6. Conclusion
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In the foregoing chapters I discussed how a pilot study introduced a new signal of aggression to policing practices; how data mining was used to zoom in on problem youth; how a liquid marker spray made marginal identities surface in the surveillance and counter surveillance between tram inspectors and their passengers; and finally how the pilot studies were constituted as organisational objects characterised by ambiguity.

Each chapter addressed the question of how surveillance technologies and crime governance affect each other in experimental practices. Or, simply: what happens when surveillance technologies are introduced in crime control? This is an empirical concern, because we know little about how experimental practices affect crime control. It is also a theoretical concern, because there is much room for improving our conceptualisations of surveillance technologies.

In this concluding chapter I answer the overarching questions of the thesis and highlight the contributions the chapters make together. I end by suggesting that, together, the chapters lead to the following conclusion: pilot studies should be understood as means of governance that produce and execute surveillance by the often temporary application of surveillance technologies. In what follows, each section ends by suggesting a way in which pilots on surveillance technology are part of crime governance, that is, by making crime measurable and manageable.

The contributions to the fields of surveillance studies and STS are spread over the sections of this chapter. In STS, the field of surveillance and crime control is a relevant empirical repertoire, leading to insights into lingering objects, a vocabulary for ambiguity; and a description of a new public-private regime of truth production. In surveillance studies, the thesis contributes to a conceptualisation of the effect of surveillance technologies upon the world around them, including the introduction of new objects and articulating the futures of crime control.

Rearrangements

Pilot Practices and Processes: Tinkering, Situated Improvisation and Provocation

Crime control in the Netherlands is changing. The emphasis of crime control has shifted from achieving justice to maintaining public order. The field is marked by a retreat of the state, increasing punitiveness, a focus on minor crimes and misdemeanours, and on risk prevention. With regard to developing and applying technology, the field increasingly rewards innovation and unorthodoxy. The cases examined in this thesis provide an opportunity to understand how such changes are achieved with and through technology. Furthermore, they contribute particularities about who is targeted in crime control and how.
Drawing on ANT and related approaches by authors such as Donna Haraway and Amade M’charek, I argued that pilot studies do not discover new facts, but realign relations between humans and non-humans to constitute new objects of intervention. In the first three case studies, I characterised the processes and practices leading to such new objects differently.

In Chapter 2, on aggression detection, I termed pilot practices as ‘tinkering’, hands-on work performed in the face of surprises, disturbances and frictions. I used the concept relationally. To tinker is to adjust the relationships between each member of a collective. The participants in the pilot tinkered to constitute an acoustic signal of aggression. This not only included adjusting the setting of the technology, but also adjusting acoustic spaces and responsibilities for intervention.

In this case, moreover, to tinker was to both include and exclude what belonged to a signal for aggression, depending on emerging interests. For instance, a signal used by bus drivers (the bus horn) was excluded, thereby excluding the bus drivers’ experience of aggression. The same example indicates the relevance of ‘tinkering back’. In this pilot, adaptations to the technology were reversed to reinstall the old order of intervention. A final relevant element of tinkering is that it was also a performance. The police officers involved tinkered with the technology to demonstrate how, according to them, the technology was not operable at bus station S.

In Chapter 3, on data mining, I suggested that Charles Goodwin’s concept of situated improvisation could be used productively to analyse the processes and practices of making new objects. In the pilot, the actors brought an object of knowledge, ‘problem youth’, into being through the interplay of screens, common knowledge, lay theories, everyday artefacts and professional repertoires (Goodwin, 1996). I emphasised how the analytical activity of ‘zooming’ in with data mining technology was grounded in local knowledge and required artefacts such as paper maps. It showed the normativities enacted by situated improvisations.

Although both situated improvisation and tinkering describe incremental, ‘muddling-through’ activities, they should be distinguished from each other. Situated improvisation captures analytical activities, whereas tinkering is more suited to analysing the activity of implementing a technology and adjusting relations. Nevertheless, the data mining pilot involved tinkering. In this case, the application of regulations was tinkered with in order to use police data. Situated improvisation can be used to understand how in the first case police officers combined inscriptions on screens, audio signals and their knowledge of the site to constitute an object of intervention as aggressive or otherwise.

The case study in Chapter 4, a pilot study with the liquid marker spray Codemark, also involved incremental action. I used the notion of ‘motility’ to analyse how identities gradually shift with specific arrangements of ‘material, gestures, and words’ (Munro, 2004, p. 310). Yet, the operation of this pilot was more contingent than the previous two cases. I called this operation a provocation: socio-material production of identities in a provisional, emotional and deviant manner. Provocation highlights the contentious, frictional aspects of pilots.
This pilot was not just an effort to make a technology work, or to produce a lasting new method of crime control. It was predominantly a stage for bringing issues to the fore that did not find their expression in commonly accepted procedures. Yet, this manner of operation did not directly benefit anybody involved; there were no real winners. Provocations are thus not actions towards personal gain, or to merely irritate or annoy. Also note that the technology has an important agency in bringing such provocations about. The canister seemed to compel the inspectors to use it in a deviant manner. However, it could only do so as a consequence of the inspectors’ previously acquired knowledge of pepper spray usage.

Provocation was relevant in the aggression detection and data mining cases as well, although in different manifestations. As Codemark did, the initiators of these pilots chose relatively unorthodox measures to combat relatively common (but therefore no less serious) problems of public order. In doing so, the various initiators might have been bringing topics to the fore that they thought were not receiving enough attention. An example is Burgcity’s usage of data mining to signal their need for more information from the police. Specifically, deviant acts were also relevant in other pilots; think of the police officers’ action to pull out the wires. Deviancy, moreover, might not only be an exclusively human action, as sirens remained a disturbing factor for aggression detection, signalling their priority over other matters. In varying degrees, the operation of pilots thus seems to be characterised by various actors’ usage to display their identities and thereby their grievances.

In his seminal study on UK crime control David Garland argues that changes did not come about through sweeping reform programmes. Instead, it is a consequence of problem-solving within local institutions: ‘[M]any of the reforms that now constitute important elements in the crime control field … began as low-key initiatives that at first attracted comparatively little public attention … The plan followed the practice instead of the other way around’ (2001, p. 105). The practices discussed in this thesis underline the local, situated, incremental, and embodied practices of rearranging crime governance. This is not to say that the rearrangements were dramatic. Rearrangements were tinkered back, situated improvisations were not stabilised, and provocations did not last long. I return to this theme next.

The Rearrangements: Objects, Authorities, Norms, Governable Spaces

Objects of Intervention

Applying the technologies in the pilot studies introduced new objects of intervention. Aggression detection introduced aggression as a characteristic of the aroused human body of the nightlife visitor, reflected by the (angry) voice. Yet, in the pilot, aggression was tinkered in and out of the human body. Bus drivers suggested locating aggression in terms of their experience, translating it into a bus horn. Police officers located aggression in police material, ranging from text messages (bleeps) to phone calls to police files. Sirens of emergency vehicles
could not be filtered out and also asserted themselves as aggression. Finally, aggression as located in the human body came to exist next to the other signals of aggression. The ‘aggression moment’ as an observable unit became an accepted phenomenon.

‘Problem youth’ was the object of interest in the data mining case. The promise of the technology was to compile a detailed profile on the basis of police data, consumption data and administrative data. Yet, the technology did not work by itself. The entity of problem youth was established in various ways, including as a result of combining crime statistics with local knowledge of the neighbourhoods (for instance, ideas about social housing); the application of general categories, such as low income households; and finally as part of national trends as the participants attempted to constitute problem youth by zooming out. The application of lifestyle profiles to characterise criminal intent (for instance, member of a darts club) did not lead to the desired ‘close up’. Although the objects of intervention articulated by the technology reflected and may have produced ideas of youth as related by lifestyle, such ideas never stabilised.

In the analysis of the Codemark case I studied not only how Tramcom may have introduced a new object of intervention, but also the distributed surveillance between inspectors and passenger. Inspectors were also the object of surveillance, and indeed of intervention, as their actions were observed by passengers in the context of discussion about authority in public space.

The Codemark canister, as well as skin colour, uniforms, and political preferences were mobilised to express three sets of identities. The first concerns passenger identity. Passengers were enacted as ‘fighters’, threatening bystanders and witness. They enacted their own identities as concerned citizens, victims, and street judges. The second set of identities regards the ticket inspectors’ self-enactments as vulnerable, embodied and threatened. This in contrast to the inspectors presented by training materials as rational actors. The final set expresses the policing identities of the inspectors. The inspectors used Codemark to signal their underprivileged position in comparison to police officers, as well as using the spray can as pepper spray to assert a similar authority to the police. The objects of intervention expressed with Codemark, I argued, were most often provisional – yet persistent. Because of their deviant nature it is unlikely that they will travel in a stabilised package with Codemark.

Aggression, problem youth, and threatening bystanders are by no means new objects of intervention. The technologies introduced, however, did reconfigure their nature and materiality. The body, for instance, came to play a significant role in the case of aggression detection. Similarly, bodily states were mobilised to express threat in the case of Codemark, as is exemplified by the mobilisation of adrenaline. In both these cases, emotional states also become targeted and located in the body. A relevant tension is the rationalisation and standardisation these technologies, and their regimes, introduce for these bodily states and how they should be intervened with. This is especially clear in the Codemark case.
Everyday artefacts, finally, also come to play a role in defining the object of intervention. This is clear in all cases; think of paper maps in data mining, sirens in aggression detection and uniforms in the Codemark case.

Authorities, Norms, Governable Spaces

As indicated by the example of facial recognition in the Introduction, shoplifters as monitored by facial recognition technologies imply a different mode of operation than shoplifters as indicated by observing behaviour. In my example, the former establishes the police as the authority to point out suspects, while the latter established private security guards. In a similar fashion, I now discuss the reconfigurations implied by new objects of intervention in terms of authorities, norms and governable space in order to articulate the rearrangements (Rose and Valverde, 1998).

The transfer of responsibilities to private authorities is an important part of the reconfigurations discussed in this thesis. We learn here, however, that positions of authority are not easily displaced. In the case of aggression detection, the police reaffirmed their role in determining the aggression they intervene with, as is exemplified by tinkering away the signal of aggression detection. In the case of Codemark, ticket inspectors are a new authority in public space. Their legal competence increases as the position of private security officers in the Netherlands is gradually strengthened. As the case shows, however, the ticket inspectors’ competence was continuously questioned and resisted, as was Codemark’s introduction. 

The introduction of data mining in Burgcity, finally, points out that we cannot take the nature of public and private authority for granted. In this case, corporate actor Data Inc. reinforced its idea of how a state actor should employ data mining, while Burgcity aimed at adopting marketing strategies.

The tinkered norms were norms of behaviour in public space, most often focussing on crimes and misdemeanours in public space. Importantly, these cases indicate that technologies introduce extra-legal norms. Aggression detection introduced a norm of aggression as acoustic-physical variables set by engineers, instead of legal regulations or criminal records. In public transport, Codemark was made to enforce a set of private house rules and involved the police and forensics in enforcing these.

Following the data mining case, moreover, made it possible to describe in detail the normativities embedded in and enforced by applying the technology in its collective of other artefacts. These included establishing the recorded behaviour of city youth as a whole as the norm, and neighbourhood youth as deviant by default.

Finally, rearrangements included producing and shifting governable spaces. This is especially salient in the data mining pilot, where the neighbourhood functioned as the unit of government intervention. For Burgcity, the neighbourhood was a social entity determining the lives of inhabitants and a statistical entity delimited by standardised geographical borders.
However, these spatial units needed to be performed, and data mining was part of these performances. The neighbourhood as a social entity was reproduced and adjusted using consumer profiles and crime statistics. Neighbourhoods, therefore, were constituted as places of crime and consumption, resulting in risk estimations.

The Codemark case is also interesting with regard to spaces because it constituted social spaces, rather than geographically or physically determined spaces. The space to be governed was public space, defined by social practices and identities more than anything else. The struggle here was for a space where identities and problems could be expressed. The identities produced by Codemark were part of constituting these spaces.¹

The empirical chapters demonstrated the nature of the shifts coming about with and through the introduction of technology. The thesis does not provide a conclusive overview, but we do learn about some of the specifics related to surveillance technologies. These cases point to the increasing relevance of the body on the one hand, and a vast faith in data on the other hand.

A relevant contribution to the existing literature is a discussion of the norms and normativities introduced and reinforced in crime control. A detailed examination of the collectives that were drawn together makes a discussion about such norms and normativities possible, whereas these are otherwise easily overlooked. It matters whether a norm for aggression is legal or determined by acoustic-physical variables. Moreover, it matters that zooming in is a normative action. Finally, it matters greatly that discussion in public space about norms of behaviour are affected by applying technologies such as Codemark.

**Lingering Objects**

In the pilot studies, the new objects shifted and changed, as is also indicated by the notions of tinkering back and motility in the previous section. They did not become dominant, stable objects of intervention. Aggression as a feature of the body finally came to exist next to the other operationalisations of aggression at the police station. ‘Problem youth’ as a close-up profile based on lifestyle data was never stabilised. Codemark did not produce unambiguous suspects of assault by marking them but made various other identities temporarily visible.

The objects were not discarded, however. Partly this had to do with the fact that the tested technologies were never fully discarded. Rather, the field sites were disapproved either because they were presumably too disturbing (in the case of aggression detection) or not well prepared enough legally (in the case of data mining). The objects, I suggest, came to linger. By linger I mean to say that they continued to exist even if they were no longer in the centre of attention. An example is problem youth. Problem youth as defined by consumption profiles did not become a dominant focus of Burgcity surveillance. Yet consumption-based identities of youth began informing other practices and approaches, and as data mining remained an interest, this object came to linger.²
In the language of early ANT, it might be argued that the process of translation did not succeed, because new dominant and stable objects were not brought into existence. However in recent interpretations of ANT, authors have argued that objects may persist precisely because they are changeable (Mol and Law, 1994; De Laet and Mol, 2000). Lingering objects might be one way to capture both the stability and durability of translation-oriented ANT and the fragility and plasticity-oriented of post-ANT.

**Governance as Rearranging Crime Control**

The rearrangements were not always sweeping, controlled, permanent or dramatic. Nevertheless, they introduced new objects, materialities and norms of behaviour. I suggest that this is a first way of describing how pilots do governance: they incite rearrangements accompanying the introduction of new technologies. Using a post-ANT framework thus showed a relevant politics in crime control. This is not a politics of ideological change, or major sweeps. But a politics of incremental change, inclusions and exclusions, and of emerging objects. Showing these politics is an important contribution of STS to studies of crime control.

I end this section by highlighting three points of attention for this governance practice. First, to introduce a new technology is to govern relations. A specifically relevant relation is that between the technology and the routines, local knowledges and suspect categories of the operational actors at the field sites. Technology introductions in the cases of aggression detection and Codemark, for instance, disregarded that most routines of professional knowledges were tailored to surveillance-as-care for colleagues (cf. Gad and Lauritsen, 2009). The police officers used their operating systems mostly to gather information about persons, vehicles and addresses to ensure the safety of the officers in the field. This was why they largely disregarded the CCTV system that aggression detection was to enforce. Similarly, most of the inspectors’ physical positioning was aimed at reinforcing colleagues and keeping them in a line of sight. These are instances when the aims of the technologies clashed with existing routines on the field sites.

Second, it seemed that hasty introductions of technology did not change operation modes so much, and in some cases may have entrenched existing practices and authorities by their proclaimed failure.

Third, the practices of lingering objects may not be very present once a pilot study has ended. Yet, they can still cause friction later on as the Codemark pilot study exemplifies. A pilot study conducted before the Codemark pilot had introduced the inspectors to the police curriculum for pepper spray. Years later, these practices and their object of intervention (a threatening passenger) caused friction in the Codemark pilot.
**Producing Potentialities**

**Pilotness**

The pilot studies had something relevant in common: none produced clear results. Indeed, this is shown by their lingering objects. The relatively limited literature on pilot studies in other fields confirms that pilot studies seem to be characterised by ambiguity. Therefore, the fourth chapter takes this ambiguity seriously. I revisited each pilot study, and studied ambiguity as an outcome.

Some recent literature in STS has begun exploring ambiguity and heterogeneity as a feature of technological projects (Law and Singleton, 2000; Law, 2002; Law et al., 2012). John Law states that modern organisation is marked by projectness: a tendency to perform stories along the lines of linearity, goal-orientedness, singular logics and coherent outcomes. Projects travel well to other places as evaluation reports or best practices. However, John Law et al. also state that ‘the will to purity is starting to lose its grip’ (2012, p. 16).

Chapter 5 contributes to this literature by proposing a vocabulary to study performed ambiguities, or ‘pilotness’. Following an examination of how collectives of organisational and managerial objects enacted pilots, I proposed a set of analytical terms for pilotness. First, pilotness is characterised by mixed temporal and spatial dynamics. For instance, a pilot can be conducted as both an emergency introduction and an innovative project for the benefit of another locality. Second, they are characterised by a performed indeterminacy, varying with determinacy. Indeterminacy can be an achieved accomplishment, such as open-endedness is an experimental programme. Third, the pilots were characterised by performances of (non-) coherence, meaning that actors did not always make the pilot studies accountable according to a singular, coherent logic that explained the events occurring during the pilot.

This terminology also contributes to organisational studies, an area with an interest in the flexibility and plasticity of organisational formats. Yet, this field of study has taken these features to be inherent in capitalist or post-bureaucratic organisation. It has largely disregarded flexibility and ambiguity as performed features of organisational objects (Hodgson, 2004).

**Potentialities**

The organisational ambiguity captured by pilotness, I showed, is relevant to governing technological possibility. I captured this with the notion of potentiality, that is, the attributed potency to develop into something else (Svendsen, 2011). I showed how potentiality was attributed differently in each case. Aggression detection was attributed with the potentiality of application in the future, elsewhere. The data mining software was brought into being as a (failed) option for a predetermined future in which data mining would happen anyway.
Codemark was not attributed with potentiality, but pepper spray was. I suggested that this is best described as an undesirable (yet necessary) future application of pepper spray.

We thus learn that potentiality is not inherent in the technology, but is an outcome of how it is organised. Latour paid brief attention to this part of the collectives that make up technologies in *Aramis, or the Love of Technology* (1996). Using literature from the anthropology of technology, I highlighted various parts of the collective that are relevant in articulating these potentialities. First, the managerial and organisational formats mattered. Second, there is a particular role for regulations in articulating a technology’s future, as is illustrated by the particular enactment of regulations in the aggression detection case to mark the temporality of aggression detection as a long-term innovation. Third, the setting of pilots is relevant. The technologies in this book worked, but were often partially disconnected or used in another manner. Exactly how these technologies were connected to their places of operations mattered for the articulation of potentialities. An option, for instance, was performed by having a PC with data mining software in the office space—yet unconnected to the data relevant to the city’s idea of future data mining.

The potentialities that emerge, finally, cannot always be controlled. As the Codemark case shows, technology may assert itself and articulate potentialities that are generally considered undesirable.

**Governance as Articulating Future Possibility**

Surveillance technologies and crime governance affect each other through the ambiguities of the pilot format. In pilots, surveillance technologies were in a position to affect the future of crime control. But exactly which potentialities were articulated depended on the exact arrangements of organisational and managerial formats. This is a second way in which pilot studies with surveillance technologies can be considered as a means of crime governance.

There are features of this governance practice that deserve our critical attention. We learn that the experimentalist state, in the sense of open-endedness, is difficult to accomplish and may lose to the aim of producing quick results, especially where it concerns corporate technologies. To work in a spirit of experimentality thus requires constant care. Such care includes an ongoing effort to narrate the story of a pilot.

Furthermore, pilots produce a variety of regulatory regimes. An orientation towards innovation and future innovation was accepted as legitimate grounds to ignore current regulation in the aggression detection pilot. In the case of data mining, however, regulation partially accommodated the pilot study, as well as holding it back. Thus, in the name of innovation, an applied exceptionalism introduced a variety of regulatory regimes and variations. Pilots thus seem exceptional in a Giorgio Agamben sense: they are neither external nor internal to the juridical order (2005). This becomes relevant in a regime of operations where pilots are routine practices in the use of surveillance technology.


**Conclusion**

**Surveillance**

**Surveillance Practices**

With the introduction of a new range of technologies, the nature and role of surveillance in contemporary society has changed considerably. G.T. Marx’s description of the ‘new surveillance’ draws our attention to the pervasiveness of surveillance in everyday life, its ability to transcend physical boundaries, speed of transmission and the increased analytical capabilities of technologies (2002). Consequently, surveillance assemblages grow, abstract information and sort. In this section I reflect on how these technologies operated in the chapters and what this means for surveillance in practice.

We learn that a single technology changes form and function in varying ensembles of actors. This is not to say that their flexibility is unlimited. As pointed out for Codemark, technologies are shaped both by the history of their locality of application and their materialities. Codemark was initially intended to mark suspects. However, it was eventually used as a harmful substance. This is supported by my analysis of aggression detection, where the technology shifted from a police notification system to a signal from bus drivers to the control room (before it was shifted back and silenced).

In each case we learn that surveillance technologies are part of a wider variety of artefacts and technologies taking part in monitoring, revealing and studying others. In the case of aggression detection the technology was introduced to an existing system of surveillance over colleagues. The Codemark case especially showed the counter surveillance conducted by passengers. Technologies thus become part of distributed surveillance practices, and are better understood as an ‘interactive dance’ (Ball and Di Domenico, 2010, p. 32). In an interactive dance various actors perform surveillance and are simultaneously exposed to it themselves. This understanding of surveillance is very different from the dominant definition in surveillance studies: ‘The collection, storage and analysis of data about people and things with the aim of influencing, managing, protecting or directing them’ (Lyon, 2007, p. 14).

All three cases pointed out that technologies do not work on their own to produce objects. A variety of knowledges and practices were relevant to the operation of surveillance and give us a broader insight into its nature. To highlight one such set of knowledges and practices, surveillance relied on skilled use of the senses. In the aggression detection case study, hearing skills were particularly relevant in the control room. In addition, the control room operators and tram inspectors in this study mobilised physical experiences of threat, the adrenaline rush of fear, to distinguish urgent observations. This is a very different operation of technology than described in Kevin Haggerty and Richard Ericson’s account of ‘surveillant assemblages’ that abstract and transmit abstract information (2000). In this account ‘the surveillant assemblage relies on machines to make and record discrete observations’ (p. 612).
It is an account based on visual metaphors and digitalisation. It does not, however, inspire to give accounts of the role of the senses in separating the urgent from the irrelevant.4

A second interesting set of knowledges and practices are categories in professional, ‘in-between’ knowledges that are neither scientific nor lay (Valverde, 2003, p. 20). Data mining provided the most detailed examples in Chapter 3, where policy makers applied categories such as low income families to make sense of another category, problem youth. Authors in surveillance studies have often argued that technologies solidify categories of marginalised groups (Introna and Wood, 2004; Monahan, 2006). A more detailed picture emerges from my chapters, however. We learn that categories may affect one another, as in the case of the Experian consumer categories and neighbourhood categories.

Technologies are accompanied by imaginaries of operation. Such imaginaries specify how a technology will be put to use. I particularly discussed the metaphor of zooming in. Aggression detection operated with an imaginary of automated detection and immediate intervention. Codemark operated with the imaginary of DNA analysis as irrefutable and inescapable proof of guilt. For the case of data mining, however, putting zooming in into practice required a range of techniques, such as evocation and comparison. We learned that zooming in implied constituting problem youth, instead of seeing the same thing in more detail. Therefore we need an agenda for critically scrutinising these imaginaries and learning what they imply in practice.

A final point is that surveillance technologies may operate at different intensities. By intensity, I refer to the temporality, deviancy and appeal to emotion that characterises the application of technology. Codemark, as I demonstrated in detail, had a high emotional intensity and was at work in making visible identities for a short time. It was at work on the foreground and provoked identities. The surveillance of the data mining pilot study examined in this book was less visible and provocative. However, this does not mean that surveillance performed with data mining cannot be provocative and intense. The use of personal data by the US National Security Agency in the PRISM programme, as revealed by Edward Snowden in 2013, is a far more provocative and visible mode of surveillance.

In sum, when focussing on the rearrangements needed to operate a technology, the cases in this thesis suggest that a localised, situated understanding of surveillance should include attention to the history of the site of practice, the interactive nature of the activity, its imaginaries of operation and the intensities by which technologies are put into practice.

Assemblages as Distributed and Unpredictable

The above insights into surveillance practices inform a particular interpretation of assemblages. Although the pilot studies do not reflect the theory in terms of invisible and smooth information flows, they support an understanding of assemblages as distributed and
unpredictable operations of power and control (cf. De Goede, 2012). The ambiguous modes in which decisions were made, as demonstrated in Chapter 5, support the unpredictability of the assemblages surveillance is part of.

The moments of rearrangement are informative about how technologies operate as part of these assemblages. First, the cases in this thesis point out the fragilities of technologies, and how easily they fall apart. Yet, once put to practice technologies produce lingering objects. They link up with existing categories and may come to play a role again at a later moment. These insights are informative for the operation of assemblages as distributed, but nevertheless somehow holding together. Second, we learn that technologies change form and function in varying collectives of actors, as noted above. For assemblage theories of surveillance this means that they may be integrated into a mode of operation. However, operations of technology such as provocation might also cause assemblages to fall apart. Third, technologies as applied in the changing managerial and organisational formats of pilot studies produce potentialities. Such potentialities are relevant for how technologies come to operate, and, for instance, link up with other organisations and actors in the future.

Finally, the foregoing is informative about the operation of biopower. As technologies are applied temporarily and changeably, the norms introduced are also fragile. Data mining and aggression detection may be based on stable statistical norms regarding populations, but they are not applied as solid regimes nor do they have solid orders as their effect (cf. De Goede, 2012).

**Doing Surveillance in Pilot Studies**

In pilot studies, surveillance technologies introduced in regimes of crime governance come to enact various forms of surveillance. We can conclude that this is a third way in which pilots are a means of crime governance. In the language of Gilles Deleuze and Félix Guattari, they are part of assemblages that are always in the process of becoming (2012).

An immediate point of attention for this governance practice is that surveillance as part of pilot studies can be particularly destabilising. Some organisations will put a surveillance technology to use as a message to the public or to other organisations. The intention might be to solve a problem that is prominent in public discussion at a particular moment in time, such as assault against ticket inspectors. Such strong messages, symbolised by unorthodox solutions, can evoke strong negative reactions.

On a related note, the newly introduced practices may be tailored to a specific object, at that time prominent in public discourse. Problem youth and aggressive, club-going people are two such examples from the Dutch context. However, the urgency of such objects of intervention may dwindle if public attention lessens.
Experimental Regime

The Pilot as a Regime of Truth Production

Truths come into existence by establishing relations with a variety of actors in a network. This is a basic principle in ANT (Latour and Woolgar, 1986; Latour, 1993a). For instance, a relation needed to be brought into existence between entries on youth in a database, a map of neighbourhood H and administrative knowledge about youth. In classical ANT terms, this requires translation. Experiments have a privileged role in accomplishing such translation. They convince by staging demonstrations in controlled environments. This is a specific regime of truth, based on techniques such as witnessing, an expert crowd, replication and control.

The cases in this thesis suggest another regime that brings into being the (more ambiguous and unstable) relations in pilot studies. Although pilot studies vary immensely, the cases in this book suggest that the following characteristics may be interesting to explore as parts of a regime of truth:

1. High appreciation for site-specific, non-generalisable knowledge. With regard to real-life experiments in waste management, Wolfgang Krohn called this kind of knowledge ideographic (Krohn, 2007). This thesis shows a tension, however. Although pilots are credited for delivering contextual and applied knowledge, information from the test site is selectively adopted. In this study, some field sites were discarded as disturbing or unsuitable.

2. Demonstration is a relevant technique. The paradox of pilot demonstrations is that they take place in public space. At the same time, however, the public is not necessarily aware of them and the media is only sporadically involved. The results are not necessarily recorded and distributed. All experimental demonstrations, therefore, have their own dynamics of openness and secrecy (cf. Simakova, 2010).

3. Pilot studies stage demonstrations by a variety of actors for various ends. For instance, ticket inspectors demonstrated professional issues they thought were not acknowledged. Another kind of demonstration is a ‘theatre of disproof’5, practised by police officers to show that aggression detection did not work at their site.

4. Although various actors demonstrate, it is the testimonials of team leaders, managers and engineers that count in producing truths.

5. Purity of reasoning in the explanation of phenomena is not the only ingredient of truth production. The logics of evidence may be non-coherent, as is demonstrated by the Codemark case study.

6. Innovativeness and unorthodoxy are part of the ethics of pilot studies. A responsibility not to fall behind may overshadow leading principles of constitutional democracies such as protection from state violence.
7. Time efficiency, unobtrusiveness and practical benefit become relevant to the proclaimed success of a pilot study as pilots are embedded in the everyday activities of policy makers, engineers and operational employees at the field site.

**Producing Realities**

The pilots’ regimes of truth of production moderated how surveillance technologies and crime governance affected each other. Experimentation is a mode of decision making, a way to resolve conflict, as demonstrated by Shapin and Shaffer (1985). At the same time, experimental practices produce subjectivities, such as the male, expert, modest witness in early experimentation (Haraway, 1997). But technoscientific ‘forms of life’ change (Haraway, 1997, p. 50), and we may see the development of different regimes of truth production as corporate, government and scientific practices intertwine. I suggest that this is the fourth way in which surveillance pilots operate as governance: as a mode of decision making on what counts as the truth about technology, policing, surveillance and field sites.

This particularly highlights the necessity to carefully map the abundance of experimental practices that are being put into practice. Experiments are widely recognised again as socially beneficent in policy as well as in the social sciences. In STS and political science it is argued that experiments provide room for diversity and the conflict vital to a functioning democracy. Conflict allows for the constitution of publics and democratic subjectivities (Mouffe, 2009; Callon et al., 2011).

The case studies in this thesis show how the pilot studies either did not involve citizens (data mining and aggression detection), or involved citizens in a harmful and counterproductive way (Codemark). Even though carefully organised public involvement may be beneficent, we cannot count on crime control organisations to organise such experimentation. It therefore remains relevant to pursue an agenda of describing various modes of truth production. This section has hopefully contributed to such an agenda.

**A Care-Full Stance**

I suggest that pilots of surveillance technologies are a means of governance in which surveillance practices are executed and rearranged by the, often temporary, application of technology. It is relevant to stop considering pilots as exceptional instances. When we understand pilot studies as a means of governance, this means we need to apply the regular rules of accountability. In the remainder of this section I highlight five aspects of this governance that deserve the attention of practitioners and analysts. My point is not that pilot studies should not take place. I simply hope that these incite those who would argue ‘just do it’ to take a critical, care-full stance.
First, technology introductions in pilots are means for the inclusion and exclusion of various actors at the field sites. These concern taking part in decisions on what counts as acceptable behaviour and who intervenes.

Second, technologies do not only capture information, link databases, sort and code. As part of varying collectives, they can be made to act in various ways. As this thesis points out, they can also provoke and perform future possibilities as part of administrative and managerial formats. Yet, technologies also act in ways that cannot be controlled, as in the case of Codemark and the sirens in the case of aggression detection.

Third, pilots produce the field sites with the technology. In the cases in this thesis, field sites were produced as uncontrollable, as in the case of aggression detection, or legally unprepared, as in the case of data mining.

Fourth, pilots do not necessarily involve the public, even if they take place in public space. They do, however, serve as a site of demonstration for a variety of actors, and a variety of aims. Police officers, ticket inspectors and the public can make various issues visible.

This makes pilots a possible site for public participation and democratisation. However, the pilots examined in this thesis did not facilitate participation. The public (of various kinds) are not reproduced as entities involved in decision making. The issues exposed may only be temporary, as most clearly displayed in the case of provocations in the Codemark case. This case also shows that bystanders had no voice.

Fifth, the ambiguity and indefiniteness of pilots can benefit their operation and keep future direction for actions available. However, these features may also function solely in the interest of corporations to continue the operation of a technology on another test site.

Sixth, the partial adoption of regulation produces irregular and unpredictable regimes of crime governance.

**The End**

The aggression detection equipment has been removed from bus station S and awaits a new trial of application elsewhere. The data mining PC lingered round the Burgcity department of community safety before it was returned to Data Inc. The team chef at Tramcom put a Codemark canister on display in glass cabinet (‘as a memento’, he said). The pilots seem inconsequential now and in a few years’ time, most participants will have forgotten about them. Possibly, I have been more intensely occupied with these pilots than anyone else, and the most detailed descriptions come from my hand.

I aimed to intervene in the way in which pilots are often forgotten, neglected or considered inconsequential. The intervention I aimed at was not to devise new policies, to condemn them or to radically alter their course, but to make some of their operation visible, to foreground parts that usually receive little attention. In this sense, claiming that
pilots with surveillance technologies are means of governance in which surveillance practices are executed and rearranged by the, often temporary, application of technologies is my intervention. This argument highlights the ways in which pilots are a part of rearranging the world we live in.

**Notes**

1. See also Soja on marginal spaces (1996).
2. Consumption-based identities were already lingering at Burgcity from a previous pilot study in another department.
3. Potential, according to Deleuze and Guattari, is a form of power (*puissance*) (2012).
4. I do not mean to essentialise sensory experience. I understand them to emerge with the operation of technology.
5. This is a variation on Latour’s ‘theatre of the proof’ (1993a, p. 85).