preference barriers are more concerned with cultural and individual advantages from the status quo, such as paradigms, vested interests, routinization and internalized goals. Facilitators also can be split into two categories, there are structural and agency facilitators. Structural facilitators are, as the name already indicates, concerned with structural changes and thus diminished barriers, such as a decline in support for policy inheritance or a disruption in the policy-making process. Agency facilitators on the other hand are more concerned with cultural traits as well as the desires and skills of involved individuals, such as change of preference, leadership and entrepreneurship.

Interwoven with this framework, several specific aspects of the digital reform agenda will be put into perspective and facilitators as well as obstacles will be outlined with the specific goal of comparability. For example, if multiple municipalities used the same facilitators such as leadership, and how actors dealt with similar barriers.

1.3 Methods

After careful consideration, three German cities were chosen for analysis, Bonn, Düsseldorf and Nuremberg. All those cities are ranked by various consulting firms among the best-performing ones in Germany when it comes to e-Government services. While those rankings are difficult to qualify as scientific sources, it is the best option available. The state does not publish rankings in terms of which cities are the best-performing ones in terms of digitization (Muschter, 2015; PricewaterhouseCoopers, 2015). The exact service that was analyzed is the possibility to book an appointment online prior to a visit to the town's administration to register the new address after moving, which is by law required of each citizen within a two-week period. The chosen service might seem like a rather shallow and small one, but the current situation in Germany does not offer a more complex possibility since this is about as far as digitalized governmental services go at the moment, at least at the municipal level. Therefore, the primary reason for this choice was comparability. The three cities that were chosen had already implemented an online appointment scheduling service several years ago. In addition, all three cities are roughly the same size and all operate multiple public offices. Even though Düsseldorf and Bonn are in one state and Nuremberg

is located in another one, this study will not be able to answer the question of which role federalism plays in the implementation process. Instead, this paper will focus on how the administrations each implemented this change and which strategies were taken to facilitate the implementation process. However, the aim of this study is not to evaluate the success of said service, but focuses on the implementation process itself and the contributing factors.

To gather the data necessary for analyzing the implementation process, semi-structured interviews were led with employees from each city under analysis. The advantage of this method was that interviewees could describe their own perspectives in detail and might provide the researcher with additional knowledge and insights that have not been taken into account during the literature study. The downside of this method is that through the case study character of this work, generalizability of results is limited to maybe only cities in Germany with similar size and administrative structure.

1.4 Scientific and practical relevance

Electronic government is a rapidly growing topic in both the scientific world as well as among the general population. Both politicians and civil servants have to deal with the already very complex field that is public administration, which in terms of digital transformation poses the additional challenge of requiring a lot of technical knowledge. Since this is a comparably new field in the public administration discipline, there are a lot of challenges ahead. Nevertheless, scholars agree that it offers a lot of possibilities to ensure a better working public sector, which is more transparent and works more efficient. This is also of interest for citizens to a growing extent, since better service quality will increase the overall satisfaction of citizens with the government. Both sides can save a lot of resources while making the communication between actors much more efficient (Beck et al., 2017).

When it comes to international matters, Germany might be regarded as one of the most advanced and important nations within the European Union. However, the country is surprisingly low developed in terms of e-Government. Disappointment can be quite substantial when analyzing the current state of e-Government in Germany, especially because the technological possibilities are already there, but have not been seized so far.

The central goal of this study is to determine factors that contributed to the implementation of e-Government solutions in the public sector on a municipal level in Germany. This has not been done so far, as there is no study yet that focuses on the implementation of policies of e-Government in a local context in Germany by comparing multiple cities, whereas such works

already exist for other countries (Bonsón, Torres, Royo, & Flores, 2012; Manuel, Sousa, Wilfredo, & Bohorquez Lopez, 2007).

There is another administrative aspect to the whole issue of public sector digitization in Germany that complicates the picture, which is the federal character of the German State. Since all regions (*Länder*) and cities enjoy a great deal of autonomy, it is challenging to assess how far along the country as a whole has already come in terms of digital transformation. Since one city could be very much ahead while another one so far has implemented no digital solutions at all. In addition, each municipality enjoys a considerable amount of self-government, this makes coordination far more difficult than in a centralized unitary state.

As for practical relevance, a study is always useful if its findings support policy makers in the decision-making process and help them to make a more informed choice. Thus, a goal of this paper was to develop recommendations for other German Cities that want to work with an online appointment scheduling system. Implementation of a reform is often a complex and time-consuming process. It can be very similar if carried out in a similar environment (but that is not always the case). This offers a chance to learn from the lessons that other cities drew during implementing the new policy. In addition, the public sector has its own specific characteristics, which often make change processes even more complicated, since multiple stakeholders are involved and might need to be convinced. It is out of question that local administrations can opt out of transforming into a more digital bureaucracy, the only issue is when they choose to do that. Since a considerable number of German Municipalities have not advanced very far in the field of e-Government, this thesis might help them on the way to become a *Virtuelles Rathaus* (Virtual townhall) (Toffel, 2016).

1.5 Outline

The next section will start out by presenting and analyzing the current state e-Government in Germany as of now, including which (federal) ministries are responsible for important frameworks like the legal background. This section will also cover the most important government programs and plans the Federal Government of Germany has issued so far to develop e-Government in the country. The third part will describe the theoretical framework considerations, building on the barriers and facilitators of reform developed by Bannink & Resodihardjo (2006), enhanced with the theories of other reform scholars, especially from the public sector domain. Based on the model and the previous literature study, the fourth section is concerned with coming up with potential barriers and facilitators, that will later on be tested in part six. The fifth part gives

an overview of the data collection method, why this method was chosen and which shortcomings it has. The following section is the actual analysis of the case studies and will provide evidence on whether the generated hypotheses can be rejected and which ones can be accepted. The final section summarizes the findings and gives an outlook to further research implications, as well as a critical reflection on this study. The thesis concludes with a list of recommendations to facilitate the implementation of an online appointment system.

2 Policy framework

As with any other scientific work, this research will begin by clearly defining the central concepts used in this study. This includes e-Government as well as the concept of reform. Furthermore, this section will give a short overview of initiatives introduced so far to advance digital transformation in Germany. Those will be listed in a hierarchical manner, starting at the federal level, then turn to the regional level and conclude at the municipal level. In addition, the most important goals when creating an e-Government solution will be listed, so what policy makers hope to gain from the process.

2.1 What is e-Government

The field of e-Government (also called electronic government, online government or digital government) first became known as a concept in the late 1990s, although computers were already used in bureaucracies as soon as they became available on the market. The current usage of the term e-Government however is not concerned with the use of technology within an administration per se (though it still is a part of it), but mainly with external uses of technology. This for example includes service delivery to citizens. The e-Government concept was one of the aspects of the "Internet Boom" in the 1990s, when online activity first became available to a larger mass of citizens and internet usage was facilitated (Grönlund & Horan, 2004).

There is a great variety of definitions of e-Government, some are very narrow and some are very broad. Some of those definitions were collected by Sá, Rocha, & Pérez Cota (2016) in their work "From the quality of traditional services to the quality of e-Government online services: A literature review". The following definitions were created by Rocha, Silva, Lamas, Castro, and Silva (2005), Unidade Missão Inovação e Conhecimento (2003) and Isaac (2007), as cited in Sá, Rocha, & Pérez Cota (2016, p.153):

"To Rocha, Silva, Lamas, Castro, & Silva (2005), an e-Government,
in its broader meaning, consists of a suitable and beneficial use of information
and communication technologies by governmental bodies –
whether these are central, regional or local – both in their internal and
external relations and, particularly, in the relation they establish with
the citizens.

According to the report prepared by Unidade Missão Inovação e Conhecimento (2003), in its
Action Plan for Electronic Government, an
e-Government is a "process supported by the development of information
technologies, which places citizens and companies in the centre of
attention, improves the quality and the convenience of services and reinforces
an active participation in the exercise of citizenship. Simultaneously,
it increases efficiency, reduces expenditures and contributes
to the modernization of the State".

[…]

Isaac (2007) refers that the
use of an e-Government, particularly in its Web based dimension, serves
to improve the access to governmental information and services by citizens,
business partners, staff and other governmental bodies.
In the e-Government context, according to the activities and the type
of relationships."

While all of these definitions certainly incorporate some important characteristics of e-Government, a single one would not accurately describe e-Government how this paper uses the term. Therefore, a definition was composed of these three quotes by Rocha, Silva, Lamas, Castro, and Silva (2005), Unidade Missão Inovação e Conhecimento (2003) and Isaac (2007), resulting in the following description of e-Government, that explains how his text understands e-Government:

e-Government is the use of information technology by governmental organizations on all levels, federal, regional and local, in order to improve and simplify access to government information and services for all citizens and other actors. e-Government policies should be citizen-centered and at the same time try to contribute to the modernization of the state, increase efficiency and reduce expenditures.

The first quote mentions the importance that e-Government can take place on all levels of government, federal, regional and local. The second one states that e-Government policies should be citizen-centered and at the same time aim at modernizing the state and help to save resources. Taken from the third quote is the statement that access to government information and services should be improved and simplified for citizens and all other actors. All quotes also include that communication takes place via a channel of information technology.

There are various interaction forms of e-Government. There is for example Government-to-Government (G2G), which is concerned with the internal communication of the administration. There also is Government-to-Business (G2B), which is more focused on the interaction between corporations and the government. In addition, the concept of Government-to-Employees (G2E) that revolves around the interaction between the government and public servants plays a role, and there is a channel which centers around the communication between government and citizens (G2C), which will be the channel analyzed closer in this study. The concept of G2B does not play any role in this research, some aspects of e-Government touch upon the G2G aspect of e-Government, in terms of horizontal and vertical integration, but the major focus is on G2C (Al-Jaghoub, Al-Yaseen, & Al-Hourani, 2010).

The concept of e-Government is not limited to offering traditional services in an electronic way, as it is often assumed, but it entails several other possibilities as well. One is the online provision of information concerning government services and another one is the possibility to actively use governmental services online, replacing the physical journey to the civil office. Another aspect entailed in e-Government is online participation in budgeting (Märker, 2009), and even the online inclusion of citizens in the democratic process through online voting in elections, as it is already the case in Finland (Teivainen, 2016), though that process is often referred to under a different name such as e-governance or e-democracy.

E-government also describes the internal communication within the administration, through horizontal and vertical integration, the whole state bureaucracy is connected online, creating a one-stop-shop experience for citizens, which means that they have to log in just once and have all services available at their disposal (Schedler & Summermatter, 2003). This means that except for the provision of information on the web, e-Government entails a two-way communication between citizens and the administration. This is the only definition that will be applicable for the usage of the term e-Government in the context of this work, it does not include e-participation or e-governance.

So far, most scholars studying e-Government have focused on the broader context in terms of a nation-wide implementation, which means that there is no ideal framework concerning the implementation of e-Government services on a local level, but there are some exploratory case studies, which will be used, such as Burn & Robins (2003), who studied the implementation of e-Government in Western Australia. Since e-Government is a highly ambiguous field, it entails politics, public administration, computer science, business and so on, there are sources from a great variety of disciplines (Hu, Pan, & Wang, 2010).

From the point when the implementation of an e-Government service is put on the agenda, until its total integration various stages have to be completed in the implementation process. Layne & Lee (2001) identified four stages within the implementation process. Each stage is more complex than the previous one, but the level of integration increases as well.

1. Stage: Cataloging

The first stage is called cataloging. It includes setting up a government or administration website where citizens can obtain information about public services. Documents may be made available for download on such a website, but there is no two-way interaction, the documents can only be downloaded and filled out, and then delivered to the administration in a traditional way. An important organizational aspect in this stage is to assign responsibilities as to which person has to answer unpleasant questions if something goes wrong. Usually, the same person is also in charge of coordinating the whole implementation process.

2. Stage: Transaction

The next stage is called transaction. Within this one, complete services are made available online and can be used by the customers. This means that two-way communication is now enabled and citizens can take an active role in it. This stage is crucial in terms of laying the foundation for the complex e-Government service that the project should become at a later time. Ideally, all required documents and explanatory comments can be found on the website at that stage. In terms of creation, it is important to decide whether the administration wants to build the service completely by itself or outsource the technical part to an IT corporation. Additionally, it is important to think about the best possible way how the traditional services can be transformed into online services. Furthermore, internal databases have to be integrated into the digital system and adjusted to fit with the new online services. Organizations have to take care of ensuring confidentiality and security. This stage is often connected to considerable investments in many kinds of resources such as staff, time and financial ones. Another crucial organizational barrier in this stage may be policy lock-in and path dependency, shaped by previous investments in the traditional service delivery way.

3. Stage: Vertical integratioon

The third stage is vertical integration, which includes extending the already working online services with additional ones. In addition, upward and downward integration should take place, which means that different level institutions connect their services in a common database, for example the local car registration office connects with the central driver register in the country.

From an organizational perspective, it is of utmost importance in this stage that the different level organizations communicate with each other in terms of assigning responsibilities, for example agreeing on a unitary data format. In this stage, it is also vital to ensure sufficient protection of citizen's personal data, since all the information is now pooled in a central database.

4. Stage: Horizontal integration

The final implementation stage is horizontal integration, where services are also connected in an interdepartmental way. In the ideal case, this means that for the customer, a one-stop-shop experience is created, which means that citizens have to log in just once to access all services available. In addition, data entered once is automatically transferred into other forms as well, which means the name and date of birth for example, do not have to be manually re-entered in each different document. Furthermore, services that are connected and require data from each other, will gather every information available from the other department. This could for example mean that the website that is concerned with student loans, for which the citizen's tax declaration is required, automatically gathers the relevant information from the department of finance. During this stage as well, communication within organizations is crucial, compromises have to be found with departments from other agencies to find common ground.

Therefore, an online appointment scheduling system would be located on the second stage of that integration model, transaction. Citizens have the opportunity to obtain information about the service they schedule an appointment for, but there is also a two-way communication between the administration and the customer, including the citizens being able to take an active role in this exchange.

2.2   e-Government development in Germany

Since e-Government has been a known concept for now over 20 years, several studies have already been published that tried to point out guidelines and principles on how e-Government services should be designed in order to ensure their success. Going through some of the federal government e-Government plans, there is one buzzword that very accurately describes the desired form public administration in Germany should have in the future. This word is *Virtuelles Rathaus* (Virtual Town Hall). It describes the situation from the citizens' perspective, and imagines public administration in a way where people and businesses can do almost everything relating to contact with the civil office online at all times and rarely, if ever, have to go there in person (Budäus & Schwiering, 1999).

The ministry that is leading the e-Government development in Germany is the *Bundesministerium des Inneren (BMI)* (Federal Ministry of the Interior) on the federal level. Around this complex issue, it is tasked with dealing with the complications that the federal form of the nation creates, especially with regard to the local self-governance. Because of it, fragmentation is actively supported and in turn hinders the integration and generalization of e-Government services at a later stage, since the service architecture might be different in each municipality (Bizer, 2016). So far, municipalities have mostly supplied information to citizens through digital channels, but civil servants can also communicate with customers via mail. There are some examples of interaction between citizens and the local administration, for example people can file their tax reports online with the program ELSTER. However, this is one of the few positive examples, the overall impression is rather disheartening. So far, there has been little to no integration, both on the horizontal as well as the vertical level when it comes to e-Government services (Scheer, Kruppke, & Heib, 2003). Because of the federal character of Germany, a centralized approach is not possible. Municipalities solve a lot of digital challenges on their own, because the law allows them to do so. According to Beck et al. (2017), e-Government is used a lot among public service institutions, but there is only little innovation, and, as previously stated, appears to be underdeveloped compared to other European States. The text especially criticizes that digital services are not integrated with each other in Germany, but instead are island solutions. Because of the policy-making structure in Germany, it is not possible to create a federal law for e-Government. This power lies with the *Länder*, and thus a lot of solutions differ and are based on different architecture, which makes integration at a later stage even harder. Even though e-Government is a very important topic to all German Parties, at least according to their programs, once again no federal ministry for digital transformation has been established after the most recent elections (Brunowsky, 2018). What is unique about e-Government in Germany as well, is the fact that Germans are especially skeptical about the protection of their personal data if they interact with the administration through a digital channel (Schedler & Summermatter, 2003). Another figure that illustrates how far behind Germany is in terms of e-Government is the fact that only 9% of all German Municipalities offer more than 20 services online (Fromm, Welzel, Nentwig, & Weber, 2015). On average, a municipality in Germany offers two services to be carried out online. Furthermore, the services that do exist have a reputation of being complicated and not user-friendly, thus they are not used as much as they could be (Albrecht et al., 2013).

e-Government services that can be carried out online are time-saving for citizens, since they do not have to schedule an appointment at all, but can just take matters into their own hands whenever they have the time for it and do not have to wait until being called up, even after they have scheduled an appointment. This also means that especially citizens who are working a lot,

do not have to take time out of their busy work schedule, but instead can take care of business for example late at night, when no office is open anymore. This is especially important in Germany, as many public service agencies are open only during core working hours (9 a.m. to 4 p.m., sometimes even only during the morning hours), and thus it can be very stressful and time-consuming for a person working full time to go there for an appointment. Furthermore, especially people who live in rural areas can benefit a lot from this transformation, since they do not have to travel a long distance and come to the city just to take care of their business, instead they can do things comfortably from home. Furthermore, especially in Germany, which has been accepting a great number of refugees since 2014, online forms could help a lot in overcoming language barriers. For example, if a document is created in various languages and can be filled out by almost only selecting options from a variety of answers, the applicant could look at the document and fill it out in Arabic, while the public official can look at the same document in German. This could speed up the process by a considerable amount of time and reduce situations when a translator is necessary. Creating more online services is also beneficial in terms of cost efficiency for the state, since if more people fill out documents online, it is easier to process those and the number of staff in each office can be reduced. In addition, there is a lot less paper traffic and archiving those documents would become a more manageable task as well. Another favorable aspect of the whole online process would be that it is more beneficial to people with disabilities or who are sick, but still have an urgent matter to take care of.

There are downsides to the digital transformation in the public sector as well. The most important point is that often a certain level of Information Technology (IT) experience is necessary to be able to use those services. Closely linked to this issue is another problem, which is the possible exclusion of people who simply cannot afford the necessary devices to make use of the online offers. All of this relates to the possible result that those people will be at a disadvantage, because online forms could be processed quicker and thus paper documents will be processed slower. In addition, filling out government forms is often far from easy, especially when it comes to complicated issues like filling out a tax declaration or applying for student loans (BAföG) and if those documents are incomplete or filled out wrong, it can take a lot of going back and forth between the public official and the citizen before the document is finally processed. That is because there is no person present who can explain in detail how the forms are to be filled out correctly and which other documents might be required. In addition, data privacy is an especially great concern of many citizens, and rightfully so, since some of the issues dealt with can involve very personal and private matters, and it could put the individual under a lot of stress, if the relating documents would fall into the wrong hands. Even more so, there is a moral angle to the whole

digital process of government services as well, in terms of which services should be able to be carried out online and which should not. Simple tasks such as changing a citizen's address should definitely be simplified through online processing, but other issues are a lot more delicate, for example applying for unemployment benefits. There is a significant personal aspect to things like that, as there is the danger that a person could be excluded, who is just not able to articulate himself as well on paper as it would be the case in person. Furthermore, empathy plays a role in situations like that as well, as public officials often decide between worthy and unworthy clients (Maynard-Moody & Musheno, 2009), which works better face-to-face than on a screen, as it is harder to tell a person that they will get no benefits than merely clicking on a button to decline said person the same benefits.

2.2.1   Initiatives at the federal level

For new policies to be developed in the public sector and for them to be implemented, a sound legal foundation is necessary, at least in terms of security standards. The federal government paved the way for the development of e-Government in Germany by adjusting the legal framework. In 2009, the *Grundgesetz* (German Constitution) was modified, more specifically, article 91 section C was expanded with the obligation for all public service institutions, that all newly introduced regulations should be designed in a way that thinks first of its digital architecture (European Commission, 2015). As this is part of the German constitution, it is universally applicable to all levels of authority in Germany without exceptions.

In 2013, a complete legal framework was created for e-Government questions, the so-called *E-government Gesetz*. It states that public offices must establish E-Mail communication as a regular channel besides the traditional ones such as via phone or mail. In some cases, this goes as far as using a certified "DE-Mail" (De-Mail accounts only permit verified users and communication is encrypted. It also allows for legally binding communication, such as via regular mail). Furthermore, the law smoothens the process of getting documents online and paying online as well. Institutions are obligated to provide information online and document and analyze that process. However, this law is concerned with the national context for the most part and does not focus on the specific local context (Bundesministerium des Inneren, 2013). This law was further specified among some *Länder,* but some others have to implement one up to this date (Albrecht et al., 2013).

In 2010 the *National e-Government strategy* was introduced. It dictated focusing on the development of e-Government services in the direction of usefulness for citizens and businesses. It also focused on cost-effectiveness and resource efficiency, as well as data protection and

transparency. Social participation, like citizen feedback was emphasized as well as a desired organizational culture change towards innovation and sustainability. As a guiding principle, e-Government should enjoy strong support throughout the whole public IT infrastructure, solutions should be kept as simple as possible, keeping in mind the possibility to integrate the services later on. They should be designed in a way so that they could be reused in another department or municipality. To facilitate the communication and coordination between the states and the federal government concerning e-Government issues, the *IT-Planungsrat* (IT Planning Council) was established in 2010 as well. It is tasked with formulating IT security standards, steering e-Government projects throughout the country and planning the interconnected network of the German Public Administration. In terms of organization, the *IT-Planungsrat* is a subdivision of the BMI, to make coordination as smooth as possible. The guidelines the *national e-Government strategy* set were only deliberate, but on the other hand, it also established the *IT-Planungsrat* as an actual institution that would explicitly focus on e-Government (Wentzel, 2010).

In 2006, a previous plan had already been presented, called e-Government 2.0, which was again developed by the federal government. It contained four key points, which were the enhancement of the federal e-Government services in terms of quantity and quality, the establishment of electronic collaboration between the Public Administration and the business community, the development of secure communication infrastructure for citizens and businesses with the public administration and most importantly, the introduction of an electronic Identity Card (eID Card), which often is necessary for identification purposes when using e-Services. However, these as well were only non-binding recommendations not laid down in a law or regulation (Bundesministerium des Inneren, 2010).

In general, the guiding plans concerning e-Government in Germany have been laid out by the BMI, most recently the *Digitale Verwaltung 2020* (Digital Public Administration 2020) plan. It contains the ambitious goal that until in 2020, visiting a public service institution should have become mostly obsolete. Furthermore, solutions should not be developed by the specific demands of a department, but rather should be kept as general as possible, to simplify the replication in other departments. It proposes standardization of processes and further emphasizes the need for increased cooperation between the different administrative levels. In addition, the idea of the IT planning council from 2011 was picked up, which aimed at creating a central knowledge database to facilitate the transfer of solutions (European Commission, 2015). Nevertheless, this plan again is non-binding and thus is at least questionable to succeed within the proposed time frame. It is not unlikely that in 2020 still, citizens will have to visit the administration in person for a large number of services.

2.2.2   Initiatives at the Länder level

As far as policy making in detail in Germany is concerned, the level below the federal one is most important, which is the state level. The states are called *Länder* and the nation consists of 16 *Bundesländer* (states) and around 13.000 municipalities within those 16 *Länder*, which are either cities or rural districts (Landkreise). It is important to note that three of the 16 *Länder* are each just one city (so-called city-states), which are Hamburg, Berlin and Bremen. The first two consist of just one "municipality", so there is no lower level than the state in these city-states. As for the city-state Bremen and the other 13 *Länder*, the federal government makes general laws, but they can modify them in some cases, and municipalities can use discretion to specify these modifications even further (while upholding the *Grundgesetz,* the German constitution) (Gunlicks, 2003).

In June 2006, the *Deutschland Online Action Plan,* came into effect, emphasizing the cooperation between the *Bund* and the *Länder* in various projects. Some of those initiatives were led by the federal government, like for example the citizen registration system. Others were chaired by one of the *Länder*, such as Bavaria led the civil status registration or the vehicle registration led by Hamburg. Even though this plan also did not entail binding regulations on a bigger scale, the states that committed to developing a new solution in cooperation with the federal government were willing to contribute to the development of new e-Government solutions in Germany (Schuppan, 2012).

In 2003, it was first decided that there should be a federal strategy for digital transformation in Germany. It was called *Deutschland-Online* (Germany-Online) and served as the cornerstone for a digital public administration in Germany. In this strategy, the federal government together with the *Länder* highlighted the five top priorities for e-Government for the next years, which were development of integrated e-Services for citizens and businesses, interconnection of internet portals, development of common infrastructures, development of common standards and experience and knowledge transfer (European Commission, 2015).

The *IT Planungsrat* published its own plan in 2011, it was called *memorandum for the national e-Government strategy*. It once more promoted that appropriate technical measures should be taken in order to make e-Government as transparent as possible. Furthermore, the plan entailed a common eID strategy as well as creating uniform standards that apply to both the *Länder* and the *Bund* concerning data privacy threats. It also suggested creating a federal information management to bring together knowledge to improve public services and increase learning effects. To save costs in IT design and smoothen integration, shared initiatives between again the states and the national government were favored (IT Planungsrat, 2015).

2.2.3 Initiatives at the municipal level

An essential aspect when it comes to administrative issues in Germany is the concept of "*Kommunale Selbstverwaltung* [§28 abs 2 Grundgesetz]" (local self-government). While the municipalities have no legislative function (except for the city-states), they enjoy executive freedom and discretion as long as they stay within the legal framework that is the law. No other authority is allowed to force a local administration to organize in a certain way, that is entirely up to them. For example, each municipality can decide themselves how high buildings may be, while there is just a general framework by the *Land*. This, at least partially, explains why there are so few e-Government initiatives on a local level (Gabriel, 1999), because it means that those state frameworks have to be kept in a very general tone so it leaves sufficient discretion and room for interpretation for the municipalities. Those regulations cannot force municipalities to do things they have self-government over in a specific way, otherwise it would be unconstitutional. Furthermore, the German Bureaucracy is known for being risk-averse and having a culture that does not foster innovation and is characterized by being risk-averse. Thus, the chance that a single municipality will try to come up with their own solution is rather slim (Bellante & Link, 1981).

The noteworthy exception is the *MEDIA@Komm* program, which commenced in 1999 and ended in 2003, even though it was initially developed at a federal level. It was an initiative to get municipalities to digitalize their services, so far there have been various follow-up projects with similar names like *MEDIA@Komm* Transfer in the 2000s. The current program's name is *MEDIA@KOMM Innovation*. The *MEDIA@Komm* program initially started out as part of the *Deutschland-Online* initiative and was designed as a competition between municipalities to found and implement e-Government solutions. The cities that came up with the best ideas and implementation were rewarded. The idea was that awarded solutions could serve as a best-practice example for other cities to be copied (Grabow & Siegfried, 2002). In addition, there was also international cooperation of German Cities with foreign cities like Moscow to encourage learning from each other. Nuremberg, one of the cities that will be closely examined in this paper, already won an award at the *MEDIA@Komm* program (Lemstra & Melody, 2014). Even though this program, like most others presented in this section only included voluntary participation, some widely accepted e-Government standards were developed along the process, that today are used in all of Germany, such as the OSCI protocol, a security standard for communication between public agencies and citizens (Grabow & Siegfried, 2002).

2.3   Goals of implementing e-Government policies

Whenever there is an article written about e-Government in Europe, two countries are mentioned many times, which are Austria and Estonia, the latter one will be described briefly as an example of what ideal e-Government could look like. Even though the Baltic Nation is a small country, or perhaps especially because of that fact, the country is said to be among the world's leading nations concerning e-Government (Kalvet, 2012).

Only around 15% of all government services to its citizens cannot be carried out online and people have to show up in person at the local administration. On the other hand, in Germany, only around half of all services can be carried out online. The backbone of the whole e-Estonia program is called "X-Road", an operating system running in the background connecting and integrating all different kinds of services. Furthermore, Estonian e-Government administration has already implemented a lot of solutions to simplify its usage, such as a the once-only principle, which means that people have to enter their personal data only once and all other administrative departments are by law required to gather the data from a citizen's file (Beck et al., 2017). In addition, there has already been done a lot of legislative work to make e-Government progress possible, for example digitally signing documents is already possible in Estonia. This also paved the way for a lot of automatization in terms of digitization of the public sector, such as a hospital by default transmitting the birth data of a child online into the register without the family having to do a single thing, thus creating a birth certificate without a single manual move (European Commission, 2016; Heller, 2017).

2.3.1   Citizen-centric E-Government

When creating new e-Government solutions or translating already existing services into digital ones, the factor that should matter most in this process should be the end-users, thus the citizens. According to Burn & Robins (2003), the whole design should be citizen-centered, in order to create a favorable user experience, which also includes various criteria such as accessibility, user-friendliness, security of citizen's personal information, website design and the number of clicks to get to a particular service.

As Bertot, Jaeger, & McClure (2008) find, an advantage of e-Government services is that they can improve service delivery to citizens, and thus policies in the digital environment should be designed according to citizens' desires, not the administrations' as the most important influential factor. If this was done by the municipalities under analysis, local administrations implemented the

online appointment system in order to reduce waiting periods for citizens as the most important reason.

Papadomichelaki & Mentzas (2009) have identified several crucial criteria how an e-Government service should be designed so that citizens use it and are satisfied with them. Online services should be as easy to use as possible, so that also people with only little knowledge of the internet are able to do so without lengthy explanations necessary. Also, the (local) administration has to ensure that the personal data citizens have to give on the web service are handled with great caution. This includes for example that the municipality provides that no data received through e-Government usage is sold to third parties or made available to anyone without the consent of the citizen. Relating to the first aspect is the fact that the service should be designed in a functional manner, which means that the website where citizens enter their data or find the file they need, is extended with for example a help function or additional documents, which precisely explain how the website can be used and which functions it fulfills. Furthermore, the website should contain all the relevant information, presented in an adequate manner. This can for example mean that additional documents, that need to be filled out and brought to the administration in person are available for download on the same webpage. In addition, the site should be optimized to be as useful to customers as possible, thus contain direct links to other services that might be needed, such as linking the page of unemployment benefits to the page of the local job center. For the service to be used sufficiently and citizens accepting it as the first point to turn to, it has to enjoy citizen support, since without that, the website can be made as perfect as possible, it will all be worthless if nobody uses it.

Burn & Robins (2003) identified guiding principles about what should be kept in mind when designing an e-Government initiative. One is to build the online services around increasing choices for the citizens and not translating services one to one. Tat-Kei Ho (2002) states the same, e-Government websites should not be designed as a mirror to the administrative structure of the bureaucracy, but instead in a way that is most convenient to citizens. For now, the demographic of Germany is still shaped in a way that a considerable amount of (senior) citizens do not use ICT, therefore alternatives should be given such as scheduling an appointment over the phone or in person, so the traditional channels.

Another aspect policymakers designing e-Government solutions should keep in mind according to Anthopoulos, Siozos, & Tsoukalas (2007) is that public organizations are non-profit organizations, thus how they perform directly reflects on the government's image. Therefore, the most important goal should not be to save resources but to satisfy citizens' wishes and by that increasing the overall satisfaction with the public sector as well as the quality of services.

2.3.2   Increasing efficiency

Obviously, the process of digital transformation in the public sector should not and could not only bring advantages to citizens in terms of better service availability and delivery, but it also offers a range of chances to the institutions responsible for those services. Taking into account the perspective of local administrations, increasing efficiency may have been the most important thing, since e-Government also offers possible efficiency gains for administrations, as Eyob (2004) finds.

At least indirectly, many of those improvements should reflect beneficially on the citizens as well. Those possibilities can be best summarized under the term increasing efficiency. This for example entails, that during the process of transforming the bureaucracy to the *Virtuelles Rathaus* money can be saved and resources can be allocated better. If all citizens have to schedule an appointment, the administration will be able to steer the number of customers better and thus there will not be a big difference between times with many people in the office and periods where employees sit around since not as many citizens as expected come in. This possibility to manage customers better, could lead to fewer employees being necessary, thus enabling the administration to reduce staff and save wages. In addition, less time might be needed per case, if citizens can see when scheduling their appointment which documents they have to bring (Kertesz, 2003).

As previously stated, efficiency improvement is always a trade-off. Public institutions have to find ways to makes processes faster and more reliable, however this should never come at the cost of increased trouble for the citizens (citizen-centric design). An excellent example of this is the once-only principle that is laid down in a law in Estonia, which states that every citizen has to enter his personal information only once. After that, all other institutions must gather the data by themselves.

2.4   Scheduling appointments online

The central concept that will be analyzed in this work will be the implementation process of an e-Government solution in various German Cities. The focus will not be on evaluating the success rate of this new policy in terms of its outcome, thus if for example citizens are more satisfied with the bureaucracy now. Instead the focus will be on which steps the municipalities took in order to facilitate the implementation process and which barriers and facilitators were in play. Those will be analyzed with the help of the theory from sections 2 and 3. For the sake of this analysis, as the analyzed service is already operating, the implementation process is viewed as

complete, as the online appointment scheduling is already operating. The goal is to find out whether assumptions can be made regarding similarities (patterns) and find out necessary steps to implement a new e-Government solution in a local context (Fromm et al., 2015). Nevertheless, those similarities should be treated with caution. As said, reform is complex and therefore the same facilitator might work in one city, while in another one it does not.

To sum up, the focus is on which steps can be taken to facilitate implementation, but not how successful this solution has been since the implementation, just how the implementation has been achieved with the help of which facilitators and which barriers were in the way.

In this context, implementation means a new e-Government program, in this case the possibility to schedule an appointment online, not just a software update or some minor change.

The e-Government solution this text looks at is the possibility to book an appointment online at the *Einwohnermeldeamt* (citizen registration office) to register as a new citizen in the municipality. This specific policy was chosen because it has already been in operation for several years in many cities and was one of the first online services to be established, thus the implementation phase should be long over by now. Furthermore, this is a very basic service, which usually does not require any documents handed in beforehand, so the analysis should not be as complicated as it would be the case with a more complex solution. One downside of this case is that it does not take the federal character of Germany into the equation, because of the *Selbstverwaltung* (self-government) principle, municipalities may create different solutions. This is still one administrative level below the *Länder,* which would have to be the level of analysis to answer that questions. Appointment scheduling services might be designed in a different way, but have the same purpose, to save resources for both the administration and the citizens (Denton & Gupta, 2010).

3 Theoretical Framework

3.1 What is reform

According to Bannink & Resodihardjo (2005), for a change to qualify as a reform, it has to fulfill certain criteria. These criteria are threefold. First, the measure has to be intended, which means that it is the result of conscious decision-making and planning processes and the possibility of alternatives was taken into account and developed as well as, if applicable, that the concerning legislation was passed in parliament. Second, the change has to be fundamental, which means that the reform is accompanied by a deviation from existing paradigms and structures and goes beyond a simple change for the sake of just changing something, but instead really influences the mindset of how people go about their tasks. Third, the measure results in changed policies and organizational structures, which means that the steps taken deeply affect the way an organization works and deals with daily business.

Therefore, in this work, reform is regarded as the conscious and intended decision to change existing structures and policies in a way that both touches on internal processes of an organization and is observable from the outside at the same time.

In this specific public sector domain, change will happen in minor steps through incrementalism. However, over time, continuous, incremental change leads to bigger change as well. Some scholars say that especially the public bureaucracy sector is characterized by incremental change. That is because, as the section below will explain, a disruption in the policy-making process is highly unlikely and therefore reform will take place gradually.

3.2 Factors that hinder and enable reform

The overall theoretical framework, which will be used to analyze the German Cities and compare them to one another in terms of implementation of e-Government, was developed by Bannink & Resodihardjo in 2006. It divides influential factors for reform into barriers and facilitators. The whole analysis will take an institutional approach to reform, as it focuses on a public agency which has implemented a new policy and looks at the way it has done that.

Barriers		Facilitators	
Opportunities	**Preferences**	**Structure**	**Agency**
Decision-making structures. Policy inheritance. Lock-in.	Paradigm, routinization, and internalized goals. Reform is disruptive. Vested interests and benefits from status quo.	Diminished barriers, such as a disruption in the policy-making process and the decline in support for the policy inheritance.	Change of preference. Leadership. Entrepreneurship. Go with the flow. Find support.

Table 1 Barriers and facilitators to reform (Bannink & Resodihardjo (2006) The Myth of Reform, Chapter 1, table 1.1 on page 12)

Table 1 summarizes the barriers and facilitators of reform and provides a short overview of the most important factors. Those factors will be more closely examined in this section. Barriers are factors which prevent reform from taking place, whereas facilitators are aspects that enable reform and make change possible.

In order for change to happen, barriers have to be diminished. Those barriers can be loosely divided into two groups. Opportunity barriers are more concerned with the internal structures of the organization itself such as decision-making structures (veto-points) and policy inheritance (path dependency). Preference barriers on the other hand focus on the individuals working for that organization and their behavior based on the organization's norms and values. This type of barrier includes routinization, vested interests and benefits from status quo, just to name a few examples.

Facilitators can be split into two groups as well, of which the first one, structural facilitators, again is more concerned with the organization's structure. This can be extended to a change in the policy-making structure or an overall decline in support for the existing policy. Agency facilitators on the other hand look at the role individuals can play in the change process, including leadership style and finding support.

While research by Heyse, Lettinga & Groenleer (2006) has shown that structural (opportunity) barriers often remain in place during reform, preference barriers often diminish during the process. Thus, the authors conclude, it might be easier for reformers to focus on preference barriers to facilitate the change, since studies have shown that even if structural barriers can be altered, but the paradigms stay in the same place, the consequence is that the reform is difficult to enforce. Therefore, as long as preference barriers remain in place, reform is unlikely to even occur (with

an observable impact). To put it short, agency dominates over structure (Bannink & Resodihardjo, 2006).

Even though the general outline is based on Bannink & Resodihardjo's (2006) work, it is enhanced with the publications of other scholars such as Anthopoulos et al. (2007) or Grandia (2015). Furthermore, some other researchers' findings were considered as well, many of which studied change in the private sector. Those models often can be applied to a certain extent to the public sector, as long as the specifics of the public sector are kept in mind. The following section will first take a closer look at the various types of barriers to reform and later on examine the numerous facilitators in greater detail, all including examples of how these could be involved in a reform.

3.3   Barriers to Reform

Barriers to reform might also be called stability barriers, since change always destabilizes. As said, they are split into two subgroups, opportunity barriers and preference barriers.

Opportunity barriers are more of a technical nature, which make the push for reform impossible because of existing organizational structures, whereas preference barriers can be applied to individual actors who actively resist change.

Both types of barriers often interact, and are not present independently, thus: "*In short, institutions produce a double set of stabilizing factors that create barriers to reform: institutions function against the emergence of preferences promoting reform while at the same time limiting actors' capacity and opportunity to push for reform*" (Chp.1 p.7, Bannink & Resodihardjo (2006)) Those people, who are unwilling to reform, for whatever reason they have, will form an anti-reform coalition and try to block the proposed change.

For most reforms in the public sector, there is a wide variety of barriers to reform, both of the opportunity type as well as the preference type. These barriers come in many different shapes and colors and the e-Government transformation is no exception.

3.3.1   Opportunity barriers

Opportunity barriers are institutional factors that hinder reform. This includes decision-making structures as well as general structures of procedures. This includes structural limitations that make the push for reform harder (Bannink & Resodihardjo, 2006). These barriers can mean

that people who want and/or support change do not even get the chance to pursue their reform goal because the structural shape of the organization includes actors or policies at crucial points, that block change.

3.3.1.1 Decision-making barriers

Each decision-making point is a potential veto point. Therefore, at every single one of them, resistance to change may occur, since actors have only limited leverage. Important with regard to this type of barrier is the number of veto points a decision has to overcome, because the more veto points there are in a chain of decision, the less likely the reform is to become reality. This can for example relate to decision-making rules within the organization, but to the political system surrounding it as well. Every veto point is the opportunity for an individual to stop or change the proposal. Therefore, especially concerning the German administrative organization as a federal republic, the political structure makes a difference, since a federal system tends to offer more veto points than a centralized system, there are the ones within an organization, but also at the federal, regional and local level (Steinmo & Watts, 1995).

The integration of e-Government services may lead to internal power conflicts within the organization between departments over control over services. If one departmental does not get involved enough in the policy-making process, but another department just makes decisions without involving them in it, they will try to use their veto power to block the new policy, which in this case would be a digital innovation. This is why interdepartmental communication at an early stage is already crucial (Layne & Lee, 2001), since the multiple veto points a federal system offers because of highly fragmented decision-making structure otherwise makes reform very difficult to pursue.

However, for this particular case study, this might not be as relevant, since as the selection criteria for the policy analyzed (online appointment) was that this service is very basic. This means that his policy does not take away power from people at veto points, so a decision-making barrier should not be much of an issue in this policy reform. Furthermore, even though Germany is a federal republic, because of the right of local self-government, external actors do not have veto power.

3.3.1.2 Policy inheritance barriers

In addition, opportunity barriers are also concerned with policies the organization built in the past and now limit options to a certain frame as a result, which is called policy inheritance, a form

of path dependency. This can relate to for example existing laws made by the previous government, which now prevent the organization to reform in a certain way. In addition, obligations are inherited as well from the previous leaders (Bannink & Resodihardjo, 2006).

A popular example within reform literature is the introduction of the QWERTY keyboard. Introduced in the beginning to slow down typing speed, typists got used to that specific form of keyboard and thus it had to be kept that way and is until today (Marier, 2012).

3.3.1.3   Policy lock-in barriers

Another possibility of an opportunity barrier is policy lock-in, which is also a type to path dependency, but more concerned with political options decision-makers have (Bannink & Resodihardjo, 2006). This describes a situation in which past decisions and/or policies (possibly also by a different administration) force current decision makers to follow a specific way to continue in the present. Especially financial resources can also be limited because of sunk-costs, when past financial investments are still binding resources in the present. This can be the case because too many resources have already been invested to support a certain way, which can be especially problematic, since current laws have to be upheld as well, which might have been created to support the way the policy is carried and out and thus making change even more difficult to achieve (Liebowitz & Margolis, 1995). Because of the choice of cases, which takes place post-implementation, policy lock-in could by default be dismissed as a barrier, since the reform did take place.

3.3.2   Preference barriers

The other type of barriers to reform are called preference barriers and can be described by the theory that actors act according to a logic of appropriateness, and this appropriateness is shaped by the individuals' normative and cognitive frameworks, their preferences and their views of the world, which furthermore is also stipulated by the organizational culture (also called policy paradigm). In short, individual preferences according to their appropriateness hinder change. These can for example be routines and standard operating procedures in policy making of the administration. It can also be about values within the organization about what kind of behavior is acceptable. Since actors are used to those values and preferences, they are unlikely to support change that opposes those values and instead favor proposals that do, which often is congruent with the status quo. This in turn leads to the problem that the more a reform proposal differs from

existing norms, the harder it will be to make that proposal reality (Bannink & Resodihardjo, 2006). Since especially the public sector is very risk-averse, the ways that have already proven to work are preferred over experiments, thus reform may be harder to instill (Bellante & Link, 1981).

3.3.2.1   Paradigms and routinization barrier

In short, paradigms determine an individual's perspective on what they deem good and bad action and this also influences what kind of change they support. Leaders of organizations want to prevent a disruption of the values of their subordinates and the policy sector as a whole. In addition, people have invested resources in the organization and thus are opposed to change which would nullify their investments. They also might benefit from the status quo in terms of for example position power, and are reluctant to give up that kind of influence.

Relating to paradigms is routinization. This describes the fact that employees are used and were trained to do tasks in a certain way, which is very difficult to change. Change requires extra effort employees have to invest, so unless they are convinced that the reform is necessary, they will be reluctant to go the extra mile (see also 3.3.2.2 disruption) (Hannan & Freeman, 1984)

One form of routinization is that the exchange between parties (the citizen and the public servant) has always been somewhat personal, be it over the phone or actually in person, now it is becoming completely anonymous, via the medium of a machine. That might go against personal values of employees, who distribute their resources according to who they consider a worthy client and who is deemed an unworthy clients, which might become more difficult to do if there is no or only limited personal contact and thus they might try to block the change as well (Maynard-Moody & Musheno, 2009).

An issue especially with older employees could be that they simply do not want to work with the new technology and do not have any motivation to learn the new skills necessary (in this case it might be working with new software). This could be broken down into a "we have always done it this way mindset" paradigm, and will lead to these employees trying to block the change (Anthopoulos et al., 2007).

3.3.2.2   Disruption barrier

In addition to that, reforms are upsetting and unsettling for individuals, especially among leaders, since they want to protect their policy sector because of predominant values and stay consistent with those that already existed in the past. Furthermore, individuals are used to things

being done in a certain way, and reform would require them to learn a different way, which will result in requiring extra effort, so resistance to change is present from this side as well (Resodihardjo, 2017). To illustrate this with an example, a new form of financial student aid is introduced. This could mean that there have to be new forms and documents to be filled out. Since this is usually a rather complicated procedure already, now both applicants as well as civil servants evaluating who is granted a student loan have to learn a whole new way of procedure. This slows processes down, especially in the initial phase, and thus disrupts the existing way of doing things, which could cause resistance to change.

3.3.2.3   *Vested interests and personal benefits barrier*

Vested interests refer to a mindset of employees who will oppose change because they have invested personal resources (time, network, staff, knowledge) in the previous policy that is now planned to be replaced. This change would render their investments useless, so they will try to block reform (Bannink & Resodihardjo, 2006). This also relates to the previous points, reform is of a disruptive nature and employees have invested their resources to incorporate routines, so a new form of customer service could lead to opposition for this reform because civil servants have vested interests in the old system.

A personal benefits barrier describes employees that resist change because they benefit from the status quo. This can be in financial form (e.g. wage) or position power for example. If the proposed reform reduces those benefits, the civil servants affected by it will engage in anti-reform activities (Bannink & Resodihardjo, 2006).

3.4   Facilitators of reform

Given that there is a great number and variety of barriers to reform, reforms nevertheless do take place, as a number of changes have taken place in the public policy sector in the past and still do. Successful reform can be achieved through a variety of measures, which are called facilitators of reform.

With regard to facilitators, those can be divided into structural and agency facilitators. Structure focuses on shifting barriers such as a disruption in the policy-making process, which leads to decision-making barriers and paradigms shifting as well, and since these usually prevent reform, at that moment reform becomes more likely. This disruption leads to destabilization of

otherwise hard to overcome barriers and makes the whole surroundings softer and easier to modify.

Agency facilitators are concerned with individuals fighting to implement changes and focuses on their qualities such as leadership and finding support.

Especially in the administrative context where this change is happening, the public sector holds a monopoly over the services it offers and thus no rapid change is necessary for survival, as it is in the business world, which is why change is more likely to appear in small, incremental steps gradually over time (Anthopoulos et al., 2007).

3.4.1   Structural facilitators

Structural facilitators are the institutional counterpart of opportunity barriers. They are concerned with changes in the decision-making structures and chances for reform occurring because of a change in the system (Bannink & Resodihardjo, 2006).

3.4.1.1   Disruption in the policy-making process

In terms of structural facilitators, one particular aspect that is important for reform studies, is an event that disrupts the decision-making process in the form of for example, an election. This is often referred to as a punctuated equilibrium, which is characterized by long periods of stability and incrementalism, disrupted by the election campaigns of the candidates becoming polarized among the general population, often through the media. This in turn leads to the challenging and changing of existing policies, because it forces actors to take action in order to ensure reelection (Baumgartner and Jones, 1993). This disruption often opens up a window of opportunity, which then has to be seized by actors to make a change happen. There can be other reasons that cause such a disruption of incrementalism, for example the awareness that the policy sector has malfunctions, which then results in negative media coverage and thus people involved with the organization, either from the outside (politicians) or the inside (employees/leaders) will push for change in order to resolve the crisis. Such a crisis always leads to diminishing support for the status quo, and thus said window of opportunity opens up (Kingdon, 1995; Keeler, 1993). However, just because such an opportunity presents itself, this does not incline that change automatically takes place, instead this window has to be seized since barriers to reform are lowered during that time. There are various types of crisis that might spark a punctuated equilibrium.

Nevertheless, punctuated equilibrium theory will not play a role in this study, as crisis situations that open up a window of opportunity will not occur in a way that forces public administration to implement the possibility to schedule appointments online. One reason that causes a window to open are elections, but civil servants within the local bureaucracy are not elected, so this does not apply. Furthermore, it is tough to imagine that societal dissatisfaction with waiting times will rise to such levels that it pressures politicians into becoming active from the outside and in turn forces the organization to change.

3.4.1.2   Decline of support for inherited policies

In the definition of Bannink & Resodihardjo (2006), decline of support for policy inheritance is also a reason that can cause a window of opportunity to open. However, this is more focused on societal reasons like protests as well and not concerned with reform initiated by people, but rather reform made possible by changing structures.

As for declining support for policy inheritance, it can be seen as part of a disruption in the policy-making process, which, as the section above pointed out, is unlikely to occur in this context and thus it will not play a role in this study. Furthermore, as it was pointed out, this is a new policy that does not really have a predecessor (before, there were no appointments possible at all), so policy inheritance is not applicable in this case either, since there is no policy that could be inherited.

While these factors mainly represent structural prerequisites to make reform possible, the next section is more concerned with people's attitudes towards change and how those have to be altered in order to facilitate the reform successfully. Decline of support for the inherited policy can also be caused by a change of preference of the people working for the organization, as the next part will present in detail.

3.4.2   Agency facilitators

Agency is more concerned with the actual reform process, such as actors' ability to make use of the opportunity through their leadership or entrepreneurship. This also entails that people's preferences are changing as well, for example when they come to realize that the current paradigms, policies and/or values do not work adequately anymore (Bannink & Resodihardjo, 2006).

3.4.2.1   Change of preference

Change of preference means that people within the organization, it can be both employees as well as leaders, are no longer are satisfied with the current policy. This can play a crucial role, it is often a reason for the call for change. A wide range of causes can serve as the initiator for this facilitator, for example a new head of department within the city administration, who wants to introduce NPM measures, in order to measure performance better and reward motivated employees. If a lot of people on the workforce realize that there is a more comfortable way for them to go about their work, they will support the existing policy less and demand change or at least they will not try to block change (Bannink & Resodihardjo, 2006).

3.4.2.2   Leadership

A major aspect of agency facilitators is leadership. However, which leadership style is chosen by the individual taking the role of the change agents (bottom-up / top-down) largely depends on the level they work at and which role they have. It can either be a senior manager from the inside of the organization (bottom-up), involving the employees in the reform process or a politician leading from the outside (top-down), dictating which changes have to be made. There are two types of leaders when it comes to reform, the first ones are called reformist leaders, since they are in a position where they can always push for a change if they feel the need to (position power). The other type of change agents are entrepreneurs, which are examined section 3.4.2.3 (Bannink & Resodihardjo, 2006).

Bass & Avolio (1994) state in one of the most influential works about leadership theory that a transformational leadership style can be used to engage employees in the change process. Leaders try to influence their subordinates by attempting to fundamentally change their goals and values. To do so, they try to inspire employees and motivate them to see the advantage of change. Furthermore, the leader serves as a role model for his employees. He also stimulates them intellectually, which means he challenges subordinates to engage actively and participate in the change process. In addition, employees are not all treated in the same way, but every single one is treated in a way that brings out the best performance of each individual.

As Sabatier (1986) states, the central actors who actually implement the reform later on and work with it are usually the employees who are not involved in the planning of the new policy. Therefore, it is important during the drafting of a new policy, to involve those who will later work with it, in the planning process. At that stage, it is important to constantly develop and share the vision of the future with employees, which positively influences the employees' attitude towards

change (Parish, Cadwallader, & Busch, 2008). O'Brien (2002) takes this even further, according to this research, active participation of employees is most important in the change process, workers perform best if their responsibilities are extended with upward problem solving and downward communication. This also includes task participation and teamwork combined with increased self-management.

If change agents are more proactive and involved in the reform process, the results have a higher chance of success. In addition, the change agents will not always do the same things, their role also depends on the current stage of the reform process. Reformers also will go with the flow, instead of trying to be trendsetters and try out an entirely new way, especially in a non-local context, since failure otherwise can be extremely costly. (Grandia, 2015).

To sum up, to facilitate change, a leader should do two things to support reform efforts. The first is to use his/her position power to push for change. This role can both be fulfilled by someone from inside the organization as well as the outside. The second thing is that this leader should (actively) involve employees in the change process and communicate the need for reform, so that they do not try to block it or in turn even support it.

3.4.2.3   Entrepreneurship

Policy entrepreneurs play a big role in Kingdon's (1995) work, one of the authors Bannink & Resodihardjo (2006) base their concept of structural facilitators on. In this context, a policy entrepreneur is a person who seizes the opportunity to push for change, thus is somebody who uses a window of opportunity. This does not have to be somebody in a leading position, but can also be an individual who realizes the right timing to push for change, but doesn't necessarily have position power, instead he invests personal resources like money, time and his network to realize reform. As pointed out in the previous section, since there is no window of opportunity in the case of implementing an online appointment scheduling system, and thus the facilitator entrepreneurship was not important for this case study.

3.4.2.4   Go with the flow

Literature states that if the general mindset in a sector temporarily deems a behavior that differs from the regular patterns as acceptable, change agents can use that momentum if it serves their reform purpose and push for change within that limited time frame (Reiss, 2012). In the context of reform studies, this could for example be a change agent pushing for additional air filters

in cars, whenever there is a public discussion about environmental protection going on, because of temporarily increased support for that issue.

3.4.2.5   Find support

There are various stakeholders involved in the development of e-Government, Rowley (2011) states that since the public sector is so complex, there is a wide variety of actors that want to shape it in one way or another. Several studies of organizational change literature (Fernandez & Rainey, 2006; Kotter, 2007) point out the importance of finding support both inside and outside of the organization and make them see the need for change. On the outside, there are politicians, who function as the elected heads of the local administration, and thus have the legitimation of the people through election to act on their behalf. If the citizens demand online services of the bureaucracy, politicians are likely to act as leaders in the quest for public sector digital transformation in order to ensure reelection.

On the other hand, inside the organization, senior executive support is needed, since reform without the consent of the high-level employees is not possible, also because they have the needed resources like money and staff at their disposal. During the implementation process, all departments of the organization should be involved because this will in the long run facilitate employees working better the new policy (Burn & Robins, 2003).

3.5   The ambiguity of reform analysis

Reform plans must be unambiguous, clearly defined, focused and include proper planning instead of being too broad (Bannink & Resodihardjo, 2006). One major issue with reform analysis is that since there are so many different factors included, both within the organization as well as its environment, it is very difficult if not impossible to find out all the relevant criteria that lead to a reform taking place, it often can be a combination of various factors. This is called equifinality, a situation where a number of different factors can each lead to a specific outcome (Gresov & Drazin, 1997). Moreover, some aspects cannot be clearly fit into one category only, there might be facilitators for example that have characteristics that fit them into two different sections at the same time. Even though it is hard to find out which barriers exactly were overcome and which facilitators played a role, scholars (Dinwoodie, Quinn, & Rabin, 2015; Nadler & Tushman, 1990) agree that leadership is one of the most crucial factors when it comes to change in an incrementally changing policy sector.

Current literature does not define the exact necessary and sufficient conditions for reform. It is unclear, for example, if: barriers need to diminish in order for reform to happen, which barriers will diminish under which circumstances, how remaining barriers are overcome, and how reformers can use the window of opportunity. Moreover, the literature is vague in addressing the extent to which the facilitators listed are to amalgamate if reform is to occur. (Chapter 1, page 12, Bannink &Resodihardjo, 2006)

To put it short, two things are necessary for reform to happen: barriers have to diminish and weaken the institutionalized structure, while an actor (often someone in a leading position) recognizes and seizes facilitators, and uses them to push for change.

In terms of structural barriers, there are decision-making barriers which become harder to overcome with each additional veto point involved in the process. There also is policy inheritance in the form of for example the QWERTY keyboard, whereas policy lock-in, the third type of structural barriers can be caused by sunk costs.

Potential preference barriers included the not wanting to work with new technology because civil servants could no longer differentiate between worthy and unworthy clients. A disruption barrier could for example be that reform would make a reorganization of the institution necessary, and thus people will resist change. Personal benefits of is another form of preference barrier, as the reform might involve reducing employees' salaries, so they will try to block the change.

A number of potential facilitators were identified as well, structural facilitators however are not expected to play a role in this study, because a disruption of the policymaking process is highly unlikely at the level of bureaucracy that is being studied. In addition, this was a new, so declining support for inherited policies is not expected to be a facilitator in the change process. This disruption of the policymaking process could be caused by an election or societal crisis.

Agency facilitators were expected to be far more important in facilitating this reform. A change of preference could for example be the introduction of NPM measures to improve performance. Leadership probably played an important role too, the individual in this position had to be a person who holds sufficient position power to push for change at times and made use of this power. The change agent should involve employees in the change process, and communicate the need for reform. Entrepreneurship, which requires a window of opportunity to push for reform, was not likely to appear in the analyzed context. Another potential facilitator was to go with the flow, which means that for example there a general reform of environmental protection was going on and while that reform was being implemented, the change agent used the chance to implement the own desired reform as well. In addition, it could be helpful to change efforts if there was support

from involved actors, such as local politicians backing the digital transformation of the public sector.

Whether a reform is viewed as a disruptive change also depends on the definition of reform, because according to Kickert & van der Meer (2011), incremental change can lead to "real change" over time. This case of gradual change they call conversion. This works according to three principles, developed by Pierson (2004), which are cumulation, since many small changes ultimately lead to large radical change, threshold, because incremental change at certain point passes threshold and then turns into radical change and causal chains, which means one small change leads to the next small change and so on, ultimately leading to radical change.

It is important to know that especially in the public sector, incremental change is often favored over reform, because it gives people more time to adjust and paradigms do not have to change as drastically over a short period of time. Furthermore, since a state's administration has to fulfill so many different tasks simultaneously, the major focus of bureaucrats and politicians will always be on the most urgent cases, which again can be explained by the punctuated equilibrium theory. According to Baumgartner (2005), reform needs both leadership and a favorable environment, thus the readiness of the organization to change its paradigms, including its employees.

Type of barrier	Example
Decision-making	Veto points
Policy inheritance	QWERTY Keyboard
Policy lock-in	Sunk costs render reform impossible because of past investments in another policy
Paradigm & Routinization	No distinction between worthy and unworthy clients possible
Disruption	A new form of student loans
Vested Interests & Personal benefits	Reduction of employee wages because of reform

Table 2 Potential barriers to reform in this case study (Author, supported by information from Bannink & Resodihardjo (2006))

Type of facilitator	Example
Disruption in the policymaking process	An election
Declining support for policy inheritance	(societal) crisis because of an existing policy
Change of preference	Introduction of NPM measures
Leadership	Someone in position power pursuing change to optimize output
Entrepreneurship	Someone without position power seizing a window of opportunity
Go with the flow	A reform "climate"
Find support	External push for reform (city council/mayor etc.)

Table 3 Potential facilitators of reform in this case study (Author, supported by information from Bannink & Resodihardjo (2006))

4 Operationalization

Variable	Indicators
Policy inheritance	Two parallel appointment systems
Policy lock-in	Lack of funding
Disruption	Change of self-perception from civil servant to strict appointment service
Paradigm & Routinization	Outdated employee skills
Vested interests & personal benefits	Employees fear loss of job
Change of preference	Employees see an advantage for themselves Modernize bureaucracy A chance to increase efficiency
Leadership	Leading change from the top with position power Involving employees in the reform process
Go with the flow	Part of larger digital transformation program
Find support	External push for reform

Table 4 Potential barriers and facilitators that may play a role in the reform process under analysis (Author)

In total, there were two macro variables, which could be further split into four, respectively five, micro variables, which were each based on one to three different indicators. The first macro variable was barriers to reform (highlighted in red in table 4), the other one was facilitators of reform (highlighted in blue in table 4). This section will look at how the presence or absence or potential barriers and facilitators was measured in this case study. The first part explains the operationalization of barriers, the second part takes a closer look at how the potential facilitators are measured.

4.1 Potential barriers to reform

4.1.1 Opportunity barriers

A potential **inherited barrier** could have been problems integrating two different appointment systems into one architecture. A complication may have occurred when citizens became able to schedule appointments via different channels. If the appointment system was switched to handling everything with appointments, the administration may have had to turn people away if they showed up without a scheduled date. This was measured by checking whether walk-in customers were even possible anymore, and if yes, how they were fitted into the general calendar (Zacharias & Pinedo, 2013).

When a public service organization establishes online services, offline services have to stay operated as well (path dependency), creating two parallel systems (the "real" and a "virtual" administration (Anthopoulos et al., 2007)). Those systems might be vastly different, but still both have to be kept running. This might result in many difficulties regarding exchanging data between the services. In addition, this of course consumes a lot of additional resources. This could also be seen as a form of policy lock-in barrier, since the traditional (offline) service forced administrations to continue this path for at least until a sufficient number of people had adequate technological understanding and skill, of which older citizens tend to have less, as studies show (Westerman & Davies, 2000). Especially with regard to online appointment scheduling, it can be difficult to integrate online appointments with appointments made over the phone or in person.

Even though the previous section correctly pointed out that **policy lock-in** did not occur during this reform initiative, since otherwise it would not have happened, the analysis still looked at whether sunk costs played a role, in terms of whether past investments made the reform process harder by asking if additional resources were needed in order to facilitate the change or if funding was available right away out of the regular budget. E-government solutions often require considerable investments up-front, without results being visible right away. This includes money, but also if additional personnel was needed and if the change was carried out during the regular business hours or whether people had to facilitate the reform during overtime (Kertesz, 2003).

4.1.2 Preference barriers

Another potential barrier to reform, in the shape of a **disruption barrier** was that through the appointment system, civil servants may have had to get used to a different way of doing things.

Whether this played a role as a barrier to reform in this case is analyzed by looking if values or norms have changed for employees. This could also refer to the NPM approach that is increasingly transforming bureaucracy into a more effective and customer-friendly form (Naschold & Bogumil, 2000).

e-Government can be a complex field and employees might have had to get used to new and complicated software to work on their daily tasks. If they did not comprehend the program, they did not put a lot of effort into working with it. Computer programs are often hard to understand at first, which is why, especially in a professional environment, employees have to undergo training in order to be able to work with the technology supplied. Since learning new skills requires increased effort from employees, they might have resisted the change and thus this can serve as a **routinization barrier**, because they were already used to doing things in a certain way with a known program. To analyze whether this played a role in the reform process, it is looked at if civil servants even needed to learn to work with a new software or if that change just went on in the back-end

In terms of **preference barriers**, another one could be **personal benefits**. Employees saw having a job as one of the personal benefits of their position within the public administration. However, they might have feared that they would soon be replaced by technology, even though the online appointment system might not do that directly, this could be the first step in digitally transforming the whole public sector, making them obsolete and thus unemployed. In addition, e-Government policies are, among other reasons aimed at increasing efficiency, and part of that might be the reduction of jobs, so employees may have felt the urge to block that change. To measure this, it is looked at whether jobs were actually reduced, if civil servants resisted that change because of employment reasons and how their possible resistance could be diminished (Marchant, Stevens, & Hennessy, 2014).

4.2   Potential facilitators of reform

4.2.1   Agency facilitators

As the previous section explained, in order for change to actually happen, facilitating factors had to be seized. The first facilitator that may have occurred in this reform process is **change of preference**, which could come in different forms. The first one would be that

employees saw an advantage for themselves with the new policy, since they could better prepare for their daily tasks, since they now know what the next citizen wants and can already prepare necessary documents for example. In addition, employees might have felt that they could work more efficiently with the appointment scheduling policy, because it allows them to save time and thus be more productive. In addition, civil servants want what's best for the citizens as well, and the scheduling system helps customers save time too, so employees might have supported this change for this reason as well (Demmke, 2005).

It could also have been the case that executives' preferences changed, they might have intended to modernize bureaucracy. Since the public expects the bureaucracy to go with time and modernize as well, and the technical prerequisites were already present, and for example scheduling appointments with the doctor was no problem, citizens might have expected the same from their administration. It is without question, that sooner rather than later, all administrations have to implement e-Government solutions, so change agents might feel that this point is already now (Newman, 2000).

The third option goes in the same direction, it is also aligned with a change of preference by the executives. They might have felt that an online appointment system was a chance to increase efficiency. Since resources are scarce in the public sector, they have to be spent as well as possible. Especially with the introduction of NPM, bureaucracies had to become more efficient as well, and realize saving potentials, which could be a reduction of jobs or the decrease of time needed per case (Beck et al., 2017).

To analyze if and one which of those **changes in preference** played a role as a facilitator in the reform process, it is looked at what the municipality intended to achieve with the implementation of the online appointment booking and who initiated it (employees or executives).

Leadership, as previously stated, played a vital role in the change process. Therefore, a potential facilitator if this reform might have been leadership. The change process may have been led by someone in a senior executive position, that held sufficient position power, so somebody who could initiate a reform whenever he wanted. To determine what role leadership played, it is looked at who led the change process. The person in charge should have overseen the whole change process, possed expert knowledge about the technical challenges of a digital reform and constantly communicated with all parties involved (Horlacher & Hess, 2016).

In order to ensure a thorough and smooth transition of bureaucracy, it is not sufficient to let departments gradually deal with the digital transformation process themselves, because they have other tasks to fulfill, and public officials are often satisfied with the status quo and resist change (Bellante & Link, 1981). However, the leadership role could also have been assumed by the general leader of the bureaucracy, and it should still have been executed with openness and participation for all employees and everyone should have been allowed to bring their ideas forward.

Another important aspect of the **facilitator leadership** is to involve employees in the change process, literature states that employees should be involved as much as possible (Gilley, Gilley, & McMillan, 2009) so this is measured by the four stages of situational leadership developed by (Hersey et al., 1979). Delegating is the most cooperative style, where employees are basically on the same level as the leader. The next style is also more on the bottom-up side of leadership styles, the participative one, which describes a situation where the leader makes the final decisions, but still involves employees to actively contribute and bring their ideas and perspective to the table. An already rather top-down approach is the selling approach, where ideas and concepts are at least explained to the employees. The most top-down approach is telling, this is a style where the leader basically just says "this is the way we are going to do it, deal with it" without any explanation.

To "**go with the flow**" can often serve as a more passive facilitator of reform, that might have been seized by a leader, because it is only a temporary situation, and even though an executive with position power could reform at all times, it is easier if the general mindset is more positive towards the new policy. In the case of this reform, this could have been a larger digital transformation program initiated by for example the city council or the *Land,* since digital transformation has been an important topic in recent elections in Germany and some initiatives of that kind have already happened (see section 2.2). If such a program was started, the public opinion might have been more supportive of new e-Government policies and the leader recognized the optimistic mood and seized the moment to implement the appointment system since external support was at a temporary high. To measure this, it is looked at whether the online appointment solution was implemented as a single project or as part of a larger reform plan (Waller & Weerakkody, 2016).

To find out if **finding support** worked as a facilitator in this case, it is looked at where the decision to initiate an e-Government service originated in the first place. There are only two possibilities, the first one is that reform emerged from within the administration, such as for example a municipality wanting to modernize or presenting its customers an adequate service environment for the digital world of today. The other option is that reform was initiated by an external actor, who could for example have been a local politician, such as the mayor or city council. To analyze this, it is looked at whether the new policy showed signs of external actors' demand and at the same time, whether the administration itself pointed out that there was external pressure to reform (Fernandez & Rainey, 2006).

4.2.2   Summary of potential barriers and facilitators

The first of two potential structural barriers identified was characterized as policy inheritance, which meant that the administration had to keep the old channels citizens used to get public services intact, which were walk-in customers and appointments scheduled via the telephone. At the same time, the appointments booked online had to be integrated with the steering of the walk-in customers and that process may have caused complications. Another potential opportunity barrier in the form of policy lock-in was that because of sunk costs, funding was not readily available in order to implement the new policy, because resources were bound by previous policies introduced by the administration.

Three potential preference barriers were identified as well. A potential disruption barrier was identified by civil servants having to change their daily routines and learn a new way of doing things. Since this disrupted employee's values and norms, they might have resisted change because of that. The second barrier was more concerned with routinization, as civil servants were used to citizens only coming in without an appointment for many years and after the implementation people could schedule appointments. This may have changed the flow of customers and more importantly, employees may have had to be trained in order to work with the appointment software, because their previous knowledge was not sufficient anymore. Since training requires extra effort from employees, they might have tried to block the change because of that. The other potential preference barrier was also connected to employees blocking the change process, in that case because they may have been fearful of losing their job in the process of digital transformation, because of efficiency gains and thus resulting in layoffs. Furthermore, civil servants may have seen this as the first step of automatization and them being replaced by technology in the future, so they opted to already block the first step of that process.

On the other hand, the reform was implemented so in some way barriers had to be diminished and facilitators had to be present as well. The previous section identified no potential facilitators in terms of structural facilitators, since a public crisis and thus a window of opportunity was not realistic in the setting of citizen appointment scheduling. However, four different possible agency facilitators were established.

A change of preference may have occurred, either among the executives of the organization or its employees. Civil servants may have seen the possibilities in a positive light, an opportunity which would allow them to make better use of their time. In addition, leaders may have seen the chance to modernize their administration and give citizens better access to public services. In addition, their perspective could have been not so much on the citizens' advantage, but they saw the online appointment solution as a possibility to save resources and increase efficiency. It could also be the case that a combination of all those aspects positively influenced the reform process.

Speaking of leaders, leadership was diagnosed as another potential facilitator in the change process. The policy may have been implemented by a senior executive who held sufficient position power to just pursue the change against all resistance. In addition, the leader may also have used extensive communication with employees in order to make them see the need for change and support the reform process.

Another possible facilitator that was determined was more of a passive nature. There may have been a larger digital transformation program going on in the *Land* or the whole country, which was then seized to pursue change in the form of an online appointment policy in the local municipality.

Adding to external influences was the possibility that the whole reform process was initiated from the outside, in the person of for example the city mayor, who pressured the local administration into modernizing and thus, as part of this process, implement an online appointment booking system.

5 Methodological Framework

5.1 Research strategy

To study the implementation process of e-Government policies in detail, a comparative case study approach was chosen because of the high level of complexity this field entails. The implementation processes of Düsseldorf, Bonn and Nuremberg were analyzed and compared. A case study is a type of qualitative research. It is centered around a phenomenon in its natural context, which can be regarded as the case and is used to identify and classify problems. Since the implementation of an online appointment solution within a local administration cannot be reenacted in a laboratory, the real-life situation has to be analyzed. This gives the researcher no control to observe every possible angle of the issue at hand, because it is impossible to view the process isolated from its environment. Whereas a single case study analyzes only one issue in isolation, a multiple case study compares several cases with the aim to recognize possible patterns (Gerring, 2006).

5.2 Case selection criteria

After careful consideration, the possibility to book an appointment online upfront to schedule a civil office appointment was chosen. More specifically, the department that was analyzed was the *Einwohnermeldeamt (citizen registration office)*, the department which citizens have to turn to in order register after moving to a new address. As stated in §17 of the *Bundesmeldegesetz (Federal registration law)*, all citizens must register their new address with the *Einwohnermeldeamt* within a two-week limit after moving to that address. With the e-Government policy, it became possible in all three cities to book an appointment prior to registering physically in person, which is still necessary today.

While it is true that this is a rather simple e-Government service, it was very well suited for closer examination, since such a service has already been implemented several years ago by many German municipalities and thus the implementation process, which was the focus of this study, was already finished. Nevertheless, this e-Government policy was not a simple software update, but qualified as a real reform, especially in administrative terms, because it changed the way citizens interacted with their municipal administration.

The time frame of this study started with the idea of online appointment booking, meaning which actor initiated said reform, up to the completion of the process, when citizens were actually able to book appointments and employees had to start working with the new policy.

The cities chosen for the purpose of analysis were Düsseldorf, Bonn and Nuremberg. Since there is no published ranking from a public source in Germany on which municipalities are performing best in terms of digital transformation, several rankings from different public-sector consulting companies on this topic were compared. Among the most advanced municipalities in e-Government were the cities Berlin, Nuremberg, Bonn, Hamburg, Düsseldorf and Cologne (Muschter, 2015; PricewaterhouseCoopers, 2015). Of these leading cities, the administration of Nuremberg, Bonn and Düsseldorf all responded in a positive manner to being interviewed about the implementation of online appointment scheduling in the *Einwohnermeldeamt*. Another reason those cities were chosen is that they all have a comparably long history of e-Government, thus the implementation process was already completed long ago, which was the focus of this study. All the cities chosen had already been working with an online appointment booking for a considerable amount of time, in Bonn it existed since 2008, in its current form it has been operating since 2015. Nuremberg established the online booking in 2012 in the *Einwohnermeldeamt*, Düsseldorf did it in the same year.

Furthermore, the choice of Düsseldorf, Bonn and Nuremberg offers at least limited comparability, all cities have more than 300.000 inhabitants but less than one million. In addition, all three cities are university cities with a considerable academic population. Bonn and Düsseldorf are located in North-Rhine Westphalia, whereas Nuremberg is in Bavaria, but none are city-states.

Nevertheless, this indicated comparability does not mean that the same barriers and facilitators occurred in each case. Instead, some could have been influencing the implementation process in one way or another in just one of the cities. Especially facilitators are very complex to analyze, what works in one city to facilitate reform might not work in another city because of different contextual issues. There is an indication but using the same method does not guarantee success. It is important to note that this study did not aim at measuring how successful the implementation of the online appointment scheduling was received, but rather which steps were taken along the way in order to identify which factors influence the implementation process in both a facilitating as well as a hindering way.

5.3   Data Collection Method

The case studies were carried out through the method of semi-structured interviews, a type of interviews that allows for open-ended questions, but is more structured than an open conversation (Qu & Dumay, 2011). In addition, it is very difficult if not impossible to quantify barriers and facilitators, those factors cannot be described in a statistical analysis. The basis of the interviews were the findings of the policy framework and the theoretical framework in sections 2 and 3. In addition, the operationalization of variables in section 4 also contributed to the formulation of the interview questions.

In total, three German Municipalities were selected for the case study. The interviews were carried out in individual face-to-face conversations and took place in one session, with each having a duration between 60 and 90 minutes. In total, three interviews were led, one in each municipality. The conversations were held in the respective municipalities' city hall and the interviewees were the civil servants who were in charge of implementing the online appointment booking service (See Annex A). Interviews were all held in German Language. All interviewees received the questions two weeks prior to the interview appointments. In total, the questionnaire consisted of a total of 32 questions, spread across four different categories (see Annex B). All interviews were taped and later on transcribed.

The reason only three cities were chosen as the scope of analysis for this study was of a financial nature, since no funding went into this study, the researcher had to travel to each location to conduct the interviews with own funds. Including more cities in the analysis might have improved generalizability of the findings, however this would have come at the cost of reducing internal validity. In addition, policy implementation research is already a challenging field, and adding to that is the increased complexity because e-Government can be a highly technological field, it was also a reason of feasibility to only include three municipalities in the study. In addition, transcribing and coding interviews is a highly time-intensive process, for each 60 to 90-minute interview, there is a 20 to 30 pages transcript on average (Campbell, Quincy, Osserman, & Pedersen, 2013).

To choose the best cases applicable to serve the purpose of analysis, purposeful sampling was exercised. This is a sampling method in which the author selects the best cases available to make most use of limited resources and gather the best information possible. Theory however, was gathered *a priori*, so expectations were formulated that could then be tested in the case studies to determine whether those may be valid or irrelevant (Palinkas et al., 2015).

5.4 Reasons for choosing semi-structured interviews

A case-study approach consisting of semi-structured interviews was chosen because not necessarily a lot of people are involved in a change process, thus the individual perspective of the person in charge is especially important, also with regard to the crucial role of change agents. Furthermore, case studies are a form of qualitative analysis, therefore a qualitative data gathering method was required. Semi-structured interviewing, according to Bernard (1988), is best used when there won't be more than one chance to interview someone, which applies here. As Qu & Dumay (2011) state (page 246), citing Kvale & Brinkmann (2009) : "*semi-structured interviews […] often it is the most effective and convenient means of gathering information*".

Furthermore, e-Government policy is a complex field and semi-structured interviews allow for in-depth knowledge gathering (Harrell & Bradley, 2009). In addition, the interviewer and the interviewee can build up trust and thus the interviewee might give up information he would otherwise be reluctant to reveal. Also, the interviewer might not have included all possible explanations for a situation, and semi-structured interviews allow interviewees to add further detailed knowledge (Longhurst, 2003). As Opdenakker (2006) states, semi-structured interviews give increased flexibility to the interviewer and there instantly is the possibility to ask follow-up questions and closer examine areas of interest. In addition, the interviewer is able to interpret life from within an organization instead of an outside observer perspective, also because insiders often use their own "language" and through the nature of face-to-face open-ended interviews, they are given the possibility to shed light on their own way of thought and logic (Qu & Dumay, 2011).

5.5 Internal validity

Internal validity is concerned with applying the best available research method to the research question. Since the question aims at an in-depth analysis of the change process, a qualitative approach was the right choice. In addition, internal validity also looks at whether all possible other explanations for an indicator could be eliminated, thus rendering the findings true. This is a very complicated challenge in the field of social research, as the authors of the research model Bannink & Resodihardjo (2006) point out themselves. It's not feasible to account for all possible confounding variables, there are simply too many in the complex field of public sector research.

One downside of this research method, that could have negatively influenced internal validity is the fact that interviewees could have felt uncomfortable admitting that they had problems implementing the solution, because they feared it could reflect poorly on their reputation and they did not admit valuable insights. That's why it was especially important to add additional sources

to the research and not base everything solely on the data obtained through the interviews. This was done in this case study as well, for example protocols of the city council meetings prior to the implementation of the appointment policy were scanned to check whether there was any indication that suggests that reform originated from outside the local administration (Gerring, 2006).

This concern can be put into perspective by the fact that all questions were answered by all interviewees, all interviewees were willing to do the interview voluntarily and all interview partners agreed to have the interviews recorded (Barriball & While, 2006).

5.6 Coding and reliability of the interviews

According to (Campbell et al., 2013), reliability of research is connected to repeatability of results, meaning if the research would be carried out again under the same circumstances, the same results would occur. This is directly connected to the coding of the interview transcripts. There are three types of reliability, the first one is stability, which looks at whether coding changed over time, which was not the case in this research, since all interviews were carried out within nine days and transcribed and coded right after completion, so stability was present. Accuracy is another concept that is a type of reliability that this method included, it refers to looking at other codes in similar fields, which was done as well, by analyzing research such as the one of Burn & Robins (2003), who looked at e-Government implementation in Australia with the help of interviews. A possible downside of this thesis is that intercoder reliability could not be ensured because of a lack of resources. This refers to a concept where multiple researchers code the same transcript and then check if their coding schemes are similar. However, in this multi-case study, the only coder was the researcher. Nevertheless, coding was carried out in an as good as possible manner, codes were clearly defined and mutually exclusive. Furthermore, extensive literature research was carried out prior to conducting the interviews, giving the researcher an in-depth background knowledge about the topic (see sections 2 and 3). In a first round of coding, transcripts were coded into barriers and facilitators, whereas in the second round cycle, more attention was paid to details like "employee attitude" (Saldana, 2015).

5.7 Limitations of research method

Like all other research methods, case studies conducted with semi-structured interviews have their shortcomings as well, which have to be accounted for. Probably the most important

weakness from a scientific perspective is the limited generalizability case studies allow for and thus results gathered are not representative of the whole population (Adams, 2015).

While internal validity was ensured using semi-structured interviews in a comparative multi-case study, external validity was not as applicable. Since only three cases were analyzed, generalizability was limited because the sample was very small. In addition, municipal administrations are such complex organizations with many stakeholders involved, so that each city is under its own specific environmental conditions. What adds to that is the fact that Germany is a federal republic, so the *Länder* laws may be different with regard to important aspects of e-Government solutions. Still, findings may give a general indication of which barriers might occur during the implementation process, but it cannot be said with certainty that what worked in Bonn might also work in Stuttgart for example. Chances that results are applicable to other German Cities are higher if the other town is located in the same *Land* as one of the ones studied and which are as similar as possible in terms of size and organization, among other things (Rohlfing, 2012). To aid with that purpose, each interview partner was asked the exact same questions so it would be easier to highlight possible similarities and differences, which was also helpful for the aspect described in section 6.6, coding of the interviews.

Another pitfall of interviews is that the Interviewee as well as the interviewer are biased, which can be difficult to account for (Qu & Dumay, 2011). Especially the interviewee can be worried about reputation and thus might be tempted to present his cause in an overly positive manner and be uninformative about negative aspects, which are just as important to the analysis. That's why it is crucial to ensure that confidentiality is given at all times (Alshenqeeti, 2014). Another negative aspect of interviews this article mentions is that researchers conducting case studies risk overinterpreting the gathered data, which reflects back on the limited generalizability. One other disadvantage, was that interviews were only conducted with civil servants who led the change process, the perspective of particular groups was excluded, such as the view of regular employees, which might have differed from what the interviewee described as employee attitude towards the change.

Relating to interviewer bias, it is of utmost importance that the interviewers critically reflects on gathered information and does not take everything for granted. Another, more technical disadvantage of conducting detailed interviews is that this data collection method can be very time-consuming (Adams, 2015).

6   Case Studies

6.1   Booking an appointment online in Düsseldorf, Bonn and Nuremberg

The possibility to book appointments online can be a considerable advantage for citizens, as it is not unusual to spend a considerable amount of time waiting when visiting a public office, until a public service can be obtained. This policy may offer a chance to reduce this time period drastically, which could result in happier citizens. In addition, people could plan their day better, since they know when their appointment will be and they do not have to include unknown waiting periods for that. Furthermore, citizens can plan ahead and thus interact with the local administration by being able to schedule an appointment at any time of the day or night, and they do not have to adhere to the opening hours of the public office in terms of booking an appointment.

The next section will illustrate how booking an appointment works in detail in each of the municipalities with the visual aid of screenshots of the booking procedure and how appointments are confirmed, what additional information is provided such as documents. Afterwards, the possible findings described in section 4 are tested with the help of the interview insights and other documents. The reader should note that all quotations incorporated in the following section (6.3) were obtained during the interviews and were translated from German to English for reasons of legibility. However, this also means that not all quotes could be translated exactly word-for-word, because of language differences.

Before summing up the findings, a short paragraph explains the policy design of the online booking policy of each of the cities studied with regard to citizen-centered policy and the success rate of being able to save resources. This might not be very relevant to the implementation process itself, but could give some helpful insights to other cities wanting to implement such a solution, which was one of the aims of this thesis.

6.2 How booking an appointment online works in the chosen cities

Panel ①

Dienstleistung Standort Datum Uhrzeit Kontakt Aktivierung

Folgende Anliegen können ohne Termin erledigt werden: ①

Online-Anliegen

Bitte wählen Sie eine oder mehrere Dienstleistung(en) aus und benennen die Anzahl der davon betroffenen Personen.

Bitte beachten Sie, dass nur Ihre gewählten Anliegen in der von Ihnen angegebenen Anzahl bedient werden können. Klicken Sie auf das Anliegen um weitere Infos zu erhalten. Sie können auch nach einem Umzug aus einer anderen Stadt nach Bonn, oder beim Verlust Ihrer Dokumente (Personalausweis, Führerschein, Fahrzeugpapiere) alle Anliegen mit einem Termin erledigen. Wählen Sie hierzu bitte die entsprechenden Themen aus den jeweiligen Dienstleistungen aus, bevor Sie auf „Weiter" drücken und zur Terminauswahl gelangen.

Ist der nächste angebotene Termin für Sie zu spät? Je nach Personalkapazität werden laufend tagesaktuelle Termine freigeschaltet. Stornierte Termine werden automatisch wieder zur Verfügung gestellt.

Es wird dringend empfohlen, morgens nicht ohne Termin ins Dienstleistungszentrum zu kommen. Insbesondere die frühen Termine sind in der Regel bis 09:30 Uhr ausgebucht. Vereinbaren Sie Ihren Termin bitte online oder telefonisch unter 0228 – 77 6677.

Haben Sie einen Notfall bzw. ein besonders dringendes Anliegen, z.B. nach dem Verlust Ihrer Ausweisdokumente oder Fahrzeugpapiere? Dann können Sie auch persönlich ins Dienstleistungszentrum, Berliner Platz 2, kommen. Bitte planen Sie dabei aber längere Wartezeiten ein. Unter Umständen kann es passieren, dass Sie - je nach Verfügbarkeit – erst einen Termin für einen Folgetag erhalten können und erneut anreisen müssen.

Bitte wählen Sie Ihre Dienstleistung aus	Ihre bisherigen Angaben
Dienstleistungen	Dienstleistung -
Führerscheinwesen	Standort -
Kfz-Zulassungswesen	Datum -
Meldewesen	Uhrzeit -
0 ▼ Abmeldung	
1 ▼ Anmeldung	

Panel ②

0 ▼	Hundesteuer/ An- und Abmeldung
0 ▼	Jugendarbeitsschutzgesetz/ Untersuchungsberechtigungssche
0 ▼	KfZ-Papiere / Adressänderung (nur bei Umzug innerhalb von Bonn)
0 ▼	Kinderreisepass-Antrag (zum Abholen keine Terminvereinbarung erforderlich!)
0 ▼	Kinderreisepass- Verlängerung/- Aktualisierung
0 ▼	Klärung Personen-/Wohnungsdaten
0 ▼	Meldebescheinigung, Aufenthaltsbescheinigung, Lebensbescheinigung
0 ▼	Melderegisterauskunft/ einfach
0 ▼	Personalausweis- und Reisepassantrag erstmalig nach erfolgter Einbürgerung
0 ▼	Personalausweis-Antrag
0 ▼	Personalausweis-Antrag (evtl. inkl. vorläufiger Personalausweis-Antrag) erstmalig nach erfolgter Einbürgerung
0 ▼	Personalausweis-Antrag und vorläufiger Personalausweisantrag
0 ▼	Reisepass-Antrag
0 ▼	Reisepass-Antrag erstmalig nach erfolgter Einbürgerung
0 ▼	Schwerbehinderte/ Verlängerung Schwerbehindertenausweis
0 ▼	Ummeldung

②

Weiter

Panel ③

Dienstleistung Standort **Datum** Uhrzeit Kontakt Aktivierung

Bitte wählen Sie ein Datum aus. Anschließend werden Ihnen die freien Uhrzeiten vorgeschlagen, an denen Ihr Anliegen bearbeitet werden kann. ③

Juni 2018   «   »   Ihre bisherigen Angaben

Mo	Di	Mi	Do	Fr	Sa	So
				01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Dienstleistung
1 x Anmeldung
Standort
Dienstleistungszentrum im Stadthaus
Datum
-
Uhrzeit
-

Panel ④

Dienstleistung Standort Datum **Uhrzeit** Kontakt Aktivierung

Bitte wählen Sie eine Uhrzeit aus. Anschließend werden Sie gebeten, Ihre Kontaktdaten einzutragen. ④

Freie Termine am Freitag, 29.06.2018   Ihre bisherigen Angaben

Zeitraum	freie Termine
08:00-08:59 Uhr	08:00
10:50-10:59 Uhr	10:50
11:45-11:59 Uhr	11:45 11:50
12:35-12:59 Uhr	12:35 12:40

Dienstleistung
1 x Anmeldung
Standort
Dienstleistungszentrum im Stadthaus
Datum
29.06.2018
Uhrzeit
-

Picture 1 Appointment booking in Bonn A (Screenshot from the city homepage of Bonn)

Picture 2 Appointment booking in Bonn B (Screenshot from the city homepage of Bonn)

The appointment booking website of the city of Bonn is located on the regular city homepage, which is also where the screenshots above where taken[1].

The design is kept in similar colors to the rest of the homepage and the city logo. Before making an appointment, the user has to choose which location he wants to visit, there is the main office and two smaller branch offices. Instead of manually entering that URL, the appointment website can also be found via google and with three clicks from the landing page of the city homepage. First, the user chooses the service he needs, in this case "*Anmeldung*" (registration) (1). If the citizen clicks on a service, he lands on a new page, with more information about that service. The user can select multiple services if needed and then clicks on *"Weiter"* (continue) (2). On the next site, the next possible dates when an appointment slot is open are shown, while on the right side it says for which service and in which location (3). After selecting a date, the user can select a time for his appointment (4). To finish the process, the citizen has to give his first and last name as well as his email address and agree with the data protection regulations (so that the administration is allowed to save the citizen's data for the purpose of scheduling an appointment) (5). The citizen then receives an email which confirms the booking and again lists date and time as well as service selected. In addition, the call-up number is given and a link to cancel the appointment, if that should become necessary.

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[1] City of Bonn, n.d., Retrieved from: https://netappoint.de/ot/stadtbonn/?company=stadtbonn on 03.05.2018

Bürgerbüros der Landeshauptstadt Düsseldorf

①

Absage / Löschung eines bereits gebuchten Termins

Sollten Sie an der Wahrnehmung eines bereits gebuchten Termins gehindert sein, löschen Sie diesen bitte wieder:

☐▸ Bereits gebuchten Termin löschen

Buchen eines Termins

Bitte wählen Sie die gewünschten Anliegen und deren Anzahl aus

Meldeangelegenheiten

Anmeldung in Düsseldorf (pro Person) ☐▸ Info	1 ▾
Ummeldung innerhalb Düsseldorf (pro Person) ☐▸ Info	0 ▾
Änderung Fahrzeugbrief/-schein bei Ummeldung ☐▸ Info	0 ▾
Abmeldung ins Ausland (pro Person) ☐▸ Info	0 ▾
Abmeldung Nebenwohnsitz (pro Person) ☐▸ Info	0 ▾

Ausweisangelegenheiten

Personalausweis > Antrag ☐▸ Info	0 ▾

Sonstiges ②

Führungszeugnis ☐▸ Info	0 ▾
Kurze allgemeine Frage	0 ▾
Untersuchungsberechtigungsschein ☐▸ Info	0 ▾
Verlängerung Schwerbehindertenausw. ☐▸ Info	0 ▾
Wohnungsgeberbestätigung nachreichen ☐▸ Info	0 ▾

Verpflichtungserklärung und Bewohnerparkausweis

Verpflichtungserklärung (Einladung) ☐▸ Info	0 ▾
Bewohnerparkausweis ☐▸ Info	0 ▾
Schwerbehinderten-Parkausweis ☐▸ Info	0 ▾

Kfz- und Führerscheinangelegenheiten

Änderung Fahrzeugbrief/-schein ☐▸ Info	0 ▾
Ersterteilung/Erweiterung Führerschein ☐▸ Info	0 ▾
Umtausch EU-Führerschein ☐▸ Info	0 ▾

Termin vereinbaren

Standortauswahl

③

Die von Ihnen gewählten Anliegen können an den dargestellten Standorten erledigt werden.

Der stadtweit früheste Online-Termin ist ☐▸ Fr 04.05. 09:40 Uhr in Bürgerbüro Dienstleistungszentrum.

Bitte wählen Sie einen Standort:

☐▸ **Dienstleistungsz.** Frühester Online-Termin Fr 04.05. 09:40 Uhr	☐▸ **Benrath** Frühester Online-Termin Fr 04.05. 11:10 Uhr	☐▸ **Bilk** Frühester Online-Termin Fr 04.05. 10:55 Uhr	☐▸ **Eller** Aktuell ausgebucht
☐▸ **Garath** Aktuell ausgebucht	☐▸ **Gerresheim** Aktuell ausgebucht	☐▸ **Kaiserswerth** Aktuell ausgebucht	☐▸ **Oberkassel** Aktuell ausgebucht
☐▸ **Rath** Aktuell ausgebucht	☐▸ **Unterbach** Aktuell ausgebucht	☐▸ **Wersten** Aktuell ausgebucht	

Picture 3 Appointment booking in Düsseldorf A (Screenshot from the city homepage of Düsseldorf)

Terminzeiten am Freitag, den 04.05.2018

④

Bitte wählen Sie aus den kräftig und unterstrichen dargestellten Zeiten den gewünschten Termin durch Anklicken.
Die blass dargestellten Termine sind bereits vergeben.

Sollte Ihnen keine der angebotenen Uhrzeiten zusagen, können Sie weiter unten einen anderen Tag auswählen, falls noch Termine an anderen Tagen verfügbar sind, oder einen anderen Standort aufrufen.

Bürgerbüro im Dienstleistungszentrum

9 bis 10 Uhr	09:40	09:45	09:50	09:55		
10 bis 11 Uhr	10:00	10:05	10:10	10:15	10:20	10:25
	10:30	10:35	10:40	10:45	10:50	10:55
11 bis 12 Uhr	11:00	11:05	11:10	11:15	11:20	11:25
	11:30	11:35	11:40	11:45	11:50	11:55
12 bis 13 Uhr	12:00	12:05	12:10	12:15	12:20	12:25
	12:30	12:35	12:40	12:45		

Persönliche Daten für Ihren Termin bei der Stadtverwaltung

⑤

Standort:	Dienstleistungsz.
Warteschlange:	Bürgerbüro Dienstleistungszentrum
Adresse:	Willi-Becker-Allee 7, 40227 Düsseldorf
Anliegen:	Anmeldung in Düsseldorf (pro Person)
Tag:	Freitag, den 04.05.2018
Uhrzeit:	12:45 Uhr

Zur Vereinbarung eines verbindlichen Termins, geben Sie bitte den Namen, Geburtsmonat und das Geburtsjahr einer der Personen an, die den Termin wahrnehmen wird. Bei optionaler Angabe Ihrer E-Mail-Adresse erhalten Sie eine Terminbestätigung per E-Mail zugesandt.

Alle mit dem Symbol * gekennzeichneten Felder sind Pflichtangaben. Bitte füllen Sie diese Felder unbedingt aus.

Nachname *	Vorname	Geburtsmonat *	Geburtsjahr *
Titze	Michael	Dezember ▼	1991 ▼

E-Mail-Adresse	E-Mail-Adresse (Wiederholung)	Telefonnummer
example@mail.com	example@mail.com	

☑ ich habe die ⬜→ Hinweise zum Datenschutz gelesen und stimme der Datenspeicherung zu *

Termin verbindlich vereinbaren

Wartenummer:	10890
Pin-Code:	106092323

⑥

Hinweise zu den von Ihnen gebuchten Anliegen

Anmeldung in Düsseldorf
Erforderliche Unterlagen

- amtlicher Lichtbildausweis (Personalausweis und Reisepass bzw. Nationalpass) aller Meldepflichtigen und bei Doppelstaatlern alle Nationalpässe
- soweit ein nach dem 1. November 2010 ausgestellter neuer Personalausweis vorhanden ist, bitte unbedingt für alle meldepflichtigen Personen vorlegen, da die Adresse auf dem Chip geändert werden muss; gleiches gilt auch für den elektronischen Aufenthaltstitel (eAT)
- ⬜→ Einzugsbestätigung des Wohnungsgebers
- Besonderheiten gelten bei An- oder Ummeldung eines minderjährigen Kindes: Wenn künftig nicht mehr beide Sorgeberechtigten eine gemeinsame Wohnung mit dem Kind haben oder wenn die Hauptwohnung bzw. alleinige Wohnung des Kindes von einem Sorgeberechtigten zum anderen Sorgeberechtigten wechselt, ist von den Sorgeberechtigten eine ⬜→ Einverständniserklärung abzugeben.

Sofern Sie nicht persönlich vorsprechen können, können Sie auch eine Person bevollmächtigen. Diese benötigt dann zusätzlich:
- ausgefüllter und vom Meldepflichtigen unterschriebener ⬜→ Anmeldevordruck
- eine ⬜→ Vollmacht
- amtlicher Lichtbildausweis der bevollmächtigten Person

Weitere Informationen finden Sie in unserem ⬜→ Internetangebot..

Was ist zu bezahlen?
Eine Verwaltungsgebühr wird nicht erhoben.

Picture 4 Appointment booking in Düsseldorf B (Screenshot from the city homepage of Düsseldorf)

The process of scheduling an appointment in Düsseldorf is pretty similar to the one in Bonn, just the design is a bit different. The appointment booking website of the city of Düsseldorf, where the screenshots were taken as well, can be found on the city's homepage[2].

This service too can be found directly via google or with three clicks from the landing page of the administration. The citizen first has to select the service he needs (Düsseldorf offers appointments for more services, not all are listed in the screenshots). In this case, it is *"Anmeldung"* again (1). The possibility is offered to click on "info" for each service, which lands the user on a new page with explanations and additional information. In Düsseldorf too, multiple services can be selected, afterwards the user continues with a click on "*Termin vereinbaren"* (schedule appointment) (2). The biggest difference between Bonn and Düsseldorf is that only now, as shown in (3), the citizen has to choose a location. This display includes all civil offices and illustrates which are completely booked and when the next appointment is possible. After selecting a service, the user first selects a date and then a timeslot (4). The citizen then has to give his first and last name, mail address, birth month and year and agree with data protection regulations (5). After the appointment has been scheduled, the next page shows the citizen additional information about the service, like which documents to bring and possible fees (6). The confirmation email shows the citizen his ticket number and again includes a cancelation link.

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[2] City of Düsseldorf, n.d., Retrieved from: https://tempus-termine.com/termine/index.php?anlagennr=1&design=2&anliegenauswahl=ja&anwendung=42&infotext=bbs on 03.05.2018

Picture 5 Appointment booking in Nuremberg A (Screenshot from the city homepage of Nuremberg)

Picture 6 Appointment booking in Nuremberg B (Screenshot from the city homepage of Nuremberg)

To schedule an appointment to register in the city of Nuremberg, the citizen has to first select the location and only then can start the application process. The appointment booking website of the city of Nuremberg can be accessed via the city homepage, where the screenshots were taken as well[3].

---

[3] City of Nuremberg, n.d., Retrieved from: mhttps://online-service2.nuernberg.de/app-trs/?m=BANE on 03.05.2018

Exactly like in the other two cases, this service can be found via google or with three clicks from the city homepage. The first page of the appointment process tells the user to only schedule an appointment he can attend (1). Now, the citizen can select the service wanted, "*Anmeldung*" (2)*.* The city of Nuremberg does not offer as many services as the other two cities online, but the functions are similar, clicking on "info" lands the user on an explanatory page as well (3). Now the customer can choose multiple services if needed or continue to actually schedule the appointment (4). The citizen can select date and time on the next page (5). To complete the process, the user has to enter his first and last name, mail address, phone number and agree with data protection regulations. Nuremberg too sends the citizen an email with a cancelation link and appointment reminder, as well as the number the user will be called up with.

6.3 Findings & Analysis

Barrier 1: Insufficient funding

None one of the cities studied needed extra funding to create and implement the online appointment booking policy. All interviewees stated that the change was not that expensive. It "cost less than seven figures" (W. Wich, personal communication, February 22, 2018) in the case of Nuremberg, and was financed out of the regular IT budget. Düsseldorf gave a similar answer, the change was considerably cheap, and "financed it from the regular budget since it wasn't such a big sum" (M. Wolke, personal communication, February 15, 2018). Bonn did not specify how expensive the policy was, but the municipality was able to finance it within the regular budget limits. Therefore, the expectation of a policy inheritance barrier because of insufficient funding could be rejected in this reform, no financial barrier was present.

Barrier 2: Two parallel appointment systems

The city of Düsseldorf, starting on the day the online appointment booking option became available to the public, changed their whole appointment system. Now every citizen needed an appointment for whatever public service they want. Appointments could be scheduled online or via the phone. Those appointments were then put into a complete calendar system. Walk-ins were still possible, but those people still got an appointment at the counter, if they were lucky it was within a short time, but if the next free slot was in three days, they had to go home and come in again for their appointment. Düsseldorf called "the system 'Termine über alles' (appointments over everything" (M. Wolke, personal communication, February 15, 2018).

When the online appointment solution was first introduced in Bonn, walk-ins were still possible without appointments. However, this led to conflict between citizens with an appointment and citizens without one, the latter group complained why somebody else was being served prior to them, even though they came in earlier. Therefore, the city administration decided to also integrate all appointments into one system and discontinue the possibility to walk-in without an appointment, thus reducing overall waiting periods for citizens and improve customer satisfaction.

What happens when no complete appointment system is introduced is illustrated by the city of Nuremberg. In this particular case, customers were not only served with an appointment but could also just walk into the city office and wait in line and still can today. There are separate counters, one line for people with appointments and one for citizens without one. As a result, a lot of citizens, around one-third of all scheduled appointments do not show up, which leads to understandable frustration among the employees. However, this is more of an administrative philosophy kind of issue. All cities stated that it is important to have an extra step at the end of the appointment booking service, where the customer once again has to confirm his appointment.

This barrier does still exist in one case, Nuremberg, whereas Bonn decided, after learning from the problems that occurred by still allowing walk-ins without an appointment, got rid of that barrier. As of now, Bonn and Düsseldorf have implemented a complete appointment system. This means that for every public service a citizen wants, he has to schedule an appointment beforehand.

Barrier 3: Changing self-perception of civil servants

This barrier occurred in one case, in Düsseldorf, in the form of a disruption barrier. Up to the point of implementation of the appointment scheduling, employees of the public sector perceived themselves as civil "servants", helping citizens with whatever issue they had. This had to change, because cities wanted to move away from the traditional bureaucracy image in its ivory tower and more towards a service-oriented organization that was working to please its clients, who are no longer seen as citizens but as customers. One employee did not agree with that change of self-perception and thus asked to be transferred to another department "the change from 'I can do this or that additional service for you' to 'I have to call up the next customer with an appointment' […] she didn't want to exercise" (M. Wolke, personal communication, February 15, 2018). However, in total there was just one person in one of the cases studied, which indicates that this barrier could be dismissed as an important barrier, though should still be kept in mind. Regarding the change of self-perception, as one interview partner from Bonn put it "we no longer are a public

office, but a service agency, that is our self-perception now" (T. Fricke, S. Fricke, M. Spölmink, personal communication, February 14, 2018).

Barrier 4: Outdated employee skills

The administration of Düsseldorf supplied one-to-one training in the central office for each individual that worked with the new software and employees were explained in detail how the scheduling policy can be modified, what kind of data can be monitored and what cannot be done with it. However, this mostly applied to technical aspects and IT personnel, as for civil servants who were handling citizens' cases, nothing changed in terms of using a system to call up the next customer.

Bonn gave employees a small explanation lecture, which took about 30 minutes. Even though most employees were not even able to observe the technical change, as nothing changed for them to call up the next customer. In this city studied, training was somewhat limited, whereas in Nuremberg, employees were trained directly at their workplace and had the possibility to ask questions and clear up misunderstandings.

In the former two cities, nothing changed at all for employees, thus this potential barrier was not applicable in these cases.

The administration in Nuremberg on the other hand had a special agreement with the employees' representatives, so that even though new software architecture was installed underneath, nothing changed with regard to the computer surface of employees. That meant that employees had to manually enter appointments in outlook which was the reason "employees were not happy about it because it required additional effort from them" (W.Wich, personal communication, February 22, 2018).

This routinization barrier was overcome by a coincidence of technical nature. Microsoft discontinued the support for the interface between the appointment system and outlook, so all employees were later on forced to work with the new software completely. Therefore, employees were especially in the beginning not very fond of the new policy, since entering the appointments manually required more effort from them.

Thus, it can be said that this barrier was present in one case in Nuremberg, whereas in the other two cities, nothing changed for civil servants and thus this barrier was not applicable to these cases.

Barrier 5: Employees afraid of losing their job

In the city of Düsseldorf, employees were not afraid to lose their job since "it was clear that we won't get fewer customers [because of the online appointment solutions]" (M. Wolke, personal communication, February 15, 2018). Still, it was deemed crucial to explain to them that they could not be personally monitored with the new software. Reducing jobs was not targeted with that policy by the administration either, their argument was that with the appointment system, the same amount of services would be demanded, there was no reduction of actual labor.

The case was similar in Nuremberg, it was clearly communicated from the very start of the implementation plans that the same amount of service would be demanded and many steps of the current bureaucracy still require manpower. In addition, it was pointed towards the increased job security in the German Public Sector (*Beamtentum*), where employees get a lifetime contract and cannot be fired for reasons like efficiency gains, but only if they for example commit a crime.

In Bonn on the other hand, the situation was quite different. The administration aimed at reducing jobs with the appointment solution and did follow through with that plan. However, it quickly became apparent that this was done too fast, as a combination of unforeseeable event like a higher than usual number employees falling ill for long times, and several female civil servants had kids and thus took time off. In addition, the increased number of refugees in 2015 led to a considerable understaffing of the local administration. As a result, even with an appointment, citizens had to wait for a long period, which made them angry and they took it out on the remaining employees, which led to even less acceptance for the reform.

In the first two cases, employees did not fear being laid off because of the new policy, because the administration had no such plans and because they were reassured that the same amount of work would have to be done manually, therefore a reduction of staff would not have made sense either. In one case, Bonn, on the other hand, employees were laid off because of the introduction of an appointment system, but the administration was quick to realize that this was a mistake, because of a combination of unfortunate external factors. Their take away from this was that even if the idea is to reduce staff, try the new policy first and not lay off people prior to testing it. Thus, this barrier was present in one case and absent in the two other cases.

Facilitator 1: Change of preference

One of the most important facilitators for this reform was a change of preference of actors in all municipalities studied.

Düsseldorf aimed at increasing customer satisfaction, mainly caused by long waiting periods, the interview partner from this city stated that "we wanted to optimize customer satisfaction" (M. Wolke, personal communication, February 15, 2018). Furthermore, the city wanted to improve the employees' situation as well, since they had to work long overtime hours, since every citizen that came in drew a number and had to be served before the policy was implemented. Both those issues could be solved by introducing an online appointment system, combined with the *Termine über alles* approach. Employees supported that change as well because "they have the guarantee that 15 minutes after closing time they can go home" (M. Wolke, personal communication, February 15, 2018). Efficiency gains also played a role, but in the form of better planning and a more even customer steering throughout the whole day. In addition, the possibility to schedule an appointment online was also seen as an additional service for citizens. To summarize, "Sticking to time-schedules, adding to service quality, became a new goal" (M. Wolke, personal communication, February 15, 2018).

Bonn on the other hand did an internal analysis and hoped to reduce staff through digital transformation, as one of the goals. However, this was not the only goal. Bonn also wanted to decrease waiting periods for citizens, which sometimes took more than two hours, since "our audience could not be planned, when we opened the doors in the morning" (T. Fricke, S. Fricke, M. Spölmink, personal communication, February 14, 2018). As it was the case in Düsseldorf, the city of Bonn also wanted to improve the situation of their employees, since some citizens were rude because of the long waiting periods and took it out on the civil servants. In addition, the aspect regarding employee overtime because of no customer steering also played a role, as most "people with a job came in after 5 p.m., so employees had to work much longer than planned" (T. Fricke, S. Fricke, M. Spölmink, personal communication, February 14, 2018). As said, efficiency gains played a role in terms of reducing staff, but also in decreasing time needed per case to be completed. "And to improve service quality was also important" (T. Fricke, S. Fricke, M. Spölmink, personal communication, February 14, 2018). In addition, the bureaucracy should be modernized and go with time and seize technical possibilities were named as other changes of preference that positively influenced the reform process in Bonn.

Nuremberg aimed at modernizing the administration with the appointment policy. To that city, it was also important to offer more service to citizens and to go with time, for the administration "since the beginning, the idea was to provide an additional service" (W. Wich, personal communication, February 22, 2018). But the most crucial change of preference was in the form of being better able to steer customers to avoid times of high citizen frequency and decrease low times. However, the city emphasized that no efficiency gains were targeted with the online

appointment policy, there was never the idea to save resources or to reduce staff behind the implementation plans.

To sum up, several changes of preference played a prominent role in the change process as facilitators in various forms, goals included increasing efficiency, reducing workload for employees in the form of overtime, increasing service to citizens, reducing waiting periods for citizens as well as modernizing the administration in general.

Facilitator 2: Position power and involving employees

To analyze whether using position power to facilitate the change played a role in the change process in any of the cities, a differentiation had to be made between parties involved in planning the policy and who actually led the process.

All three cities did include at least four different departments in the planning process, Bonn consulted with all departments about what they wanted and how they want to use the service. A lot of compromising and moderating was necessary, since not everything was possible with this software. Nuremberg included the IT department, organizational leadership, representatives of the employees, data protection experts and the smaller branch office where the new policy was first tested and thus piloted the change in the planning process. Düsseldorf included only three parties in the process, the *Auftragsdatenverarbeitung* (the department that collects customers' personal data), representatives of the employees and the leading department of the city administration.

As the literature emphasized, the ideal change agent for an e-Government related reform would be a CDO. However, all three municipalities created the CDO position only recently, it did not play any role in the change process of the online appointment solution. Bonn has a CDO since February 2018, Düsseldorf created this position in 2017 and Nuremberg will establish a Chief Digital Officer in the summer of 2018. However, it is worth mentioning that this job description does not entail dealing directly with the administration, the CDO is not involved so much with them, but more with the political leadership of the city, in terms of consulting the city council and the mayor. In none of the cities studied a Chief Digital Officer played any kind of role in the implementation processes of online appointment booking, simply because that position not yet existed when the policy started. Therefore, leadership had to be taken by another actor.

When the municipalities' representatives were asked who led the change, all three cities took a different approach. Bonn created a guiding coalition that also had carried out the internal

analysis that led to the implementation of an online appointment scheduling system in the first place and this cross-departmental team led the implementation process on the side of their regular tasks. In Düsseldorf, the *Auftragsdatenverarbeitung* (ADV) and the IT department teamed up to take on the incorporation of the booking software into the underlying infrastructure system. In Nuremberg, only the IT department was in charge of implementing that policy.

Therefore, with regard to using position power to lead the change, different approaches were taken by all the cities. The change process in every case was led by an internal leader. All cases involved senior executives (such as organizational representatives in Nuremberg) in the planning phase of the change. However, not in every city, the actual implementation process was carried out by somebody in a position of power, in Düsseldorf this process was led by the IT department and the ADV, whereas in Nuremberg this role was assumed by the IT department alone. To sum up, it could be stated that involving actors holding position power served as a facilitator in this reform, even though that is limited to a part of the process, as not every case involved employees holding position power every step of the way.

In the city of Bonn, employees were presented with a vision for the future, which was also especially important since they were afraid to get laid off. Even though employees were not directly asked what they wanted to be included in the new policy, there was still a lot of communication. The interview partners from Bonn stated that the aspect of change most employees were interested in was the transformation from a bureaucracy to a service agency. They were fed up with the fact that "people have the mindset that this is a public office, they are always there for me" (T. Fricke, S. Fricke, M. Spölmink, personal communication, February 14, 2018).

When asked, Düsseldorf also stated that they included representatives of the employees in the planning phase. Emphasize was put on extensive communication with employees, even though they were not directly consulted, "the most important thing was to involve the employees, that later on have to work […] with that policy, and not just say 'do it like this now'" (M. Wolke, personal communication, February 15, 2018). It was important to not just tell employees about the change, but to make them see the advantage for them as well. The administration succeeded in doing that, and therefore civil servants realized right away the possibility to improve their own situation (especially regarding overtime). In addition, the interviewee also highlighted that it's important to explain to employees that they could not be monitored with the new software. Employees saw the advantage of the new system as: "compared to the previous chaos […] it rescued them by enabling them to establish an organized workflow" (M. Wolke, personal communication, February 15, 2018).

In Nuremberg on the other hand, employees were consulted through their representatives, who asked for the change not to involve learning a new software for civil servants. Change agents shared their vision of the future, which was especially important when, as in this case, the change involved software, as IT solutions are often difficult to understand for people who are not as familiar with technology. This was especially emphasized by the respondent from Nuremberg. The interview partner from Nuremberg stated that "trustworthy cooperation is very important […] it is no use to impose [the change], instead you have to do it on the same level with the people who execute the service". He further explained that this "applies to every IT case" and it is "important for systems like this to make things as simple as possible" (W. Wich, personal communication, February 22, 2018).

The former two cities did more or less the same thing, which was selling the change to their employees, even though representatives of employees were involved in the planning phase as well. Still, there was no direct consultation with civil servants, but detailed explanations were given to the employees and reasons were given about the need for this reform. In Nuremberg, employees had more influence on the change process, even though this took place through their representatives as well

In all three cities, employee attitudes towards the change are now very positive, staff can schedule their appointments better and less overtime work is necessary. The overall feedback from citizens was positive as well, waiting time has been reduced a lot and if people show up on time, they rarely have to wait more than five minutes.

All interviewees put great emphasis on the importance of getting employees to see the need for change. That was done by all three municipalities, and therefore communicating with employees and making them aware of the vision of the reform also served as a facilitator in this reform process.

Facilitator 3: Opportunity because of a larger reform initiative

All three cities implemented the online appointment booking as a single project, not as part of a bigger reform program. Nuremberg, Düsseldorf and Bonn, also because of their leading role in e-Government questions in Germany have already served as an example for many other German Cities. Interestingly, Bonn actually used Düsseldorf as an example to learn from when they designed the current form of appointment booking. In addition, all those cities have

established an organizational culture that fosters innovation and the administration is willing to make investments and try new ways to solve problems.

Even though Düsseldorf did not seize a broader reform plan, they combined the change process, since the administration had to come up with a new policy for the new eID (electronic ID) card anyways in 2010. The eID is a complex document, which therefore could only be handled in the central office. This led to increased waiting time in all offices and thus the idea of an appointment scheduling was born.

Nevertheless, this potential facilitator could be rejected, no larger digital transformation initiative of any kind influenced municipalities on their journey to implement an online appointment policy. Therefore, to go with the flow did not play any role in this change process.

Facilitator 4: External actor pressured the organization to modernize

Both Düsseldorf and Bonn underwent an internal reform in terms of origin, since the idea to implement an online appointment scheduling came from within the administration. No documents from city council meetings indicate the change might have been initiated from the outside. Nuremberg's administration on the other hand did already know of the possibility of online appointment booking as well, but nothing happened until a member of the city council asked for the realization, the interviewee stated that the "initial ignition came from the city council member" (W. Wich, personal communication, February 22, 2018). This led to "political and financial backing" (W. Wich, personal communication, February 22, 2018). The fact that all three cities carried out reform with internal actors illustrates that the facilitator finding support could be dismissed as a crucial factor for change in this case. Nevertheless, even though in the case of Nuremberg no outside actor led the change, it can still be of importance to gather external support. To illustrate the limited effect external support played in the case of Nuremberg, the interviewee, when asked whether this backing enabled the municipality to get additional funds for the implementation process, stated: „No, support did not go that far after all" (W. Wich, personal communication, February 22, 2018).

6.4 Policy design

Section 2.3 mentioned two important goals of the implementation of e-Government services, more specifically the implementation of an online appointment system. This section takes a look

at how the three cities under analysis performed with regard to citizen-centered policy and saving resources.

Citizen-centered policy

Neither of all the three cities analyzed directly consulted citizens when it came to designing an online appointment booking policy. Nuremberg however, listed citizen's wishes as their top priority, as a motivation for this change was that customers should spend less time waiting. In addition, the civil administration, just as private corporations do, also has an obligation to go with time and modernize. Both Düsseldorf and Bonn included citizens' interests in their responses, but while they also wanted to reduce waiting time for citizens, Düsseldorf was also concerned with increasing efficiency and Bonn saw this policy as a possibility to save jobs after an internal analysis.

However, all included customer management as one, if not the major goal of this reform, which was both beneficial to the administration and citizens at the same time. Employees could prepare better for their appointments with customers because they knew what task they would have to work on next. Furthermore, they could go home on time, since there were no more appointments possible after the civil office closed, and appointments were the only possibility to get a service from the administration. Previously, they had to work until everyone who drew a number had been served, which resulted in grave overtime hours. In addition, employees had to deal with less angry customers, who had been waiting for a long time, sometimes up to a couple of hours. This did not mean that the administration could serve more customers per day, but their arrival was scheduled better, which is meant by customer management. This also lessened differences between busy times and less frequented hours. Citizens on the other hand didn't have to wait as long anymore, plus they could get more information online (trace-appearance of appointment scheduling, because otherwise they would have to create an appointment just to ask a question, so the incentive to search by themselves is higher). A controversial aspect of this system, at least in the way Bonn and Düsseldorf carried it out, was that citizens needed to specifically book the services that they wanted to use, an appointment became necessary for everything. It was no longer possible for the citizen to suddenly decide that they needed something else. In Düsseldorf, two-thirds of all appointments could be booked online the remaining amount is available at the office location. There, citizens got a regular appointment, which was included in the overall appointment schedule and it was possible that the citizen was given an appointment

for the next day. Bonn did it in a similar way, whereas Nuremberg established different counters, one for customers with an appointment and one for customers without.

In all three cities, it was also possible to make appointments via the phone, so people who did not have internet access were not excluded.

Another takeaway from the interviews was that there would always be citizens who complain, there would always be criticism, independent of the type of appointment system. Some prefer waiting in an orderly line, others want to use their time and do other things than spend it with waiting. The interview from Bonn concluded that by implementing an online appointment solution "you will die one of two deaths" (T. Fricke, S. Fricke, M. Spölmink, personal communication, February 14, 2018). Another issue was that citizens, even though the appointment form reminded them again what documents they had to bring to their appointment, quite often forgot those. Also, many people who could not attend their appointments did not cancel them, but just did not show up. The interview partner from Düsseldorf stated that "if all appointments are booked out, this is a bad situation, but it can't be helped since through the (new) policy no additional staff was created" (M. Wolke, personal communication, February 15, 2018).

Saving resources and becoming more efficient

As the literature states, e-Government offered great incentives to administrations because it carries considerable saving potential for their resources. However, the cities under analysis were not able to save any resources with the online appointment scheduling system, even though only Bonn aimed at that. The administration reduced staffing before they implemented the change which resulted in additional work for all employees for multiple years. It was understandable that employees might worry about e-Government policies at first and that they would be replaced by technology (Marchant et al., 2014). Nevertheless, municipalities did not get fewer citizen requests because of the appointment scheduling, the amount of work was still the same. None of the cities could save financial resources because of the new policy either. The only aspect that improved was the aspect of time-saving. Even though time per case could not be reduced, the efficiency of the employee schedule could be improved. It is important to account for service quality as well, just because a process became more efficient does not mean it got better. As Düsseldorf's interview partner put it "in the end it was not possible to slim down processes" (M. Wolke, personal communication, February 15, 2018).

In Düsseldorf, citizen satisfaction has slightly decreased with regard to the response time of the local administration, while the satisfaction in Nuremberg has slightly increased. Overall, the change in numbers is not sufficient to indicate that service quality has decreased through reform in those two cities (Städtegemeinschaft Urban Audit, 2013, 2016). The case for Bonn is different, between 2013 and 2016, citizen satisfaction with the local administration was cut in half. People especially criticized the long waiting periods. Service quality suffered because the civil office thought it could reduce staff through online appointment booking. However, this proved to be untrue, but employees were already let go. This led to increased waiting periods, also for citizens who had scheduled an appointment, which of course led to a lot of turmoil (Kirfel, 2016).

Even if municipalities thought they could decrease the number of staff with the new policy, it would always be better to wait and first see how the policy played out in reality, Bonn made that mistake and it caused trouble for a long time. If it was indeed possible to work with fewer employees, this should be done after a certain routine had been established.

6.5   Conclusion case studies

Not one of the possible barriers was present in all three cases analyzed, which again illustrates how complex a reform process can be and how important environmental factors can be. In addition, this also highlights the limited generalizability of the findings of this study, with more cases there may have been a clearer indication which barriers occur more often than others.

None of the cities had trouble funding the reform process, whereas Nuremberg and temporarily Bonn experienced inheritance barriers in the form of two parallel appointment systems. In the case of Düsseldorf, one employee did not agree with the necessary change of attitude in terms of only serving citizens that scheduled an appointment. This was a disruption barrier. In Bonn and Düsseldorf, for the non-IT staff, nothing changed, so outdated employee skills did not play a role as a barrier in these cases, whereas in Nuremberg, employees did not have to learn how to work with a new software either, but because of a special agreement with the employees' representatives, the change still required them to do more work. Only in the case of Bonn, civil servants were afraid to lose their job because of the new policy, a form of personal benefits barrier, in the other two cities, no such barrier occurred.

The situation was different when facilitators were analyzed, findings were more similar in that category.

Düsseldorf, Bonn and Nuremberg all indicated that change of preference was one of the major facilitators for this reform. The change of preference was present in various forms, ranging

from improving service quality for citizens, improving the situation for employees, modernizing the administration to efficiency gains and saving resources.

Leadership in the form of position power was present as a facilitator as well, all three cities included senior executives in the planning phase of the change, even though the actual change process was not led by people in position power in all cases.

As the interviewees pointed out, and as the text already stated multiple times, an additional crucial aspect of this reform was to get employees to see the need for change and ideally to motivate them to incorporate the change themselves as well and change their paradigm.

Especially in this reform analysis it is important to highlight the ambiguous role of employees, which took both the role of blocking the change as well as facilitating it. On the one hand, this group tried to block the change if they had to acquire new IT skills in order to be able to work with the new software. At the same time, employees were the ones asking for this reform, because they saw an advantage for them, since with an appointment system they would have to do less overtime.

At the same time, the two other expected facilitators did not play a role, all municipalities implemented the change as a single project and not as part of a larger reform initiative. Additionally, only in Nuremberg external support played a limited role as a facilitator, in the other two cases the reform was completely planned and executed internally.

Table 5 summarizes and illustrates the findings of this study, which barriers did occur and which did not. The same is displayed regarding facilitators of the reform under analysis.

The major advantages civil offices earned from the online appointment booking is that customer steering could be improved, citizens are now more equally distributed throughout the day, which is a form of efficiency gain. Employee satisfaction has increased as well, since they now do not have to work overtime as much as before anymore and citizens are less impolite. From the perspective of citizens, the improvement has been smaller, but they still enjoy the advantage of decreased waiting periods, and better predictability of how much time they will have to spend at the administration to get their need taken care of.

Even though citizens' interests were included in the planning of the reform, none of the municipalities directly consulted citizens. In addition, this reform did not enable municipalities to save resources, the only efficiency gain that could be achieved by implementing the new policy was that there was a more even customer steering throughout the day.

What is important to note is that especially the barriers and facilitators found in this thesis can be, if at all generalized, just to the implementation of online appointment solutions specifically. The hurdles for example for the *E-Akte* (E-File) could be very different.

Type of barrier	Expected form	Present?
Policy inheritance	Insufficient funding because of sunk cost	✖
Policy lock-in	Two parallel appointment systems (online-scheduled and via "traditional" channels)	✔
Disruption	Change of self-perception of civil servants	✖
Paradigm & Routinization	Employees resisting learning how to work with new software	✖
Vested interests & personal benefits	Employees resisting change because they fear to be replaced by technology and lose their job	✔

Type of facilitator	Expected form	Present?
Change of preference	Observation of unhappy citizens. Modernize bureaucracy and go with time. A chance to save resources.	✔
Leadership	Leader (from inside/outside the organization) is using his/her position power and expertise to pursue for change. Leader convincing employees that change is necessary through communication and involving them.	✔
Go with the flow	Implementing online appointment scheduling as part of larger digital transformation program	✖
Find support	External push for reform (city council/mayor etc.)	✖

Table 5 Results of expected barriers and facilitators (Author)

7 Conclusion and research implications

German Cities so far have not been performing at the highest possible level of e-Government service delivery, instead the country displays an average performance at best. Since complex e-Government solutions are still rare in Germany, especially at the municipal level, for the sake of comparability and feasibility, a simple e-Government policy was chosen to analyze. The policy of interest was the implementation process of the possibility to book an appointment online in various German Cities. Since there was no official manual available on how this policy should be implemented, municipalities had to come up with their own strategies. However, not all cities ran into the same obstacles, barriers to change varied very much in already those three municipalities. Facilitators were more similar, but differences existed in that section as well.

The purpose of this paper was to gain insights to the factors which influenced the implementation of online appointment booking systems in the German Cities Düsseldorf, Bonn and Nuremberg. By finding commonalities and differences with regard to barriers and facilitators, this thesis aimed at creating a guidance manual for the implementation of this policy for other German Cities that plan to introduce such an online solution as well and thus to make them aware of lessons that other cities drew. Therefore, the central research question of this paper was: **"How did German Cities implement online appointment booking at public service institutions and with what kind of obstacles was this way paved, how were those removed and overcome?"**

In order to give the best possible answer to this question, semi-structured interviews were held with the employees in each city who were in charge of implementing that change. In addition, other sources were consulted as well, if available. This chapter summarizes the major findings of this research and gives answers to the sub-questions formulated in the introduction. The section concludes with a critical reflection on the methods and theories chosen for the purpose of analysis and indicates what could have been done better as well as what further research recommendations resulted from this study.

7.1 Conclusions

Sub-question 1: What is e-Government?

E-government is the use of ICT by governmental organizations of all levels to communicate with other governmental organizations, with business, with its employees and with the citizens. This online transmission can entail a two-way communication that aims at improving and

simplifying access and quality to governmental services for all actors. Ideally, it should replace visiting the (local) administration in person altogether, while at the same time enhancing efficiency of the public sector and making it more transparent.

Sub-question 2: How has e-Government in Germany developed up to today?

The overall impression of digital transformation in Germany is very disappointing, even though there clearly is a lot of potential, not much of it is being used so far, especially when the current situation was compared to best-practice examples like Estonia, one of the most advanced states in the e-Government discipline. However, many more things should be available to be done online, like registering after moving without having to come into the civil office at all. The *virtuelles Rathaus* idea perfectly incorporates that, but it can already be said with absolute certainty that not all services will be available online until 2021 in Germany. This was announced by the current Economic Minister of Germany, Peter Altmaier, who was willing to bet twelve bottles of good wine if that does not happen, a bet he will most definitely lose (Riedel & Greive, 2017). Overall, German policy makers at the federal level did not seize the opportunity of the recent *Bundestagswahl,* the new government again decided against establishing a ministry for digital transformation (Brunowsky, 2018). In general, e-Government initiatives in Germany focus too little on municipalities, the actors that carry out most of the service delivery, but are often targeted at the federal or the *Länder* level.

Services have to be as complex as necessary, but at the same time as simple as possible. This is especially important in the initial phase, so it gives people time to get used to how the e-Government functions work, without having to do much research. In addition, concerns about personal data protection are still very present among the citizens, about 82% of all Germans have that fear, by far the highest of all counties analyzed in that study (Schedler & Summermatter, 2003). The government has to actively work against that as well.

E-government offers a great variety of chances both to the bureaucracy and the citizens. Administrations can create processes more efficient and thus save time while increasing the overall service quality. And even though the policy under analysis did not help municipalities to save resources, some scholars state that by transforming the registering process to completely online, it could be made 52.7% cheaper for citizens and 76.4% cheaper for administrations (Fromm et al., 2015).

However, this research was not so much concerned with the future of e-Government in Germany, but with what happened so far, and how digital solutions were implemented. To do that,

one policy was closely examined in three cities, Düsseldorf, Bonn and Nuremberg. The policy analyzed was the implementation of an online appointment booking system in the *Einwohnermeldeamt.* The real point of interest was the implementation process of that policy itself, which barriers and facilitators influenced that change process.

Sub-question 3: What were possible barriers to the reform process in the context of digital transformation?

Policy inheritance was identified as a possible barrier in terms of operating two parallel appointment systems. In addition, policy lock-in in the form of sunk costs was hypothesized as another potential opportunity barrier. Several potential preference barriers could be identified as well. A disruption barrier in the form of civil servants having to change their daily way of work was one of them. Another one was routinization, since the new appointment policy might have forced employees to learn how to work with a new software, which meant increased effort required from them and thus resulted in resistance to this change. Personal benefits could also have played a role in terms of blockage to this reform, as employees might have feared to lose their job to technology in the long run, and thus tried to form an anti-reform coalition to hinder this change.

Sub-question 4: What were possible facilitators of the reform process in the context of digital transformation?

Structural facilitators were not expected to play a role, but several potential agency facilitators were identified. The first one was change of preference, which could have occurred in various forms, ranging from wanting to modernize the bureaucracy and increasing service quality over achieving better customer management to relieving employees of a heavy overtime workload. Leadership may also have played a role, as the theory states that reform has to be pursued by somebody holding position power, as a policy entrepreneur is unlikely to have played a role. That is because the field of e-Government is not likely to be changed by an opening window of opportunity. Even if there was no window of opportunity, change agents may have seized a favorable reform climate and implemented the online appointment solution as part of a larger reform initiative. Reform processes do not only have to be led, but they have to enjoy external support has well, therefore it might have played an important role in the policy reform that external actors urged for this change to happen.

Sub-question 5: What were the actual barriers and facilitators in the context of an online appointment policy transformation?

As far as barriers to reform go, results could not confirm commonalities between the cities, not one barrier appeared in all three cases. None of the cities studied had any financial trouble to go through with the change. However, operating two different appointment systems played a role as a policy lock-in barrier in Bonn and Nuremberg. While the former municipality changed the appointment scheduling to handle everything with appointments, Nuremberg still allowed walk-in citizens without an appointment, which led to a high number of customers not showing up for their appointment. Employees resisting change because they had to put additional effort into working with the new policy played a role in Nuremberg, where civil servants had to manually enter appointments into an Outlook calendar. In Bonn, employees were afraid of losing their job because of the online appointment scheduling, which was a form of personal benefits barrier. An additional disruption barrier occurred in the case of Düsseldorf, one employee did not want to modify her self-perception to somebody who only served citizens that had an appointment, which was necessary because of the system change that required an appointment for every service provided. Bonn also experienced a policy inheritance barrier, as they learned that the new policy should not be implemented during highly frequented times of the year, like before the summer holidays.

Findings regarding similarities between the three cities concerning facilitators of change were clearer and pointed out some commonalities. The fact that actors working for the municipal administration (both leaders as well as employees) were no longer satisfied with the traditional system was an important facilitator in Düsseldorf, Bonn and Nuremberg at the same time. This ranged from wanting to improve service quality for citizens, improving the situation for employees, modernizing the administration to promote efficiency gains and saving resources. Leadership in the form of position power was present as a facilitator as well, all three cities included senior executives in the planning phase of the change, even though the actual change process was not led by people in position power in all cases. An additional crucial aspect of this reform was to extensively communicate with employees and make them see the need for change and recognize the advantages it could bring them. Two other expected facilitators did not play a role, all municipalities implemented the change as a single project and not as part of a broader reform initiative. Bonn and Düsseldorf carried out the reform completely internally, without visible support from outside actors. Only in one case, the city of Nuremberg, external support played a limited role as a facilitator.

The findings could not confirm that e-Government policies should always be citizen-centered, as none of the cities studied did consult with citizens on what they wished for in the new e-Government policy, the most important goal was better customer management.

Answer to the main research question: How did German Cities implement online appointment booking at public service institutions and with what kind of obstacles was this way paved, how were those removed and overcome?

All three cities implemented the policy as a single project, not in the course of a larger reform initiative. None of the municipalities enjoyed extensive external support and were able to facilitate the change process without any additional funding other than the regular budget. Since, as expected, no window of opportunity occurred to enable this reform process, it was facilitated by actors holding position power in all cities. Even though not all change leaders held position power, they still enjoyed senior executive support, who were all involved in planning the change. In one case, Bonn employees were afraid of losing their job to technology, whereas in another case, Nuremberg, employees opposed the reform because they had to acquire new technological knowledge in order to work with the new software. All interviewees emphasized that extensive communication with employees from an early stage during the change process was crucial and for them was the decisive step to remove resistance to change. Change agents tried to make civil servants see the need for change and share their vision of the future, which was facilitated by making employees realize that their daily work would be made easier with the help of the online appointment solution. This also facilitated the change of self-perception of civil servants, which had become necessary by implementing the appointment policy. What all cases had in common was that the motivation to initiate the online appointment system is that actors were no longer satisfied with the traditional system of drawing a number. Goals of the reform implementation ranged from wanting to increase efficiency to improving employee satisfaction by reducing their overtime workload.

These findings indicate that what Heyse, Lettinga, & Groenleer (2006) stated applies in this case study as well. They advised focussing on preference barriers instead of structural barriers, since they are easier to overcome. As the results show, structural conditions stayed in place during the reform process, whereas preference barriers could be overcome.

7.2   Reflection on the research design

7.2.1   Reflection on the theoretical framework

The theoretical background for the analysis was built on the model about barriers and facilitators to reform, developed by Bannink & Resodihardjo (2006). The most important barriers are opportunity barriers and preference barriers. Opportunity barriers stem from existing decision-making structures (veto points) and policy inheritance (path dependency). Preference barriers are concerned with routinization, vested interests of involved actors and benefits from the status quo. Facilitators on the other hand consist of structural and agency facilitators. Structural facilitators describe the diminishing of barriers through declining support for policy inheritance or a disruption in the policy-making process (punctuated equilibrium). Agency facilitators focus on change agents, such as leadership and finding support for change. In general, reform is complex and difficult to study, it often cannot be said what exactly led to the diminishing of barriers.

In retrospective, it might have been better to use a more extensive theoretical framework, that also includes the post-implementation phase. As the responses indicate, this period was a bigger challenge than the implementation of the new policy itself. Therefore, including policy design in the study could have been more beneficial, since policy design does not play any role with regard to the implementation process itself, but is crucial for the post-implementation phase, when the policy has to start delivering results. The model chosen is not suited for evaluating policy design, but just the implementation process, as policy design factors into usability and success of e-Government solutions, but not in terms of barriers and facilitators. In addition, in retrospect, the model of Bannink & Resodihardjo (2006) appears to be very well equipped to study a political reform process, but might not have been the best choice to analyze an internal organizational change process. In addition, especially because the reform analyzed was purely internal, it was very difficult to obtain information from other sources than what the municipalities were willing to provide voluntarily.

7.2.2   Reflection on the methodology

To find out what enabled reform and how this process went about in the three selected case studies, semi-structured interviews were conducted with representatives from each of the cities. This added the advantage that interviewees could explain their own points of view and point out aspects that potentially were missed during the literature review. One downside of this approach was that the findings were only generalizable to a very limited amount, the actors that might be able to make use of the results are probably other German Cities with a similar population size and structure (for example testing in a smaller town is not possible, if there is only one office).

Since only limited time and funding were available to the researcher, only three cases could be included in this study. Otherwise it would have been interesting to conduct more interviews with more cities, maybe also varying in size, which could have increased generalizability. Another aspect that could have increased the validity of this research would have been to lead interviews with several actors within every single organization to include the actual perspective of employees from first-hand information. Instead, the study had to rely on the information given by the expert interviewees.

7.2.3   Reflection on the practical relevance of the findings

To serve the purpose of providing valuable insights to other German Cities about the implementation of e-Government solutions, it probably would have been more beneficial to analyze a more complex service that would be more difficult to implement. On the other hand, choosing the online appointment policy made the analysis more feasible. In addition, a more complex solution that includes a two-way communication involving sensitive documents could have also accounted for the federal character of Germany. That is because in such a case, different e-Government *Länder* laws would be important and thus could provide additional insights.

However, when attention is paid to the fact that not all facilitators and barriers can be translated one-to-one to function in another municipality, this research provided valuable insights into the reform process in the German Public Sector. This is especially important in a municipal context with regard to digital transformation policies, which carry a number of specific characteristics. In general, the findings of this thesis could give other municipalities at least an idea of what kind of obstacles and facilitators possibly could be expected when implementing an online appointment system.

In retrospective, it might have been more beneficial to focus on the online appointment policy after the implementation phase. As the findings indicate, the implementation itself was not that difficult to achieve for each of the municipalities, whereas there were several problems during the first month after the implementation. In addition, this could also have been more relevant for other municipalities using this work to establish their own online appointment system. This paper still managed to give valuable insights to the policy design process, but the major research interest was focused on a less relevant point of time during the introduction phase of an online appointment policy in order to give the most relevant advice from the viewpoint of city administrations.

This would have required a different theoretical framework and research model and should be done in the near future. The interviewees also expressed their desire for white papers

containing advice and learnings from other municipalities in order to pursue their own path of digitization as smooth as possible.

Another aspect that should be researched, based on the findings of this paper, is that it should be done on recently implemented solutions with a higher level of complexity while focusing on the post-implementation phase. This is especially crucial to be carried out at the municipal level as well, as this is the level where e-Government policies will be implemented, given the German State System with its federal character. It could also be beneficial for the state administration to collect information and experiences from municipalities to create a knowledge database from it, which might support other cities during the implementation process. This research aimed to do that, but on a much smaller scale.

If the federal government takes a more proactive role in e-Government issues, especially in legal questions, and municipalities continue to foster a culture of innovation, maybe at some point in the future, German Citizens too can set up a company from their couch with a few clicks in 18 minutes, without having to enter their data into a document time and time again, as it is already possible in Estonia today (Schwär, 2017).

7.3   Recommendations

One of the most important advantages of the research method, semi-structured interviews was that interviewees could give their own opinion on issues as well as additional insights. This enabled the researcher to gather advice about especially the post-implementation stage, which according to the interview partners was more complicated than the implementation itself. To make use of this additional information, this section will first give an overview of recommendations regarding how to overcome possible barriers and what facilitators could be seized. The second part of this section will give recommendations about policy design and additional advice concerning the topic of an online appointment system.

7.3.1   Transfer to a system that works exclusively with appointments

When an online appointment system is implemented, the municipality is advised to completely switch their appointment system so walk-ins are no longer possible. This does not mean that people can no longer just come to the administration's building, but instead of a number they get an appointment within the regular schedule. Otherwise, people might not feel the need to show up for their appointment, thinking they can just come in another time. Also, citizens without

an appointment may become angry because other people get served before them and direct that anger at the civil servants.

7.3.2   Train employees as good as possible

If employees need to be trained, this should be done as well as possible, but at the same time the software should be kept as simple as feasible. This applies to every reform process, but especially for the ones involving IT changes. Without sufficient training, employees will either fail to work with the new solution because they do not understand it or because they do not want to teach themselves how to work with the new software. As a general indicator, the solution should be designed as simple as possible but as complex as necessary. If it's possible, nothing at all should change for desk clerks since software can be hard to understand without extensive training and regular staff are not IT specialists (Kuang, Lee- Shang Lau, & Fui- Hoon Nah, 2001). If training employees should become necessary, it could take place in various forms. Training can be held by an expert from the own institution or by an external expert. Forms include self-study, training at the desk of the employee, lectures and workshops. From a cost perspective, an internal expert is preferable, in terms of training form, training at the desk is the best option, because employees are in an environment where they are comfortable and will employ their knowledge later at the same place. Furthermore, they can instantly ask questions and clear up misunderstandings. Workshops can also be beneficial, because employees are still actively engaged, just not in their usual environment. Lectures pose the problem that people only passively get the information and might still have difficulties when putting the learned things to work. Self-study is least desirable, since this may result in employees just not learning at all and ignoring the new software (Behringer & Kapplinger, 2011).

On a side note, the system Düsseldorf used was especially well suited to train new employees, because there, each individual could only be given cases of a specific task like creating new ID cards and thus could gather some routine and experience before they moved on to the next task.

7.3.3   Extensive communication with employees from an early stage

To motivate individuals, it is important to continuously report results and reevaluate the process as well as reward and mention employees' contribution to change and success. While employee support is one of the crucial factors for change, Van der Voet (2013) finds that in a

bureaucratic context, planned change is better suited for a hierarchical institution, as a municipal administration usually is. This type of leadership in said context positively influences employees' willingness to commit to change. In general, communication with employees was deemed one of the crucial factors for a successful reform implementation by the interview partners. They emphasized that it was best to involve them as much as possible in the change processes from an early stage. Even if employees were not directly consulted about what they wished to be included in the new policy, it was highlighted that it was beneficial to diminish resistance to change if the need for change was explained to the employees.

Communication should not be limited to just telling employees what is going to happen throughout that reform process, but to give them detailed explanations why certain steps are necessary. It can also be beneficial to give reasons why the change in general has to be implemented and it is the role of the leader to share his vision of the future with the civil servants and ideally make them incorporate the vision themselves. In the context of the policy analyzed, it proved especially constructive to motivate employees by making them see that their overtime hours could be reduced drastically with the help of an online appointment system.

7.3.4 An online appointment system will not help to reduce resource consumption

As the findings show, implementing an online appointment system did not help any of the municipalities to reduce resource consumption, nor could the time needed per case be reduced. The only advantage in terms of efficiency gains was that customer steering could be improved, which meant that citizens coming in were spread out more evenly throughout the day and month and did not come in waves anymore. Prior to the appointment system's implementation, almost no citizens would show up for example during some mornings, but twice the regular number during the afternoon.

Since none of the municipalities studied were able to save resources by implementing an online appointment system, even though not all of them aimed at that by introducing that reform, municipalities can be advised not to implement an online scheduling system for that reason. Saving resource consumption through this change is unlikely to succeed and will likely lead to more problems after the implementation is completed. There could be efficiency gains through an online appointment system, but those will not be in the form of decreased financial investments. To give this insight a more positive spin, the major efficiency gain appears to be on the part of the citizen in terms of reduced waiting periods.

7.3.5 Testing the solution in a limited context

Especially the local context proves to be beneficial to experiment with new e-Government solutions, since people tend to be more trusting towards their local government than the national government and thus are more willing to try new channels to use public services (Tat-Kei Ho, 2002).

Bigger cities like the ones studied are ideal to implement new e-Government policies, as they usually have more than one offices, there often are a number of branch offices. This offers the possibility to test the new solution in a limited context (e.g. one branch office only) first and learn from mistakes, so that the rollout for the whole city later on can go a lot smoother. In addition, this can enable an organizational culture that allows civil servants involved to make mistakes and thus fosters innovation (Beer & Nohria, 2000). Since there is no white paper for German Municipalities on how to implement specific e-Government solutions yet, testing in a limited context is the only possibility to anticipate mistakes and prevent costly readjustments on a bigger scale.

Düsseldorf went even further with regard to testing in a limited context. The head of the branch office where they first tested this policy went to every other branch office for the rollout for a couple of days to support them with his expert knowledge. Nuremberg did test the solution in a smaller branch office too, but did not send the head of this location to the other facilities. Bonn did not test the solution in a smaller context first, which cold have prevented them from making the mistakes they did on a larger scale. A relating recommendation goes into a similar direction, it could also be beneficial for municipalities to share results from both successful as well as failed pilot projects, since all those experiences could be helpful in a future implementation process for other municipalities.

7.3.6 Constant learning cycles and improving service delivery

Just as any corporation in the economic world, the public sector should try to never to satisfied with the status quo, but instead should constantly try to improve their performance as well. One very important aspect in those terms is constant reviewing and monitoring of processes to eliminate weaknesses and further strengthen positive aspects as well as the overall service quality (Schedler & Summermatter, 2003). As the literature points out, results of a new policy should be monitored, those findings should be interpreted and evaluated on a regular basis. This newly gained knowledge should be used to further improve service delivery (Beck et al., 2017).

When it came to monitoring results and processes, all cities studied realized the potential this rather simple task carries, since each city monitored the appointment scheduling. In addition, all municipalities used results to optimize the service in terms of for example adjusting the time necessary per case if it became visible that the time frame programmed was insufficient. This could of course go both ways, so processing time could be reduced as well. In addition, findings could be used, to analyze if a specific service was used extensively, then an additional employee could be tasked with serving that line of service as well. Again vice versa, he could be pulled from a service that was not very busy, so capacities could be distributed more efficiently. All cities studied gave citizens the possibility to give feedback, however not specifically with regard to booking appointments online.

One of the best-known performance measurements tools introduced with the NPM (New Public Management) wave can be further extended and specified through digitizing services by introducing new monitoring and evaluation strategies of public servants' performance (West, 2011). However, this requires careful consideration, as it would be terrible if employees felt spied on with a new e-Government policy.

7.3.7 Engage in a public-private partnership to cooperate in designing the software

All of the cities studied did cooperate with an external IT specialized corporation in order to create the necessary digital infrastructure. However, the extent to which they created the software themselves and the share they bought differs from case to case. Nuremberg got their software from a company called Wilken GmbH, a company that works both with the public as well as the private sector. Nevertheless, the city bought an out-of-the-box software and made a few changes according to their wishes. Bonn developed its solution in cooperation with the company NetCallUp, a 100% subsidiary of a company called Qmatic, which according to their information are the world market leader in "customer-journey-management"(Qmatic, n.d.). This also is a corporation that works both with public agencies as well as private business. Düsseldorf cooperates with the same company, but the underlying infrastructure was developed by another private company, both systems communicate with each other to schedule appointments and call up customers. The basic infrastructure underneath is called Tempus and was developed by a company called Berner Telecom. Therefore, though to various extents, all cities studied engaged in a public-private partnership in order to drive digital transformation.

Acquiring new software is often a very cost-intensive project. The most favorable way to get a working solution at a reasonable price is a cooperation between the administration and a

private IT company, where the two parties develop a program together. This offers the advantage that the municipality is already familiar with the software and does not need time to get accommodated. Furthermore, it can be shaped according to the individual wishes of the municipality. Public officials often lack the level of technical knowledge required to develop such a program, whereas private IT corporations have a lot of expertise in that field. This opportunity can be seized through a public-private partnership. Maintenance is another aspect that should be outsourced with a contract, as an in-house employee being available 24 hours a day if there is a problem will be very expensive (Bovaird, 2004; Grasman, Faulin, & Lera-Lopez, 2008).

7.3.8   Additional remarks

All cities carried out small maintenance tasks themselves, respectively their IT department. However, each municipality had an external contract for general maintenance, since especially 24/7 availability would be very expensive to provide. It is worth noting that the software packages offered by companies often have many features that could all be purchased individually, according to the municipality's wishes. Design enjoyed a great deal of individualism as well, so the booking page fitted with the remaining website.

In addition, it might be necessary for administrations to advertise the possibility of doing things online, since one answer was that the possibility was there, but many citizens just did not know about it. To solve that, they can cooperate with the local press and advertise the new services in for example the city buses.

Furthermore, it was important to notify citizens of the change, since otherwise there could be a lot of potential conflicts, because customers were used to orderly waiting in line and suddenly somebody could just come in and get served right away.

Especially during the initial phase after the service has gone online, it can be beneficial to be more generous with time per case, because employees might have to get used to the new service as well. Time frames can still be reduced later on when a certain routine has been set up. Another aspect of time frames is that those should be at least kept in five-minute blocks, as citizens will not show up at 12.27 for their appointment but either at 12.25 or 12.30. Also regarding the time aspect of the reform, another remark was that municipalities should not use the average visitor number over the whole year, but always assume high frequency of an intensive month, so that there would be sufficient appointment slots. On the other hand, there never should be as many simultaneous appointments as there were employees, so that if somebody falls ill, the schedule does not have to be changed, but it can be compensated by the other employees together.

Recommendations from the interviewees included that the date the policy is implemented is also important. The city of Bonn introduced the new appointment solution shortly before the summer holidays started, which was the busiest time of the year in the *Einwohnermeldeamt*, because a lot of people among other things wanted to get new passports to travel to other countries. Their takeaway was to implement the new policy during a lower frequented time frame. Important for this were also the specific conditions of the city, for example a municipality that has a university should not implement a new solution during the starting period of the new semester.

One additional takeaway expressed by all municipalities was that it was beneficial to send out a confirmation E-mail once the appointment has been scheduled by the citizen to confirm the appointment. This did not work the other way around. Nuremberg experimented with a system where citizens had to manually confirm their appointment via e-Mail after booking it. However, this resulted in many people forgetting to do that, but still showing up at the originally scheduled appointment and then becoming irritated why their appointment was canceled. Therefore, this approach was discontinued shortly after introducing it. To increase the number of citizens showing up for their appointments, it was recommended to send out an appointment reminder via E-mail shortly before the appointment takes place, which could be enhanced by reminding the citizen which documents have to be shown to the civil servant in order to get the service requested.

To sum up, this checklist should provide an overview of which recommendations can be given to municipalities aiming at implementing an online appointment solution:

- Establishing a system that works exclusively with appointments
- Training of employees is essential, preferably at their workplace in small groups
- Extensive communication with employees from an early stage can help to reduce possible reform resistance from employees, including explaining the reasons for change to them, it is not sufficient to just tell them what will happen
- Change agents should not aim at reducing resource consumption by implementing an online appointment policy, this is unlikely to happen
- If possible, the new policy should first be tested in a smaller environment
- Learning cycles can prove very beneficial to improve service quality, the policy should be monitored and constantly evaluated to become better
- Municipalities should not try to design the appointment system by themselves, especially with regard to technological challenges, it could be better to cooperate with an IT company in order to make use of knowledge advantages and thus engage in a Public-Private-Partnership

Table 6 Summary of recommendations for implementing an online appointment policy (Author)

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Annex A: Interviewees

Interviewee(s)	Organization	Date
Mr Thomas Fricke Mr Stephan Fricke Ms Monika Spölmink	City of Bonn	14.02.2018
Ms Mona Wolke	City of Düsseldorf	15.02.2018
Mr Werner Wich	City of Nuremberg	22.02.2018

Annex B: Interview Guide

The interviews were semi structured. This interview guide was used the structure the interview and as a backbone to not forget some components.

General introduction: master thesis, research implementation of e-Government solutions in German Cities at the municipal level to find out similarities and differences

Allgemeines:

- Seit wann gibt es die Online-Terminvergabe in Ihrer Behörde?
- War die Online Terminvergabe einer der ersten Online Dienste Ihrer Behörde?
- Gibt es einen CDO (Digitalisierungsbeauftragten), welcher hauptverantwortlich für Digitalisierungsfragen ist?
- Würden deutschlandweite E-government Standards die Digitalisierung für Sie einfacher oder schwerer gestalten?
- Würde ein einheitliches Bundesgesetz, welches klare Rahmenbedingungen vorgibt, die Digitalisierung für Ihre Kommune einfacher gestalten?

Service-Design:

- Woher kam die ursprüngliche Idee, eine Online-Terminvergabe einzuführen (hausintern, Lokalpolitik, Land, etc.)?
- Was hat den Entschluss, die Online-Terminvergabe zu implementieren, am meisten beeinflusst?
- Welcher Aspekt war Ihnen am wichtigsten bei Ihrem Entschluss, Termine online zu vergeben?
- Welche Abteilungen und Hierarchiestufen waren in die Planung einbezogen?
- Wurde für die Finanzierung ein gesondertes Budget zur Verfügung gestellt oder wurde die Online-Terminvergabe aus dem regulären Haushalt finanziert?
- Wurde die Lösung innerhalb des Hauses konzipiert und ausgearbeitet oder wurde dies von einem externen IT Dienstleister übernommen (wenn ja, welcher)?

- Haben Sie andere Städte als Beispiel genommen und positive Aspekte von diesen übernommen bzw. Fehler vermeiden können (sowohl deutsche als auch ausländische Städte als Beispiel)? Oder wurde die Terminvergabe selbst entwickelt?

Implementierung:

- Wurde das Projekt von einem dafür zusammengestellten Team implementiert, oder von anderweitig Angestellten neben ihrer üblichen Tätigkeit? Waren diese alle aus derselben Abteilung oder aus verschiedenen?
- Gab es (unerwartete) Rückschläge?
- Wurde die Terminvergabe von den Mitarbeitern sofort akzeptiert?
- Gab es ernstzunehmende Sorgen von Angestellten, dass diese aufgrund von E-government Fortschritt ihren Arbeitsplatz verlieren könnten?
- Gab es für die Mitarbeiter eine spezielle Schulung für den Umgang mit der Terminvergabe (falls diese nötig war)?
- Wurde die neu implementierte Terminvergabe in irgendeiner Form beworben oder darauf aufmerksam gemacht?
- Wurde die Terminvergabe als Einzelprojekt implementiert oder war Teil einer größeren Digitalisierungsoffensive?
- Wurde die Terminvergabe Schritt für Schritt eingeführt oder komplett ohne Unterbrechung?
- Welcher Schritt im Einführungsprozess war Ihrer Meinung nach der wichtigste?

Evaluierung:

- Erleichtert die Terminvergabe aus Sicht der Mitarbeiter deren tägliche Arbeit?
- Hat die Terminvergabe dabei geholfen, interne Prozesse zu verschlanken und zu beschleunigen?
- War es möglich, mit dieser digitalen Lösung Ressourcen einzusparen?
- Funktioniert die Terminvergabe zuverlässig aus technischer Sicht?
- Werden die Nutzungszahlen regelmäßig ausgewertet und zur Verbesserung genutzt?
- Wie fällt Ihr bisheriges Fazit aus?
- Wie sah das Feedback der Bürger aus?
- Gibt es etwas, dass Sie gerne vor der Implementierung dieser Lösung gewusst hätten?

- Wird die Wartung des Service intern abgewickelt oder extern?
- Gibt es aktuelle Pläne, den Online-Service mit anderen Dienstleistungen Ihrer Kommune zu erweitern und/oder zu integrieren?
- Haben sich andere Städte an Sie gewandt, denen Ihre Lösung als Beispiel dient?

Conclusion: brief summary of the most important points and thanking. Agreeing to send the final results of the study after it is completed.