Visual Events and Electronic Government: What Do Pictures Mean in Digital Government for Citizen Relations?

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Abstract
E-government is becoming more picture-oriented. What meaning do stakeholders attach to visual events and visualization? Comparative case study research show the functional meaning primarily refers to registration, integration, transparency and communication. The political meaning refers to new ways of framing in order to secure specific interests and claims. To what the institutional meaning relates is ambiguous: either it improves the position of citizens, or it reinforces the existing bias presented by governments. Hence, we expect that the emergence of a visualized public space, through omnipresent penetration of (mobile) multimedia technologies, will influence government-citizen interactions.

Keywords. e-government, visualization, visual culture
1. Introduction

The outlook of electronic government is changing. The emphasis was primarily on the processing of text and number based data, which through hyperlinks are related to each other. However, pictures play an increasing role in the digital interactions between governments and citizens, which we broadly define as e-government. These interactions can be related to enhance the access of government, to improve the quality of service delivery, to enhance public and political accountability, to stimulate participation as well as to improve the internal efficiency of government (Moon, 2004). However, no systematic scholarly attention has been paid to this new generation of visualized e-government.

From a sociological viewpoint, this trend towards visualization can be understood in terms of the rapid penetration of visual culture in government-citizen-relationships. Although pictures in terms of propaganda or public information services have always been an important policy instrument, the meaning of pictures may go beyond these established practices. Nowadays, human experiences have become more visual and visualized than ever before. Indications are the increased popularity of social network sites like YouTube and Flickr as well as the popularity to take and exchange pictures through mobile devices. However, the emergence of this visual culture does not only depend on the pictures themselves. It is rooted in a tendency to picture and visualize human experiences in a more compulsory way: compulsory because pictures create and contest meanings, while at the same time they relate to and co-evolve with other meanings in the public domain (Mirzoeff, 1999).

In this contribution we theoretically and empirically explore the increasing role which pictures (as visual events) and visualization play in e-government practices as well as to understand what their significance is for the involved stakeholders. The question can be asked, whether these visual events give meaning to the relationships between government and citizens, how this meaning can be understood and how these pictures (re-)define these relationships.

First, we explore the notion of visual culture as a relevant background which influences the shaping of e-government (section two). In section three we address the different meanings that pictures have in the shaping of e-government relationships as well how this could be understood. In section four we describe the research strategy that we have conducted. In section five we will describe five e-government practices in order to understand what kind of meanings relevant stakeholders attach to the creation of visual events and how these concrete visual events redefine the relationship between government and citizens. In section six some conclusions will be drawn.

2. Visual Culture: Nature and Backgrounds

The emergence of pictures and other visual events in government-citizen relationships can be seen as the expression of the emergence of a visual culture. Mirzoeff (1999:3) defines “visual culture as being concerned with visual events in which information, meaning or pleasure is sought by the consumer in an interface with visual technologies”. Visual technologies are defined as “any form of apparatus designed to be looked at or to enhance natural vision, from the oil painting to the internet” Typical for visual culture is first that pictures have become increasingly important. An indication is the emergence of a complete industry and infrastructure producing and distributing pictures. This does not imply that text and the printed media have lost significance in the communication between people. There is an increased use of pictures, although the persuasive power of pictures increases, if it is combined with verbal or written text (Mirzoeff, 1999; Marcus, 2002). Secondly, this visual culture is a post modern culture, implying that it is in essence very fragmentized and disrupted, which
adds to the fact that is a dynamic culture. (Castells, 1996; Frissen, 1996; Mirzoeff, 1999). It represents an endless, often real time and thus changing, stream of divergent and convergent (thus) multiple pictures with which people are confronted. They all compete in order to gain attention. This implies that different notions of viewing and interpretation should be taken into account. Originally the relationship between a citizen or consumer and these pictures could be understood in terms of ‘spectatorship’: with an emphasis on the look, the gaze, the glance and practices of observation in which pictures are presented in a structured and planned way, like watching television. Nowadays, this relationship has become one of reading, of understanding the complex and multiple meaning of pictures that come together in the mind of citizens, thereby creating and referring to experiences. Images succeed or fail to the extent that we can interpret them successfully in non-structured and pre-determined contexts. Hence they have to be rather open for different interpretations (Mirzoeff, 1999; Sturken & Cartwright, 2001). For instance, in the so-called experience economy, consumers are invited to join a open story in which they can participate, adding past of wanted future experiences (Pine & Gilmore, 1999). Pictures, very often in combination with sounds, try to seduce people to be part of this unique story. Pictures play also an important role in politics, due to the fact that policies have become mediated politics: citizens experience politics through the way it is visualized by the traditional media (e.g. newspapers, television news shows) and the new media (e.g. blogs) (Bennett & Entman, 2005). The media have become increasingly the platform for politics in order to gain political and public support (Louw, 2005; Stanyer, 2007). However, the rise of the experience economy and mediated politics illustrate the rapid penetration of visual events in nowadays society. However they should not be studied as a separate phenomenon or a separate element of a broader culture: it is an integral part of and embedded in broader societal, economic, social and cultural developments and practices (Mitchell, 1994; Castells, 1998; Bauman, 2000). One of these broader developments is e-government.

Three developments have contributed to the emergence of this visual culture. First, the omnipresent penetration of television in our daily life. In contrast to newspapers, television stimulates our association (through amusement and pleasure) much more than the printed word which is more based on reason and order (Castells, 1996). Secondly, we can refer to rise of the multi-media networks and systems, in which pictures and videos are integrated with sound and words (Castells, 2009). The third development is the increased interactivity of these new (multi)media, which comes also forward in the emergence of web 2.0 technologies. Web 2.0 has been called the ‘social web’, because its content, in terms of the creation and sharing of experiences, can be easily generated by individual users as well as the collective intelligence of users (O’Reilly, 2005; Boulos & Wheeler, 2007). Users are not the passive consumers of content but function as co-producers and co-creators, which presupposes interaction. In expressing these experiences, pictures and videos have become very important (e.g. YouTube, Facebook).


If we want to understand why visual events, and the process of visualization which lies behind it, may be transforming the outlook of e-government, we first have to understand what meaning visual events have for citizens and government that digitally interact with each other. What kind of meaning do they attach to the role of these visual events? What do pictures want (Mitchell, 2005). From an ecological perspective on ICT, e-government practices are shaped by the unique, and thus local, interaction of different stakeholders that operate different or overlapping (socio, political and cultural and technological) environments which color their interests and views (Davenport, 1997; Bekkers & Homburg, 2005). In these interactions different meanings about the added value of the use of specific technologies are constructed, attached and exchanged (Bijker et al., 1987; Orlikowski,
E-government practices can be seen as the embodiment of these interactions and the dominant meanings that shape the use of visual and other technologies. Increasingly, visual events are being inserted in these e-government practices. This implies that the involved stake holding actors have specific expectations regarding the production and distribution of visual events and the use of visual technologies. Analytically, three types of meaning can be discerned: a functional, political and institutional meaning. In practice these three meanings are intertwined.

The functional meaning relates, in an instrumental way, to the practical use of visual events in order to achieve specific goals, to have specific consequences (March & Olsen, 1989). The functional meaning consists of the following elements.

First, the classical function of visualization is registration. Through pictures people can register or record people, movements or developments in terms of ‘freezing’ them in time and place. (Mirzoeff, 1999). It generates ‘forensic evidence’. Due to the fact that these occurrences are digitally recorded, they can be duplicated, are they accessible for people and can they be exchanged and distributed. (Hartley, 1992).

Secondly, visualization can make complicated things rather transparent, in terms of comprehension: one picture can say more than thousands of words. For instance, visualization can make things easier and more understandable, like the causes and effects of air pollution (Hartley, 1992; Moody, 2010). Hence, it is possible to discern three sorts of transparency (Zuboff, 1988). First, there is informational transparency, which refers to the fact that automated or digitized activities generated information on the way and conditions under which they are deployed. Secondly, there is analytical transparency, which refers to the possibility to obtain a better understanding about the nature of specific issues or the effects of specific measures, through the use of different perspectives on the subject that are based on the different combination of relevant data. Thirdly, and consequently visualization can also increase transparency, because it integrates different data in one or a sequence of pictures. In the development of visualized scenarios, relevant information of different data bases can be presented in an integrated way, which can make things (again) easier to understand. This is called integrative transparency. Thirdly, visualization facilitates communication. Although a picture says more than a thousand words, people will have different interpretations which are very often an incentive to communicate in order to create a shared understanding, in order to develop a common grammar (Weick, 1969). Moreover, pictures very often stimulate our emotions, because they are often used to convince and persuade people, which may also trigger communication and other forms of interaction.

Fourthly, visualization facilitates individual and collective learning. This especially the case, if pictures can be manipulated so the effects of specific decisions or considerations can be made visual and thus become more transparent. This generates a feedback process which might be an incentive for communication. In general two learning processes can be distinguished. First, people can learn through visualization because the creation of a visual event shows if the effects, when specific measures are taken, are not in accordance with the goals that are set. This is called first loupe learning. Secondly, there is also second loupe learning. This refers to the fact that visualization might show the assumptions which lay behind the formulation of these goals and measures, are not valid and should be adjusted (Argyris & Schon, 1978; Hall, 1993).

However, the role visualization may play in e-government practices is not neutral or strictly instrumental. For instance, what is the kind of transparency that is visualized? What kind of data are taken into consideration, when visualizing a specific event, and what kind of data has been left out and is not visualized? Hence, it is important to address the political meaning of visualization.

Visualization supports a process of policy framing in which social reality is (re-) constructed, thereby including or excluding elements into the constructed picture (Stone, 2003; Hajer & Law, 2005). In
essence this is a political process, in which specific stakeholders try to structure reality in such a way that it may serve their purposes (Snow et al. 1986; Stone, 2003). Framing can be seen as an account of ordering that makes sense, because they link facts, values, actions and interpretations in such a way that ambiguity is being reduced and a specific meaning is being created (Hajer & Law, 2005).

In the literature a distinction is made between different framing activities (Snow & Benford, 1988). First, there is diagnostic framing, which refers to the identification and classification of a specific policy problem in terms of possible and relevant causes. Secondly, there is prognostic framing, which refers to the identification of possible and relevant solutions and approaches. Thirdly, we can distinguish motivational framing which refers to the process of seducing citizens to come into action for a specific purpose. Fourthly, there is frame alignment. Frame-alignment refers to the coupling of different frames of reference through the development of a shared understanding about a specific course of action. Communication is being considered as an important mechanism that in which frames of different actors become aligned.

One the hand an image can be seen as relevant element, besides other elements like rhetoric, which is inserted in the frame that is pushed forward, thereby trying to increase its pervasiveness (Benoit & Benoit, 2008). On the other hand an image itself can be seen an independent frame that policy maker use to make sense of specific occurrences or challenges for which specific solutions are needed. Hence, visualization is a powerful resource actors use to manipulate the content and course of their interactions. At the same time the producer of visualized frame does not determine the meaning that is attached to a frame. We cannot say that meanings are inherent in images, although the producer hopes so. An image creates meaning at the moment that it is received and interpreted by a viewer, thereby taking into account the specific context (Sturken & Cartwright, 2001). Consequently, actors attach different meanings to the visualization technologies (Bijker, et al. 1987; Kling, 1986).

In the creation of visual events, used in 21st century e-government, specific biases can be put forward and may be presented as ‘reality’ (Kraemer & King, 1986). It is important to understand which ‘reality’ will be presented as being relevant in the images and who benefits from this kind of visual representation. Actors who have access to the specific technologies, the relevant infrastructures, the knowledge but also to relevant content (like databases and datasets) which is necessary to produce and distribute visual events, are therefore able to control powerful resources in the production and distribution of visual events. Hence, we could also argue the creation and distribution of visual events in e-government practices is also subject to a process of ‘politicking’ (Knight & Murray, 1992).

Moreover, when looking at the political economy of the production and distribution of visual events, we see a fundamental change has occurred in the access to these visual production and distribution technologies, the investments needed to exploit them and the necessary knowledge. In comparison with the traditional media (newspaper, magazines, television) and traditional large scale information systems (like databases and geographical information systems) that require reliance on high knowledge intensive and costly infrastructure, two socio-technological developments have led to a process of radical democratization in the production and distribution of visual events. This is first the emergence of the internet which has enabled the emergence of social, interactive networks which has been referred to in terms of web 2.0 (O’Reilly, 2005). Secondly, this is the massive penetration of the digital camera and video function in mobile telephone devices and other handhelds, which enable people to take pictures and to distribute them anytime, anyplace and any moment. In doing so it becomes possible to have a real time coverage of events. Web 2.0 does not only stress the importance of citizens as co-producers of relevant content (e.g. knowledge, information, contacts and experiences). It also demonstrates citizens can use their interactive and visual potential, which is provided by these new technologies, to monitor government communications and services by combining individual information, knowledge and experiences, to make processes and outcomes
more visible for the general public. In order to do so citizens may also use and exchange pictures. This is the institutional meaning of visualization, because in combination with mobile device and access to web 2.0 applications, it may change the established practices and rules in public administration. However, in the literature on the effects of ICT in public administration, there is, repeatedly, empirical support for the so-called 'reinforcement hypothesis' which states that ICT predominantly reinforces the existing structures, interests, positions and frames of references ('bias') of those actors who are already in a powerful positions. The changes that occur are rather incremental nature and primarily focused on organizational efficiency gains (Andersen & Danziger, 2001; Norris, 2000; Moon, 2002; OECD, 2003; Kraemer & King, 1986; 2006; Lips & Schuppan, 2009). Does this also apply to the use of visualization in e-government practices? Do visual technologies contribute to fundamental changes in the existing e-government practices regarding the relationship between government and citizens?

4. Research Strategy

This section addresses how we will reconstruct the different meanings that relevant stakeholders attach to the use of visual events in digitized government-citizen interactions. This reconstruction is based on a case study approach. The advantage of a case study is that it allows researchers to get a in-depth, and thus qualitative, understanding of the patterns of meaning and the interaction between them that are considered as relevant by the actors who play a vital role in the case study (Yin, 1994). In this research project the case is an e-government practice in which visual events play a vital role in the relationship between citizens and government. Moreover, we choose for a comparative case study, in which five case studies are compared with one another. The central question within this comparison is to look for striking resemblances or differences in the kind of meanings different actors attach to the use of visual events as well as to explain them.

Due to the fact that no other research project has systematically looked into the use of visual events in e-government, the emphasis in this comparison lies on the exploration of the variety of meanings that are possible. The selection of case studies is therefore based on choosing cases which are dissimilar (Yin, 1994; King et al., 1994). In doing so we vary on the visual technologies used, while at the same time we also vary on the relevant context. This context varies with the different stages of the policy context. This implies that due to the explorative nature of this research, we do not aim to gather empirical findings that are statistically valid. We aim at presenting findings which are valid in an 'analytical' way, in which the emphasis is put on the plausibility of the findings and the richness of the findings. However, the richness of our findings is not merely based of an in-depth understanding of each single case. It is based on the richness that emerges from the comparison of five cases itself. The emphasis lies on getting a plausible understanding - in terms of relevant patterns- about the possible effects of the increased use of visual events in government-citizen relations. These findings may help us to identify building blocks that can be used in the creation of a theoretical framework that could be tested in further research (Yin, 1994).

The validity of these findings is also strengthened through ‘triangulation’ (Patton, 1997). Three data sources are used: a secondary analysis of research material which has been gathered in other projects (Bekkers et al, 2010; Moody 2010; Moody et al., 2010; Bekkers & Meyer, 2010), the content analysis of relevant policy documents and the findings that have been based on half open, in-depth interviews with key figures who can seen as representatives of the most involved interests per case.
In sum, this implies that over these five cases 20 key persons have been interviewed, based on semi-structured interviews, structured through a topic list.

In each case, based on the previous theoretical explorations, we want to grasp the different meanings most important stakeholders attach to the use of visual events in e-government. Analytically we will distinguish in each case three types of meaning that are being described:

- the functional meaning which actors attach to the instrumental use of visualization. What is the added value of visualization as a set of tools according to the involved stakeholders in terms of registration, transparency, communication and learning in order to achieve specific policy goals?
- the political meaning which refers to the power that the creation and distribution of visual events gives to stakeholders to strategically frame a specific issue – in terms of diagnostic, prognostic and motivational framing as well as in terms of frame-alignment. Furthermore, we have looked at the access power of the involved these stakeholders to create and distribute visual events.
- the institutional meaning which stakeholders attach to how visualization may challenge historically established practices, positions and relationships between government and citizens. These established practices refer to content of specific policy issue as it has settled itself but also to the grown relations between the involved stakeholders regarding the production and distribution of visual events.

In addition, we will compare these different sets of meanings. It is the comparison itself which helps us to get a better understanding about the added value of the visual events in e-government practices and the questions they raise.

5. Case Description and Findings

In this section we present several case studies of e-government practices in which visualization is used; practices that can be linked to different policy processes. In order to compare the case study results, we will describe and analyze each time how the functional, political and institutional meaning is present in each case. However, we will start with a short description of the context, and we will end with a sketch of the results.

5.1. Agenda-setting: the Pupils Revolt against the 1040 Norm

Agenda-setting is a process in which specific actors in society try to attract the attention of the general public, policy makers and politicians for their definition of a specific issue in order to put it on the political agenda (Kingdon, 1984). Citizens may use ICT to mobilize support and to attract attention. The quality of education has become a widely discussed issue in the Netherlands. In November 2007 pupils revolted against the ‘1040-hours norm’ (Bekkers et al, 2009). This norm refers to the yearly amount of hours pupils have to have education during the first and second years of secondary education. In this revolt, web 2.0 technologies like MSN and YouTube played an important mobilizing role. They partly facilitated local and nation wide protest actions which challenged the educational agenda. The revolt dealt with the idea that schools were not able to fill in these hours, due to a shortage of teachers while the Ministry of Education and its Inspection wanted
to hold on to a strict enforcement of the norm. Pupils complained that they had to stay in school, even while no lessons were given. Visualization played an important role in the mobilization of these youngsters. With their mobile phones, they made pictures and stream videos of local protest actions which were put on You Tube and on Hyves (Dutch equivalent of Facebook) or were being exchanged by MMS or MSN. For instance, between 29-11-2007 and 06-12-2007, 1720 films were placed on YouTube (Bekkers et al, 2009).

The instrumental meaning of the visualization process was twofold. First, it facilitated the pupil’s communication in terms of the (re-) production of the content and course of the protest, in terms of participating in broader movement that generated a collective experience. Second, visualization was also used to record the events that were taking place, almost real time. Through this recording, it was possible to share similar experiences, which gave rise discussion. However, this recording also facilitated that these youngsters were able to freeze the police actions against them. In some cities, small riots occurred and the police reacted very violently. Due to filming, police behavior was made visible and transparent: ‘real time’ evidence was generated, distributed and made available through all kinds of network sites, which ultimately led to the dismissal of two police officers in Middelburg.

This brings us to the political meaning of visualization. First, youngsters (but also the media) used these films and pictures to frame their claims. They were able to depict themselves as David versus Goliath. This helped them to draw more attention but also to generate the sympathy of the public, several politicians, and the media. Visualization helped them to put forward a specific frame about the goal, the course and the effects of their actions. However, this frame and the recording of the actions were questioned by some politicians and police offers, because the reporting in the pupils was perceived as one-sided: focusing on the ‘trill seeking’ and picturing the police as ‘bad cops’. Secondly, the exchange of pictures in social networks and by instant messaging programs, thereby focusing on the exchange of experiences, facilitated self-organization and co-ordination by these loosely coupled pupils, e.g. leading to a general strike and a large demonstration in Amsterdam. YouTube, Hyves and MSN enabled pupils to mobilize themselves very swiftly and on large scale (it is a generation ‘always on’), in which the sharing of visualized experiences played an important role. This created a ‘strategic surprise’, because the responsible ministry of Education was confused how to react.

The institutional meaning refers to the youngster’s combined role of protester and reporter. By acting as reporter they were able to generate an additional view on the content and course of the protest actions, thereby challenging the monopoly of the coverage by the traditional media, which also used the films and pictures that were freely available. Hence, they created their own communication. Furthermore, they showed that is was quite easy for a loosely coupled group to organize themselves as an issue group, thereby surpassing established intermediaries like the LAKS (a platform organization of pupils with the ministry which was established in the late 1980’s) and political parties.

How did it end? The protest of the pupils was quite successful. The responsible deputy-minister of Education said that she would re-examine the 1040-norm in relation to a broader debate on how to enhance the quality of secondary education.

5.2. Policy Development: the Reconstruction of a Public Square in Tilburg

Another case study refers to the development and decision-making regarding the reconstruction of a square in the centre of Tilburg in 2006 (Moody, 2010). According to the municipality, it was, due to discussions on the square’s functions as well as the need to increase citizen participation, important
to give citizens a vote in the planning of the square. They were asked to voice their preferences (like more terraces, more green, more water). Then the municipality asked city developers to develop plans of which three were chosen. These plans were visualized through the use of geographical information systems and 3-D visualization: named Virtuocity which was made accessible through the internet. By choosing an avatar citizens could walk through the visualizations of the square and to vote for one of the designs. They could discuss the plans in a forum. However, they could not make suggestions to change or combine elements of the plans. The design which gathered most votes was adopted by the municipality. In Tilburg 115.00 visits were registered and 4000 votes were counted.

From a functional perspective, visualization was perceived as an instrument to generate transparency in two ways. One the one hand, Virtuocity made it possible to combine different data, regarding all the different aspects of a square, in an integrated picture. At the same time these integrated pictures were presented from three policy perspectives on the possible future of the square, based on different assumptions, like more terraces, more nature, more traffic etc. On the other hand, the consequences of complex redesign decisions were made visible in a set of simulations. Not only citizens were able to grasp the redesign of the square at first glance, they were also the experience the square through the eyes of an avatar.

From a political perspective, the way these visualizations were shaped as well as the functions they had to fulfill, were subject to a debate between policymakers, citizens, politicians, architects and the system designers in terms of the (perceived) risks. In Tilburg, we notice that, although the architects were first pleased with the idea of a virtual space for their design, in the end they were rather sceptic. They claim that Virtuocity makes the idea of a design more clear but the way their design was projected was not appreciated, the underlying vision of the design was lacking. Furthermore, the aldermen were afraid of possible one-sidedness in the voter’s representation as well as the possibility of fraud. Furthermore, the company that produced Virtuocity (CEBRA) played a powerful role. It had a lot of influence in the way their program was used and how to use it, which also limited the discretion of policy makers. For example, CEBRA preferred a high resolution on screen, but the municipality worried about older computers not being able to handle this high resolution, even though sort of a balance was found, the resolution would still be high.

From an institutional perspective, some interesting changes in practices could be observed. Citizens were primarily seen as voters, who have been given an additional opportunity to participate in a democratic decision-making process. Ultimately, the municipality has accepted the design that gathered most votes. Virtuocity was seen as instrument that could help to introduce elements of direct, participatory democracy and add to the legitimacy of the existing municipal representative democracy. At the same time, the voter turnout was quite low in Tilburg (normally 200.000 inhabitants). One reason was that citizens did not believe the municipality would take their vote seriously. Another reason were some technical problems as well as the fact that only citizen owning a computer and computer skills were able to visit the site and to cast their vote. Citizens complained also about the fact that they have not been addressed as possible co-producers, because they did not have the opportunity to make suggestions within a particular design or to combine elements of the three designs.

5.3. Policy Implementation: The Riskmap

After the explosion of a fireworks factory and the knowledge that governments, citizens and first aid agencies were unaware of the locations of risks, a so-called Riskmap was designed (www.risicokaart.nl). The Riskmap – operational since March 2008 an accessible through the internet- gives an overview of all geographical locations posing a risk to public safety. It will show
instances like potentially dangerous, inflammable, explosive and toxic substances as well as core points in transportation which would potentially cause disruption. After selecting a risk the program shows what the risk entails, who is responsible for the risk, the exact location, and the permits. In this way professionals and citizens can get a clear view of the risks in their surroundings. Additionally the Riskmap should be used so that governments can communicate risks to citizens in a clear matter and to help crisis managers and first aid professionals in case of a crisis (Moody, 2010).

Looking at the functional meaning of visualization, respondents primarily refer to the need to make risk transparent in an integrated way. The risk map not only integrates data stored in different databases into coherent risk and risk management information, it does also make these (often hidden) risks visible in a specific environment. This increased the transparency enormously, not only for citizens but also for policy makers and emergency agencies. In case of a fire it becomes transparent for emergency agencies to see whether explosives are located near the fire. Another point is that spatial planners can now very carefully look at where they want to locate buildings, for them it becomes easier to see what a safe place is to build a school. This increased transparency however, also caused a problem. This brings us to the political meaning which stakeholders attach to the increased visibility of risky objects.

There was a large debate on whether the Riskmap itself would not pose a risk, with all the risks accessible for everybody over the world would we not invite terrorist to attack? In the end it was agreed upon that whether or not a Riskmap would exist, terrorists would always be able to get this kind of information. Furthermore, municipalities feared citizens pressuring them in taking all dangerous substances out of their municipalities and that they would feel unsafe. Ultimately, only few complaints by citizens have been made. A reason is that citizens do not make a lot of use of the Riskmap, they claim it makes them nervous or they are not very able to work with the application. The increased transparency also made sure that municipalities became aware of instances in which rules where not applied properly. They feared that when this would be visible, they would be held accountable, so alterations where made. Here we see that because of the existence of the Riskmap rules are executed more accurately.

The institutional meaning of visualization comes forward in the changed government-citizen relationships. Firstly, because now the information on potential risks is easily obtainable for citizens, their information position improved. Secondly, even though citizens do not often complain, since now all the information is transparent, local governments are so afraid that they will that they will make sure that all the rules are applied correctly and that potential risks are taken into account in spatial planning. However, here citizens are not seen as co-producers and the information is only one way, there are no possibilities for interactivity regarding the risks on the website.

5.4 Policy Enforcement: Criminals Wanted

During 2008 several police forces have used the internet to publish photos and CCTV-video material, in their prosecution of criminals. An example is www.overvallersgerzocht.nl (‘wanted robbers’), on which pictures and videos are published of robberies, sometimes combined with the criminal’s voices. The website has led, between the end of 2007 and during 2008, to the arrest of four criminals. Another example is www.politieonderzoeken.nl (police investigations) which is a website of all the police forces together, on which visual and other material are put of cold cases. By making this material accessible for a broader public, the police hope to get new information on cold cases. Since, its start in 2008, two cases have been solved through new information that was given as a reaction to this specific website (Bekkers & Meijer, 2010).
Another channel that has been used is YouTube. For instance, from 16 July until 5 August 2008, the police in Hollands Midden, which started its own YouTube channel, placed a video on YouTube, containing 6 minutes of video pictures of an assault on a gas station in Leiden, which have been watched for more than 40,000 times. More than 100 reactions were given, and the case was solved in August. In the slipstream of this success, other videos have been placed on YouTube by the police force. The idea behind this channel is not only to involve citizens in the fight against crime, but also to show that the police are able to produce results which may contribute to the safety feelings of citizens.

When looking at the instrumental meaning, the emphasis lies on making recorded visual information accessible for the public. This has become easier, due to the increased digital recording of movement and people in public spaces, in shops, gas stations etc. As a result, citizens may recognize something or may remember something, which is the result of an individual learning process.

Respondents describe the political meaning primarily in terms of the framing power of visualization, thereby showing that the police have been successful in the fight against crime while making use of new instruments. The solved cases are prominent on the website. A banner with ‘solved’ as well as an explanation how the case is solved (in all the described examples), attracts a lot of visitors. The idea is that positive news will not only seduce people to report more crimes, but that it also contributes to a better image of the police, thereby helping to reduce possible feelings of anxiety. Policymakers but also the public are convinced of the added value of presenting these pictures. Furthermore, also the privacy protection agency does not substantially raise her voice.

The institutional meaning of presenting pictures is that it appeals to citizens as possible co-producers of public safety. The idea is that the fight against crime could be more effective, if the police forces are able to mobilize the knowledge of the public. Furthermore, in doing so, the police want to convince citizens of the idea that the fight against crime is not only the responsibility of the police, but that citizens have their own responsibilities. Moreover, by showing which crimes have been solved, the police also hope to gain public trust.

5.5 Policy Evaluation: Monitoring Neighborhood Safety

In April 2006 the police in the city of The Hague introduced the website ‘how safe is my neighborhood’ (www.hoeveiligismijnwijk.nl). This website enables citizens to access data about eleven of the most frequent crimes in a specific neighborhood so that they can monitor the results of the actions taken by the police. The idea is that better and more detailed information about the nature of specific crime developments and the outcomes of specific actions would create a better image of the police and its policies as well as to create a larger commitment of the public which may lead to a larger willingness to report crimes. Up till now the number of visits to the site has been a quite a success, although the number of reported crimes did not rise. Citizens appreciate the way in which the information is being presented and made accessible. The police also invite citizens to comment on how to improve the website. Each month, valuable suggestions can win a prize. However, a forum for discussion is not provided (Moody, De Kool & Bekkers, 2010).

In the creation of this website, visualization was essential. If we look at the functional meaning of visualization we see that visualization is used to increase the transparency of different kinds of crime and their rates. Rather complex and dispersed criminal statistical and geographical data is being represented, integrated and made accessible in one glance, which also helps to reduce complexity. Visualization supports learning to citizens and policy makers, because the website gives additional
Looking at the political meaning, respondents refer to discussion about the ‘facts’ that are visualized and presented, and thus how ‘crime reality’ is being shaped by the police. First, the facts that are presented are only based on the reports of citizens on the crimes they have encountered. The ‘facts’ only represents the registered crime, while the actual state of affairs could be different. Hence, the visual effects that are created are not based on full and reliable information. Secondly, it has been put forward that the visualized information does not take into account the specific context of a neighborhood. For instance, in a neighborhood with a little number of parked cars, fewer cars will be stolen than in an area with a lot of parked cars. Although it is possible to visualize the data per crime type, the combination of all eleven crime types per neighborhood is not possible, which could facilitate a more comprehensive picture. Respondents suggest that the transparency that is being created can be defined as “quasi-transparency” (de-contextualized crime information) as well as “fragmentized transparency” (only related to specific crime types), which may suit the police’s framing of the problem and the policy outcomes. In the fight against crime, also the perception of crime by citizens should be taken into account. How do citizens experience the safety in their neighborhood? The website does not provide a forum in which these experiences can be exchanged or made transparent. Hence, the interactivity of the site is limited.

What is the institutional meaning of the use of visualization in this case? On the one hand, citizens acknowledge that they have the possibility to be better informed, which is demonstrated by the number of website visits. Their information position has been improved. On the other hand respondents perceive that, due to the emphasis on the reported crime rates and the lack of interactivity through which citizens cannot express feelings of unsafety, the policy still dominates the information supply. Citizens are not defined as co-producers in creating a shared picture about the state of affairs in their neighborhood. They are only seen as a possible source of knowledge in relation to the improvement of the website (accessibility, friendliness, representation of information).

6. Conclusions

In this section we first compare the findings of our comparative case studies in order to draw some conclusions. In table 1 these findings are presented.

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<tr>
<td>Recording and communciation</td>
<td>Transparency, especially integration</td>
<td>Transparency, with an emphasis on integration, and communication</td>
<td>Recording accessibility, communication and learning</td>
<td>Transparency, with an emphasis on integration, and learning</td>
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Table 1. Meanings of visualization in e-government practices

<table>
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<tr>
<th>Political meaning</th>
<th>Framing of claims and attention; one-sided recording and transparency; common ‘story’ to facilitate self-organization</th>
<th>Discussion, representation of the design and of trustfulness of voting. Central role for program designers</th>
<th>Dominant risk framing by government, no room for citizen input, no debate on the usefulness of the map</th>
<th>Pictures as a powerful communication instrument and a way of framing the police success</th>
<th>Dominant safety framing by police on registered facts; no room for subjective dimension of safety</th>
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<td>Institutional meaning</td>
<td>Support political self-organization and mobilization process; counter-balancing framing</td>
<td>Supports political participation as voter, not as co-producer</td>
<td>Improved accountability for safety in spatial planning and correct rule appliance.</td>
<td>Citizens as co-producer of public safety, appealing to the public responsibilities of citizens. Adding to police legitimacy</td>
<td>Reinforcement of the information position of the police; no room for substantial discussion Improved citizen information position</td>
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<tr>
<td>Results</td>
<td>Reconsideration of the norm in relation to the quality of education</td>
<td>Acceptance of the design with most votes; low voter turnout, distrust remains</td>
<td>Improved citizen information position, more emphasis on government accountability.</td>
<td>Crime solution by appealing to the citizen’s knowledge, decreased feeling of unsafety and better image of police.</td>
<td>Improved citizen information position, no changes in crime reporting</td>
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Firstly, we see that two patterns of functional meanings can be discerned, which depend on the technology used in the visualization process. First, we see pattern in which registration/recording is dominant. The visual events which are presented here, refer to the possibility to show (real-time) experiences, by showing what has happened. Furthermore the digitized recording of these experience in combination with web technologies give citizens the possibility to have access to these recordings. This combination is dominant in the case of the students protest against the 1040 hours norm and the case in which the police asks the public for help by showing pictures and videos of criminals and hold ups. The second pattern is primarily focused on the creation of integrative transparency, thereby reducing the complexity of events and developments by making it comprehensible through the visualized integration of data and databases. In this second pattern geographical information systems (GIS) play an important role. This is dominant in the risk map case, in the case regarding the reconstruction of a square and the presentation of the results of the fight against crime.
At the same time we notice that in the majority of cases, and due to the dependency on GIS which are completely controlled by the involved government agencies, the incentive to facilitate communication is rather limited. If communication is present, the emphasis lies on informing citizens instead of facilitating a process of shared understanding. We notice that two way communication as a desired effect of visualization seems to appear in those e-government practices in which the internet, especially web 2.0 applications, play an important role (protests against the 1040 norm and internet use in crime fighting), while in the other cases it is one-way communication: from government to citizens: it is the government who informs. This can be explained because in most case GIS is not seen as a communication device by the government, mostly it is considered a device for calculation. Therefore governments are unaware or neglect to potential GIS has to facilitate communication. (Moody, 2010)

Due to this emphasis on informing, the learning process that is generated is primarily focused on a process of first order learning: showing what the results of specific (planned or implemented) measures and services are. This can be witnessed in the reconstruction of the square in Tilburg, the risk map case and the neighborhood crime case. In all these cases citizens complain about the absence of a real communication function and the possibility to question the assumptions behind the programs and services that are provided (in terms of second order learning). This is especially interesting, because the nature of the policy processes that is dominant in both cases (formulation and evaluation of policy programs) is very well suited to exploit the communication function of visualization. In both processes the emphasis lies on the exchange of ideas and opinions.

If we want to understand why the emphasis lies on these functions of visualization, we have to take into account the political meaning that visualization. In all cases visualization is used by the dominant actors to frame their interests, views and positions in a strategic way. They were able to do so because they used the fact that they had access to the technology which is need to create and distribute visual events and to relevant content (data and datasets) that could be visualized. For instance, in the 1040 hours case students were able to strategically frame the police actions because they used their mobile phones to record these actions and used web 2.0 networks to share these recorded events. In the risk map case and the neighborhood crime case the involved governments used the data they owned and the access they had to GIS to present a specific picture about the way they were dealing with risk management and crime fighting.

Furthermore, it is interesting to see what kind of framing activities are supported by visualization. Two patterns can be discerned. First, we see that visualization is primarily used in terms of motivational framing. Governments but also the protesting students hope that visualization helps to stimulate people to come into action, to get involved, thereby opening the door to a process in which their frames become alignment with the dominant frame that is presented through the visualization of specific results, services or actions. For instance, this is quite obvious in the case of reconstruction of the square, in which visualization is used to motivate citizens to give their vote; it is used in case of the protests of the student to demonstrate; and it used in the criminals wanted case and in the neighborhood crime case to get citizens involved in the fight against crime. The facts that governments and students use visualization for motivation, can also be understood in relation to the emergence of the earlier described experience economy in which visual events are used to get people involved and committed, due to the appealing power that pictures have.

The second pattern refers to the use of visualization for prognostic framing. Especially governments use the creation of visual events to strengthen the persuasiveness of the actions, services and measures that they have been taken. In the cases that we studied, we notice that the emphasis is not primarily put on the use of visuality to get a better understanding about the nature of specific problems, in terms of diagnostic framing. One could argue that motivational and prognostic framing
through visualization also favors one-way communication, in which the emphasis is on ‘biased ways of informing,’ while diagnostic framing gives more room for two-way communication. This might explain why the communication function of visualization is not used by the involved governments. Citizens, for instance, complain in at least three cases – reconstruction of the square, risk map, and neighborhood safety – about the fact that no communication facilities are provided. The political meaning of visualization can also be quality of the visualized transparency that was created by involved governments. These were questioned by the citizens, in terms of one-sidedness (neighborhood crime) and quality of the presentation (reconstruction of the square). Also the effects did raise questions. For instance, the unintended effects of the transparency that are visible in the risk map case and the ‘criminals wanted’ case. These effects appeared when citizens raised the question, if governments were able to comply to their own rules (risk map) as well as questioned hidden propaganda goals (criminals wanted). But also the opposite has occurred. The police questioned the objectivity of recordings that students used to show how the extreme violence of the police. Furthermore, the political meaning of visualization can also be demonstrated, as suggested above, by the fact that the visualization is not used for communication purposes, to facilitate an engaged, coproducing citizen. The fact that governments did not activate this function of visualization can be the fact that they are afraid to be confronted with other perspectives and interpretations. Hence, the political meaning of visualization in e-government refers to the question was it is represented, what is not represented and left out in the picture and what is the quality of presentation. And, who has been able to define what is represented as well as what functions of visibility are considered to be more or less important? This question is especially important, if we took into consideration the persuasive power to visual events have, and thus the power that can be exercised upon them. Although a picture may say more than thousand words, the story this picture is telling, is just one story. Therefore, the increased importance, which governments as well as citizens attach to pictures, generates new means of manipulation. At least it is important to take the context into consideration as well as the assumptions that lay behind the making or distribution of these pictures. The answer to that question will enable us to understand if substantial changes have occurred in the relationship government-citizen. This brings us automatically to the institutional meaning of visualization in e-government practices.

When we look at the institutional meaning of visualization, we see a mixed pattern. On the one hand we see that existing and grown practices have been challenged, leading to changing positions of citizens. Not only are they better informed, they are also asked to take up new and other positions, for instance as co-producer of co-creator, voter or public controller. At the same time, these new positions are taken within a framework in which the initiating governments still impose this framework, with an exception of the pupils protest against the 1040 norm. In all the other cases we may conclude that the creation of the visual events has not led to a weakening of the governments position, one could even talk about a strengthening of their position, in the cases in which the police have been involved (criminals wanted and crime monitoring). The latter has also something to do with the strategic use of visualization to improve the legitimacy of those organizations and the trust of the public in them. There seems to be support for the idea that also the visualization adds to the reinforcement of the information and communication positions of those organizations that already have a powerful position. Visualization opens the possibility to create and shape visual events that can be used to present an even more convincing story (in terms of framing) by those stakeholders, which are able to control the use and distribution of pictures. At the same time, the 1040 norm case shows very convincingly that citizens themselves have also easy access to the creation of these pictures in order to mobilize political and public support as well as to counterbalance the framing of for instance governments, which hardly generates any costs. Hence, we may expect that in the near
future, the production and distribution of pictures in the public domain will become an interesting battlefield.

What does this imply for further research? Due to the fact that there is no systematic research into the role that visual events play in government-citizen interactions, this research gives us some indications about the functions visual events fulfill, how they are used, and what effects they generate. Due to the explorative nature of this research, which also influenced the selection of cases, the emphasis was put on trying to get hold of possible dominant patterns of meaning. In doing so we succeeded. However, the next step is to get a better in depth understanding of the local and socio-political shaping of visualized e-government practices which is also based on the comparison of most similar cases. Hence, it is important to de-construct this shaping process as well as to understand if, how and why the use of visuality in government-citizen interactions differs from traditional non-visual e-government practices. Does the arena of the development of e-government changes if visuality becomes more important feature? Another point of interest is to understand why in most similar cases, in some cases stakeholders have used the two-way communication function of visual events, while in other cases stakeholders only defined the added value of visualization in terms of informing (one way communication).

What are the policy implications of this research? This research shows that pictures can improve the information position of citizens, can reduce complexity, because a picture can tell more than thousand words. However, policy makers should be alert that citizens, especially well informed and empowered citizens, are aware of the manipulative power of visual events, especially if they are used for informative reasons. The challenge is to link the communication and learning function of visualization with the role of citizens as active, coproducing citizens. In doing so this will add to legitimacy of government.

References


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