



Contents lists available at ScienceDirect

## Government Information Quarterly

journal homepage: [www.elsevier.com/locate/govinf](http://www.elsevier.com/locate/govinf)

# The digital cage: Administrative exclusion through information architecture – The case of the Dutch civil registry's master data management system

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## ARTICLE INFO

## Keywords:

Bureaucracy  
Iron cage  
Civil registry  
Administrative exclusion  
Administrative burdens  
Master data management systems

## ABSTRACT

This article analyses the unintended consequences of master data management systems in the administrative state for the access of citizens to public services and benefits. We analyse the case of the Dutch civil registry, in which hundreds of (semi-)public organisations use the information from the civil registry to determine whether people are eligible for their services. We use the framework of administrative burdens and administrative exclusion to show that this system turns the consequences of mutations in registration into a black box, produces legal contamination by forcing its own address definition upon user organisations, reduces the discretionary space of street-level bureaucrats to handle social complexity and unintended consequences of the system, and creates a behavioural incentive in which municipalities are pushed into the role of enforcers rather than registers. The result is a 'digital cage': an exclusionary infrastructure that hinges on information architecture instead of Weberian rules and procedures. These findings increase our understanding of master data management systems, emphasise the importance of understanding information architecture as an ethical issue, and help us develop a new vocabulary for understanding and studying administrative burdens as part of a bureaucratic infrastructure.

## 1. Introduction

## 1.1. A stolen car

Silvia's car is stolen on April 30th, 1998. She reports this to the police in Rotterdam the very same day. When her motor vehicle license expires on August 20th, Silvia receives a letter to remind her to have her car tested. Initially, she thinks her police report has not been processed yet. In reality, the report had been processed. Moreover, a later report indicating her car had been found is processed as well. This information is exchanged automatically by the police with both the vehicle registration authority as well as the national tax office. Informing the citizen, however, is not automated. And by human error the police forgot to inform Silvia her car was found. Hence Silvia and her lawyer assumed at the time that the vehicle registration authority, the tax office and later the judicial collection agency based their actions on erroneous registration. However, these organisations kept sending her tax forms and fines and were not convinced by her police report on her stolen car. Time and again, these organisations refer to the vehicle registration system in which the stolen car was registered on her name. It took Silvia years to find out her actual problem was with the Rotterdam

police. Sixteen years later, on September 4th 2014, the case seems to be resolved when the police offer their apologies to Silvia. However, this acknowledgement did not lead to a full correction of the consequences of the error. Three years later, Silvia is still fighting the authorities to refund the bulk of all the taxes and fines she unfairly paid over the years. None of the organisations that have acted on the information exchanged are able to reverse the effects of this simple human error.

What happened here? The exchange of data from one organisation to others has consequences for the public services provided to Silvia by these other organisations. Without Silvia's knowledge, she became responsible for testing the car again from the moment the car was registered back on her name. And when this turned out to be incorrect, almost none of the effects could be reversed. This black box may seem a bureaucratic curiosity, but it is actually a common effect of data exchange. So-called "master data management systems" are assumed to prevent this kind of problem by using a single registration as the authoritative point of reference for the operations of a potentially infinite number of users or organisations (Olson & Subodh, 2010). The vehicle registration system is such a master data management system. However, even a master data management system appears to introduce unintended consequences that cause administrative burdens for

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citizens. In this article, we analyse how such a system can – in the context of the administrative state – operate as a black box for citizens and bureaucracy, what the unintended social costs are, and what this means for the state's information architecture.

### 1.2. Classification, registration and their digitalisation

States register and classify citizens for the purpose of governing the population (Foucault, 1980). A properly functioning civil registry, in many Western European countries introduced in Napoleonic times, is in many ways the basis of government. It is a record of vital data (name, address) and vital events, such as birth, marriage, and death, of each citizen. As state tasks expanded, especially in welfare states, so did the number of registrations and their importance. Knowing your citizens has never been more important as when you try to decide who is eligible to student grants, social security, health care, social housing, or pensions. Likewise for citizens, registration has never been more important as when your access to services and benefits depends on it. A civil registry is, besides a source of information, an instrument for inclusion and exclusion.

Classifications are by their very nature contested, because they are abstractions and simplifications of a complex social reality that highlight certain elements of that reality while ignoring others (Bowker & Star, 2000: 5). Classifications are, therefore, always ethical choices. For instance, the Dutch state classifies people based on residency to determine who gets access to public services. Registration is also problematic, since it reverses the burden of proof. Once something is registered, it is considered 'true' according to the principles of formal bureaucracy. The digitalisation of civil registries has given classification and registration a new dynamic.

A large body of literature has been developed in the last few decades on the blessings and curses of digital government (e.g. Zouridis, 2000; Zuurmond, 1994). On the negative side, authors have stressed the reduction of street-level discretion as a result of an organisation's digitalisation of its procedures (Bovens & Zouridis, 2002; Landsbergen, 2004). We take this as the starting point for an analysis of the master data management system of the Dutch civil registry. The registry serves as the basis for hundreds of organisations charged with providing public services, such as health care insurance, student grants, and surtaxes. As we shall argue, these systems extend the existing pitfalls of digitalisation from a single organisation to a whole system of organisations. Moreover, they produce new types of problems in the classification and registration of citizens.

The design of the Dutch civil registry simplifies the use of addresses for service delivery to one single definition, triggers a stronger focus on control, and turns the consequences of address mutations into a black box. Moreover, the criteria for being registered as a Dutch resident clash with the variety and dynamics of contemporary society. A significant number of citizens – including pensioners travelling permanently within the country, homeless people, exchange students, or new residents of an address where old inhabitants have not deregistered – prove to be a difficult fit for the registry's criteria. All this would not be such a problem if it were not for the system's internal logic: being excluded from the system also means being excluded from public services. We therefore argue that both citizens and street-level bureaucrats are caught up in a 'digital cage' – a wordplay on Weber's 'iron cage' (Weber, 2006a: 201) signifying not the disciplining logic of bureaucratic rules, but of information architecture.

### 1.3. Article outline

We use the theoretical framework of administrative burdens (e.g. Moynihan & Herd, 2010) to move away from a technical discussion of digital government to an analysis of how information architecture affects citizen's access to rights and services. Our contribution is threefold. First, we show that the consequences of registrations and changes

therein are not necessarily a two-way street. There are few barriers for an error to diffuse via data exchange and exclude a citizen from services and overwhelm a citizen with administrative burdens. There are, however, many barriers for a correction to have the same, but opposite, automatic effect. Second, we describe a mechanism we call 'legal contamination via ICT' to demonstrate how legislation on the use of ICT systems such as master data management systems can affect a potentially limitless number of other policy areas. Seemingly neutral and technical rules can have a large ethical and social impact. And third, we show that by mechanisms such as these, we can understand and study administrative burdens as part of a bureaucratic infrastructure that transcends individual organisations. This shows that the source of administrative burdens can be found in structural characteristics of the administrative state, such as its information architecture.

Our analysis is based on an analysis of the new Dutch Municipal Personal Records Database and a case study we conducted around the time this new registration system was introduced. The Dutch case is both a forerunner in the development of master data management systems and exemplary for the operating mechanisms of such systems. We study the case of a successful Dutch entrepreneur who loses her residency status because she does not reside for at least four months per year in the Netherlands. As a consequence, she loses, among other things, her health care insurance, her de facto voting right, and the VAT identification number of her company. Her life is turned upside down and her municipality – while sympathetic to her cause – claims there is little it can do for her. In the following, the case study is preceded by a literature overview on administrative burdens and e-government, and followed by an analysis of the digital cage.

## 2. Administrative exclusion and information architecture

### 2.1. Administrative burdens

Condemnations of bureaucratic pathologies are as old as the study of bureaucracy itself. Famously, Weber (2006a,b) spoke of instrumental rationality's tendency to become an iron cage in which people are subjected to rules and procedures without addressing their intended value. Merton (1940) argued that people working in bureaucratic organisations resort to ritualistic behaviour in response to the organisation's stifling routines and formalisation. And according to Crozier (1964), bureaucracies show an inability to learn and adjust, instead repeating the vicious circles of internal rules and control mechanisms. The age of classic machine bureaucracies may, for the most part, lie behind us, but bureaucracies continue to be pillars of public service provision (Olsen, 2006). Precision, predictability, formality, impersonality and its affinity with the rule of law are bureaucratic values that hold their importance to this day. The study of bureaucratic pathologies has, however, shifted focus from organisational structure to the more street-level dysfunctions of administrative burdens and red tape.

One of the most significant contributions to understanding bureaucratic pathologies has been the study of red tape. Bozeman (1993, 2000), one of the key figures in the field, focuses on rules as the core mechanism of bureaucratic operations and qualifies rule pathology as compliance burdens that "do not advance the legitimate purposes the rules were intended to serve" (Bozeman, 2000: 12). This approach, however, is limited in two important ways. First it does not identify rules as potential sources of red tape in themselves, for instance when conflicting rules produce catch-22 situations (e.g. de Jong, 2016). Second, the focus on rules and how they affect administrative employees limits the discussion to issues of organisational performance and regulation (Heinrich, 2016). In response, Moynihan and Herd (2010) focus on the administrative burdens that directly affect citizens in their interactions with bureaucracies. Furthermore, they break away from Bozeman's narrow rule-based qualification. Moynihan, Herd, and Harvey (2015), for instance, suggest looking at learning costs (such as

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