Understanding Stakeholder Behavior in Nationwide Electronic Health Infrastructure Implementation

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Abstract
With governments worldwide striving to digitize the healthcare sector beyond the institutional level of individual hospitals, many countries have developed national programs to implement eHealth technologies that increase treatment efficiency and effectiveness. However, it cannot be neglected that these programs have often been longsome, costly and have been met with considerable resistance from various stakeholders. Two questions arise: why do national eHealth programs often fall behind plan long before users are reaping their benefits? And, what motivates stakeholders involved in the process to resist to the implementation of a potentially beneficial technology? We theorize that complex stakeholder structures across organizational levels offer an explanation for such failure. Using a wealth of data to form a case study on the German Electronic Health Card (‘eGK’), we propose that asymmetries amongst stakeholders’ objectives can posit a cause for implementation failure. The theoretical and practical implications of these findings are discussed.

1. Introduction

Given the importance of the healthcare sector generally, governments across the world have continuously been looking for ways to increase treatment efficiency and effectiveness. One means has been to make use of improving information technologies within the healthcare sector. Over the years governments have therefore launched a number of national programs to technically integrate doctors and hospitals. As such, the US has launched the Health Information Technology for Economic and Clinical Health Act while the EU has set themselves a number of related targets in the European Union eHealth Action Plan 2012-2020. On a national level, the UK has formed the ‘NHS Connecting for Health’ as part of the UK Department of Health in 2004 responsible for moving England towards central electronic healthcare. The Danish government has published strategy papers on digitization within the healthcare sector since 1996 and has invested heavily to have these realized as discussed in two case studies by Aanestad and Jensen [1]. Finally, Germany over the past ten years has taken several measures, including the introduction of a law for the modernization of the public German health insurance system and the founding of the ‘gematik’ (Gesellschaft für Telematikanwendungen der Gesundheitskarte mbh), the organization responsible for the introduction of national eHealth programs, in order to digitize the German healthcare sector.

Given the large practical relevance of eHealth, it seems paradoxical that publications on the topic of eHealth had for quite some time been lagging behind actual system implementations [2]. Interest by researchers has only recently increased catching up with the significant practical changes occurring in this field. As such Agarwal et al. [3] and Anderson and Agarwal [4] have stated the importance of eHealth research given the rapid pace of transformation within the healthcare sector and the subsequent need to conduct further research in this field. More recently, Romanow et al. [5] have put together an extensive overview of the literature on eHealth naming and coding more than 200 papers published within the area since 2004. This paper reveals that many studies carried out to date have examined adoption of eHealth infrastructures as well as the problems associated with those at an organizational level. The empirical data was therefore often collected directly in hospitals. While we fully agree on the significance of these findings given that hospitals and practices are the place where eHealth is ultimately installed, we observe that only a limited number of authors look at eHealth implementation programs from a national perspective. These, however, can and should not be neglected given their growing importance as governments are aiming to integrate all healthcare providers through a national telematics backbone, leading to improved and efficient healthcare service delivery on a national scale.

Our paper focuses on the implementation of a large-scale eHealth program with the focus on
explaining how various stakeholders on a national level can affect these and why such eHealth programs can fail long before they are fully rolled out. For this [6] call for further studies on how data is shared on a national scale across different health environments, particularly in Europe or the US.

The remainder of the paper is organized as follows: We begin with the theoretical foundations and first examine some of the literature recently published on national eHealth programs. We furthermore offer a perspective on the critical factors the authors have identified with regards to the implementation process of such programs and discuss why failure to implement these programs might occur. The literature analysis is followed by a case study where extensive empirical data was collected over a two-year period. We examine how complex stakeholder structures can lead to a potential implementation failure using the example of the implementation of the ‘eGK’ (electronic health card) technology in Germany. We present the results of our research and put it into the literature context of other stakeholder analyses in the eHealth sector. The paper concludes with a discussion of the theoretical and practical implications of our findings.

2. Literature overview on national eHealth programs

Noticeably, the current literature on eHealth lays its focus on IS implementation programs at an organizational level, i.e. a single hospital. Building on Romanow et al.’s [5] recent literature overview in the field of eHealth we have identified just 30 out of 218 papers that were written past the year of 2000, wherein modern eHealth technologies are discussed and where the authors have taken into account a so-called macro-economical perspective thereby examining eHealth implementation programs of a national scale. The papers look at different national eHealth programs, amongst others the U.S., the U.K., Denmark and a number of emerging countries. However, none have so far examined Germany, a country where the government has for some time taken considerable effort to roll out a nationwide eHealth infrastructure, i.e. the ‘eGK’.

Furthermore, previous papers offer an extensive but not always coherent list of critical factors for national eHealth programs, for example stakeholder involvement, expectation management, cost management, treatment of data privacy concerns, or the information technology itself. While these factors are identified by the authors as critical to a successful rollout of an eHealth infrastructure, the cases discussed in the papers do not necessarily represent best-practice purpose we look at a case study on a national eHealth program, which is still in its implementation phase at the time of writing this article. We also follow Currie’s success stories. Indeed, the ignoring of such critical factors has lead to failed implementation, as for example discussed by Avison & Young [7], Guah [8] or Venkatraman et al. [9].

Besides, when looking at these critical factors it strikes that they occur at different levels: the macro level (level of the organizational field), the micro level (level of the organization) and the individual level (level of an individual, e.g. user of the technology) [10]. In total we have found nine out of those 30 papers (Aanestad & Jensen [1], Avison & Young [7], Chau & Hu [11], Constantinides & Barrett [12], Guah [8], Jensen et al. [10], Madon et al. [13], Puri et al. [14], Sahay et al. [15]), which mention critical factors on at least two of those levels. Indeed, the literature therefore suggests that factors and stakeholders operating at all three levels should be analyzed when determining the success of national eHealth programs. Our analysis presented in the following aims at doing exactly that as we bring together the key stakeholders of all three of these levels in order to explain what has hindered the implementation of the ‘eGK’ technology in Germany so far.

3. Methodology

3.1. Case background: The ‘eGK’ technology in Germany

Germany offers a national healthcare system, wherein every citizen of the state has to be either nationally or privately insured. Approximately 70 million of the 82 million German citizens are publicly insured with one of 145 health insurance companies [16]. The Ministry of Health directs healthcare services and is responsible for all national matters with regards to health, prevention and long-term care as well as European and international health tasks. Expenditure on the healthcare sector in 2010 was ca. 287 billion €, which is approximately 11,6% of the German GDP [17].

In 2002 the lead associations of both payors (health insurers) and providers (doctors) decided to collaborate on the implementation of the ‘eGK’, which was anchored into the German law to modernize the public German health insurance system (§ 291 Abs. 2a SGB V) in 2004. The conceptual and operational realization of this eHealth program was to be carried out by the ‘gematik’, which was founded in January 2005 as a special purpose vehicle for this task (organizational structure and governance described by law § 291a Abs.
7 Sentence 1, SGB V). The ‘gematik’ is responsible for the authorization and partly for the operation of the various technical and systemic parts to be installed at doctors’ practices, hospitals and in the backbone. The ‘gematik’ is governed to equal parts by both the lead associations of payors and providers, who hold 50% of the shares respectively and have equal saying in any decision-making process. Initial plans set out for a full rollout by January 2006.

A key difference to other IT implementations observed in some of the existing literature, is that the ‘eGK’ technology is only in part intervening with the existing technology used in hospitals and practices [1] [18]. As such, only the interfaces to the doctor’s PC and the payor systems will have to be to adjusted. Other components such as the card-reading terminals, the internet connection and the most of the backbone infrastructure will be independently installed and configured, not at least to guarantee a safe, autonomous systems that cannot be breached given the many data privacy concerns. Furthermore, these parts of the ‘eGK’s’ technology are not built on existing technology and are newly developed. The so called “adaptability problem”, which should be avoided by making simple, modularized information infrastructures, as suggested by Hanseth and Lyytinen [19], does therefore only partially apply to the ‘eGK’ technology. The installation process is paid for by the insurance companies and will be provided to each doctor.

3.2. Data collection

The empirical data discussed in this paper was collected during the currently on-going implementation of the ‘eGK’ technology in Germany. While numerous papers have been published on the basis of other national eHealth programs, such as the U.K., U.S. or Denmark, to our best knowledge, we are the first to collect data and write about the ‘eGK’ technology in Germany. The data was collected in two phases: firstly, we were closely connected with several related implementation projects and especially the day-to-day running of a project between December 2010 and August 2011 with the aim of rolling out the ‘eGK’-related eHealth infrastructure to approximately 71,000 practices, 41,000 dental practices and 2,000 hospitals until the end of 2012. We were therefore part of countless formal and informal meetings with members of several stakeholder groups including the ‘gematik’, the Federal Ministry of Health, the Federal Office of Information Security, the Federal Commissioner for Data Protection and Freedom of Information, the lead associations of payors and providers, individual health insurance companies as well as several system providers and external consultants. In addition to the meetings visited, several comprehensive reports were written and thousands of emails were exchanged, which were used as data on this subject. Together, this rich account of the on-going activities provides an unparalleled insight into the program as it has unfolded over time. A major advantage of this is that it allows us to take a longitudinal perspective on the implementation process, which is especially important as “the temporal scope affects the apparent origin and direction of many phenomena” [20].

Building on these insights, we conducted semi-structured interviews with ten interview partners from the key stakeholder groups identified in the first stage of the research process and directly involved in the ‘eGK’ technology implementation. The interview partners were chosen because of their expert knowledge and strong involvement as well as to represent each of the key stakeholder groups involved in the ‘eGK’ implementation process: gematik, providers, payors, the government and the industry. We also interviewed an external consultant who was involved at several stages of the implementation process. The average interview lasted one hour. Patients were not interviewed, as they have not been involved in the project and have not been in touch with technology, as it is yet to be fully rolled out. Due to the highly political nature of the subject, as this is still an ongoing project, not all interview partners agreed to be recorded on voice record. However, exact interview notes were taken throughout all interviews. This was also the reason why another three stakeholders approached, all from one of the stakeholder groups interviewed anyhow, did not agree to be interviewed. The interviews were structured in two parts. All questions were addressed in all of the interviews: First, interviewees were typically asked to talk about their experience with the implementation process. Secondly, more specific questions were asked to ensure the comparability of data from the interviews. Based on the observatory data we offered a preliminary stakeholder model to the interview partners in order to test for its validity as well as to obtain further information on cross-stakeholder asymmetries with regards to their motivations within this eHealth program.

Within-case analysis was conducted and the stakeholder model was developed in an iterative process using both the data obtained from the observations and the interviews. This iterative process was conducted in order to allow for modifications and a fair representation of new elements. Data collection ended at the point of redundancy [21].

Following Eisenhardt’s [22] and Eisenhardt and Graebner’s [23] approach to building theory from case
studies, we have chosen the qualitative case study format for several reasons. Firstly, as stakeholder interaction in national eHealth implementation programs is a relatively little-known phenomenon, there is need for a better exploration and deeper understanding. The paper therefore takes an exploratory approach analyzing the often-complex processes of eHealth programs. Secondly, qualitative case-based research offers a ‘holistic’ view on the matter, a realization of the topic under research and an understanding of the dynamics underlying the relationship. Indeed, during the interview phase, a semi-structured interview process was employed to guide the conversation in the right direction but also allow stakeholders to elaborate according to their experience. Thirdly, with the case of the ‘eGK’ we hope to extend a currently emergent field of research, namely on national eHealth programs. Finally, the ‘eGK’ technology is yet to be fully rolled out and it is therefore difficult to collect data from end-users on the relative success of the implementation process.

Through its design in two phases and given the involvement of two researchers in the data collection process we have realized triangulation of firstly “Data” (in terms of time, space and person), secondly “Methodology” (through the inspection of literature, the ‘eGK’ implementation project and the conducting of semi-structured interviews) and finally “Investigator” [24].

3.3. Analysis

Despite the setting up of the ‘gematik’ in 2005, little progress with regards to the ‘eGK’ technology implementation had been made by 2006. The stakeholders of the ‘gematik’ therefore ordered an evaluation of the costs and benefits of the technology with the results arguing in favor of substantial cost saving potential, despite high initial costs and a long-term pay-back period exceeding a 10-years timeframe. The technology was subsequently tested in a field-test in 2007 amongst 10,000 patients in six designated areas across Germany where political acceptance was particularly high. However, results did not show the desired outcome in terms of the technological stability, performance and user acceptance. In 2009, after the general election in Germany, the lead associations of all payors, ‘GKV-SV’ (Spitzenverband Bund der Krankenkassen) called for a disentanglement of the technical complexity. Finally, since in late 2010 the technology had still not been implemented, the ‘GKV-SV’ ordered yet another re-evaluation with the aim of introducing a technologically simplified solution, supposedly speeding up the nationwide rollout process while already offering first benefits to payors, providers and patients alike. Despite considerable efforts, to date this technological solution has not even been tested. The question therefore arises: what has slowed down the planning and implementation process? And who, i.e. which stakeholders, have been involved and have shaped the process accordingly?

We build on the definition of a ‘stakeholder’ according to Pouloudi and Whiteley [25] who “define stakeholders as these participants [individuals, groups or organizations who take part in the development process] together with any other individuals, groups or organizations whose actions can influence or be influenced by the development and use of the system whether directly or indirectly”. Figure 1. shows the key stakeholder groups involved in the ‘eGK’ technology implementation process as identified from the empirical data. Noticeably, the stakeholders’ positions had been clear since the initial kick-off of the project in 2005. There had been a strong commitment from the German government changing the law to facilitate the implementation of the ‘eGK’. Furthermore, the ‘gematik’ maintained a close relationship with the Federal Ministry of Health, the Federal Office for Information Security and the Federal Commissioner for Data Protection and Freedom of Information to ensure the correct setting of healthcare, privacy and technical standards. Equally, the roles of payors and providers were well defined. By law (§ 291a Abs. 7 Sentence 1, SGB V) the ‘gematik’ was set up in a way that allowed for equal participation of both parties in the implementation process. Finally, Medical Technology providers had long been waiting to roll out already developed solutions and had in parts formed consortia capable to implement end-to-end technology solutions.

Notwithstanding the clear definition of the stakeholders’ roles, this very same set-up has caused substantial complications in the implementation process. First of all, this process was and still is today discussed and decided on truly national, macro level. As depicted in Figure 1., decisions have to date been taken on the inner layer, the macro layer, while the actual benefits of eHealth technologies would mostly surface on the micro and individual layers, i.e. amongst individual patients, doctors and insurance companies. Indeed, there has been no opportunity for stakeholders on the individual level to develop a taste for the technology and to create a growing bottom-up demand. As one interview partner explained:

“In the last ten years, the only touch point between the ‘eGK’ technology and the doctors and patients has been during the preliminary testing in 2007. Everything else has been discussed on a hypothetical basis.”
Equally, however, the benefits of similar technologies have long been discovered especially amongst hospitals and doctors who have begun to connect with each other via their own local eHealth systems in order to continuously improve their treatment services.

“One of the reasons why we pushed for yet another re-evaluation of the project as well as the sooner rollout of a simplified version of the ‘eGK’ technology, was to forestall the implementation of the growing number of competing local systems, which would eventually make the ‘eGK’ technology obsolete.”

Besides, the governance structure of the ‘gematik’ with equal saying of the payor and provider stakeholder groups has meant that decisions have always had to be compromises. Even a recent appointment of an official intermediator to arbitrate between the two stakeholder groups has not overcome this problem.

Looking beyond the realms of the ‘gematik’, however, such arbitrage is true for all stakeholder groups. Indeed, the data has shown that what lies at the core of the implementation deferment, can be described as asymmetric motivations of stakeholders, not only with regards to the implementation process of the ‘eGK’ technology itself, but within the healthcare sector in general. Figure 2. depicts the five key stakeholder groups and sums up the key conflicts between them as extracted from the data.
Asymmetric Objectives in Healthcare Market magnified by ‘eGK’ Technology

<table>
<thead>
<tr>
<th>Provider</th>
<th>Payor</th>
<th>Patient</th>
<th>Government</th>
<th>Industry</th>
</tr>
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<tbody>
<tr>
<td>Providers trying to maximize profitability of practice vs. payors managing costs</td>
<td>N/A</td>
<td>Providers trying to minimize costs through reduction of unnecessary treatments vs. patients wanting to receive max. treatment possible</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Payors wanting to increase transparency on treatment costs vs. providers wanting liberties on treatment procedures without cost restraints</td>
<td>Payants wanting to cut costs through reduction of unnecessary treatments vs. patients wanting to receive max. treatment possible</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Decreased personal costs for patients due to more efficient treatment vs. liberties of doctors to treat according to own discretion</td>
<td>Patients’ fear over data privacy vs. payors’ desire for medical data to align overall business model</td>
<td>N/A</td>
<td>Patients’ concerns about data privacy vs. government defining data privacy standards that suit overall market conditions</td>
<td>Patients’ concerns about data privacy vs. industry trying to maximize profits through selling most profitable technology</td>
</tr>
<tr>
<td>Government requiring providers to use ‘eGK’ technology vs. providers wanting max. liberty on treatment procedures</td>
<td>Government requiring payors to cover all costs associated with ‘eGK’ technology vs. payors trying to minimize overall costs of rollout</td>
<td>Government trying to reduce overall costs of healthcare sector spending vs. patients expecting maximum treatment</td>
<td>Government regulating market as well as ‘eGK’ rollout vs. industry aiming to freely invent latest technology standards</td>
<td></td>
</tr>
<tr>
<td>Industry trying to sell latest technology vs. providers not necessarily willing to pay for it</td>
<td>Industry trying to sell latest technology associated with ‘eGK’ vs. payors trying to minimize costs of ‘eGK’ technology rollout</td>
<td>N/A</td>
<td>Industry wanting to maximize profits for shareholders vs. government regulating healthcare market according to overall needs</td>
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Figure 2. Asymmetric Stakeholder Objectives in Healthcare Market magnified by Introduction of ‘eGK’ Technology

Our empirical evidence confirms that within the overall healthcare market, each stakeholder group has their very own objectives and motivations, ranging for example from high quality treatment (doctors and patients) to cost efficiency (payors). The introduction of a new eHealth system, such as the ‘eGK’ technology, may therefore fit these motivations individually. For example would the ‘eGK’ technology through ‘Personal Health Record functionality’ allow for more effective treatment of patients, which is in the interest of patients, providers and the government alike. Equally, if implemented as planned, the technology would comply with all privacy laws set by the government.

However, when relating the stakeholders’ motivations with one another they prove to be conflicting. One interview partner explained:

“The diverging motivations become clear when looking at a potential conflict between payors and providers induced by the ‘eGK’ technology: Payors are generally interested to increase the transparency on treatments as they manage their costs. Providers, however, will want to treat their patients according to their individual knowledge and skills. On the one side, payors wanting to reduce the number of costly treatments might expect doctors to consult electronic data available on the ‘eGK’ first before conducting their own analyses. Providers, on the other side, might feel that the ‘eGK’ technology confines them in their freedom to enact their profession.”

Our interview partners further suggested that these asymmetries extend to a level, whereby the stakeholder groups develop hidden agendas beyond the motivations they openly communicate. They pointed out, that different stakeholders have abused open communication channels in order to draw public support. As such, data privacy concerns have often been voiced in the press by groups opposing the introduction of the ‘eGK’. Parties in favor of the technology would argue that this ignores the numerous measures taken in terms of governmental regulations and strict technological specifications.
4. Discussion of results

4.1. Specificity of the eHealth context

Using the case study of the German ‘eGK’ technology we have observed how stakeholder behavior can influence the implementation of a national eHealth program. The data shows that stakeholders thereby act according to their motivations within the competitive healthcare market. Conflicting motivations may surface especially when tested in times of change, such as during the implementation of a national eHealth system.

The analysis of our data suggests that this phenomenon is particularly apparent in the eHealth context where stakeholders tend to take very extreme stances. Strict regulation with regards to data security and the payors’ tight cost targets are just a couple of reasons recurrently given by our interview partners as to why they take such strong positions. Another reason repeatedly mentioned is the pride doctors take in the conducting of their work. Traditionally, doctors have had great liberties in their ways of working, independent of hierarchical controls [5], [26]. They might therefore perceive the introduction of the ‘eGK’ as an infringement by the payors, the ‘gematik’ and the government. The eHealth context therefore lends itself exceptionally well to observing stakeholder behavior, also within the overall IS field.

4.2. Data privacy

Our data shows that privacy concerns are another reason over which stakeholders take opposing views. We agree with Anderson and Agarwal [4] on the importance of this element. In particular, patients and providers might be in conflict with payors over data security as medical data are regarded as some of the most sensitive out there. The government takes a mediating role with goals of the overall healthcare market in mind.

4.3. Overall stakeholder behavior

Within the 30 papers identified on national eHealth programs, nine authors broach the importance of stakeholder involvement. Four papers strike in particular, while the other four ([11], [15], [27], [28]) also mention the consideration of stakeholder behavior as a critical factor for eHealth implementation:

Aanestad and Jensen [1] look at how far stakeholders have to be coordinated and mobilized to overcome eHealth implementation challenges. Constantinides & Barrett [12] find that “development and use of ICT do not emanate solely through the intentions of a select few individuals, but through an ongoing process of negotiation between multiple actors and their technological choices”. Currie & Guah [29] argue that the influence of regulatory, normative and cultural-cognitive factors have to be understood when looking at large-scale government supported IT programs. Puri et al. [14] reason that participatory networks should be created to bring stakeholders together and to achieve common goals.

Apart from these, Wilcocks & Mark [30] in their paper on the UK national health service state as early as the late 1980s that „if general management is to operate successfully and bring in IT to serve its purposes, it must establish political and cultural support for its objectives and their implementation.“

Furthermore, outside the national context Mantzana et al.’s [31] offer both a static and dynamic approach on how to identify stakeholders within healthcare programs. They classify them into different categories: acceptors, controllers, supporters and providers, as well as from different lenses: human and organizational. Pouloudi and Whitey [25] identify stakeholders that play a pivotal role in the development of drug use management systems in the UK, emphasizing the complexity of stakeholder constructs. Finally, Currie [6] observes that stakeholders on both the macro- (organizational field) and micro-level (level of organizational unit) are affected by coercive, mimetic and normative pressures as strict, contemporary technical standards are enforced. These pressures can lead to adverse reactions on all levels.

We agree with these authors on the importance of considering stakeholder behavior in order to fully understand the challenges faced to successful eHealth implementation. Although analyses of stakeholder behavior in IS implementation processes and more particular in eHealth systems already exists, our findings expand the existing literature by two key dimensions. Firstly, our approach goes beyond offering a systematic methodology for identifying key stakeholders and, furthermore, proposes an explanation of how asymmetries in stakeholders’ motivations affect their behavior and subsequently national eHealth programs. This can, as in the case of the ‘eGK’ technology, lead to temporary implementation stagnation. We concur with Sahay et al. [15] who argue for the integration of eHealth infrastructures being asymmetric and therefore mirroring an uneven distribution of power and resources amongst stakeholders as well as with Boonstra et al. [32] who argue that implementation of eHealth technology can prove difficult due to differences on the elements of
culture, finance, power as well as the concrete working practices. We take these analyses further to identify varying types of asymmetries according to the stakeholders’ motivations.

Secondly, our model identifies, incorporates and structures stakeholders on several levels. Similarly to Currie’s [6] findings, who reason that one can “gain a greater understanding of the outcome of decisions on large-scale IT change in healthcare if they are framed at the level of organizational field, rather than at the organizational unit of analysis”, we argue that national eHealth programs need to be viewed on a macro, micro and individual level. We extend her research by collecting qualitative data on the macro level using the case of the German ‘eGK’ technology and showing the implications that stakeholder behavior at this level can have on the implementation of national eHealth programs.

5. Implications for research and practice

Our study is based on a case study focused on the single case of the implementation of the ‘eGK’ in Germany. Thus, caution is required when generalizing the findings of this study. Although many of the stakeholders identified resemble those also named in the other studies discussed above, the contextual setting of healthcare sectors may differ considerably. For example, the setting-up of a special purpose vehicle, such as the ‘gematik’, a key stakeholder in the driving of the German eHealth program, is specific to this context. To validate the model it would therefore be helpful to test it in the context of other national eHealth programs. We follow Currie’s [6] call for further studies on national eHealth programs and possible cross-national analyses.

Furthermore, it would be interesting to conduct a longitudinal study once the ‘eGK’ technology has been successfully adopted. Our asymmetry model offers an explanation of how complex stakeholder structures have hindered the implementation of the ‘eGK’ program to date. However, it is very well possible that the new technology is met with considerable resistance at a later stage too, especially by doctors and patients, stakeholders who have had very little influence on the program yet.

Notwithstanding these limitations, by collecting data over a two-year period and due to the triangulation of data collection, which allowed for extensive and very detailed observations, our model offers a deep insight into stakeholder behavior within national eHealth programs. The implications of our findings therefore also have a number of practical repercussions: First of all, the case of the ‘eGK’ shows that clear stakeholder structures on the levels of organizational field (macro level) and organizational institution (micro level) are key to the successful implementation of national eHealth programs. Stakeholders need to be aware of the context within they and others act. Besides, they also need to understand each other’s respective objectives both within the general healthcare market as well as during a potential eHealth implementation process. Should asymmetries arise, then one should aim at resolving them before such costly programs are initiated. The ongoing complications in the case of Germany show that disentangling at a later stage might prove difficult.

Given the danger of asymmetric stakeholder motivations, one solution might be that governments initially decide on whether to follow a top-down “push” strategy, whereas they fully regulate the rollout by assigning responsibilities and setting strict deadlines, or a bottom-up “pull” strategy, whereby demand for the technology is created through stakeholders on the individual level, i.e. the doctors and patients. The case of the ‘eGK’ to date shows that end-users are only successfully incorporated in the implementation process if a “pull” strategy is followed right from the outset. Only then would stakeholders across all levels be more practically involved in the implementation process moving discussions away from a more hypothetical macro level.

6. Conclusion

This paper aimed at answering two questions: for what reasons do national eHealth programs often fall behind and what role do the various stakeholders involved in the implementation process play? The empirical data collected on the case of the German ‘eGK’ technology suggests that these questions can be answered with the occurrence of conflicting stakeholder motivations across organizational levels. These can explain the failure of national eHealth programs long before they are rolled out to end-users and despite the general consent on their usefulness. Our study therefore complements prior work in this field as well as work on stakeholder behavior in the general eHealth context. We have attempted to extend the research on this relatively unexplored ground and have therefore taken a decidedly exploratory approach.

On the scholarly side, our stakeholder model can therefore serve as a starting point for future research on the disentanglement of stakeholder motivations in such large-scale eGovernment programs. On the practical side, we are hopeful it provides guidance to governments and institutions alike on the importance of stakeholder incorporation during the rollout of large-scale eHealth infrastructures.
10. References


