



E-governance innovation: Barriers and strategies

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ARTICLE INFO

Available online 12 March 2015

Keywords:

E-governance
Innovation
Barriers
Strategies
Police

ABSTRACT

Various models have been developed to explain the adoption of *e-government* but systematic research on barriers to *e-governance* is lacking. On the basis of the literature, this paper develops a theoretical model of *e-governance* innovation that highlights (1) phases in the innovation process, (2) government and citizen barriers and (3) structural and cultural barriers. Fixing problems and framing stories are presented as the two principal strategies for tackling the various barriers throughout the innovation process. This model is explored in a case study of a technological system for collaboration between police and citizens in The Netherlands. The case shows the value of the model and highlights that *e-governance* innovation is about designing comprehensive strategies of fixing and framing to tackle the variety of barriers. More specifically, the research highlights that government officials and citizens are not motivated by the promise of technology but by frames that connect technological opportunities to the production of public value.

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1. Introduction

New technologies are increasingly used to support the development of networked interactions between government organizations and citizens: *e-governance*. The potential of contacts between government and citizens for producing public values—i.e. outcomes that are generally regarded as desirable such as safety, security and prosperity—has been recognized for some time (Brudney & England, 1983; Ostrom, 1978; Percy, 1978, 1987) but practical and financial barriers have limited the developments of structural forms of citizen engagement. New technologies can be used to engage citizens in processes of cocreation (Kokkinakos et al., 2012), coproduction (Meijer, 2011) and citizens sourcing (Hilgers & Ihl, 2010).

E-governance holds a huge promise for improving governmental processes through citizen coproduction (Milakovich, 2012; Tapscott, Williams, & Herman, 2008) but, still, governments are surprisingly slow in adopting new technologies for governance. Norris (2010: S181) highlights that the use of new technologies to build interactive relations is still limited: *e-governance* is mainly informational. In spite of their potential, the use of new media for governance is still limited (see, for example, Mergel, Schweik, & Fountain, 2009; Mergel & Bretschneider, 2013). There is a need for a better understanding of the difficulties of using new technologies to engage citizens in government processes.

Various models have been developed to explain the adoption of *e-government* (Margetts & Dunleavy, 2002; Moon, 2002; Norris & Moon,

2002; Snellen, 2005) but systematic research on barriers to *e-governance* is lacking. Models for *e-government* can form a starting point since they state that many barriers—related both to governments and citizens—render the adoption of *e-governance* difficult and explain why promising opportunities are often not used. This paper aims to build upon this literature and enhance our understanding of barriers to *e-governance* and strategies for tackling them by empirically investigating and analyzing *e-governance* innovation in terms of phases, domains and types through a case study of the development of Citizens Net in The Netherlands.

E-governance innovation will be studied by zooming in on one case, a technological system for engaging citizens in police work in The Netherlands, and studying this case over an extensive period of time. Most studies of barriers to *e-government* innovation use a survey as research method (Eynon & Dutton, 2007; Eynon & Margetts, 2007; Moon, 2002; Norris & Moon, 2002; OECD, 2003; Schwester, 2009). This type of research provides information about general trends but little in depth understanding of specific mechanisms (Schwester, 2009: 121). In that sense, an in-depth and longitudinal case study of *e-governance* innovation can form an important contribution to the literature by highlighting the dynamics over time.

The paper presents a theoretical framework of the different barriers to *e-governance* innovation and presents strategies for tackling them. ‘Fixing’ and ‘framing’ are presented as the main strategies for realizing *e-governance* innovation. The development of Citizens Net, a system for engaging citizens in police work, is used to illustrate the value of this analytical model. The key contributions of this paper to the literature on barriers to *e-governance* are (1) the identification of ‘framing’ as crucial to successful innovation and (2) the need to tackle not only barriers within government but also among citizens.

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2. Barriers to and strategies for e-governance innovation

2.1. Barriers to e-governance innovation: phases, domains and types

Our conceptualization of e-governance states that it is about using new information and communication technologies to help government to strengthen interactions with citizens and societal actors to solve societal problems collectively (Dawes, 2008; Dunleavy, Margetts, Bastow, & Tinkler, 2006; Milakovich, 2012). E-governance is about engaging citizens and stakeholders and letting them *coproduce* public services while e-government views citizens largely as *consumer* of these services. E-participation is also about engaging citizens but this literature emphasizes the engagement in *decision-making* while our perspective on e-governance stresses the role of citizens in the *implementation* of government policies and the delivery of services. This means that e-governance is about using technologies to position government in an external network with citizens and stakeholders to cooperate in the production of policies and services.

The study of e-governance innovation builds upon the growing body of literature on public innovation. The literature on public innovation has only been expanding rapidly since the 1990s (Altshuler & Behn, 1997; Ansell & Torfing, 2014; Hartley, 2005; Osborne & Brown, 2005; Sørensen & Torfing, 2011; Szkuta, Pizzicannella, & Osimo, 2014; Walker, 2006). Szkuta et al. (2014), Bekkers, Edelenbos, and Steijn (2011: 197) define public innovation as 'a learning process in which governments attempt to meet specific societal challenges'. Much of this literature focuses on barriers to innovation and, more specifically, many authors have tried to identify barriers to e-government. Based on Eynon and Dutton (2007: 229, 230), we define barriers to e-governance innovation as characteristics—either real or perceived—of legal, social, technological or institutional contexts which work against developing e-governance because they: (a) impede demand, by acting as a disincentive or obstacle for users to engage with e-governance; or (b) impede supply, by acting as a disincentive or obstacle for public sector organizations to provide e-governance; or (c) constrain efforts to reconfigure access to information, people and public services in ways enabled by ICTs.

The various sorts of barriers can be systematized along three dimensions. Firstly, the barriers to e-governance can be analyzed on the basis of a *phase model* of innovation. An important finding in the literature is that barriers for innovation differ in the different stages of the innovation process (Mumford, Scott, Gaddis, & Strange, 2002: 717). Following Meijer (2014), we propose the following phases with different barriers:

- *Idea generation.* In this phase, the idea of transforming government through the use of new technologies is developed. Interpretative barriers can play a key role in this barrier: many actors will not be prepared to change the way they have been viewing themselves, others and the world (Dougherty, 1992).
- *Idea selection.* Out of all the ideas that are being developed within an organization, some are selected for further development. Organizational attention and resources are scarce and hence selection is needed. Political and organizational barriers are crucial here: the idea needs to compete with other ideas for attention and resources (Margetts & Dunleavy, 2002).
- *Idea testing.* The idea is developed and tested on a small scale to see whether it 'works' in practice. In this phase, the use of new technologies for creating citizen engagement runs into a range of technological, organizational and institutional barriers (Eynon & Margetts, 2007).
- *Idea promotion.* A successful test will be followed by promotion of the idea to get it implemented on a larger scale. In this phase, financial and capacity barriers may prevent the process of innovation from moving forward (Bekkers et al., 2011; Rogers, 1995). The 'not invented here' mechanism may also form a barrier to the adoption of the idea in another setting.

- *Idea roll-out.* If other organizations have decided to adopt the innovation, they have to implement it. Technological and organizational barriers, again, play an important role (Eynon & Margetts, 2007). While experimental technology could have worked in an experimental setting and a selected group of enthusiasts were cooperating, the idea now requires robust technology and acceptance by a wide range of employees.

Secondly, barriers to e-governance differ in their domains: government barriers and citizen barriers. The literature on government barriers highlights that the specific characteristics of government organizations result in several barriers (Margetts & Dunleavy, 2002: 3). Moon (2002) highlights personnel capacity, technical capacity (number of IT staff and IT skills), financial capacity and legal issues as barriers. Schwester (2009: 116) mentions lack of political and management support and Eynon and Margetts (2007) and the OECD (2003) refer to a lack of leadership. These forms should be understood within the context of external support for e-governance (Schwester, 2009: 116). Lack of coordination is also mentioned as a barrier (Eynon & Dutton, 2007: 231; Eynon & Margetts, 2007: 77) and Sørensen and Torfing (2011) highlight inter-organizational barriers. Technical barriers related to the availability of hardware and software and interoperability (Eynon & Margetts, 2007) but also the ability to deal with issues of privacy and security are highlighted in the literature (Gilbert, Balestrini, & Littleboy, 2004; West, 2004). Some sources highlight interorganizational barriers such as the reluctance of agencies to give up their autonomy (Eynon & Dutton, 2007; Homburg, 1999).

Citizen barriers arise when citizens are expected to use e-governance and to contribute to the production of public values (Margetts & Dunleavy, 2002: 9). Citizens need the opportunities skills and motivations to engage with government agencies in the production of public values. In the literature on e-government, the 'digital divide' (OECD, 2003; Van Deursen & Van Dijk, 2011) is identified as a key barrier. Another barrier is that new technologies cannot be integrated in people's daily routines: they are not domesticated (Frissen, 1989). The image citizens have of government is an important barrier: if citizens expect little of government or they do not trust government, they will not be willing interact through digital means (Margetts & Dunleavy, 2002: 9). The image of government may also conflict with the image of the Internet since citizens may not be willing to use a 'medium for fun' to interact with government which is everything but fun (Margetts & Dunleavy, 2002: 9).

Thirdly, there are structural and cultural barriers to e-governance. While many studies have identified a variety of structural barriers such as funding, technology and skills, Margetts and Dunleavy (2002: 5) highlight the importance of cultural barriers: '(...) organizational values may work against the development of electronic services.' They argue that especially an image of the technological world as a 'terribly unforgiving place' where 'the least jolt may trigger its complete collapse' leads to resistance to technological change. This image is creative but seems to focus exclusively on technology whereas the cultural barrier also involves the change in existing routines and value orientations (cf. Kling, 1996) and Sørensen and Torfing (2011) highlight the important role of 'identity-related barriers'. For one thing, staff may resist e-governance since they fear that technology may replace people (Schwester, 2009: 116). More fundamentally, bureaucratic culture—formality, uniformity and hierarchy (Frissen, 1989; Margetts & Dunleavy, 2002: 5, 6)—preserves the traditional ways of interacting with citizens. Additionally, government officials fear that new technologies may undermine the robustness and reliability of government.

Cultural barriers can also be identified on the side of citizens. Citizens may be opposed to changes in the relationship with government because they feel it threatens their autonomy or privacy (Meijer, Burger, & Ebbers, 2009). Cultural barriers are also related to the images citizens have of government, their own role and new technologies. If they see government as unreliable, their own role as passive and new

technologies as games, they are unlikely to interact with governments in processes of e-governance. They prefer to spend their time in World of Warcraft and to complain about government's inability to serve citizens adequately.

An overview of the various types of barriers categorized for the dimensions structure/culture and government/citizens is presented in Table 1.

Margetts and Dunleavy (2002: 8) highlight that this broad variety of barriers to innovation may result in a reluctance to experiment, to devote organizational resources, to make these resources only available if the new technologies have proven their value beyond doubt. And if organizations still have developed opportunities for e-governance, citizens may ignore or even resist these opportunities. In spite of all these barriers, some government organizations still manage to develop successful forms of e-governance. They develop strategies for overcoming the broad range of barriers to e-governance and find ways to develop new, mediated patterns of interaction with citizens. How do they do this?

2.2. Strategies for e-governance innovation: fixing and framing

A strategy for e-governance innovation means setting long-term goals and implementing actions for realizing e-governance. Successful forms of e-governance innovation have found strategies to deal with the barriers that we identified in the previous section. Various interventions are needed to move the innovation process forward. Several strategies have been brought forward in the literature and these can be categorized in terms of the types of barriers that we have distinguished.

Most of the literature focuses on *structural government barriers*. The central idea is that these barriers can be overcome if key organizational actors are willing to support the innovation process and if the contributions of these actors can be organized. Schwester (2009: 116) focuses on demonstrating the Return On Investment (ROI) as the dominant strategy for e-governance innovation. Showing the value of the innovation is crucial to obtaining organizational support. Eynon and Margetts (2007: 79) highlight the importance of building a network of e-government champions to promote innovations. Platforms should be created to enable these champions to communicate and developed joint initiatives. Creating prizes is seen as a good strategy for drawing attention to and incentivizing e-government initiatives (Eynon & Margetts, 2007: 79). Problems of coordinating technological aspects are, according to Eynon and Margetts (2007: 81, 82) to be overcome by developing forms of 'chaotic coordination'. This enables organizations to change their front-end while maintaining the same organizational structure in the back office.

Considerable less attention has been given to *cultural government barriers* to e-governance innovation. Margetts and Dunleavy (2002: 12) stress that older staff and staff in senior positions can feel threatened by large-scale technology-induced changes of work. They highlight that negative images of technology need to be countered by creating incentives for experimenting with technologies and embedding these into everything the organization does. Still, these incentives mostly focus on images of technology whereas, as they admit (Margetts & Dunleavy, 2002: 5), the cultural barriers also relate to the changes in organizational values. Changes in belief systems and values are not triggered

by incentive structures but rather by convincing stories and leadership (Selznick, 1957; Eynon & Margetts, 2007: 79).

Specific strategies are needed to get citizens involved. *Structural citizen barriers* can be overcome by ensuring access to the required technology (Margetts & Dunleavy, 2002: 13) and developing an e-literature workforce (Eynon & Margetts, 2007: 83). Widening access to new technologies may be needed to ensure that citizens can engage with government. Additionally, government may need to invest in citizens' skills (Van Deursen & Van Dijk, 2011). Programs for enhancing digital literacy are seen as important for dealing with structural citizen barriers but the problem is that these programs are general in nature and not directly related to specific e-governance innovations. More specifically, segmenting citizens and contacting them through different media is seen as an important strategy to overcome barriers of access to information or interaction (Eynon & Margetts, 2007: 80).

Finally, strategies need to deal with *cultural citizen barriers*: convincing citizens of the meaningfulness of new socio-techno practices. These barriers have received surprisingly little attention in the literature. Margetts and Dunleavy's (2002: 12) argument is that citizens need to be convinced of the value of e-governance and then they will be willing to use these new technologies. In line with Selznick (1957), we can argue that convincing stories and leadership may be of crucial importance since, just like civil servants, citizens need to be convinced of the need to change their belief and value systems and to adopt new routines in the use of new technologies.

The combined strategies for tackling structural government and citizen barriers can be referred to as *fixing e-governance*: e-governance innovation requires reworking the organization, developing new technological systems, developing forms of access for citizens and stakeholders and strengthening their capacities. The idea that innovation is not only about having a good idea but actually realizing it by overcoming or working around barriers is broadly acknowledged in the literature (Brown & Osborne, 2005; Hartley, Sørensen, & Torfing, 2013). Coordination is a crucial element of fixing (Eynon & Dutton, 2007: 231; Eynon & Margetts, 2007: 77) but it also includes a diverse set of activities such as finding financial resources, identifying ways to deal with legal constraints, training people and making technological systems work (cf. Bekkers et al., 2011). These activities all require a pragmatic perspective on innovation to translate the idea into something that actually can be realized.

Our discussion of the literature highlights that fixing e-governance is not enough: argumentative or persuasive strategies are needed for tackling the cultural barriers. While Sørensen and Torfing (2012: 9) use the term 'strategic information narratives', we prefer the term *framing e-governance* to build upon the theoretical insights about framing. Chong and Druckman (2007: 104): 'Framing refers to the process by which people develop a particular conceptualization of an issue or reorient their thinking about an issue.' In the case of e-governance innovation, both governments and citizens need to re-conceptualize their interactions to take a favorable stance toward the new socio-techno practices. Framing strategies are needed to tackle cultural barriers and move the innovation forward (cf. Chong & Druckman, 2007; Fiss & Zajac, 2006). Cels, De Jong, and Nauta (2012: 44 a.f.) highlight that an innovation may be an obvious and intelligent solution according to the innovators but they will still need to persuade others that it is meaningful.

The realization that an innovation process consists of different phases adds additional complexities to strategies for e-governance

Table 1
Types of barriers to e-governance innovation.

	Government	Citizens
Structural barriers	Legal constraints, lack of finances, shortage of personnel and available skills, limited political and management support, lack of coordination, technological constraints	Lack of technological facilities, limited knowledge and competences, shortage of time, failure to integrate innovation in daily routines
Cultural barriers	Resistance to change, fear that innovation undermines the robustness of government, interference with bureaucratic culture	Lack of interest, little faith in and negative image of government, no perceived usefulness, resistance to technology

innovation: fixing and framing e-governance need to be applied in different forms throughout the innovation process. The barriers differ in each phase and while, for example, fixing problems in the identification and selection of ideas is important in the initial phases embedding new systems in technological systems becomes more important in later phases. Sensitivity to the barriers in the specific phase but also anticipation on barriers in consecutive phases is crucial for realizing e-governance innovations.

The different barriers to e-governance innovation and strategies for tackling them are presented in Fig. 1:

On the basis of this literature review, a framework has been developed to investigate barriers to e-governance innovation and to develop strategies for overcoming these barriers. Our model states that e-governance innovation requires strategies for fixing structural government and citizen barriers and framing cultural government and citizen's barriers. Fixing and framing need to take place in different forms to tackle barriers in the different phases of the innovation process. This framework is explored through an in-depth empirical case study to analyze which barriers are present in real situations and how innovators overcome these barriers.

3. Research design

The empirical research focused on the use of new media to engage citizens in the coproduction of safety in The Netherlands. It is not typical for the field since it does not focus on service delivery but on surveillance. Still, the case can be regarded as a best practice in terms of participation by citizens and contribution to the efficacy of government policies. At the same time, it took a long time before this practice could be realized and therefore the case study provided many insights in the barriers to innovation and ways of dealing with them. The two features render this case a *most informative case* since it provides information both about how an innovation can succeed and also about it can take very long before it does (George & Bennett, 2005). The focus on a long-term development means that the case will not focus on the latest technology but rather on proven or established systems.

The system to engage citizens in the coproduction of safety in The Netherlands, Citizens Net, consists of a database with (geographical and personal) information about citizens and a system for sending voice and text mail messages based on geographical characteristics. It works as follows. Citizens are asked to sign up for the system to help the police apprehend criminals and find lost persons. Local emergency centers of the police can contact citizens by sending a voice or text message to ask for information. Information from citizens is processed at the emergency centers and channeled through to police officers in charge of the specific investigation. The system can be characterized as an interesting form of e-governance since new technologies are being used both within the organization and in contacts with citizens to strengthen collaboration between government and citizens and produce public value, in this case the production of safety. An evaluation study shows that citizens' interest in this form of coproduction is high with an average of 4.6% of the citizens signing up for Citizens Net (Van der Vijver et al., 2009). The hard contribution of Citizens Net to intervening police work is substantial: 9% of all the cases that were qualified as fit for a Citizens Net Action is solved on the basis of citizen information.

This research aimed to reconstruct the development of Citizens Net over time to trace its causal path (George & Bennett, 2005). A secondary analysis of the evaluation study of Citizens' Net by Van der Vijver et al. (2009) was used to reconstruct the perspectives of citizens. The main part of the primary data collection consisted of nine in-depth interviews with the key actors. These interviews generally took two to three hours. Respondents were selected by starting with the current program manager of Citizens Net and asking him who we should interview to understand the innovation process. In the following interviews, the respondents were asked whether there were other key actors that we should interview. The selection of respondents was ended when the respondents indicated that they thought we had interviewed the key leading actors. In the end, two police officers, one police manager, two police chiefs, one mayor, one senior police adviser, one project manager and two senior civil servants at the Ministry of Internal Affairs were interviewed.

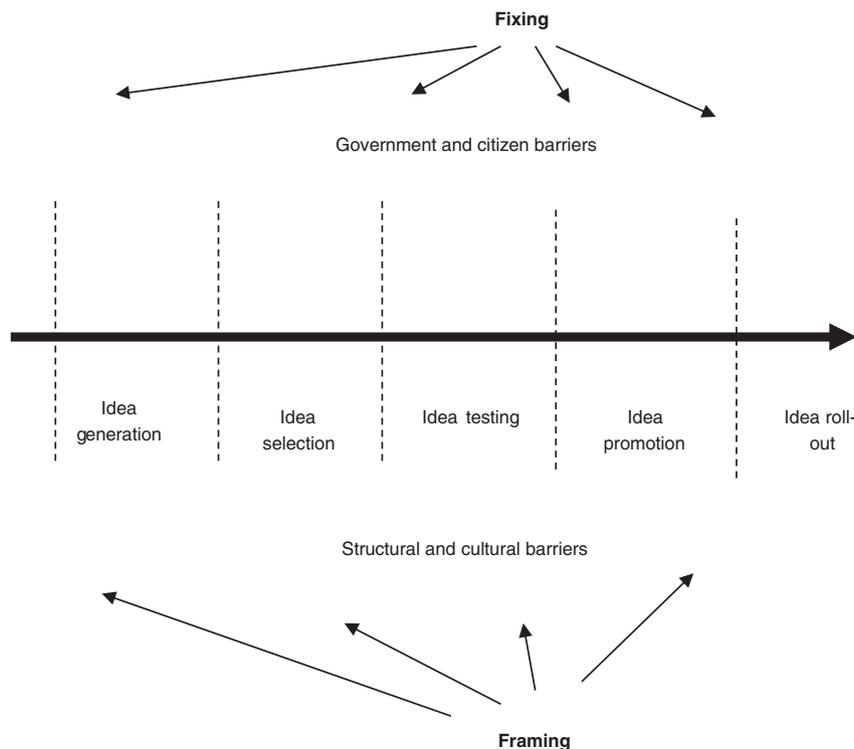


Fig. 1. Barriers to and strategies for e-governance innovation.

The interviews started with a precise historical account of the respondent's involvement with Citizens Net. Specific questions were asked about the involvement of other actors and their contributions to the process of innovation. The interviews ended with questions about the barriers to the process of innovation and strategies for overcoming them. The answers were noted down and recorded. The interviews were coded and analyzed on the basis of a data matrix that, in line with the theoretical model, focuses on phases of innovation, barriers and strategies (Boeije, 2010). Information from one respondent was always checked with the information from other respondents. The barriers were categorized according to the four categories that had been identified: structural and cultural government barriers and structural and cultural citizen barriers.

In the following section, the findings of the empirical research are presented. We will first present a broad overview of the development of this e-governance innovation over time and then we will apply the theoretical model to focus on the barriers and the strategies. The section ends with an analysis of the use of the strategies to overcome the various barriers.

4. Case study 'Citizens Net'

4.1. From idea to nation-wide implementation

The idea of Citizens Net was developed in 1993 by R1¹, a police officer in L3¹, on the basis of his experience as a police officer working in the streets: 'Through the control room, we received concrete information from citizens about criminals, about vehicles. Then we would step in our car and go to the location as fast as we could. I quickly recognized a pattern and this pattern surprised me. Someone calls from a neighborhood where everybody is opposed to crime but time passes by before the police arrive. We kept the information to ourselves while knowing that the burglar ran into another direction as fast as he could. We would arrive at the location and be 'surprised' that the burglar was no longer there' [R1].

R1 developed the idea of contacting citizens over the telephone and wrote this down in a memo for his colleagues with all the main features of the later system, including the name Citizens Net. Top management at the police department in L3 highlighted that they found the idea highly interesting but did not see any opportunities to realize it. 'The idea ended up in various drawers.' [R1] R1 did not give up and put much effort into 'framing' the idea: 'I frequently shared the idea with other people. Aunts, uncles, neighbors. I did this to ensure that the idea would connect to their way of thinking.' [R1] Little progress was made with the actual realization of Citizens Net until it won the regional police department's departmental innovation award of 4000 euro in 1997. R1 thought that this would result in more support from his superiors but his direct manager indicated that he had other priorities.

R1 obtained additional funding of 30.000 euros from the Ministry of Internal Affairs under the condition that more regional police departments would be involved. R1 contacted acquaintances in police departments L5 and L6 and they formed a project team. The funding and the organizational cooperation provided the conditions for developing a pilot study in 2000. The community of L1, in police department L5, was selected for the pilot project. The mayor of L1 was strongly in favor of Citizens Net and, with the exception of one councilor for the Green Party, the city council also supported the system. The pilot project started in 2004 and while the objective was to engage 400 people, over 1600 people signed up [R7, R9].

Realizing the system proved difficult. The project team had to develop data processing software (with information about citizens and

about police actions), communication software (to send voice mail messages to citizens) and a geographical layer (to select receivers for the messages). Citizens Net started in May 2004 but due to operational inadequacies—the actions were only started after 14 to 17 min—it was not successful. Only after this time lag had been brought down to a few minutes, Citizens Net booked its first success in February 2005: three pickpockets were apprehended with their loot. The opinion of the citizens was measured in May 2005, a year after the start of the pilot project and citizens—even the ones that did not participate—had a very positive opinion about the system. The pilot study in L1 was evaluated and the results showed that Citizens Net had contributed to citizens' trust in the police and to police effectiveness. The project team prepared for slowly up-scaling the project when it got caught in national political dynamics.

In 2007, Citizen Net was given a boost by the following sentence in the official declaration of the new government: 'Citizens Net is to be implemented nationwide.' (Government Declaration, 2007) 'Since it was mentioned in the Government Declaration, it became an objective that was discussed regularly in the ministerial staff meetings.' [R4] Much more money became available for the project: 2 million euro per year until 2011 and 1.6 million euro program support per year [R4]. One could assume that political support and available funding would facilitate the implementation of Citizens Net but the attention also led to more bureaucratic politics and rendered contracting out more difficult due to European regulation. Still, this phase ended with a positive evaluation of the extended pilot projects in nine communities: Citizens Net contributed to police effectiveness and strengthened citizens' trust in the police (Van der Vijver et al., 2009).

From 2009, Citizens Net has been implemented in a large number of communities all over the country. A network of project managers in the regions played an important role in exchanging experiences with Citizens Net. The development of Citizens Net over time is summarized in Table 2.

In sum, it took twenty years before Citizens Net was implemented in all police departments. One may wonder why it has taken so long to realize an idea that seems relatively simple. Why did it take so long to realize Citizens Net?

4.2. Variety of barriers

4.2.1. Structural government barriers

In the phases of idea generation and idea selection, the formation of regional police departments, limited organizational support for innovation and slowed down the development of Citizens Net [R1]. In the phase of idea testing, implementing the system in the control room meant an additional task and a new priority for the people working there [R1 and R7]. Organizational barriers became less important in the phase of idea promotion but the expansion of the project triggered new barriers: 'The political and administrative dynamics changed. There were many questions from the ministries of Internal Affairs and Justice. (...) There were questions from MPs about Citizens Net. (...) The complexity of the project increased because we did not only have to coordinate things with the specific regions but everything needed to be discussed in the national coordinating bodies of police chiefs.' [R7] Inter-organizational barriers also played a role in contacts with large

Table 2
Development and implementation of Citizens Net.

1993–1997	Idea generation	Idea for Citizens Net is developed by R1
1997–2000	Idea selection	Idea wins innovation award and gets support from Ministry of Internal Affairs
2000–2007	Idea testing	Idea is tested in locality L5
2007–2009	Idea promotion	Idea obtains support from national government and is tested in nine localities
2009–2012	Idea roll-out	Idea is implemented in all Dutch police departments

¹ The terms R1, R2, etc. are used to refer to the respondents and the terms L1, L2, etc. refer to the locations (i.e. cities, towns and villages).

and complex contracts with IT-firms [R7]. In the roll-out phase, lack of organizational support continued to be an issue.

Financial barriers formed a barrier to the selection of the idea: many ideas are being developed with the police organization and only a limited number can be developed further. Financial barriers continued to play a role when Citizens Net developed into a national project. The fact that police departments had their own budgets made it difficult to get collective projects funded: 'Police departments tend to focus on their own developments. It is difficult to obtain funding for general developments.' [R2] These barriers could have been fatal for the nationwide implementation (after 2007): 'Some regional police departments did not have money for Citizens Net. The L2 Police Department, for example, needed to lay off people. Then it is difficult to make money available for Citizens Net' [R1].

Technological barriers started to play a role in the phase of idea testing: the pilot project in L1 needed to be postponed by almost a year because of technological difficulties. The project team managed to develop a system in the test phase but they ran into new difficulties when the system needed to be scaled-up. The main problem was that up-scaling the project meant that more robust technology was needed. Fragmented technology from small firms was used in the phase of idea testing but this technology now had to be taken to the next level. Creating robust technology that could support Citizens Net all over the country proved to be difficult and demanded much attention from the project team and the steering committee.

4.2.2. Cultural government barriers

In the phases of idea generation and idea selection and to a lesser degree in later phases there was much cultural resistance against Citizens Net [R1]. The principal objection was that police officers felt that the system threatened their position by empowering citizens. They feared losing control and obtaining inadequate information from citizens. Criminals could even present misinformation to the police. More down to earth, they also felt that it could lead to much rather useless information that still would need to be processed by the police. 'Police officers tend to think: I am a professional. I have been educated to do this work. Why would I need citizens?' [R1] At the management level, and actually also in society, creating more safety was seen as a task for the police force [R2]. This perception of the division of tasks between the police and citizens created little impetus for further development of Citizens Net. Improving the police organization with new technologies (i.e. e-government) was seen as a more preferable route than improving the engagement of citizens through new technologies (i.e. e-governance).

In the phase of idea testing, there was some resistance from the minority party the Greens: 'The chance is considerable that a 'big-brother-is-watching-you' atmosphere is being created, citizens start mistrusting one another or even endanger themselves. Another probable consequence could be that citizens see themselves as moralists and claim the right to play secret agent. Intolerance, more mistrust and even conflicts can determine the relations.' (Green-Left Party, 2004) However, these cultural barriers on the side of political representatives played a limited role, partly because the mayor R9 supported the idea right from the start.

In the phase of idea roll-out, new cultural barriers played a role. Some police officers regarded Citizens Net as a new 'toy' for police management and not as an instrument that could substantially contribute to police effectiveness. R8 made much effort to ensure that Citizens Net should be seen as something 'blue', i.e. an instrument that was directly connected to police work. For police management, the risky frame is that Citizens Net is seen as expensive and not effective.

4.2.3. Structural citizen barriers

The so-called 'digital divide' is the primary citizen structural barrier but in this case this barrier was absent. The police had chosen to focus on the telephone as the principal technology for engaging with citizens.

While the technological options of this medium are limited, the telephone is widely available and no specific knowledge or skills are needed for using it. The 'low tech' nature of Citizens Net resulted in the absence of structural citizen barriers (Van der Vijver et al., 2009).

4.2.4. Cultural citizen barriers

Citizen barriers were expected in the early phases but they only started to become relevant in the phase of idea testing. R1 highlighted that two cognitive frames could form a barrier to the implementation of Citizens Net:

- *Informer Society*. This frame stresses that citizens help the police in the same way that citizens helped the Stasi in former East-Germany. In the Dutch context, the comparison with cooperation with the German occupation during the Second World War is easily made.
- *Vigilante Society*. This frame highlights that citizens may start to see themselves as participants in law enforcement. This frame was brought forward by a councilor for the Greens in L1 in 2003: 'Mr. Sewgobind asks about the progress of Citizens Net, he highlights that one should be careful that Citizens Net does not endanger the cohesion between citizens.' (Minutes of the meeting of the Nieuwegein local council commission on General and Administrative Affairs, 4 December 2003)

An unexpected aspect of the innovation was that in the test phase there were few citizen barriers: many more people signed up for Citizens Net than was expected (Van der Vijver et al., 2009). 'The people loved it.' (R3) Public support played a limited role before the pilot project but as soon as Citizens Net had been implemented, public support became a supportive factor in the further development of Citizens Net. Citizen barriers were largely absent and the high level of citizen engagement helped to break through barriers on the side of the police.

Citizen barriers continued to be absent in the later phases. None of the communities had (and has) difficulties in finding enough citizens to participate and engage with the police. The absence of citizen barriers may either indicate that these were well managed in the process or indicate that citizens were already willing to cooperate with the police but the means to do so were not yet available to them. Now large-scale contacts between police and citizens are facilitated by databases systems and technologies for large scale telephoning. Massive targeted communications through simple means, the telephone, enable citizens to make the contributions to safety that they were already willing to make.

4.3. Strategies for dealing with the barriers

A variety of strategies has been employed to deal with the barriers and to move the innovation process forward. Not all these strategies were (directly) successful: it took a decade before Citizens Net was finally tested. The variety of barriers that we identified in the previous section explains why it took such a long time before the innovation was implemented. This section will analyze the strategies that made the innovation process move forward in spite of the variety of barriers.

Various strategies were developed to deal with the *structural government barriers*. The financial barriers in the phases of idea generation and selection were broken through the innovation prize and support from the Ministry of Internal Affairs. Money became available through the prize and later on this money was supplemented by the ministry. The money allocations can be considered as a process of selecting the idea for further development. The idea started to gain momentum with the support from the Ministry of Internal Affairs. New financial barriers popped up in the promotion phase. The chair of the steering committee started a lobby to get extra finances from the ministry of Internal Affairs. He was successful and, again, financial barriers were overcome by extra funding from the Ministry of Internal Affairs.

Organizational barriers in the phase of idea generation and idea selection were overcome by moving the idea to another police department. R1 had a strong network within other police departments and

he explored the possibilities to take his idea elsewhere. The financial support from the Ministry of Internal Affairs made it attractive for other police departments to start an experiment and in L5 both the major and the police chief were willing to start to experiment with the idea. This idea is actually quite a surprising and inventive reaction to the organizational resistance experienced in L2.

In the promotion phase, a more complex organizational structure was developed to take care of (inter)organizational barriers and reposition all actors. The project was managed on the basis of the Prince II method. Reorganizing the project required a strong intervention [R3]. At this stage of the process, the project team followed the same strategy as during the pilot project in L1 but at a higher level: a combination of executive support (top-down) and support at the work floor (bottom-up) [R7].

In parallel, strategies were developed for dealing with *cultural government barriers*. In the phases of idea generation and idea selection, R1 put much effort in making the idea acceptable for the police organization. R1 discussed 'risky frames' with R6: 'We talked a lot about the (...) 'snitch' idea can be attached to Citizens Net.' [6] R1 even realized that risky frames could eventually lead to political resistance. R1 and others also succeeded in convincing the prosecutor's office that Citizens Net was a 'lighter' instrument than a television program such as Missing and, therefore, the formal legal procedures that had been developed for Missing did not have to be applied.

R1 put much effort into convincing the people on the work floor: both support from top management and support from the work floor needed to be assured: 'We wanted the work floor level to become involved. We did not want them to see it as something from police department management but as a 'blue thing'. (...) Our story was: Citizens Net is about catching criminals.' [R8] For police management, R8 framed Citizens Net as something that increases the efficiency of the police: 'We proclaim that (...) Citizens Net saves us on capacities for police investigations.' Framing was also needed to make Citizens Net acceptable to the police control center. R1 developed a 'radar-missile' metaphor to convince the police officers in the control room of Citizens Net: 'First sending police officers to a location and then asking for more information from citizens is like sending a missile and then looking at the radar where the missile need to go.'

Structural citizen barriers were tackled before they could actually hamper the innovation process. The choice for a low-tech system—the telephone—meant that citizens all had access to the technologies needed and were capable of using this. Only recently, the Dutch police have started to use Twitter for Citizens Net but this is seen as an addition rather than as a replacement for the use of the telephone partly because use of Twitter generates barriers to contacts with the police for elderly and less digitally trained citizens.

Finally, strategies were developed for dealing with *cultural citizen barriers*. Overall, the framing of Citizens Net had been developed thoroughly in the early phases and proved to be successful when the system was tested, promoted and rolled out. Apart from the arguments of the Greens in L2, the innovation did not meet any unwelcome framing. The simplicity of the idea behind Citizens Net is by many respondents regarded as a major driver of the process of innovation [R3, R6, R7, R8, R9]. 'The idea was very simple. Will you look out of your window every once so often? You can even wonder why nobody else developed this idea.' [R9]

Several respondents highlighted that the idea came at the right time [R2, R4, R7]: there was a growing attention for citizen participation and Citizens Net was a system that could be used to enhance citizen participation. Some respondents highlighted that the idea only landed in fertile soil when thinking about relations between police and citizens had changed: 'The paradigm was different ten years ago. Then the basic idea was: government creates safety. Much money was invested in large projects. Lately we have realized that, despite massive investments, citizens feel less safe. (...) Now citizens, but also other actors, are engaged in safety.' [R4]

4.4. Analyzing the relations between barriers and strategies

It took a long time before the idea was actually realized. R1 developed the idea in 1993 and actual testing only started in 2004. This finding is in line with Eynon and Margetts (2007: 78) observation that leadership failure can lead to low prioritization of e-governance. The idea was not actively opposed but received little or no support from political and administrative leaders. The idea started picking up steam from then on: the successful test results in L1, the huge interest of citizens in the system, the Government Declaration, and the changing climate regarding citizen engagement became important driving factors of the innovation process. The findings seem to show that the testing phase is crucial: the idea gains broad support if it has been shown to work. Success breeds success.

Overall, *structural government barriers* were important. Using new technologies for strengthening citizen engagement shows many similarities to other processes of innovation in the public sector (Bekkers, van Duivenboden, & Thaens, 2006): technological, organizational, financial, legal and political barriers play a role in different phases of the innovation process. The innovators proved quite successful in *fixing* solutions for various problems by obtaining money through an innovation award and tackling organizational support by moving on to another police department that was willing to experiment. The inter-organizational barriers are not as often mentioned in the literature but play an important role in up-scaling the innovation. The problem of bureaucratic politics was fixed by creating a new project structure with three distinct levels: operational issues, tactical issues and strategic issues.

Structural citizen barriers were fixed by choosing a 'proven technology' (Snellen, 2005): the telephone. In contrast with many other innovations, there was no urge to choose the latest technology. This choice for telephone communications results from the time when the original idea was developed but also from the fact that technology developers were largely absent in the innovation process. The innovation process showed many examples of *fixing* such as, for example, generating financial support through winning a price, ensuring organizational and political support by building support networks, ensuring robust technology development through project management, and building a three level project structure to prevent interference of operational, tactical and strategic issues.

The in-depth analysis of this case showed how, especially at the start, *cultural government barriers* were prominent. The police had to be convinced that citizen engagement would improve police work. Police officers, especially in the early phases, feared that it would reduce their autonomy and lead to less professional work. Framing the system as fitting for police work was crucial (cf. Fiss & Zajac, 2006). Using metaphors like the 'radar-missile'—sending police officers to a location based on information from citizens—proved important in *framing* the system and convincing police officers that they were not handing themselves out to citizens but could operate on the basis of better information.

Cultural citizen barriers turned out to be absent and high number of citizens signed up for Citizens Net. Some citizens feared that Citizens Net could lead to an 'informer' or 'vigilante' society but the innovator proved successful in *framing* Citizens Net as an attractive system for citizens. The interest from citizens even turned into a driving factor for the innovation process: the positive evaluations helped to push the project forward. Both the effort that R1 put into framing the innovation and the changing climate made breaking through this barrier relatively easy. Cels et al. (2012: 48) refer to this work as 'parallel framing': the innovator developed frames to make Citizens Net attractive to the different user groups.

This analysis highlights that the framework is useful for mapping possible barriers and strategies but the exact relation between these two is difficult to establish. This applies specifically to framing. The relation between *fixing* strategies—e.g. arranging money through an

innovation award to overcome financial barriers—is easier to establish than the relation between framing strategies and cultural barriers. It seems plausible that the use of metaphors was important for obtaining support from the control room for the system but a direct relation is more difficult to establish. Our understanding of the role of framing in e-governance innovation merits more research and in-depth analyses of innovation processes.

5. Conclusions: the art of fixing and framing e-governance innovation

We developed a theoretical model of e-governance innovation and conducted a case study of the development of Citizens Net to enhance our understanding of the barriers to this type of innovation and strategies for breaking them. The empirical study was selected as a most informative one (George & Bennett, 2005) and it indeed illustrates the value of the theoretical model as it helped to identify both the variety in barriers and strategies. The qualitative data highlighted a large variety of structural barriers such as organizational capacities, technological possibilities and financial resources and also cultural barriers such as the fear that citizens would interfere with good police work or that the system would result in an 'informer state'. The in-depth analysis revealed a variety in strategies for 'fixing' organizational structures, finances, technology, etc. and, in parallel, 'framing' the e-governance innovation as desirable both for the police and citizens. This case study shows the need to design comprehensive strategies of fixing and framing for realizing e-governance innovation. Innovation is about developing great ideas, connecting these to existing problems, testing these ideas and selling them to others.

More specific conclusions can be drawn in relation to our academic understanding of on e-governance innovation. A first contribution to the literature is the observation that framing activities are crucial to realizing e-governance innovation. This case study indicates that a frame that is attractive to both governments and civil servants is needed to realize e-governance. While strong analyses such as Moon (2002) correctly highlight personnel capacity, technical capacity, financial capacity and legal issues as barriers to e-government, he seems to miss out on the cultural barriers. A frame is needed for internal selling—i.e. obtaining support from the government agency for the innovation—and for external selling—i.e. obtaining support from citizens. A strong frame turns out to be as important as 'hard actions' (ensuring organizational capacities, technological opportunities and financial resources). The idea of framing e-governance needs to be developed in further research that may borrow from work on framing social innovations (Cels et al., 2012). It will be interesting to study more specifically when frames are successful and when they fail to raise support.

A second contribution to the literature is that, under certain conditions, citizen engagement is non-problematic. Surprisingly, citizen barriers did not play a role in the realization of Citizens Net. Interaction over the telephone made interaction easy and free of practical barriers. Citizens 'loved the idea' and did not have to be convinced that they should participate. This finding is in contrast with much of the literature that shows that getting citizens to engage in interactions with government is a challenging task (for an overview: Meijer et al., 2009). The absence of barriers can possibly partly be attributed to the strength of the idea and the way in which it was being framed. The innovator put much effort into framing the idea in the earlier phases of the innovation process. Citizens' interest was not a barrier and even helped to push internal processes within the police force forward. This study suggests that citizen participation in e-governance is high when structural barriers are absent and the value of the e-governance innovation obvious to citizens. The case cannot be generalized and therefore further research is needed to test whether this finding holds in other situations and with other technologies.

Thirdly, this study contributes to our understanding of the dynamics of the process of e-governance innovation (Mumford et al., 2002: 717).

Framing primarily takes place in the earlier phases of the innovation process and fixing becomes important in the later phases. The test phase is crucial since this is the phase when framing and fixing come together to produce a concrete showcase of the innovative idea. Fixing remains important in the later phase since new structural barriers pop up, mainly related to up-scaling the innovation. Framing becomes relatively easy since the test case provides a frame for assessing the contribution of the innovation to the production of public values. The crucial role of the test case is an important insight for both academics and practitioners.

While this case study provides interesting insights in the dynamics of e-governance innovations, one needs to be very careful to draw lessons from a specific case such as Citizens Net. For one thing, this study suffers from bias of selecting a case on the dependent variable: we studied a successful innovation and we do not know whether similar strategies have failed in other innovation processes. In addition, we studied a case that is specific in terms of its technology (i.e. a telephone system), its policy domain (i.e. policing) and its national context (i.e. the Netherlands). The main findings of this research need to be investigated for other technologies, other policy domain and in other national context to enrich and broaden our understanding of the dynamics of e-governance innovation.

In conclusion, the challenge for e-governance innovation is to not only tackle structural barriers by developing strong technologies, strong organizational structures, legal embedding, etc. but too also frame the technological practice as desirable. Too often the technology is seen as a goal in itself. The research clearly shows that government officials and citizens are not motivated by technological frames but by frames that connect technological opportunities to the production of public value. This point is often missed since the literature on e-government tends to disconnect the organization of government from the production of public values. Few government officials and citizens are motivated by technology in itself. Framing e-governance in terms of its contributions to society is essential for its success.

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