“The Computer Says No!”
– A Case Study on Automated Decision-making in Public Authorities

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Abstract

In e-government automated decision-making increases, forming part of a trend towards “smart” and self-regulating systems. This necessitates the introduction of new relationships and practices, challenging the division of responsibilities in public administration. Using a case study approach, this paper elaborates on implications of automated decision-making for professional officers in a Swedish public organization. We conclude that automation should be framed in relation to the rules of law and ethics of justice. Furthermore, the roles and competences of professionals are changing, with automated systems beginning to resemble co-bureaucrats. Professionals can either make an alliance with the automated system or the client. This choice of strategy is related to the issues of legitimacy and professional competences. We also identify practices as being either a form of caring ethics or a formal legal ethic norm. Such practices should be further addressed to influence practices promoting legitimate systems citizens can trust.

1. Introduction

In the British TV comedy show, ‘Little Britain’, a sketch entitled ”The computer says no!” is about a five-year-old girl who visits the hospital with her mother. A doctor's appointment has been booked to remove the girl’s tonsils. However, when the girl and her mother arrive at the hospital, the receptionist insists that the little girl is booked for a hip replacement, and not to have her tonsils removed. The receptionist insists that: “The computer says no”. The mother becomes extremely annoyed, and storms out.

This sketch shows what can happen when a computer is assigned the role of decision-maker. In this case, a citizen (the patient and her mother) encountered a street-level bureaucrat (the receptionist). The receptionist did nothing more than read from the computer screen and tell the girl and her mother the information registered, even though this information is clearly wrong. The sketch presents the complex interplay between the street-level bureaucrat, the computerized system and the client. Thus, the computerized system can be seen as not just another actor in the network; rather, it reframes relationships, responsibilities and competences. Thus, there is a need for a fundamental re-arrangement and re-interpretation of the way in which relationships are formed within public administration and the provision of public services.

On the whole, the digitalization of public administration has become widely distributed and plays an active role in decision-making. At the same time, decisions are more complex and integrated; from some people’s perspective, smarter decisions are needed [1]. A main argument for the digitalization of administration is increased efficiency and lower costs [2, 3]. There are also ambitions to improve impartiality, which is a key value of public decision-making, and equality in general through automated decision-making [1, 4, 5]. In line with general e-government developments, there is often a clear efficiency argument [6, 7]. Standardized public sector services that deliver standardized decisions based on simple information provided by citizens have proven to be relatively easy to automate and integrate with IT support. In these areas, international research on e-governance is also emerging and making a contribution to existing knowledge [9]. Public authorities, particularly those that offer personalized services for citizens, are most often engaged in highly labor-intensive activities. These activities require staff to have a high degree of professionalism in order to ensure a balance between impartiality, equality and situational adaptation, where trust in the staff's actions is crucial for citizens’ interpretations of public institution legitimacy [10, 11].

In this paper, we address these challenges with a mainly conceptual focus. In particular, we strive to meet the more value-focused demands found in e-government research, as called for by Bannister and Connolly [12, 13].
1.1 Aim of the paper

With regard to the challenges outlined above, this paper aims to elaborate on the outcomes and implications of automated decision-making in public administration. In particular, we focus on the necessary rearrangement of professionals’ competences and action spaces. Automation introduces a new co-worker into the actor networks of public administration: the digital system. Consequently, new roles and relationships are formed between actors and new competences are required. Our arguments are illustrated through a case study analysis that focuses on the new roles of professional officers within the Swedish National Board of Student Aid (CSN).

Our analysis and discussion on the general implications of automated decision-making are guided by three research questions:

RQ1: How do automated decision-making systems rearrange the relationships, competences and action spaces of professional officers?

RQ2: How are citizens’ demands, expectations and usage managed by officers and how is citizens’ acceptance of the system promoted?

RQ3: What general implications for public values and legitimacy are raised in relation to automated decision-making?

This paper is divided into five sections. In this introduction, we include the motivation for selecting our case, together with some methodological considerations. In the section that follows, we expound on the theoretical framework that guides our case analysis and paves the way for a more general discussion. In the third section, we present the case study of CSN. In the fourth section, we analyze the case study (RQ1, 2) and discuss its potential consequences in relation to the theoretical framework. Finally, we elaborate on more general implications (RQ3) and discuss potential avenues for further research.

1.2 A note on method and material

This paper addresses the emergence of a new practice, that of automation in e-government, and offers interpretations of the competences of professional bureaucrats. New practices are developing, which create new meanings and arrangements in public administration. Thus, we take a constructive approach in our search for meanings and structure. In particular, our constructive approach is focused on an ANT approach [14]. In this section, we follow the construction process in the analyzed case and search for meanings and generalizable interpretations. Whilst a theory of e-government does not exist, it is possible to fundamentally challenge the basic values and arrangements of governmental organizations; indeed, we intend to discuss these in this paper. The interpretations of both ICT and government have to be open to new models, concepts, and norms and values in e-government [12, 13].

The case used here, the Swedish National Board of Student Aid (CSN), has a high level of automation, both in terms of internal administration and the services used by the agency’s clients. The automated systems are available to those wishing to apply for student loans and to clients who are required to pay back their loans. The clients who form the main target group have a generally high level of ICT competence and have access to the required technology. The agency has been singled out by the Swedish national government as a forerunner in the use of automated decision-making in public agencies. Although Sweden no longer holds a top position in international comparisons of e-government, the country’s public administration is characterized by high levels of trust. The implementation of e-government in Sweden builds on a mature administration [15], as well as on high and broad levels of ICT penetration among its citizens [16].

Our case study is based on analyses of documents relating to automation. These include internal documents from the agency itself, as well as government policies, legislation and proposals. In addition, two key-actor interviews played a crucial role in our analysis. These two in-depth interviews were conducted with a systems specialist in the business development unit, and an administrative officer who works with clients who are repaying their student loans. The interviews were semi-structured in order to allow the informants to extend the discussions with issues they want to highlight and to include stories using their own words. The interviews focused on the automation of decision-making and how automation has rearranged the relationship between the client and the administrator. They also covered the challenges posed for public sector decision-making and professional competence. The interviews lasted for approximately one hour each. They were recorded and transcribed in full.

Whilst the empirical material does provide in-depth information about the reasoning of two actors in a public e-service, the material is not meant to be representative of reasoning about automation in e-government in general. Instead, such empirical material is intended to serve as an explorative first step towards the construction of the meaning of automation in relation to documents and theoretical conceptualization.
2. Automation and the arrangement of networks of professional competence, relationships and action space

The academic search for improved and extended theories regarding several fundamental aspects of e-governments is ongoing. In this respect, it is probably impossible to find a grand all-embracing approach, as was concluded by Bannister and Connolly [17]. Thus, in this paper, we focus our analysis on the practical outcomes of e-government, including the changing arrangement of relationships and competences, rather than the more complex changes of which they form a part. We take a bottom-up approach to building an actor network perspective [14]. When following the actors as they operate within the network of automation, we focus on relationships, competences and action space. Citizens’ use, expectations and acceptance of automation are seen from the perspective of the agency. The way that citizens respond when using the e-service and their interaction with the agency’s professional officers have certain attributes through which relationships are constructed within the networked structure of governance. Thus, we view automation as a formative network of human and non-human actors [14, 18].

2.1 An actor-network in action – automation in e-government

Public services are indeed embedded into complex networks of human and non-human actors; as such, they can be conceptualized through the framing of the Actor Network Theory (ANT) [14, 18]. The ANT perspective has been used by several authors to analyze e-government, among them Liste et al. [19] and Heeks and Stanforth [20].

Thus, we should consider both human and non-human actors as active makers of the actor network. By including the automated system as an actor in the network of professional officers and citizens, we make it a third co-producer in public administration. ANT enables us to visualize and de-construct how and why meanings are changed among the actors in the network. Through the interplay with the network, meanings are translated and, vice versa, the networks are changed through translation. Translations are made visible through the establishment of a new or changed relationship, and can be described as coexisting in a network to achieve a common goal [21, 22]. The translation process refers to the prioritization of interests, which means that ‘things’ (e.g., artifacts, orders, goods) are, as Latour expressed it, “in the hands of people; each of these people may act in many different ways, letting the token drop, or modifying it, or deflecting it, or betraying it, or appropriating it” [23]. Thus, an automated and computerized system can be seen as a mediator of legislation and other structures in the networked practice. The translation of general legislative structures into applicable regulations for an individual case is a key objective for professionals in public administration, even if it is commonly not seen as a translation activity.

An automated system thus has to standardize legislation in order to make it possible to process errands. The legislation is expressed in terms of policy statements. Norms and values form policies. Thus, the translation into an automated system is also a translation of values and norms. The network embeds norms and values, and these form both the system [24] and structure of public sector decision-making and administration. However, there is also a need for flexibility, because some errands from citizens fall outside the standardized norm. In other words, the networks are unpredictable and, as Latour pointed out, “Each of the people in the chain is […] doing something essential for the existence and maintenance of the token…” [23]. Thus the human actor (the professional bureaucrat) and the non-human actor (the automated system) co-create both the practices and meaning of automated e-government.

2.2 The professional in public administration – competence and flexibility

Professional competences are essential for public administration, because professional officers frequently interface with the public, as was illustrated by the ‘Little Britain’ sketch. Thus, professionals play a key role in the formation of a network of humans and non-humans in public administration. However, issues of competence, relationships and accountability are complex, because they not only involve networks of human and non-human actors, but also social arrangements and meanings. Professionals can also take on or be given the role of the accountable actor, even if they are actually the messenger [25]. However, in line with extended e-government elements in public administration, there is also the potential for the automated system to take on these roles.

The development of e-government has not only changed the roles and relationships of professional officers, it has also limited the opportunities for individual discretion in the choices and decisions made. As such, e-government demands that professional officers have new administrative and professional skills [8, 26]. Giritli-Nygren [26] emphasized the importance of understanding how
professionals in public administration can act either as a means of "mass processing"; with limited professional competences, and little ability to influence the work, or can become more competent in interpersonal and consultative work, without the use of standardized solutions. These two roles are concurrent and parallel within public administration, particularly in relation to e-government. Thus, the classic trade-off between specialization or coordination and integration is still an important issue for e-government, with the difficulties of balancing efficiency requirements against the need for greater freedom of action and individualized decision-making [27].

Related to this is the choice that professionals in public administration can make between a professional ethic of care that targets the individual client and a stricter principle-based rule in decision-making. These two strategies may be optional depending on the organizational culture and context; however, they are always in addition to the basic norms of the rule of law. In a study of welfare services, Stensöta concluded that, in their contacts with clients, professional officers combine and balance the ethics of care and the ethics of justice as two ethical dimensions in public welfare administration [28]. Whilst these practices are embedded in the networks of public administration, they take on partly new functions in automated decision-making, as will be discussed later.

2.3 Legitimacy in e-government settings – framing competences and grounds for practice

In general, the legitimacy of public administration builds on the interplay between the skills and behaviors of professionals, and the processes carried out in accordance with legislation (the rule of law), together with its core democratic values and standards, such as impartiality, equality, accessibility and transparency [24, 29]. Administrative procedures are a key aspect of sustaining a high degree of legitimacy in public administration in particular and in governments in general [30]. These core values have to be transformed through the design of e-government at the point where it interacts with citizens. Established procedures are characterized by routines and an almost unreflective, routinized behavior, where decisions are made without direct explicit calculations [29]. However, when new procedures such as e-government are developed, legitimacy becomes more deliberate and open as a new balance of input values, procedures and legitimacy is sought. Thus, it is important to understand how the policy levels are met and enacted by professional officers in their daily practice.

In order to maintain high levels of legitimacy and, thus, a sense of trust in the relationship, there has to be a clear and high level of accountability, where a specific actor or organization is made accountable for the actions taken. Legitimacy, which is an outcome of several key values and elements, such as accountability, impartiality, openness and transparency [31], has come to play a more obvious role in governance analyses [32].

In a study of citizens’ trust in on-line public administration, West [33] identified the most advanced level of interaction as being where e-government enhances outreach and accountability. Thus, he saw advanced e-government services as a tool to improve accountability. However, it is crucial that different public values are balanced within e-government in order to maintain legitimacy [1].

2.4 Framing automation in e-government – our theoretical approach

In this paper, an automated decision-making system is seen as an actor who manages the implementation of legislation related to study aid in a network of professionals and clients. Our focus is on the role and competences of professional officers who almost take on the role of street-level bureaucrats; the norms of their practices are seen either as a form of caring ethics or as a formal legal ethic norm. These practices have different implications for trust and for the legitimacy of systems, as will be discussed in the concluding section.

3. The case study: The Swedish National Board of Student Aid (CSN)

In this paper, we study the case of a central public agency in a mature welfare state. The Swedish National Board of Student Aid (known as the CSN) manages the payment of financial aid to students for their living costs. Swedish public administration has a long history of digitalization. By the 1970s, the idea of automation was already being raised; the main arguments were, as today, increased efficiency, along with a uniform and standardized administration process. At that time there was a fear that professional officers, mainly women with a first academic degree, would lose their professional competence and even employment. In addition, there was a concern that computers would make the decisions less transparent [34]. Since then, both the practices and policies have developed in Sweden [26, 35-37]. Today, such development is guided by a Digital Agenda, in line with the European Digital Agenda. As a key to
addressing the obstacles of increased automation the Swedish e-government delegation has recently suggested a regulatory relief (mainly in the administrative legislation [in Swedish: Förvaltningslagen] refereeing to all public agencies) regarding individual signatures by officers [38]. Today, public decisions that have been automated still have to be signed by the reporting clerk, as well as by those who have taken part in the administration of the case. The proposal is to exempt automated decisions from this rule.

3.1 The objectives of CSN

The CSN is the agency in which the case study has been conducted. This agency works with the legislation of students’ income support, both in the form of grants that are paid and the various forms of student loans. Most education is free in Sweden; thus, income support is mainly for living costs. CSN is a national agency. In 2014, 31,5 billion SEK (Swedish kronor,) was issued in the form of grants and study loans [.39]. This financial aid is divided into two parts: grants and loans. The grants are given to eligible students (for instance, at secondary or university level education) and do not have to be repaid. Loans (which are optional) involve larger sums of money that have to be repaid after exams and over several years. Hence, many of those who have pursued a higher education in Sweden have a long-term relationship with CSN. Like many other public agencies in Sweden, CSN has adopted and developed digital information and services to make their practices more efficient, effective and helpful to their clients. As they are managing large numbers of fairly standardized errands there is also the potential to automate its administration.

3.2 Automated services at CSN

In a recent reorganization, CSN was divided into two administrative units: “Out” and “In”. “Out” includes those sections within the agency that manage the payment of financial aid to students. The “In” unit within CSN focuses on the repayment of loans. This case study is focused on the “In” unit, where several automated systems support decision-making. Nonetheless, the unit still has a high level of contact with clients. Approximately 1.3 million in-coming phone calls were made to CSN in 2014. In 2014, a number of new e-services were also introduced, with the goal being to enable the easier handling of decisions, partly through automation and partly through full electronic information handling.

At the time of writing, CSN has 29 active e-services, ranging from simple ones that do not require a login (such as the calculation of an approximate sum of financial aid), as well as personal self-service actions (such as reporting a change of income). Other services that are closely related to the issues analyzed here allow people to apply for a reduction in the amount that has to be repaid. This involves people sending in additional information that affects their economic situation (and thus is relevant to decisions about the sum to be repaid annually). Such services are used to support the decision-making process, while others are fully automated; for instance, all clients who are in the process of repaying a loan can apply once a year to postpone a repayment date without having to state a reason.

3.2 Automated decision-making at CSN's “In” unit

The re-payment arrangements for student loans are clearly defined in the legislation; decisions are based on income from two years prior to the arrangement being made. The decision on the amount to be repaid is made “mechanically” by the automated system. The system combines information from CSN, information available to the public (e.g., tax information) and a client’s personal information. In most cases the process is fully automated; in other words, the system calculates the reimbursement amount and automatically informs clients. When a client has given signed permission, the system can also accept payments that are made automatically by that client’s bank.

However, when a client applies for a reduction in the amount to be reimbursed annually, the “In” unit has to manage the errand. A professional officer within the unit has to take on the task, checking the information provided by the client through the on-line applications system and manually adding other official information (most often from the social insurance agency), if applicable. The automated system within the unit then takes over. One officer explained the process:

“… if I put in information regarding income the system either approves or declines the application based on the client’s income. In that case I can add if there are any extraordinary circumstances to take into account regarding income, like if s/he has been on documented income support or sick leave that has lowered the income. Then the system can make a new decision”.

The officer has to formulate the decision that is communicated to the client, in line with the outcomes of the automated system. The system suggests
formulations for the response, but it is the officer who usually has to edit the text before signing. The officer explains that: “… in the end, the automated system suggested a decision based on all the information that has been put in, provides a decision /…/ There is no room for doubting the decision that is made with the help of the administrative tool”. The role of the officer is perceived to be to communicate a decision, not to make it. However, legislation still demands that an officer signs and takes responsibility for the decision made; thus, the officer has to sign and send the decision to the client.

4. Constructing meanings of automation

In this section we will analyze how the processes for automated decision-making work at the “In” unit in CSN.

4.1. Re-arranging the practices and networks within public administration

The use of automated decision-making systems has brought about a readjustment of the practices that take place within public administration in several respects. Here, we will first focus on the use of officers’ competence and the ethics of decision-making. The automated decision-making system is strictly based on legislation. The system can be seen as a mediator of the legislation. It presents and calculates errands in a correct way. In the case of CSN, the professional officers saw no reason to doubt the correctness of the system. Here, the automated system is the key actor of a network and the professional officer only supports the system.

When a client calls CSN, the role of the officer appears not to be that of decision-maker; rather, the officer is there to guide and direct the client through the e-service and prepare them to receive an automated decision. This demands that the e-service demonstrates a good level of competence, although this is not necessarily aimed at meeting the personal needs and situation of the client. As we show later, this is an example of an e-service that focuses on ethics of justice rather than ethics of care, which are not seen as applicable. Care was given in the form of personal guidance, not for personal reasons but as a way of increasing trust in the automated system. Standardized texts were also used to motivate the decisions and improve clients’ trust and reliance on the system. When interviewed, the officers highlighted that it is necessary to consider how to formulate decisions to make them seem trustworthy. There is also a guidebook on how to apply the explanations as to why a decision has been made. Internal educational programs on the legislation are provided; these also train officers to interpret and use the standardized formulations. The motivations behind standardized decisions are fairly simple, focusing on general aspects and issues that need to be modified to fit the situation of each client. In essence, officers apply a lesser degree of ethics of care in decisions that otherwise are based on the rule-based ethics of justice. However, in more complicated tasks, such as when the client asks for a lower reimbursement amount because of income-related mitigating circumstances, the professional officer has to use more of her competence to explain the decision. In such cases, the officer occupies a more powerful position, because she has the competence to evaluate and communicate the decision. However, the officers interviewed emphasized that they were still just following the legislation. As officers, their ethical code is mainly based on justice and the rule of law. Even when the clients complained that the officers lacked a caring approach, the officers had few opportunities to expand their action space at CSN. They still had to argue in line with the legislation, referring the client to the next level of decision-making, which in the case of CSN is the higher administrative court.

To conclude, the officers in CSN had a limited action space in which to add professional competences in relation to the automated system. When the automated system entered the network, they were constrained both in terms of the decisions they could take part in and how they could manage them. Thus, in the decision-making process, they have to balance the ethics of care and the ethics of justice, where the latter and the rule by law is dominating.

4.2 Automated responses to clients’ demands – a flexible network

In situations where professional officers become involved in the decision-making process, we have identified two different strategies. The actor-network is re-framed based on these strategies and the responses of clients. The takeoff is when the system translates and embeds the legislation, see Figure 1.
The officers emphasized that they follow the legislation (the rule of law), as it is expressed through the automated system. Decisions are made based on the economic situation of clients; no other personal aspects can be taken into consideration. Nonetheless, clients quite commonly try to argue against decisions, based on their desire to get a better outcome for themselves and a lower reimbursement amount. Officers still have an opportunity to guide and support an applicant to show how a decision has been made and to demonstrate that nothing has been missed and that all aspects have been taken into consideration, e.g., if they have been unemployed or on parental leave benefits and thus have had a lower income. Here, it is clear that the officer can take one of two strategies. If they adopt strategy A, they can make an alliance with the system and defend it or they can make an alliance with the client to help and guide them through the system. Whichever strategy they choose, the legislation in place and its focus on income will always define the outcomes of the automated system and its use in CSN.

4.3 Public values embedded in automated systems of decision-making

It is obvious that the core values of the legislation guide both the function of the automated system and the action space for the professional officers at CSN. Thus, the legitimacy of the automated system is supported both through its legal design and the communicative support offered by the officers.

The automated services can almost be seen as a “hidden bureaucrat”, making the decisions on citizens’ personal errands. There is a focus on justice and on the rule of law, as well as on efficiency and equal treatment for clients who use e-services. The system is
embedded to such an extent that it can be seen as a street-level bureaucrat in its own right. The high level of acceptance of the automated decision-making system probably refers to the high level of trust in the legislative framework and in the government in general [30].

Professional officers at CSN expressed the opinion that the automated system is superior from their point of view and, therefore, from that of their clients. In their experience, they are guided or directed by the system, but in reality it is the legislation upon which the system is based that enhances the legitimacy of the public administration system.

Complaints from clients were considered first when the input into the automated system wasn’t sufficient. To support the clients, they asked for new information that was not taken into account when the first decision was made. Likewise, they asked if there were extraordinary circumstances that could be related to income. In terms of decision-making, rarely was the system itself seen to be at fault. A focus of the ethics of justice could, however, offer an opportunity for flexibility; for example, the professional officers could extend what is seen as a valid for decision-making. One of the officers explained that there was space for flexibility and said:

“If it is unclear, we might remember what we have seen in other cases. Even if we need a receipt showing that you actually have paid this cost, or have this cost, we can see it as reasonable costs. You also have your own household. You have costs for this and that, so one can draw conclusions based on one’s own experiences, but also what we have seen in previous cases. […] If you are not sure you can just go to a colleague and simply discuss it with colleagues. How would you reason if you got this case? Does this look weird, or would you approve of these data, and so on”.

This is a clear expression of how arguments based on an ethic of care are integrated into decision-making, using personal experience and collegial knowledge. The professional officers have the competences to balance the two principles, as Stensöta [28] also showed. Formerly, before the introduction of an automated decision-making system, the legislative framework lay in the competence of the agency’s professional officers. Now, however, the automated web systems are the carrier of this competence. The influence of these changes on the role of professionals in the agency has not yet been settled. It may be the case that they are given an extended action space to allow them to handle more complicated errands.

Thus, legitimacy is promoted through users’ trust in the system and the transparency of personal services and information. The system is to be trusted, because it provides personalized and efficient services. Automation is in the interests of the citizen, and, thus, accountability involves a personal relationship between the citizen as an end-user and the automated system. The system is seen as a mediator to encourage the competence of professional officers. Consequently, it is the legislation that says “no” – not the system, itself.

5. Concluding remarks

Based on the above discussion about how and why meanings are constructed, we will now address more generally the implications and avenues for further research.

The main conclusions drawn are that automation is presented and framed in relation to the rule of law, the ethics of justice and equal treatment, both for public administrative agencies and their clients. This will indeed have to be addressed with the development of new legislation and the commissions given to public agencies. Policies and related legislation have to be translated into simple yes-or-no questions that can be managed by automated systems. The professionals will have to develop competences both to guide the use of the system, but also to support the most complex cases in a trustworthy and legitimate way.

It is obvious from the case study that the roles and professional competences of street-level bureaucrats are changing, and that the automated system almost becomes a co-bureaucrat. In these settings, the agency’s professionals can either make an alliance with the automated system or the client. The choice of strategy is grounded on the legitimacy and competences of these professionals. Their choice of strategy builds on what is perceived as legitimate. Most often, this is based on the legislation, itself, although in some situations, as in the examples above, the officers need to use their discretion and personal experience. Thus, they may gravitate towards a more ethics of care-based strategy. We have here identified and discussed the practice as either a form of caring ethics or a formal legal ethic norm.

A key effect of automation is that the professional officer who actually makes the decision is hidden from the client. The officer becomes a mediator rather than decision-maker, keeping the system in operation throughout the process. In turn, the system can be seen as a mediator of the legislation; in this case, it defines the rules for the issuing of study grants. Thus accountability and trust in the system is formed on the basis of how quick, and how accurately decisions are made. According to Cordella [40], information infrastructures take actions and become a part of the way in which networks are formed, along with
relationships and accountability and the reformation of automation frameworks. The latter show who is accountable for the outcomes and thereby how the legitimacy of public administration is sustained.

This paper has to some extent addressed new directions for research by focusing on the values of e-government, a demand that was made by Bannister and Connolly [12]. We have addressed how automation in e-government is organized by discussing its relationship with public values and the role of professional officers. It might even open the way for discussions about other public key values such as equality, impartiality and efficiency. An additional core argument may also be that it leads to improved access to information, thus offering enhanced transparency.

It is obvious that there is a need for further empirical studies on the outcomes of automated systems in other public administration agencies. A fruitful direction would be to deepen the analysis of their impact on the professional officers, themselves, both in terms of their competences and the daily routines of such roles. Specifically, it may be of interest to further investigate when and how discretion for taking personal experience or know-how into account is seen as necessary and legitimate, and where it is not. In addition there is a need to discuss more normative and theoretical issues regarding how this development may impact on legitimacy and trust in public administration systems and governments in general.

Finally, we wish to highlight the importance of investigating more general aspects of automation and its implications on legitimacy and e-government. It is important to avoid obviously undesirable situations such as that depicted in ‘Little Britain’.

6. References


