

Three Faces of E-Government: Innovation, Interaction, and Governance

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Why does e-government look as it looks? Many e-government studies lack explanatory power, because they are under-theorized. In this chapter a theoretical framework is provided which focus on the interactions between actors that shape the content of e-government. This framework is based on open systems innovation theory, the co-evolutionary social and political shaping of technology and the governance capacities that ICT provides in terms of the intelligent state and the intelligent society.

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Introduction

“Government matters. We all want it to deliver policies, programmes and services that will make us more healthy, more secure and better equipped to tackle the challenges we face. Government should improve the quality of our lives. Modernization is vital if government is to achieve that ambition”. These are the opening lines of the vision statement that Mr. Tony Blair, then the Prime Minister of the United Kingdom, presented to Parliament in March 1999 (Cabinet Office 1999). Simultaneously, information and communication technology (ICT) has been perceived as an important driver for innovation and modernization. According to Blair: *“Information technology is changing our lives: the way we work, the way we do business, the way we communicate with each other, how we spend our time. New technology offers opportunities and choices. It can give us access to services 24 hours a day, seven days a week. It will make our lives easier. Government intends to be at the head of these developments (...) Government must bring about a fundamental change in the way we use IT. We must modernize the business of government itself, achieving joined-up working between different parts of government and providing new, efficient and convenient ways for citizens and businesses to communicate with government and to receive services”* (Cabinet Office 1999).

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Electronic government (e-government) is one of the cornerstones in government modernization. E-government can be described as the use of ICT in order to design new or to redesign existing information processing practices in order to achieve a better government, especially in the field of electronic service delivery to companies and citizens (OECD 2003; Moon 2004).

Although e-government has inspired many policy makers and scholars, e-government as a field of scholarly attention lacks some rigor, because it is under-theorized (e.g. Grönlund & Andersson 2006; Scholl 2006). Many e-government studies have difficulty to explain why e-government looks like as it really looks. Hence, e-government as a body

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of knowledge has difficulty to explain these ICT-driven changes that occur in public administration.

In this contribution I want to elaborate how e-government studies can benefit from three bodies of knowledge which have their off-spring in social sciences, if e-government studies want to increase their explanatory power. In doing so, I will also present a number of research questions that will enable scholars of e-government to strengthen the explanatory quality of their research. In section three I will elaborate on how e-government studies might benefit from innovation studies, because e-government refers to the promise of renewal, of leaving the past behind. Furthermore, many e-government studies do not substantially question the role of technology in use. This is peculiar, because ICT is embraced as the major source of innovation and driver for change. Hence, it would be interesting to see, how e-government studies might benefit from technology studies. Moreover, it is interesting to understand the nature of the changes that e-government brings. Many policy documents refer to these changes in terms of efficiency (reducing red tape), convenience (access to government 24 hours a day, 7 days a week) and speed. Behind these effects, other, more fundamental, effects can be witnessed. They refer to the governance potential of ICT that influence the governance relations between public administration and society. I will take this body of knowledge into consideration. We will bring these insights together and discuss how the future of e-government might benefit from them. However, let us start with a discussion regarding the content of the e-government concept.

The myths of e-government

During the last fifteen years e-government has been one of the many buzzwords that policy makers have used to modernize public administration (Dunleavy et al. 2005; Bekkers & Homburg 2007; Margetts 2009). Although e-government is primarily focussed on delivering better and more efficient public services to companies and citizens (OECD 2003; Moon 2004), I want to use a broader definition. E-government refers to the use of ICT, especially network technologies, to facilitate or to redesign the interactions between government and relevant stakeholders in its internal and external environment in order to achieve added value. Relevant stakeholders are citizens, companies, non-governmental organizations, other government organizations as well as civil servants. The interactions between these stakeholders relate to different services such as;

- information services, referring to the disclosure of government information,
- contact services, referring to the possibility to contact public administration,
- transaction services, focussing on the electronic intake and handling of requests and applications,
- participation services, offering a channel for electronic voting and public deliberation; and
- data transfer services, referring to the exchange and transfer of basic and standard information.

Added value can be found in the following goals: increasing the access to government, facilitating the quality of public service delivery, stimulating internal efficiency, supporting

public and political accountability, increasing the political participation of citizens, and improving interorganizational cooperation and relations (Chadwick & May 2003; Moon 2004; Bekkers & Homburg 2007; Margetts 2009).

In order to achieve this added value, policy makers in Western countries have been inspired by a number of myths in which the blessings of technology in order to achieve a better government, were embraced. On the one hand these myths stimulated policy-makers and the general public to develop new and innovative ways of thinking about the functioning of government. It is interesting so that each time again, when policy makers embrace a new generation of technology, like the change over from Web 1.0 to Web 2.0., these myths are fostered. On the other hand, these myths blur their view regarding what is realistic and what is not (Bekkers & Homburg 2007). They prevent us looking behind, while trying to grasp the nature of the transformations that have been taken place. Some myths can be discerned (Bekkers & Homburg 2007):

- The myth of technological progress and instrumentality. E-government is primarily perceived as the use of a set of neutral tools that in the hands of the right persons will lead to a better government.
- The myth of a better government. These technologies can be used to design, redesign or reinvent the machinery of government in such a way that policy makers and administration are able to produce better, more efficient, more accountable and more reliable outputs. These outputs are primarily defined in terms of the number of public services that are digitally available. In order to do so, existing information processing processes have to be readjusted (in terms of business process redesign). This is the myth of a better government in which a mechanistic view on the functioning of government prevails.
- The myth of whole government. Some authors (Perri 6 et al. 2002; Dunleavy et al. 2005; Margetts 2009) suggest that this better government can also be achieved when ICT is used to create an integrated, joined-up or holistic government, thereby adding a new element to this myth of a better government. ICT helps to end the fragmentation that the introduction of New Public Management has produced, due to its emphasis on disaggregation (agency formation), the introduction of competition in public services and the negative side effects of performance management in electronic service delivery, with its emphasis on quantitative outputs. ICT facilitates reintegration and needs-based holism (Margetts 2009). Behind this idea lies the desire to create an organic government. This is the myth of whole government.
- The myth of rational information planning. These better services can only be achieved, if policy makers and public managers are able to apply these digital tools in a planned and standardized manner. In doing so, e-government is primarily seen as an (information) management challenge.
- The myth of the empowered citizen as consumer. The last myth is that of citizens and companies that act as a rational consumer or client who receive services in a customer-friendly way and who want to have a information about the price/quality relation of public services.

Although these myths have inspired many people within the theory and practice of public administration, questions can be raised, when looking at the results that have been achieved (OECD 2003; Bekkers & Homburg 2007; Taylor & Lips 2008). Has government really transformed itself according these myths? What is the transformational power of technology and how can it be explained? If we want to answer these questions, what answers do e-government studies provide?

In many e-government studies the emphasis is put on the conditions under which successful e-government projects (in terms of the realization of these the myths) can be accomplished (Bekkers & Homburg 2007; Kraemer & King 2006; Heeks & Bailur 2007; Dawes 2008). A managerial and project orientation prevails, which has, at least, two consequences. First, the nature of many of these studies is descriptive. They lack explanatory rigor (Grönlund & Andersson 2006; Margetts 2009). Attention is paid to the influence of specific organizational, financial, technological and other conditions on the successful implementation of a one-stop-shop concept, a government portal or a central databases in which information is stored that can be used for many purposes (Heeks 1999; OECD 2003). Also attention is paid to the degree in which change management and implementation strategies were successful. Secondly, due to the public and political embracement of these myths, e-government has been defined as something 'good'. This bias has led to an increased attention for the question, how to achieve the blessings of e-government. That is why e-government studies have a normative connotation (Bekkers & Homburg 2007). Although many e-government studies and policy documents define citizens as consumers, this result in a government-centric approach, in which technology is pushed forward. The emphasis lies on how governments, from their perspective, might use these new technologies to interact with citizens and companies (Taylor & Lips 2008).

As a result of this descriptive and normative emphasis, many e-government studies are under-theorized (Scholl 2006; Grönlund & Andersson 2006; Margetts 2009). In order to bridge this gap Scholl (2006) wants to bring in insights from other disciplines. He calls for a more interdisciplinary approach. Hence, it is interesting to explore, if social sciences can provide some insights. The added value of the social science perspective is that social and political phenomena, like the content and shaping of e-government, can be understood by looking at the contingent and meaningful interactions between actors, their actions, and the 'rules' that guide these actions and interactions (Weber 1977). This is also the case in e-government. It can be seen as a technological, social and political intervention in which there are many potential choices, about what kinds of technologies are used, how they are organized and supported, how people work with them and how they alter the character of work life at all (Kling 1987). In order to do understand these choices we need to understand the social character of the relations between the involved actors, the kind of technological and social infrastructure that is needed to support e-government and the historical commitment that these actors have to each other in relation to the development, adoption and implementation of e-government (Kling 1987). The governance challenge which emerges from this view refers to the creation of arrangements that facilitate collective action in a network of different but often interdependent stakeholders (Bekkers 2007).

E-government as innovation

Traditionally, innovation studies have paid a lot of attention to the role of technology. It is perceived as a major source of innovation and driver for change. One of the founding fathers of modern innovation theory, Joseph Schumpeter (1942), defines innovation as a process of creative destruction in which ‘new combinations of existing resources’ are being achieved that implies a discontinuity with the past (Osborne & Brown 2005). Technology is a source which helps innovators to create new combinations. However, the question is whether e-government should be considered as a technological innovation as such. In many cases it is the combination of ICT innovation with the introduction of new services, new processes, new concepts, new governance arrangements or new organizational forms that together create an e-government practice (Moore & Hartley 2008).

An innovation itself has been mostly defined as “an idea, practice or object that is perceived as new by an individual or unit of adoption” (Rogers 2003, 12; Fagerberg 2005). Innovation requires change and the willingness to learn, but change is not always necessarily innovative, while a learning process does not always turn into new ideas, practices etc. (Rogers 2003; Osborne & Brown 2005). An important issue is how radical the innovation is. What is the ‘newness’ of the change that has occurred? And what is the nature of the learning process which has led to the adoption of a radical or an incremental change? In the last type of changes, only new elements or new layers are put on existing practices (Argyris & Schon 1978; Hall 1993; McDaniel 2002; Mulgan & Albery 2003). That is why some innovation scholars make a distinction between more transformative and incremental or evolutionary innovations. Hence, the development of an e-government practice can be perceived as a learning process. The nature of this learning process tells us something about the nature of a specific e-government practice. Therefore, it is important to understand if e-government practices can be viewed as the outcome of first-order or a second-order learning process and why this is the case (Argyris & Schön 1978). In the case of a first-order learning process, e-government represents just a set of new means that can be used to achieve existing goals (output and outcomes) that are used in another way. The emphasis lies on incremental innovation. In the case of a second-order learning process, when looking at the possibilities that ICT might offer, the assumptions that lay behind the goals are being questioned. Can we achieve other and new outcomes by using new means? If so, the emphasis lies on more radical innovations. If we take these two learning processes into our mind, the question is if the actual outlook of e-government can be seen as the expression of incremental or radical innovations and why is this the case? As we will argue in the next section, research indicates that the nature of e-government resembles in many cases incremental innovation, because it tends to reinforce existing practices.

Innovation spaces

In contemporary innovation studies the power to innovate and the willingness to learn lies not in the hand of one person, the entrepreneur as Schumpeter presupposes. He is not the only person who learns. Recent innovation studies emphasize the importance of so-called ‘innovation milieux’ or ‘open innovation systems’ (Castells 1996; Chesbrough 2003; von Hippel 1988). The empirical foundation for this idea is that technological innovation is

not an isolated instance. It reflects a given state of knowledge, a particular institutional and industrial environment, a certain availability of skills to determine problems and to solve them, an economic mentality to make specific applications cost-efficient and a network of producers and users who can communicate their experience cumulatively, learning by using and by doing. What is essential is the ability and willingness of relevant actors to cooperate and to interactively link and share ideas, knowledge, experience and information beyond traditional organizational borders as well as to exchange vital resources like staff. New ideas and concepts are discussed, tested and proved in intra- and inter-organizational networks, which are often intertwined. Hence, the nature of e-government can be understood, if we take into account the institutional setting of the actors who might benefit from the introduction of a specific e-government practice, and their willingness, not only to share their ideas, but also to share other relevant resources, like technology and information. This can also be seen as an important governance challenge.

Hence, the nature of an e-government practice tells us something about the openness of the relationships between the actors involved. Openness refers to the absence of boundaries and free flow of ideas, knowledge, information and experiences. Moreover, it means the existence of an open culture and a safe context in which 'trial and error', 'reflection', and 'learning' can take place without being penalized for making 'mistakes' or not realizing results at once. Openness also refers to the idea of variety of different perspectives and different bodies of knowledge that is available, that can be used and challenged. It implies the existence of a free and informal spaces or networks, in which there are not many restrictions for developing new and creative ideas and concepts. Innovation often takes place in the 'grey, informal' area between formal organizations, in local climates of trust (Nooteboom 2006).

However, a free flow of ideas, knowledge and experiences will not occur if actors are afraid that the knowledge and information that they provide will be used against them so that their interests are being harmed. This is especially the case in relation to innovation, because the involvement in innovation is being considered as a risky and uncertain activity (Chiles & McMakin 1996). No-one knows what the outcome will be or if efforts to create innovating products or solutions for problems will be successful. It is also next to impossible to create adequate control mechanisms against opportunistic behavior of other actors because nobody can know beforehand what kind of opportunistic behavior one has to protect against. Trust can facilitate innovation because uncertainty about opportunistic behavior is reduced and the feeling that other actors will exercise their goodwill in the search for innovative solutions is increased (Zand 1972; Nooteboom 2002). Hence, in the innovation literature special attention is given to the trustworthiness of the relationships between the actors involved and to the social capital which is present in these networks (Fukuyama 1995; Putnam 1993; 2000; Nooteboom 2002). Fukuyama (1995, 26) defines trust as "*the expectation that arises within a community of regular, honest, and co-operative behavior based on commonly-shared norms, on the part of other members of the community (...) these communities do not require extensive contractual and legal regulation of their relationships because prior moral consensus gives members of the group (...) a basis of mutual trust.*" In situations where trust is present confidence in other actors will be greater and the flow of information and willingness to exchange information is likely to be greater. As a result the problem-solving capacity is enlarged (see Zand 1972; Deutsch 1973; Lundvall 1993). Much of today's information is specialist information and

not always easy to trade. It is tacit information, which rests in the expertise of persons or organization (parts). However, learning and creating new solutions for complex problems require that organizations exchange specialist information and capabilities.

As a consequence, the embeddedness of these 'free spaces' in which the involved actors can trust each other, is important for the follow-through or adoption of e-government practices in existing, formal organizations and institutions (Edelenbos 2005). This can be seen as an important governance challenge. Important in these grey zones is that a careful balance between exploration and exploitation exists (March 1999). Exploration is the search for discovery and of novelty, and innovation. It involves variation, risk taking, and experimentation. It occasionally leads to important new directions and discoveries. Exploitation means refinement, routinization, production, and implementation of knowledge. It involves choice, efficiency, selection, and reliability. It usually leads to improvement but often is blind to major redirections. Innovation means finding a good balance between exploration and exploitation: *'Both exploration and exploitation are needed (...). Exploration cannot realize its occasional gains without exploitation of discoveries. Exploitation becomes obsolescent without exploration of new directions'* (March 1999, 5).

Hence, in order to understand the nature of e-government, we have to ask ourselves if these grey zones are available to experiment with ICT, to learn by trial and error? How are they organized and 'protected'? How did the involved actors perceive the risks of developing and implementing specific e-government applications? What kinds of risks are defined as acceptable and what types of risks are considered not acceptable. Therefore the nature of e-government reflects, to some extent, the risks that actors were willing to take as well as the way in which these actors can trust each other, are willing and able to exchange vital resources like the sharing of explicit and tacit knowledge and information (Bekkers 2007; Teo et al. 2008). As a result the quality of the relationships between the involved actors – strong and stable relationships and the social capital that is present in these relationships – is reflected in the type of e-government arrangements that are being developed (Fountain 1998; Maskell 2000; Bekkers 2007; Teo et al. 2008). Moreover, in order to understand the specific content of an e-government practice, is also important to look which ideas and interests have been included in the design and implementation of specific technologies, and which ideas have been rejected. How open were these processes?

Linking leadership

Two other elements play an important role in functioning of these 'innovation milieux'. The first element refers to the importance of leadership and the kind of leadership that is necessary. Leadership has been perceived as one of the cornerstones of innovation, because it plays an important role in changing the status quo, in breaking away. Hence, we see that there is a strong relationship between the innovation and transformational leadership (Burns 1978; Bass & Avolio 1994). Relevant characteristics of this type of leadership are that leaders should be able to create and communicate a clear vision which inspires and unites thereby changing the perceptions and values of others, that leaders should be able to cope with resistance and skepticism, thereby overcome all kinds of hurdles, that they should be able to create a coalition of the willing as well as create a context for change. Hence, for the study of e-government practices it is interesting to see what the

role of leadership is in the construction of a coalition of the willing as well as to overcome possible resistance to change.

More recently, also in relation to the importance of networks or milieu of innovation, attention is being paid to another type of leadership, which can be understood in terms of 'boundary spanning' and 'brokerage'. Leifer and Delbecq (1978, 40–41) define boundary spanners as "people who operate at the periphery or boundary of an organization, performing organizational relevant tasks, relating the organization with elements outside it". These managers stimulate the interaction between people on the intersection of different organizations, in an informal area in which (diverging) perspectives, values and information meet, leading to innovation. Boundary objects can be helpful in realizing a starting common ground. Boundary objects provide a shared language that allows for representing the domain specific knowledge in a structure and format that are known on the other side of the boundary (Carlile 2002). They provide a concrete means for specifying and learning about differences and dependencies across a boundary as rich representations of the own perspective (Carlile 2002). These objects become "tangible artefacts (...) like forms of communication that inhabit several intersecting social worlds and satisfy the information requirements of each of them" (Star & Griesemer 1989, 393). These boundary objects, like visions on e-government, have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable. The creation and management of boundary objects is considered a key process in developing and maintaining divergence and coherence in intersecting social worlds (Star & Griesemer 1989, 393). The bringing together of different new perspectives can also be called the 'structural hole argument' (Burt 1992). It relates to bringing in new information, new knowledge and thus new actors between an existing network of actors and actors (or even networks) that have been separated from the activities in the specific network, thereby enhancing the variety in the network, which has been earlier identified as an important condition for innovation (Schuller et al. 2000).

This implies that in e-government studies much more attention should be paid to people who bridge and link different domains, views, values and rationalities in order to create productive win-win situations. For instance, Bekkers (2009) has demonstrated that in the development and implementation of e-government infrastructures four rationalities that stress specific values and refer to specific bodies of professional knowledge that have a legitimacy of their own, have to be balanced. The political rationality deals with the question 'who gets what, how and when', if we look at the political challenges with which a political community is confronted (Lasswell 1958). Information and ICT are important policy instruments that governments use to realize specific political values like efficiency, security, liberty, equity or accountability. Moreover, they use ICT to deliberately influence the information position of actors and their relationships (Margetts 1998). The legal rationality stresses the importance of the rule of the law, which e.g. implies offering legal security, consistency and legality. The economic rationality focuses on cost-efficiency, due to the scarce amount of resources which is available in order to achieve specific goals (in terms of benefits). The technological rationality emphasizes how to design effective, efficient and trustworthy tools and interventions strategies which are based on the professional knowledge of a specific policy field. In the case of ICT, it refers to professional knowledge concerning the requirements under which ICT can operate effectively and efficiently, like stability, predictability and security. Hence, the nature of a specific

e-government practice reflects the balancing acts that have been taken place between these different rationalities. Successful e-government projects depend on the availability of leaders who are able to act as brokers, who are able to bridge different bodies of knowledge and relevant values that play a role in the complex design of e-government practices. Hence, the nature of e-government can be understood if we can identify if specific brokers were present and understand how they were (or were not) able to connect specific values and include (or exclude them) in the shaping of the e-government practice.

Users matter

The second element that is important in the functioning of these innovation milieux, is put forward by von Hippel (1998). He argues that open innovation also depends on the willingness of the actors who are involved in innovation projects to seriously take into account the wishes and needs of consumers and citizens. In order to create new view points, and thus innovations, they should be given an important position in the innovation process. They should be considered as a relevant and interesting co-producer of innovation. That is why users matter (Oudshoorn & Pinch 2003). This implies that, although many e-government services are supply driven because they relate to specific legal rights and duties, citizens should be more involved in the way they want to interact with government. How would e-government look if citizens were taken more seriously in the design of e-government services? Up till now the shaping of many e-government practices, as I argued above, takes place primarily from a government-centric perspective (van Dijk et al. 2006). The inclusion of the citizen perspective in the design of e-government can be seen as an important governance challenge.

E-government as the socio-political shaping of technology

The second body of knowledge that might be relevant to explain the outlook of e-government, refers to the interactions of actors that in the end shape the technology that is used. The idea is that the shaping of the technology to be developed as well the shaping of the technology to be implemented also influences the changes that take place. This implies that the assumption that technology is a neutral tool in the hands of policymakers who can determine what effects can be accomplished, is being questioned. Nevertheless, this assumption is present in many policy documents and e-government studies (Bekkers & Homburg 2007). In this so-called voluntaristic view on ICT three conditions are considered to be essential for the successful implementation of e-government. First, it is important that policymakers have clear goals about the effects to be realized. If these goals are formulated, it is possible to develop ICT in accordance with them. Secondly, it is important that these tools are properly implemented in order to effectively and efficiently exploit their capacities. Thirdly, it is important that the conditions under which these tools have to be implemented are managed properly (Heeks 1999). If these conditions are met, the intended effects will really occur.

However, research into the effects of ICT in public and private organizations shows that the effects are not always general and intended. They are rather specific and context-driven, while all kinds of side-effects also occur. They have not been foreseen but have

to be addressed (e.g. van de Donk & Snellen 1998; Anderson & Danziger 2001). The main reason is that the introduction of ICT in an organization or in a policy sector is an intervention in a policy network, which influences the position, interests, values and the (information) domains of the actors involved (Kling 1987; Bellamy & Taylor 1998). Thus the introduction of ICT is not a neutral intervention but a political one. ICT is considered to be a powerful resource. Choices with respect to ICT influence the access, use and distribution of information among actors and their communication. Furthermore, ICT also influences the information and communication relations and patterns between these actors and the (inter)dependency between them. As a result 'game like' interactions between these actors occur (Pfeffer & Salancik 1978; Dutton & Guthrie 1991; Dawes 1996; Davenport et al. 1992; Davenport 1997; Bellamy & Taylor 1998; Homburg 2000; Bekkers 2007). Therefore scholars point at the social and political shaping of the development, introduction, implementation and use of technologies in and between organizations (e.g. Bijker et al. 1987; Kumar & van Dissel 1986; Kraemer & King 1986; Kraemer et al. 1987). From this perspective the nature of e-government and the changes that occur, can be understood in terms of resource politics, in which the use of ICT is seen as a strategy to reduce dependency in the exchange of information (Pfeffer & Salancik 1978; Kraemer & King 1986). In terms of Knight and Murray (1992), the content and shaping of e-government should therefore be explained in terms of 'information politicking'. The management of this process of information politicking can be conceived as an important governance challenge.

Who benefits?

The next question is who benefits from the selection, introduction and use of specific e-government technologies? This is an important question, because actors (or specific coalitions of actors) use ICT and the kind of information that is being gathered, processed and exchanged to define social reality in such a way that it favors their interests and views. In doing so, actors push forward specific frames in which their expectations regarding the strengths and weaknesses of the technology to be developed or to be used and the effects to be expected, are expressed (Bijker et al. 1987; Orlikowski 1991; 2000; Fountain 2001). With the selection of and introduction to a specific kind of technology, a specific frame (or combination of frames) is selected in contrast to other frames which have been rejected. Hence, it is interesting to understand what assumptions lay behind a specific technological frame, what elements have been included and what elements have been excluded. Through this framing process, (specific coalitions of) actors who advocate a specific problem definition or a specific approach define what technological solutions are considered to be relevant. Hence, if we want to understand the nature of e-government, we have to understand the negotiations between the involved actors and the frames which emerge from these negotiations as the most relevant and powerful (Fountain 2001).

Special attention in this framing process should be paid to a set of qualities that are embedded in technology to be used and the expectations that actors have of them (Bekkers 1998). These qualities go further than the ability to process large quantities of data in a speedier and more convenient way. Hence, it is important to understand how these qualities are being framed by the involved actors when they want to use them in the development of e-government services. The relevant qualities are:

- *Calculation.* To compute refers to the power to make calculations, thereby taking into account different data sets and different parameters which mutually influence each other.
- *Access and transparency.* ICT does not only improve the access to specific data and data sets but also helps governments to have a better understanding about the specific characteristics of a person, a company, a target group or a policy sector.
- *Control.* ICT presupposes standardization and formalization which is often a prerequisite for control. The same is true for transparency. Transparency very often opens the door to control.
- *Communication and transaction.* The linking capacities of ICT contribute to the exchange of data, knowledge and communications which helps people and organizations to get involved in transactions as well as to develop a shared understanding;
- *Visualization and simulation of occurrences.* ICT helps to visualize occurrences by presenting complicated information in an image as well helps to visualize the effects of 'what if' assumptions, like the effects of the rising of the sea level.

However, these qualities are not given. Actors define them in terms of what is being considered appropriate. This is a political choice related to specific interests, positions and views. For instance, to what extent should the information processing activities of citizens and companies, when they are involved in the electronic handling of tax assessments, be controlled? What is the extent of transparency that is needed, when a citizen applies for a social benefit? Or, how and in what way should the communication that takes place between citizen and government be structured? Is it possible to send an e-mail or is it necessary to fill in an electronic form?

Furthermore, research shows that in the public sector, ICT very often strengthens the existing frames of reference, power relations and positions of the already privileged actors within an organization or within a policy sector (e.g. Kraemer & King 1986; 2006; Kraemer et al. 1987; Moon 2002; Norris & Moon 2005; Fountain 2001; Margetts 2009). Hence, if we want to understand the nature of e-government we have to ask ourselves if the practice of e-government reflects a specific bias, a bias that reinforces already existing positions, views and interests. Hence, it is interesting to ask ourselves the question, how a specific e-government practice would look, if the vested interests and views were not decisive.

Co-evolution

Studies also make clear that these framing interactions have a local, and so unique, contingent nature. They take place in a specific context, which is the result of the co-evolution of different environments in which different actors, with different practices, values, relationships and existing technologies operate and interact. Hence, the nature of e-government should be understood in terms of e-government ecologies, in which the technological, managerial, social and political aspects merge together. The nature of e-government can be understood as co-evolution of specific changes in different environments, changes that are pushed for as relevant by different actors. Technology changes

in public organizations go together with organizational changes in public administration, the embracing of specific management conceptions and ideologies with (information) behaviour changes in society (Dunleay et al. 2005; Lips & Schuppan 2009): they co-evolve (Davenport 1997; Nardi & O'Day 1999; Bekkers & Homburg 2005). However, the interesting question is, how, and under what circumstances, can these changes be linked to each other and who benefits from a specific coupling of the perceived changes? Hence, it is interesting to understand the nature of e-government from the idea of a policy window. Typical for a policy window is that out of a variety of possible definitions, a specific definition of a problem is connected at random, and thus rather chaotic, to a specific definition of a possible solutions (in this case e-government), when the time is right for it. In doing so, not only are problems looking for a solution, but also e-government is looking for relevant problems to be matched with as a relevant solution. Policy entrepreneurs play an important role in this coupling process, especially in terms of boundary scanning and spanning (Kingdon 1984).

Different logics

However, all these actors are bound by shared but also by different rules that structure and stabilize the interactions between them and the frames they put forward. March and Olsen (1989, 22) define rules as follows. By rules we mean the routines, procedures, conventions, roles, strategies, organizational forms and technologies around which political activity is constructed. Ostrom and others (1994, 38) describe rules as prescriptions that define what actions (or outcomes) are required, prohibited, or permitted, and the sanctions authorized if the rules are not followed. This implies that actors have a limited discretion to pursue their own interests, views and claims. Hence, it is important to understand what kind of 'rules' played a role in the shaping and content of specific e-government practices. According to March and Olsen (1989) two sets of rules, which they call logics, play an important role in public administration. The way in which policymakers and politicians address these logics adds to the legitimacy of public administration, and thus also to the legitimacy of e-government and the changes e-government brings. The first logic refers to the logic of consequence. Policy actions and programs, like e-government, should be assessed on their effects in terms of efficiency, effectiveness and coherence. However, most actions in public administration are political in nature, because they refer to the binding allocation of specific values for society as whole (Easton 1965). However, typical for political actions is that these values have to be balanced against each other in such a way that this balance is appropriate. In order to be appropriate, different views, knowledge claims, interests and values have to be carefully looked at and have to be balanced (e.g. efficiency versus privacy; transparency versus security) in order to develop and implement programs that are responsive to and supportive of the needs of citizens and companies. In order to assess the nature of e-government, scholars not only have to look at the consequences of an e-government program in terms of efficiency, output and outcomes. They also have to assess the appropriateness of e-government in terms of the trade-off between different values which lie behind a specific e-government program, like the balance between privacy and transparency, efficiency versus safety. This is the second logic which has to be considered (the logic of appropriateness). Hence, it is interesting to see, which of these two logics is dominant in the way policymakers frame the blessings of e-government and, consequently, what does this tell us about the nature of e-government?

E-government as governance arrangements

If we want to understand the effects of ICT that is used to facilitate the interactions between government and citizens, society and other government organizations, we can use a functional and instrumental perspective. Effects that are being reported refer especially to efficiency gains (OECD 2003). However, if we define technology as a powerful resource that actors can use to influence the degree in which they are trying to achieve specific goals, interests or views, we will see other effects. The use of ICT also refers to the capacity to influence specific societal outcomes and occurrences which can be understood as an act of governance. However, the question is: who governs and who is to be governed? By using a governance perspective e-government practices can be understood as governance practice: who governs who? The governance capacity of an actor can be described as the problem-solving capacity of this actor, which depends on the ability to mobilize and combine relevant resources in a structured way in order to achieve specific goals (Bekkers 1998). E-government can also be seen as an act of governance, because governments try through the use of specific resources, which are information, knowledge, staff, money and technology, to address problems that relate to, for instance, the quality of public services. Hence, we can see that e-government co-evolves with specific governance aspirations. If we use this perspective we refer to another concept of governance that normally is used when talking about e-government. E-governance refers to the allocation of tasks, responsibilities and competences as well as the distribution of resources among the involved actors that is necessary to develop and implement e-government services.

As I have argued in the previous section, the use of these resources involves the exercise of power and the framing of this power potential. As a result the transformations which e-government has brought to public administration can therefore be understood in terms of specific governance arrangements, in which power is exercised. How is power being exercised through e-government? In this section I will sketch how the governance capacity of public administration through the use of ICT is being organized. I call this the intelligent state (see the next section). However, as already mentioned, typical for e-government is its government-centrism. These ICT-driven governance capacities are also available for society. Hence, it is also interesting to look at the content of e-government from the perspective of the intelligent society.

E-government and the intelligent state

In the intelligent state, the interactions between government on the one hand and citizens, companies and other government agencies on the other hand, are mainly database driven. Access to these databases as well as to the combination of different datasets – that stem from different databases that are located in different organizations – play a vital role in the rendering of integrated, but often obligatory services. These services occur as a result of the need to exchange and process information during the implementation and enforcement of specific programs, rules and regulations. Database technology is used to increase the transparency of citizens or companies when they apply for specific benefits (e.g. social security benefits) or when they comply with specific rules (e.g. permits, tax assessments) in order to assess if their claims or obligations meet the formulated requirements. Governments also use ICT in order to control the information exchange processes with these companies and citizens as well with other government agencies. Through the

employment of all kinds of electronic formats and digitalized routines and procedures, governments try to enhance the quality of the communications, data transfers and transactions that take place. Hence, the emphasis lies on the design of transparent, formalized, standardized and thus controlled information processing processes. These processes are organized around databases or around the referral indexes that act as an information broker which enable agencies to share data that are located in different back offices.

New organizational forms

The database becomes the vital core, the heart of the organization, to which most of the activities in the organization are directed. Around this database concentric circles of users – within the agency, but also outside the agency – can be discerned (Zuboff 1988; Fountain 2001; Bekkers 2003). The outer circle are companies or citizens who through the use of the internet and the web-based applications have limited access to this database and are able to add new or change existing information. In doing so, a process of inclusion occurs.

However, the desire to develop integrated service delivery and enforcement programs, which presupposes a more organic, joined-up working of government, stimulates the further elaboration of this concentric organization model. Around a central database one may notice the emergence of dedicated service or enforcement (supply) chains - more or less sequential organized coalitions of public and private organizations – that all use the same data from the database, or that share different data, which are owned by these organizations, through the use of a common information broker. An example is the Dutch Vehicle License Agency which controls a central database containing basic and authentic data regarding the ownership of vehicles. Not only the employees of the Agency use this information but also the employees of other private and public organizations who use this information for different purposes as well as add new information to it. Examples are the police, the tax administration, insurance companies, garages that inspect the safety of cars, and other foreign vehicle license agencies. As a result, the Vehicle License Agency acts as a spider in a network of chains that are linked to each other because they share the same database.

Two factors have contributed to this spider's position. First, the Agency is the legal owner of the database and other organizations using this database have to comply with the requirements of the agency. Secondly, the ICT knowledge and experience that is available within the Agency (Bekkers 2009). However, in the Netherlands the Vehicle License Agency is not the only spider in a web. In other policy sectors, like social security, similar webs, under the banner of e-government have also been created (Bekkers 2009).

An important driver for the creation of these centrally-controlled networks is the wish to increase the efficiency, effectiveness and coherence of service delivery and enforcement process. The emergence of these new types of government organizations can therefore be understood from the desire to comply to the logic of consequence (March & Olsen 1989). Innovation is primarily defined in terms of a learning process that is focussed the exploitation of existing resources in new ways.

Castells (1997, 301) has described this development in terms of 'Little Sisters'. "Rather than an oppressive 'Big Brother' it is a myriad of well-wishing 'little sisters', relating to each of us on a personal basis because they know who we are, who have invaded all the realms of life". Others, however, question the good intentions of these little sisters, and point the informational power that is in hands of a small number of organiza-

tions. They question for instance the way in which this power and its possible misuse is controlled. Hence, they talk about the rise of an panoptical state in a surveillance society which is based on transparency and control (Lyon 1992). In doing so they also refer to new technological developments in which the so-called 'semantic web' (that enables people to combine information in an even more individualized way) and the so-called 'internet of things' (with its embedded intelligence of micro and RFID chips) opens new ways for tracking and tracing people, goods and movements.

Conditions and challenges

In order to achieve this intelligent state some conditions – in terms of e-governance – have to be met. First, it is necessary that different kind of interoperability issues are handled (Dawes 1996; Kumar & van Dissel 1996; Bellamy & Taylor 1998; OECD 2003; Fountain 2001; Bekkers 2007). Relevant issues are: conflicting, exclusive or overlapping jurisdictions and accountability regimes; different legal regimes with conflicting rights and obligations (e.g. in relation to privacy and safety regulations); incompatibility of specific 'legacy' ICT infrastructures (hardware and software); different working process and information processing process, routines and procedures; the idiosyncrasy of information specifications and the lack of common data definitions; conflicting organizational norms and values, communication patterns and grown practices. Secondly, it is necessary to organize the necessary cooperation between different public, semi-public and private organizations. Sometimes cooperation can be imposed e.g. through the allocation of legal competences which gives an actor a super-ordinated position. In other cases cooperation has to be achieved through the creation of a shared understanding about the necessity to share resources (e.g. information and technology) in relation to goal or challenge that has to be addressed collectively by the involved actors that are horizontally connected to each other (Bekkers 2007). Among many factors, trust seems to be an important condition for the development of joined-up, network and chain-based forms of collaboration (Teo et al. 2008). Hence, the emergence of the intelligent state depends to a large extent on the social 'capital' within specific policy sectors. Thirdly, it is necessary to adopt a different design logic. Normally the sequence is that first a law is drafted and then, in order to implement this law, an organization is erected. The next step is that this organization adopts specific technologies that helps to implement the law. Bovens and Zouridis (2002) have shown that, in order to build completely automated and integrated information handling processes within the intelligent state that cross the boundaries of different agencies and that are directed to one central database or information broker, one should start with the design of the information infrastructure. The next step is to draft a law that ensures that a robust and predictable infrastructure can be developed and that necessary rules and regulations are formulated in such a (binary) way that they can be automated. The last step, is to build an organization around this database.

E-government and the intelligent society

The governance capacities that ICT provide to people and organizations are not only restricted to government. Also citizens, companies and non-governmental organizations can use them. It is important to address this aspect, because e-government refers to the interactions between government and society. In principle e-government is not limited

to one-way communication, in which government is the central actor. E-government can also be shaped from the perspective of society.

If I look at how especially citizens use ICT for their interactions with government, two qualities of ICT seem to be important. First, there is communication. Citizens use ICT to communicate with each other, to share ideas, information, knowledge, pictures, contacts and experiences. It is interesting to see how the nature of this communication has changed during the last years: from originally one-to-one-communication (e-mail) to many-to-many-communication in which instant messaging applications like MSN play an important role. Instant messaging also occurs in numerous social networks and communities that (mostly) consist of loosely-coupled persons that share the same interest, opinion, fantasy, illness etc. Most recently these networks can be found in Web 2.0 environments. Web 2.0 refers to the so-called social web in which people share ideas, contacts, views, interests etc. In doing so they together generate relevant, user-generated content (O'Reilly 2004; 2005). This sharing may take place within networks, groups or lists of friends and followers, like Twitter and Facebook; within networks that give access to a pool of shared visualized experiences, like the pictures and videos that are available on YouTube and Flickr; within collaboration environments in which people add new knowledge to existing knowledge like Wikipedia; or through the use of blogs which helps people to make their opinions and ideas freely available, to a wider public.

Sharing viewpoints with others is a highly desirable quality of ICT: the ability to give access to other people, knowledge, contacts etc. so that issues become transparent. Through the combination of these (albeit scattered) information sources, new information and new intelligence is being created. This refers to the idea of the 'wisdom of the crowds' (Surowiecki 2004) as well as to the learning mechanism that is used in the Linux community of software developers: 'given enough eyeballs all bugs are shallow' (Bekkers 2004). Innovation that occurs in these networks is based on the competitive confrontation of ideas, perspectives and also values, which may help generate combinations (Edelenbos & Klijn 2007). Hence, we see that the emphasis lies on innovation through exploration instead of exploitation.

New organizational forms

What is the organizational pattern that lies behind these networks? Frissen (1999) uses the metaphor of a rhizome. The rhizome is a root-system in which fibers grow, in all directions, very fast then die. When somebody is disappointed in a discussion or in a group or wants to explore a related issue, he will leave or start his own discussion, which will attract other new members. The result is a myriad of interrelated and isolated discussion and sub discussion groups or networks. The creation of these groups depends on a process of self-organization through communication. There is no super-ordinated actor, although some actors – their blogs, their networks of friends – are (more or less) temporarily the center of the communication that occurs (Bekkers 2003).

Conditions and challenges

Governments have increasing interest in utilizing various conceptions of society in the purpose of involving citizens, companies and non-governmental organizations in the development and evaluation of policy programs. For instance, in terms of e-government,

electronic town halls and digital discussion platforms or forums have been erected to give citizens the opportunity to participate and to bring in their ideas, views and claims. However, in many cases the results were relatively disappointing. Three factors, amongst others, should be mentioned in particular (Bekkers 2004). First, in many cases it was not clear how the outcomes of the discussion were used in the policy formulation and decision-making process and how the participation of citizens were balanced against the primacy of politics. In the end politicians (but also public managers) were quite reluctant to use these outcomes, because they interfered with their own ideas. Playing rules did not always exist, or they were too vague. Secondly, there is the quality of the discussion. Opinions and statements were exchanged but a shared learning process was in many cases not present. Thirdly, the people who actively participated in the discussion were rather few. People who already decided to participate, were given an additional forum for participation, but these digital discussions were not able to attract new possible participants. Also lack of access to internet excluded a number of people from the on-line deliberations (the so-called 'digital divide'; see van Dijk & Hacker 2003).

Simultaneously and most recently, we see that short term and ad hoc policy communities emerge, which address a specific theme that is made transparent through a website or a blog. Around such themes all kinds of discussion groups emerge, while simultaneously knowledge, information and contacts are shared in order to advocate specific claims. An example is the anti-globalization movement. Very often it refers to knowledge and information that, according to the participants in these lists, is not being referred to in the official government documents and reports. Although some authors question the quality of the information – Keen (2007) calls this the cult of the amateur – that is produced and discussed, these groups show how their collective intelligence is able to produce alternative knowledge which might challenge the information and knowledge monopoly of government in policy process. In doing so, they question the appropriateness of the reason and argumentation which government officials use to legitimize specific actions and programs. An interesting example is discussion that has its origins in the many kinds of discussion groups on the internet, regarding the potentially libelous claims of the United Nation IPPC panel on global warming, thereby referring to mistakes in the data which the panel uses. Another example is the resistance in some countries, like the Netherlands and Denmark, against the swine flu vaccination campaign, thereby pointing at specific, alternative information that is made accessible through the internet.

The best of both worlds?

In order to understand the nature of e-government I have to look at the governance capacity that ICT provides and from which government as well society might benefit. However, when looking at many e-government practices in today's society, I notice that the ICT-driven governance capacity which is present in society has not been substantially linked to the ICT-driven governance capacity of the state. This also explains why the nature of e-government resembles that of the ideal type of the intelligent state. Hence, the following questions should be raised: Why is this the case? What are the options for the future of e-government, if these two sets of capacities are being linked? Under what conditions can they be linked? An example of this linking process is 'fix my street' in which UK citizens

add new and almost realtime information about road problems to a state-owned website which gives citizens an up-date account where they can expect traffic problems

Conclusion

It is quite easy to discuss the future of e-government in terms of trends and prospects. Scholars and policy makers might take some emerging technology trends and use their imagination to develop scenarios of how government will or could look and what relevant conditions should be taken into consideration. However, they really want to understand the innovative power of e-government, they can also use a different perspective. In order to understand the innovative power of e-government, they can look into the mirror and ask the question: why does e-government look as it looks? How can we explain the nature of e-government as it has been materialized in the interactions between government and society? If scholars and policy makers were able to identify a number of relevant bodies of knowledge that would enable them to explain the shaping and content of e-government, they would also be able to have a more profound discussion about the next generation of e-government.

In this chapter I have addressed three bodies of knowledge which could help scholars and policy makers to understand the nature of e-government, especially by looking at the interactions that shape the content of e-government practices. Based on these bodies of knowledge, it is possible to formulate a conceptual framework that helps us to understand e-government nowadays. This framework can also help us to formulate research and policy agenda. More specific research questions have been addressed in the previous sections. How does this framework look?

E-government – in terms of a technology driven innovation which co-shapes the introduction of new services, processes, organization forms and concepts – requires the free flow of ideas, information, knowledge, staff and other resources between (parts of) organizations and domains which come together in informal grey zones. Hence, the characteristics of these grey zones may explain to some extent the kind of e-government we are experiencing nowadays. In these grey zones there is room to exploit new ideas, to experiment, to get involved in processes of trial and error, and learning. However, the quality of this learning process (which not only focuses on first- but also on second-order learning processes) does tell us something about the nature of e-government and the innovations that take place. In order to insert new ideas and to link different but relevant design logics and values, three factors are especially important. First, transformative leadership is needed in order to formulate a rather open vision of the future of e-government, as well as linking leadership which focuses on boundary scanning and spanning activities. Secondly, it is important to take into account the perspective of the user, especially citizens, in order to prevent a government-centric approach. Thirdly, due to the involvement of a large number of relevant organizations which act on different layers of government and within different societal domains, innovation in e-government depends on the quality of the relations between the actors involved in terms of the degree of trust and social capital that is present in this milieu. Hence, the nature of e-government mirrors to some extent the levels of trust that actors have in each other.

The interesting thing about looking at e-government from the perspective of an innovation milieu is, that it does not take the technology that is used in e-government practices as granted and given. This point can be further elaborated by looking for insights from the so-called technology debate, in which the idea is questioned that ICT is a given and neutral set of tools to be directed to previously determined policy goals. I have argued that it is not the technology alone that explains how e-government looks. The technology that is used in e-government practices is the result of a process of social and political shaping in which demands stem from different environments. Different demands for change co-evolve in a specific e-government practice. How does this process of co-evolution occur? In this shaping process different actors with different frames regarding the blessings of ICT try to influence the content of e-government. The reason why e-government is subjected to a process of information politicking is that the development and use of ICT in e-government is considered an important source of power which strengthens and weakens the position of some actors in contrast to other actors. E-government changes the dependency relations between governments, citizens and companies. Furthermore, research has shown that ICTs in many cases leads to a reinforcement of existing practices, interests, views, and biases. This has important consequences for our understanding of the innovative potential of future e-government programs because it draws our attention to question about who benefits most from e-government and viewpoints (frames) that have dominated the shaping of a specific e-government practices. What kinds of practices have been rejected?

Furthermore, actors very often frame e-government and the use of ICT in it, as a way of exercising power to establish specific goals and interests. In order to understand the nature of e-government, we should address the governance capacity of ICT that is present in these e-government practices. Analyzing the way these governance capacities are being used, tells us something about the interests that are served and the bias that lies behind these e-government practices. I have argued that, at this moment, most e-government practices are focused on the creation of the intelligent state in which database technology plays a vital role in the transformation of government. In this transformation we see that especially implementation and enforcement agencies create their own web of information relations so that they, in their role of spiders, can control the transactions with relevant parties in their environment. However, the governance capacity to which ICT refers is also available for citizens and companies themselves. This potential has been described in terms of the intelligent society in which relevant knowledge, information, experiences and contacts can be shared through social network technologies. However, it is interesting to see that the intelligent society has not really been picked up in the dominant thinking about e-government. Why is this the case? An important challenge for the future of e-government is to question how to link the governance capacities that are present in the intelligent state to that of the intelligent society. What are the conditions under which this might take place? Can they substitute for each other, or are they mutually exclusive? However, in order to exploit the linking of both, it is important that a free flow of ideas can take place, that grey zones are established in which actors are able and capable to explore how these two governance logics can be linked in order to show that, according to the opening words of Tony Blair as referred to in the introduction, government matters.

What does this imply for the general topic of the book: innovations in governance? Based on the ideas that are presented in this chapter, the innovation that e-government

could bring to governance is twofold. The first level refers to *the governance potential of ICTs*, which has been conceptualized through the introduction of the ‘intelligent state’ and the ‘intelligent society’. At this first level e-government can be seen as a governance practice that re-shapes the relations and interactions between government and society. I have demonstrated what kind of changes happen and what the relevant conditions and challenges are. Given these ICT-driven governance practices, the second level refers to the governance of the conditions and the steering of the (innovative) interactions between the involved stakeholders, to exploit the governance potential of ICT. In the section on innovation and social shaping of technology special attention has been paid to the quality of the relations and the interactions between the involved actors. It is this quality – in terms of openness, trust, leadership, inclusion of the user perspective – which influences the social and political shaping of the technology to be used. Hence, we can conclude that ICT-driven innovation in governance can be seen as a meta-governance challenge that has to be addressed at two levels. This implies that the outlook of e-government can be explained by the way different stakeholders have been able to manage this meta-governance challenge.

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