



The risk of the mobile citizen

**Public mobility surveillance for information
about citizens' whereabouts**

English summary

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ENGLISH SUMMARY

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Public mobility surveillance for information about citizens' whereabouts.

Mobile citizens attract the attention of government in various policy domains, such as traffic management, tourism, emergency services and policing. Government increasingly uses surveillance technologies, like GPS and mobile phones to collect mobility data about citizens, in order to monitor and control this mobility.

In this study, I have introduced the concept of **public mobility surveillance** to study this domain of government activities. At the outset of this research, I have defined public mobility surveillance as:

The digital collection and processing of mobility data about persons, whether identifiable or not, in order to influence or manage for public purposes those whose data have been gathered.

I have argued that both the academic and the societal debate are somewhat polemic, and lack substantial insight into the practice of public mobility surveillance. The goal of this research has been twofold. The first goal is to gather insight into how the meaning of public mobility surveillance is construed in public policy in order to assess in what way technological possibilities and limitations have an effect on policy practice. The second goal is to develop a conceptual framework to understand the implications of public mobility surveillance for the government-citizen relationship from a policy perspective. Correspondingly, the main research question is:

What are the implications of public mobility surveillance for the way in which government shapes its relationship with citizens?

The main question has been divided into five sub-questions.

1 - What is public mobility surveillance from an ICT-perspective?

This first sub-question entails the mapping of the characteristics of information and communication technologies that can be used for public mobility surveillance. The aim

of such mapping is twofold, first, to contribute to a theoretical foundation of the concept and, second, to facilitate the description of practices of public mobility surveillance. From an ICT-perspective, public mobility surveillance entails gathering, connecting and analysing data about spatial mobility.

The essence of mobility is the *ability* of an object to move in the dimensions of space and time. Consequently, public mobility surveillance refers to both non-moving and moving people. Whether people are moving, and if so, where and when, is information which is typically obtained by means of public mobility surveillance. Mobility consists of two dimensions: the (possibly) moving object of surveillance and the movement itself. Consequently, three categories of mobility data have been distinguished: object data, location data and time data.

Data about the object of surveillance help answer the question: ‘What is moving?’ Three answering categories have been distinguished: artefacts (e.g. mobile phones), bodies (e.g. Mister X or a group of men), and actions (e.g. potential burglars). Data about the movement itself consist of location data (space) and temporal data (time). The categories of spatial, network and descriptive locations help to express movement in the dimension of space: ‘Where is someone moving?’ Time can be understood in terms of information about the past, present or future: ‘When is someone moving?’ Table 1 summarises the categories of mobility data.

Mobility data can be gathered by means of several location technologies: satellite systems, networking technology, other wireless technologies, sensor systems, chip card systems and hybrid technology. Geographic Information Systems (GIS) serve to manage, visualise and interpret mobility data against the background of geo-information. Several actors are connected in the information chain of gathering, connecting and analysing mobility data: the object of surveillance, the content provider, the information provider and the end user. When considering the roles government and citizens can fulfil, it turns out that both of them can sometimes have several information roles at the same time.

MOBILITY CATEGORY	MANIFESTATION	EXAMPLES
<i>Object</i>		
Artefact	Device data	SIM-card number; chip card number
Body	(Aggregated) personal data	Name; age; gender
Action	Situational identity	Car driver; victim; witness
<i>Location</i>		
Spatial	Coordinates	Point in a Cartesian (X,Y,Z) or ellipsoid (N; E) coordinate system
Network	Cell-topology	IP address; place in a GSM network
Descriptive	Geographical reference	Address; name of building/park/city
<i>Time</i>		
Present	Data gathered in real time	Current location of fugitive wearing GPS ankle bracelet; location of 112 emergency call
Past	Saved data	Historic traffic data; public transport chip card journey time data
Future	Calculated data	Expected traffic jam; Terrorism threat

Table 1: Mobility data

2 - What is the political-administrative background of public mobility surveillance?

I have argued that it doesn't suffice to look at ICT-characteristics to understand the meaning of public mobility surveillance. Study of existing literature reveals that information about mobility was already of great strategic importance to states before the rise of ICTs.

From a political-administrative point of view, public mobility surveillance is the result of two developments. On the one hand it is a continuation of activities deployed by emerging European nation states in the seventeenth and eighteenth centuries: state cartography and the implementation of the instrument of national passport. A connection is revealed between controlling people's mobility and defining and guarding territorial boundaries. Ever since the rise of states, governments have been concerned with defining their territories, protecting existing resources and attracting new ones. As such, from a historical point of view it is essential for the self-preservation of the state to know where the increasingly mobile citizens and non-citizens are and to control where they can and cannot go. Public mobility surveillance can be considered as a modern variation of the passport but with more technological possibilities and more applications in domains of public policy.

On the other hand, public mobility surveillance is an acceleration of these traditional state activities as a result of the twentieth century threats to the territorial basis of the state: increased mobility and the ICT revolution. Therefore, paradoxically, public mobility surveillance can be understood as a reaction to characteristics of the ICT revolution it is part of.

3 - Which perspectives on surveillance in the government-citizen relationship can be distinguished?

This sub-question addresses the second part of the main research question, *implications for the way in which government shapes its relationship with citizens*, in a theoretical way.

What could these implications involve? In order to answer this question, I've linked up three perspectives on surveillance (control, interaction and precaution) to a threefold conceptualisation of the government-citizen relationship (ruler - subject, service provider - client, and democratic institution - citizen). Each of these surveillance perspectives contains both assumptions about technology (policy possibilities) and legitimacy (evaluation criteria in terms of legality, normative justification and social

acceptability). These three surveillance perspectives reveal different logics behind surveillance activities in the government-citizen relationship. Consequently, the perspectives have different theoretical implications for the way in which the government-citizen relationship is shaped.

The control perspective on surveillance focuses on the question how panoptic surveillance, which controls and disciplines citizens, can be legitimised while protecting citizens' privacy at the same time. The interaction perspective presents surveillance as a connection between different actors in society. Consequently, from this perspective the question is posed how access to surveillance systems and the value and quality of the produced information can be legitimised. The precautionary perspective supposes that surveillance technology can serve to identify and control risks. The legitimacy concern in this perspective is the evaluation of the grounds for defining risks and categories of citizens. Table 2 shows the theoretical framework of implications of surveillance for the government-citizen relationship.

	GOVERNMENT - CITIZEN RELATIONSHIP		
SURVEILLANCE PERSPECTIVE	<i>Ruler - Subject</i>	<i>Service provider - Client</i>	<i>Democratic institution - Citizen</i>
<i>Control</i> <i>Power and privacy</i>	Surveillance facilitates and replaces government enforcement of regulation.	Based on surveillance data about citizens, government facilitates access to public services.	By means of sousveillance ¹ citizens ensure transparency of government surveillance.
	Panoptic discipline ensures that citizens comply with government rules and regulation.	All citizens become reactive or passive clients.	Sousveillance stimulates government to account for surveillance of citizens.
<i>Interaction</i> <i>Free access to surveillance and quality of information</i>	Government regulation and enforcement are supplemented by civic norms and enforcement.	Government becomes a passive, moderating and reactive service provider.	Surveillance facilitates self- governance and cooperation with the government.
	Government and citizens stimulate fellow citizens to participate in enforcement.	As prosumers of surveillance information citizens to a large extent replace public service provision by the government.	Citizens demand an active role in the enforcement of fellow citizens.
<i>Precaution</i> <i>Defining risks and (groups of) risk citizens</i>	Government regulation and enforcement change quickly and focus on risk groups.	Dependent on group characteristics government selectively and proactively provides services to citizens.	Risk analyses have a central position in the accounting for policy choices.
	As a result of limited knowledge about changing norms, citizens find themselves in a Kafkaesque uncertainty.	Particular groups of citizens become reactive or passive clients.	Risks on the public agenda easily reach the government's surveillance agenda.

Table 2: Surveillance perspectives and the government-citizen relationship

¹ The term sousveillance was introduced by Steve Mann and points to inverse surveillance: ‘One way to challenge and problematize both surveillance and acquiescence to it is to resituate these technologies of control on individuals, offering panoptic technologies to help them observe those in authority’ (Mann, Nolan en Wellman, 2003: 332).

4 - To what extent do the different surveillance perspectives manifest themselves in the policy practice of public mobility surveillance?

In order to answer this sub-question I have conducted two empirical case studies into two policy practices of public mobility surveillance. Both case studies concern public executive agencies in the Netherlands. The first case study focuses on the application of automatic number plate recognition (ANPR) by one of the Dutch regional police forces. The second case study involves innovation in the collection and processing of mobility data by the National Data Warehouse (NDW), which is part of *Rijkswaterstaat*, the Dutch executive agency for infrastructure and mobility policy.

Methodologically, this study can be characterised as an interpretive-qualitative policy analysis. I have analysed how policy actors interpret technological possibilities and legitimacy issues concerning public mobility surveillance. Data generating methods included observation of interactions during meetings and outside the office, interviews with stakeholders and document study (policy documents; internal and external correspondence).

The results of the empirical study show that technology and legitimacy assumptions from all three surveillance perspectives can be found in the practice of public mobility surveillance. However, the theoretical assumptions manifested themselves in varying extent. Table 3 summarises the extent to which the technology and legitimacy assumptions pertaining to the three surveillance perspectives of control, interaction and precaution were found in each of the two cases studies. Consequently, insight is gained into assumptions that influence decision-making about technology involved in public mobility surveillance.

TECHNOLOGY AND LEGITIMACY ASSUMPTIONS	ANPR - POLICE	INNOVATION - NDW
<i>Control</i>		
Widespread control of citizens (technology assumption)	Strong	None
Disciplining of citizens (technology assumption)	None	None
Usage of surveillance versus citizens (legitimacy assumption)	Strong	Strong
Protecting citizens' privacy (legitimacy assumption)	Strong	Weak
<i>Interaction</i>		
Connecting government and citizens (technology assumption)	None	None
Joint creation of information (technology assumption)	None	None
Access to surveillance information (legitimacy assumption)	Weak	Strong
Relevance and quality of surveillance information (legitimacy assumption)	Weak	Strong
<i>Precaution</i>		
Identifying risks and risk citizens (technology assumption)	Weak	Weak
Containing risks (technology assumption)	Strong	Strong
Defining risks and categories of risk citizens (legitimacy assumption)	Weak	None

Table 3: Empirical manifestation of surveillance perspectives

5 - How is the government-citizen relationship shaped as a result of the characteristics of the surveillance perspectives found in the policy practices?

Based on the theoretical and empirical results, I have drawn five conclusions and one overall conclusion.

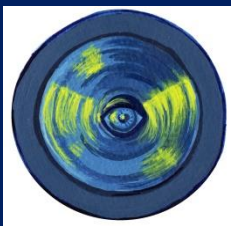
1. There's a limited connection between technology and legitimacy assumptions.
2. The precautionary and interaction perspectives are on the rise.
3. The mobile subject is increasingly approached as a risk.
4. Government strives for imperceptible service to clients and protection against risks.
5. Provision of information to the citizen is limited.

Overall conclusion: the mobile citizen as a risk

In all three dimensions of the government-citizen relationship mobile citizens are predominantly considered as potential causes of disasters and discomfort. Public mobility surveillance is aimed at evaluating the mobile citizen in terms of a risk to society. It facilitates the government in assessing which mobile subjects could disobey norms and rules, and therefore pose a potential threat to society. Mobile clients are evaluated in terms of risks as well, and benefit from imperceptible services when the surveillance system doesn't label them as a risk. There is also a dominant risk perception when addressing mobile citizens. They receive little information about government activities related to public mobility surveillance because their surveillance poses a risk to the continuation of those activities.

The government defines risks based not only on the object characteristics of citizens, but increasingly on past and present data about citizens' movements. The analysis of citizens' movement characteristics may cause certain locations to be marked as (temporary) risk locations. By approaching citizens and their movements as risks to society, government displays a particular interpretation of the precautionary perspective. Precaution is predominantly aimed at mobile citizens posing risks, rather than those being at risk. Protecting mobile citizens against potential risks *en route* is not the primary aim of public mobility surveillance. It is rather focused on the damage a mobile citizen may pose to state and society.

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Charlotte van Ooijen conducted her doctoral research at the Tilburg Institute for Law, Technology, and Society of Tilburg University in the Netherlands. She holds master's degrees in Communication and Information Sciences (2003) and Public Administration (2006). She worked as a lecturer in Public Administration at both Tilburg University and Erasmus University Rotterdam and was an associate researcher at the Centre of Administrative and Political Sciences (CERSA) of the CNRS and Panthéon-Assas | Paris II University. In 2015, Charlotte has joined the Organisation for Economic Cooperation and Development (OECD), where she conducts policy analysis on the data-driven public sector, digital government and open government data (OGD). She is a Dutch national who speaks English, French, German and Spanish, and is learning Chinese (Mandarin).

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