Government Information Quarterly 36 (2019) 101377

Contents lists available at ScienceDirect

Government Information Quarterly

journal homepage: www.elsevier.com/locate/govinf

Value positions viewed through the lens of automated decision-making: The case of social services

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ARTICLE INFO

Keywords:
Public values
Digitalization
Automated decision-making
Robotic process automation
e-Government
Social services

ABSTRACT

As the use of digitalization and automated decision-making becomes more common in the public sector, civil servants and clients find themselves in an environment where automation and robot technology can be expected to make dramatic changes. Social service delivery in Trelleborg, Sweden, is the setting for a case study of the goals, policies, procedures, and responses to a change in how social assistance is delivered using automated decision-making. Interviews with politicians and professionals complemented with government documents and reports provide the empirical data for the analysis. Four value positions: Professionalism, Efficiency, Service, and Engagement, are used as the analytical framework. The findings reveal that the new technology in some respects has increased accountability, decreased costs, and enhanced efficiency, in association with a focus on citizen centricity. While the findings establish a congruence among instances of some value positions, a divergence is observed among others. Examples of divergence are professional knowledge vs. automated treatment, a decrease in costs vs. the need to share costs, and citizen trust vs. the lack of transparency. The study confirms the power of applying the value positions lens in e-Government research.

1. Introduction

Although civil servants in the public sector are sometimes viewed as structured and authoritative bureaucrats (Weber, 1978), more contemporary researchers have described them as supporters of openness, impartiality, equal treatment, and predictability (Christensen & Lægreid, 2018) in their decision-making. Such bureaucratic decision-making, while supposedly systematic at the expense of speed (March, 1994), is also characterized by a significant degree of discretion and transparency (Lipsky, 2010; Tummers & Bekkers, 2014) and adherence to procedures (March, 1994). Professional discretion is thus often, but not always, considered as positive (for a critical discussion, see Evans & Harris, 2004). In addition, civil servant decision-making and other professional activities are based on workplace values that are promoted and intended to guide employees (Rose, Persson, Heeager, & Irani, 2015).

However, it is also claimed that Information Technology (IT), with its ever-increasing role in public sector administration represents a new Digital Era Governance (Dunleavy, Margetts, Bastow, & Tinkler, 2006) with the innovative use of the Web and social media in public administration (Andersen, Medaglia, & Henriksen, 2012; Margetts & Dunleavy, 2013).

In its first wave, e-Government mainly focused on streamlined e-service and the horizontal and vertical integration of data (Layne & Lee, 2003). In the second wave, the focus shifted to a stronger emphasis on automating processes such as decision-making in which a computer program or "robot" acts as the case manager for decisions (SALAR, 2018; Wirtz, Weyerer, & Geyer, 2018). The use of automated decision-making in public administration *at face value* supports the ideas of a Neo-Weberian State "in which traditional bureaucratic values are recognized alongside a continuing focus on performance-based management and efficient service delivery to citizens" (Greve, Lægreid, & Rykkja, 2016, p. 8).

In the context of digitalization of the public sector, the term "public values" has become a central concept as evidenced by the recent increase in public administration and e-Government research (Bannister & Connolly, 2014; Cordella & Bonina, 2012; Persson & Goldkuhl, 2010) and information systems (IS) research (Rose et al., 2015). One particularly illuminating study is based on a literature review and an investigation of Danish local authority managers. In this study, Rose et al. (2015) synthesize a framework of four value positions for e-Government: *Professionalism, Efficiency, Service,* and *Engagement.* They propose that some of the instances of values related to these positions might be

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https://doi.org/10.1016/j.giq.2019.05.004
Received 30 October 2018; Received in revised form 15 May 2019; Accepted 15 May 2019
Available online 29 May 2019

either "congruent" or "divergent." Among other characteristics, congruent instances are causal or synergetic while divergent ones are competing or negating. They also recommend the use of their value positions framework in future empiricial research on with a focus on several groups of actors as well as on specific technologies.

In response to this call, this paper focuses on the appearance of the value positions that Rose et al. (2015) list with special emphasis on identifying the competing and negating (i.e., the divergent) instances of value positions in a case study of automated decision-making. The setting for this study of a technological model for the delivery of social services is the Swedish municipality of Trelleborg. The experiment has received attention among other Swedish municipalities which have expressed interest in the "Trelleborg Model" (Rakar, 2018; Trelleborg Municipality, the Agency for Municipal Statistics, & SALAR, 2015a), and several Swedish municipalities had initiated adopting it when the data for this paper were collected. However, we are unaware of any other empirical research that thoroughly examines this model.

The focus on value positions when automated decision-making is used in local government requires a study of the involved actors and the relevant municipal policies. This research therefore aims to answer the following research question:

> Which instances of value positions, and their divergence, appear when automated decision-making is adopted in municipal social assistance?

The remainder of this paper is organized as follows. Section 2 summarizes previous contributions to automated decision-making in public administration. Section 3 presents an overview of public sector values in e-government research and describes the framework for our empirical analysis of the introduction of automated decision-making in social assistance in Sweden. Section 4 describes our research method. Section 5 presents the Trelleborg case study. Section 6, which presents our empirical findings, leads to Section 7, which discusses these findings, describes our research contributions and limitations, and offers suggestions for future research. Section 8 draws conclusions from our research and comments on its theoretical and practical implications.

2. Automated decision-making in public administration

In their systematic literature review of Artificial Intelligence (AI) in the public sector, Wirtz et al. (2018) described two types of AI: advanced AI and limited AI. This differentiation resembles the traditional view of AI as either strong or weak (Searle, 1980). Limited AI includes, for example, structured programming or automated decision-making. In this paper, we use the terms automated decision-making along with Robotic Process Automation (RPA) as described by Willcocks, Lacity, and Craig (2017). According to their definition RPA includes tools like macros and scripting that offer fast functionality in an office environment. Even in its most advanced form RPA may be viewed as weak AI but none the less represents fundamental shifts in an organizational context (Wirtz et al., 2018). Wirtz and colleagues identified a number of AI challenges. For example, when AI is used in decision-making, where does the responsibility lie for the decisions, for the discrimination in decisions, and for the effects of workforce substitution and transformation? These issues are of practical relevance because very recently, SALAR (2018), the Swedish national agency that cooperates with local governments, promoted the use of automated decision-making/RPA as a labor-saving methodology.

Some empirical studies on automated decision-making have been conducted in the Nordic countries. Busch (2017) reported on how technology influenced discretionary processes in a Norwegian juridical court. Henriksen (2018) discussed the challenges in policy implementation when rule-based decision-making was introduced in data-driven public administration in Denmark. Wihlborg, Larsson, and Hedström (2016) examined the influence of automated decision-making on professionals in national public agencies in Sweden.

Other studies of automated decision-making in the public sector are set outside the Nordic context. For example, Wenger and Wilkins (2008), who examined "automation" in unemployment insurance management in the United States, proposed that greater use of technology might reduce the bias resulting from the direct interaction between "rogue agents" and female applicants. Cordella and Tempini (2015) examined how information and communication technology (ICT) in a Venice municipality could be used to support the bureaucracy in the effort to reduce corruption.

Automated decision-making in public sector is based on algorithms of various degrees of complexity (Bayamlıoğlu & Leenes, 2018). Brauneis and Goodman (2018) studied the use of algorithms in state government programs in the United States in an effort to evaluate the utility and fairness of the algorithms' policy decisions. They concluded that support for the traditional principles of openness, impartiality, equality, and predictability (Christensen & Lægreid, 2018) requires transparency in the use of algorithms.

The context of this paper is the digitalization and automated decision-making in public sector social services. It is a sensitive public sector area because the interaction with the clients, who are often weak and vulnerable (Minas, 2014), requires a substantial level of individual and professional discretion (Lipsky, 2010). Further, despite a generally high Internet use in Sweden, it is reported that between 18 and 28% of those with the lowest incomes and thus representing those who most likely are applying for social services do not use Internet on a daily basis (The Internet Foundation, 2018). However, the primary focus of this study is the implications of automated decision-making within the municipality rather than the interaction between citizens and the municipality. Laurent (2008) described two dimensions of this interaction: technological support and human support. Computerization fits well with a professional identity associated with efficiency but less well with proximity and personalization. This distinction is consistent with conclusions by Bowens and Zouridis (2002) who warned against the danger of screen-level bureaucrats who are driven by compulsory systems rather than by discretionary practices. In a similar vein, De Witte, Declercq, and Hermans (2016) defined "two worlds" in a study of electronic client records in Flanders, Belgium: the database world and the face-to-face world.

Other studies focus on the direct experiences of social workers. Curry, van Draanen, and Freisthler (2017) found that experienced social workers viewed a web-based referral system for child welfare more negatively than less experienced social workers. The experienced social workers complained about the loss of direct client contact and the amount of time required to learn the system. Other studies focus on the introduction of platforms for documenting management processes in child and social welfare (Devlieghere, Bradt, & Roose, 2018; Devlieghere & Roose, 2018; Hansen, Lundberg, & Syltevik, 2018). These studies conclude that standardized processes can promote transparency but social workers may use recommended text fields in new ways or use alternative contact channels in order to obtain information not provided by the system (Devlieghere & Roose, 2018). In contrast, Hansen et al. (2018) found that communication via technology did not necessarily replace face-to-face encounters with clients. Although some clients preferred impersonal online contact, others (with more complex dealings with the agency) combined digital and traditional communication modes. In a longitudinal evaluation of a Case Management System in social services (Lagsten & Andersson, 2018), future research issues were outlined including cross-fertilizing with information systems research though not specifically mentioning of automated decision-making. Furthermore, recently the need for empirical and theoretical evaluations of technology has been brought forward as a means to safeguard the value for frontline practice and to enhance the understanding of processes behind its´ introduction (Gillingham, 2018a, 2018b).

In sum, the use of technology in social services is a multi-dimensional research area. However, the research is limited as far as detailed

empirical investigations of how digitalization and automated decision-making influence social workers who manage cases in practice. In the next section, we examine the public sector values that are relevant to this discussion when technology is used in the delivery of public services.

3. Public sector values

3.1. Values in e-Government research

Public sector values have received much attention in research (Moore, 1995) and have led to the identification of multiple dimensions (Jørgensen & Bozeman, 2007). But in brief the value perspective is one way of examining what public sector organizations actually do (O'Flynn, 2007). As a response to the NPM logic (Bannister & Connolly, 2014), the value perspective focuses on, and conceptualizes, values other than the economic value typically credited to the digitalization of processes and systems. The value perspective, then, is a way to capture and discuss the public sector values of digitalization in the design and use of technology.

Persson and Goldkuhl (2010) proposed that Bureaucracy and NPM as management strategies, with their respective values, are part of a dialectical structure that can be characterized as e-Government in its practical syntheses. Some research proposes that e-Government has a bias towards technology rather than towards management (Heeks & Bailur, 2007; Madsen, Berger, & Phythian, 2014). In their review of e-Government research between 2001 and 2005, Heeks and Bailur found that the majority of the research reflected a techno-deterministic view. Madsen et al. (2014), who applied the Heeks and Bailur methodology to a selection of papers published between 2001 and 2010, confirmed that technology rather than managerial practices generally influences e-Government outcomes. The implication of this research is that e-Government/digitalization is a technological exercise rather than a behavioral exercise.

Other e-Government research, however, which de-emphasizes the techno-centric view, uses the term "public values" to refer to administrative practices when technology is introduced in an organization (Bannister & Connolly, 2014; Cordella & Bonina, 2012; Papi, Bigoni, Bracci, & Gagliardo, 2018). An analysis of the relationship between public values and transformative government, where technology played a secondary role, points to such values as a "mode of doing things or an attribute of a way of doing things that is held to be right" (Bannister & Connolly, 2014, p. 120). Based on this analysis, Bannister and Connolly developed a taxonomy labelled "public sector values," which includes Duty oriented, Service oriented, and Socially oriented values.

Cordella and Bonina (2012), in turn, suggested that the term "public values" represents a new paradigm or framework that can be used to address public sector reforms enabled by Information and Communication Technology (ICT). However, they admit that the creation of public values with such reforms is not simple because of the need to balance competing public values rather than to optimize processes and procedures. An extensive literature review by Twizeyimana and Andersson (2019) outlines a detailed model of public values including the overarching public value dimensions of Improved administration, Improved public services and Improved social value as well as six dimensions under these (Table 1). However, they acknowledge that some of these values could be characterized as "overlapping. ".

Similarly, Papi et al. (2018), in their proposal for a conceptual framework for measuring public values, concluded that practitioners found ongoing measurements improved their decision-making while public values as such were hard to define. More pragmatic attempts to define public values or similar have focused on rationalities (Ranerup, 2007b), logics (Busch, Henriksen, & Sæbø, 2018), or basic motivators (Holgersson, Lindgren, Melin, & Axelsson, 2017).

Rose et al. (2015) synthesized a framework of value positions for e-Government based on an extensive literature review. Their definition of value positions echoed that of Bannister and Connolly (2014): they are "ends-in-view that are tied to assumptions about how information technologies benefit good governance or increase impact" (Rose et al., 2015, p. 533). They also argued that a perfect categorization scheme does not exist, and, equally important, various instances of value positions might compete. The authors argue that the perspective of competing instances of value positions is important in order to understand the complex accountability structure and the plurality of stakeholders in digitalization projects (Rose et al., 2015). The Rose et al. framework has four value positions: *Professionalism, Efficiency, Service,* and *Engagement*. In this manner, the Rose et al. (2015) framework represents what can be characterized as a simplification compared to other established frameworks in e-Government research (cf., Bannister & Connolly, 2014). These later, often normative, frameworks have an emphasis on bringing forward and discussing a fine-grained, large and constantly more subtle repertoire of values. Instead, our chosen admittedly more simplistic and descriptive framework, with its four value positions, can serve to detect and discuss empirical representations and paradoxes related to these. This in order to better explain and manage existing value positions, as well as contradictions ("divergence") related to these, in technology use in the public sector.

To enable comparisons between frameworks, Table 1 provides an overview of overarching levels and their more detailed content in terms of values in the models of Rose et al. (2015), Bannister and Connolly (2014) and Twizeyimana and Andersson (2019). Here similarities and differences can be detected regarding the specific character of overarching levels, the number of instances of appearing values as well as their content.

3.2. A framework for value positions in e-Government

Rose et al.'s (2015) definitions of the four "value positions" are as follows:

- *Professionalism* "is focused on providing an independent, robust an d consistent administration, governed by a rule system based on law, resulting in the public record that is the basis of accountability" […] [The role of e-Government and technology] "is to provide a flexible and secure digital public record and to support standardized administrative procedure "(pp. 539–540) as a form of infrastructure. The representative values are equity, legality, and accountability.
- *Efficiency* "concerns providing lean and efficient administration that minimises waste of public resources gathered from taxpayers" (p. 539). Thus, e-Government and technology provide the automation that is generally viewed as the productivity tool that promotes effectiveness and efficiency. The representative values are efficiency, value for money, and productivity.
- *Service* "involves maximising the utility of government to civil society by providing services directed towards the public good representing values such as public service, citizen orientation, service level and quality" (p. 540). The role of e-Government and technology is "to improve availability, accessibility and usability of services by providing them online" (p. 540). This means that technology is an information-processing tool that changes and improves how users communicate with service providers. The representative values are citizen centricity, service level, and quality.
- *Engagement* "involves engaging with civil society to facilitate policy development in accordance with liberal democratic principles, thus articulating the public good" (p. 541). The use of e-Government and technology supports deliberation and networking. The representative values are democracy, deliberation, and participation.

Rose et al. (2015) admit the possibility of both congruence and divergence among instances of values related to the four value positions. Some values might be seen as espoused or "official" values rather than as values in use (see also Schein, 2004). In this manner, the Rose

Table 1
An overview of theoretical frameworks of public values.

Authors and source	Rose et al., 2015, p. 551	Bannister and Connolly (2014), Table 2 p. 123	Twizeyimana and Andersson (2019), p. 170
Overarching level	Value positions	Value orientations	Overarching public value dimensions
Names of overarching levels *(in italics)* and their respective content	*Professionalism ideal:* durability, equity, legality, accountability	*Duty oriented values:* responsibility to the citizen, responsibility to the elected politicians of the day, proper use of public funds, compliance with the law, efficient use of public funds, integrity and honesty, facilitating the democratic will, accountability to government, economy/ parsimony, rectitude	*Improved administration:* improved administrative efficiency, Open Government (OG) capabilities, improved ethical behavior and professionalism
	Efficiency ideal: efficiency, value for money, productivity, performance	*Service oriented values:* service to the citizen in his or her different roles, respect for the individual, responsiveness, effectiveness, efficiency, transparency	*Improved public services:* improved public services
	Service ideal: public service, citizen centricity, service level and quality	*Socially oriented values:* inclusiveness, justice, fairness, equality of treatment and access, respect for the citizen, due process, protecting citizen from exploitation, protecting citizen security, accountability to the public, consulting the citizen, impartiality	*Improved social value:* improved trust and confidence in government, improved social value and well-being
	Engagement ideal: democracy, deliberation, participation		

Table 2
Empirical data.

Data source	Role in the organization	Role in the process	Number of instances
Interview	Leading politicians in the municipality	Drivers of change	2
Interview	Managers in the municipality working with issues related to social assistance	Drivers and implementers of change	4
Interview	Caseworkers in social assistance	Handling cases related to social assistance	2
Document	Internal working documents about the Trelleborg Model	Expressing official policies, assessments and change support	10
Document	Presentations of the Trelleborg Model	Promotion of change	4

et al. framework provides a multifaceted lens to the study of values. It is structured containing four clearly defined positions and at the same time brings forward the relationships between the instances (eg., congruence and divergence). This, as argued above, is viewed as a strength in a complex and sensitive empirical context such as the digitalization and automated decision-making in social services.

Rose et al. (2015) tested their theoretical framework in an empirical case using data from interviews with local authorities at several Danish municipalities. The interviews addressed the appearance of value positions in general as well as congruent and divergent relationships among public sector values. Persson, Reinwald, Skorve, and Nielsen (2017) also tested the framework in an analysis of two Danish e-Government strategies from 1994 and 2016. They found consistency over time in their examination of Professionalism, Service, and Efficiency; however, the appearance of Engagement values had declined.

In a study set in a Swedish e-Government context, Sundberg (2017) found that Service and Efficiency values, often in combination, were the most commonly observed values whereas the Engagement value position related to citizen empowerment was less observed. Rose, Flak, and Sæbø (2018) tested the Rose et al. (2015) framework in an effort to strengthen stakeholder theory in e-Government. They concluded that values among the various stakeholder groups (internal and external) should be clearly adopted and properly communicated.

In the study of the Trelleborg Model we apply the four value positions that Rose et al. (2015) proposed to analyze the digitalization and automated decision-making in a social services case, supplemented by the opinions of many stakeholder groups.

4. Research method

We conducted a qualitative, interpretive case study (Walsham, 2006) of value positions in social assistance in the Trelleborg Municipality (hereafter, the "Municipality") where digitalization and automated decision-making are implemented (i.e., the Trelleborg Model; hereafter, the "Model"). We used interviews and documents to support our directed or deductive content analysis (Cho & Lee, 2014; Hsieh & Shannon, 2005).

Our case is of innovative interest (Misuraca & Viscusi, 2015) because Trelleborg is the first municipality in Sweden to automate certain decisions related to social assistance. Beginning in late 2017, other Swedish municipalities began adopting the Model (Rakar, 2018; Trelleborg Municipality, the Agency for Municipal Statistics, & SALAR, 2015a). However, the Trelleborg Municipality is the primary driver of the Model. Despite its reported dissemination to other municipalities indirectly indicating its robustness, the Model has also been publicly criticized by some social workers. An example is Persson (2018), who explains resistance to the Model, by criticising it for being "too much copying."

Our empirical data consist of qualitative interviews (40–60 min each) with key stakeholders in the Municipality (Table 2). The interviewees were the following: two prominent politicians (one conservative and one social democrat); four managers from the Municipality's Labor Market Agency (two of the four managers work directly with internal and external dissemination activities related to the Model, the others with a more internal focus on management); and two caseworkers for social assistance. The interviewees were selected to represent relevant stakeholder groups and levels within the organization to provide a broad view of value positions and experiences related to the Model. The inclusion of a range of stakeholders helps in achieving a higher level of validity of data (Walsham, 2006). The interviews were recorded and subsequently transcribed.

The annual Municipality plans and the Labor Market Agency reports for the years 2013 to 2017 provide other empirical data. We also consulted reports that describe the aims of the Model, a description of the digitalization of social assistance submitted to a national innovation competition, and oral and Power Point presentations produced by leading professionals for other municipalities interested in the Model (Table 2). This selection of internal official documents is made to safeguard a complementary view of value positions. This triangulation of research methods was used to strengthen the validity of the research findings.

We used open-ended questions in the interviews with special attention paid to the aim and history of the Model for social assistance. The questions addressed how the partly automated decision-process

influenced caseworkers and citizens with a particular focus on the comparison of current social assistance cases with previous social assistance cases. A further focus was on how the technology was used and how the Model was promoted and evaluated, paying particular attention to outcomes of these evaluations.

We followed six steps in the analysis of our data. First, the first author read and re-read the transcribed interviews and documents with a main interest in identifying "first order concepts" or "what happens here". Second, we adopted Rose et al.'s (2015) framework of four value positions as we looked for instances of them in our empirical materials. Third, we read and re-read the instances in each category and described their content in everyday language and the different values connected to the four value positions (for illustrative values connected to each value position; see Section 3.2). Fourth, repeatedly we read, critically examined, sorted and re-sorted the emergent "sub-codes" in groups of instances of values. Our ambition was to make the most valid description and grouping of appearing instances related to each value position. At this point, we selected interview comments to use with our findings. Fifth, we examined these values in order to identify instances that contained divergent values that competed with, or negated, the main groups of values related to each value position. We then constructed a preliminary summary of the constellations of divergent values. Sixth, we examined these preliminary constellations of instances of divergent values with a focus on classifying them as more General and more Context-Specific. The second author had an important role in the last phase of step four-six.

5. The case: The Trelleborg model

The Model, which was introduced gradually, beginning in 2010, reflects a radical transformation of the management of applications for social assistance (e.g., economic support under the Social Services Act). Local governments in Sweden generally are credited with a high level of integrity as far as the provision of social services. Elected politicians oversee such services. In Trelleborg, political power shifted from Conservative majority rule (in power from 2010 to 2014) to Social Democrat majority rule in the election of 2014. Despite the political and ideological shift, the implementation of the Model continued. The Model was still in use in 2017 when the empirical data were collected for this study.

According to official documents from the Municipality (Trelleborg, 2015b), the Model has two fundamental aims:

1) to introduce a management model that emphasizes a process perspective in the handling of applications for social assistance, which is organized independently of each applicant's personal and social situation; and
2) to help each applicant for social assistance to obtain employment so that he/she can support himself/herself without social assistance.

A further aim of the Model was to decrease timespan of the application process from approximately one week to one or two days. In a report about activities during 2015, it is described that the digital application process resulted in that 97% of the citizens received a decision about social assistance within one day (Trelleborg municipality, 2016, p. 1). This decrease was partly achieved because the application process was simplified. In 2014, a Help Desk was set up in the town hall that could also assist applicants unfamiliar with the Web. All applicants were thereafter summoned to a meeting with a Labor Market Agency manager, often the day after the application submission. By September 2015, applicants could apply for social assistance on the Web, which accelerated the decision process. Cost of internet access is covered by the social assistance unit that also provides assistance to obtain a bank-ID.

In 2016, the Municipality introduced automated decision-making for social services. Initially, this idea emanated from a few services that were in the process of being streamlined (e.g., applications for security alarms in elder care). Beginning in the Spring of 2017, social assistance decisions were increasingly managed by the RPA. By August 2017, RPA, assisted by caseworkers, handled approximately 70% of the applications. Of these applications, RPA made 41% of the decisions and handled the actual social assistance payments (Trelleborg Municipality, 2017b). If applications were rejected, caseworkers from the Labor Market Agency handled the decisions manually. Statements in internal documents anticipate that RPA would make more decisions independently in the future.

6. Findings

In this section we present our findings related to the introduction of RPA in social services in terms of the four value positions described by Rose et al. (2015).

6.1. Value positions in the interviews

6.1.1. Professionalism

Professionalism was the most frequently mentioned value position in the interviews with the managers, caseworkers, and politicians. Table 3 summarizes the findings by data source. The interviewees consistently mentioned that the well-designed IT tools for the digitalization and automation of the application process were associated with legality and accountability. Further, trust (including trust in citizens) and accountability were associated with specific ways of making decisions.

> [Previously] you had to send in a lot of documents, for example, copies of statements of bank accounts […] Now, instead, we have to trust the individual. We believe that people want to do their very best.
> [Politician No. 1, September 25, 2017]

A manager described the safeguard measures for accountability in the application process. Even if citizens were not required to submit validating documents, control over the application process would still exist.

Table 3
Overview of findings and data source.

	Professionalism	Efficiency	Service	Engagement
Interview data	69 instances	57 instances	41 instances	17 instances
Document analysis	54	57	38	17
Keywords across data sources				
Positive outcomes	Legality Accountability Trust	Faster case management Reduced costs	Citizen centricity Access to human civil servants	Interest in newsletter Local intrinsic value of dissemination
Negative outcomes	Lack of transparency Limited discretion New forms of control of citizens	Occasional manual control Dissemination costs	"Unwanted" services	Disseminating a partly controversial Model

> I don't know how many citizens are aware that robots make the decisions. Regarding the digitalization at large […], we checked all applications in February. […] Normally, we check every tenth application. [In the control of all applications] all applicants must submit their documents, which is why the decision process takes longer than normal.
> [Manager No. 2, Labor Market Agency, September 26, 2017]

This comment by a manager reveals that the digital application is sufficient to initiate the automated decision-making process, which is referred to as made by "robots". Nevertheless, removing all aspects of control is seen as undesirable for our interviewees. Professionalism requires validating citizens' self-reported data in the decision-making process.

However, the caseworkers are still viewed as superior to the technology for various parts of the decision-making process.

> The formal decision process is digitalized. You receive your decision the day after you apply. But the two processes are related. […] Because the judgment on whether you are willing to be active in the labor market is based on the meeting [between citizens and caseworkers]. […] The formal decision is based on the judgment made after the contact with the caseworker [i.e., the Labor Market Agency manager].
> [Manager No. 1, Labor Market Agency, September 26, 2017]

This comment suggests that the professional caseworker has a very important role in the decision-making process. A special communication style is used to describe the workflow when both technology and people are involved, by using the concept of "reading". A caseworker described:

> We don't say the robot manages your application. We say that it is read automatically.
> [Caseworker No. 1, October 29, 2017]

Thus, to some extent, complete transparency about the automation of applications is somewhat understated in communications with citizens. The interview data suggest that the professionals were eager to emphasize that a person always controls the application decisions. The interviewees emphasize the understanding that technology in the form of automated decision-making has only a secondary and supportive role in the process.

In the very early phases of the introduction of the Model, caseworkers were somewhat critical of the undermining of their professional values. They expressed their dissatisfaction with the Model when case management was transferred to the Labor Market Agency. A politician described:

> There were some caseworkers who thought that case management should be handled by social services. It should not be handled by the Labor Market Agency. […] and this was true among some professionals [in social services]. But I think that it didn't affect our activities here.
> [Politician No. 2, September 26, 2017]

There was some confusion about the new role of caseworkers in the application process.

> "What is my new role? Will we no longer work directly with the applicants?"
> [Manager No. 1, September 26, 2017]

A manager working with dissemination of the Model to other municipalities described more recent experiences in line with this:

> How can you do this? It will create some resistance. [It is necessary to remember the] mindset and keep up your strength.
> [Manager No. 3, Labor Market Agency, November 29, 2017]

In sum, the interview data related to Professionalism suggest that legality, trust and accountability were important, albeit the role of technology in decisions was described in different ways. However, while the reorganization and focus on labor market issues have strong managerial support, some caseworkers were somewhat less enthusiastic. This was seen both before the introduction of automated decision-making as well as in relation to the general issue of change of focus.

6.1.2. Efficiency

Efficiency was the second most mentioned value position in the interviews with the managers, caseworkers, and politicians. For example, a politician expressed a positive attitude towards using technology in providing more efficient services to citizens:

> It is natural to make things more efficient. Because I was not a part of this process at that time, I don't understand why we don't do this even more. This is the direction our society is taking.
> [Politician No. 1, September 25, 2017]

In other words; applications were processed more rapidly with the use of digitalization and the RPA.

Other Efficiency values were identified than those related to accelerating the application process. For example, the interviewees described a kind of "ideological efficiency" when professionals from the Labor Market Agency supplemented the work of RPA. They referred to the fact that these professionals encouraged social services applicants to become more self-supporting. Therefore, the costs for social assistance would decrease. A manager explained:

> But the unique thing about applying for social assistance in Trelleborg is that the process is digitalized. […] But the focus is on being able to earn your own living, irrespective of whether you can speak a word of Swedish or not.
> [Manager No. 2, Labor Market Agency, September 26, 2017]

After some time the assignment of applications from social services to the Labor Market Agency did not create much questioning in the organization. The transfer was interpreted as a way to increase Efficiency because it led to improved performance and economic gains. However, some dissemination activities were considered too costly and external funding for dissemination activities was needed. A manager explained a strategy to get funding to cover these costs:

> And we very much want to influence how things are done and to encourage more municipalities to follow our Model. This is why we have been so willing to welcome visitors [from interested municipalities]. We know that this takes a lot of time. We understand that we should talk to Vinnova [a fund that finances research on technical innovations] about doing something together. We filed an application about the Trelleborg Model that initially included 14 municipalities.
> [Manager No. 2, Labor Market Agency, September 26, 2017]

In sum, the interview data related to Efficiency suggest the Model elicited a variety of internal values related to the case-handling process increasing its efficiency and reducing costs for social assistance and external values related to the dissemination of the Model.

6.1.3. Service

Instances of values related to the Service value position were also emphasized by the managers, caseworkers, and politicians. For example, the combination of digital and human services supported the value of citizen centricity in the provision of social services. The managers and caseworkers from the Labor Market Agency also think that supporting applicants' entry into the workplace is a service they can provide.

> There have been improvements for the people in Trelleborg. For the citizens, there is no doubt. We can show that our method and its

ideas have increased and improved employment in Trelleborg.
[Manager No. 1, Labor Market Agency, September 26, 2017]

The interviewees also think service should be citizen-friendly for example offering services including several forms of human support. Data suggests that personal contact is viewed as superior to technological support. This is illustrated by the fact that the Model provides for face-to-face meetings between citizens and caseworkers as well as access to a Help Desk. Service in form of meetings with professionals was considered as an important value, as expressed by a politician and a manager:

You don't have to use the digitalized application. It is supposed to be a service for the citizens that they can use from home.
[Politician No. 2, September 26, 2017]

It is in the meeting between people that real change can take place.
[Manager No. 3, Labor Market Agency, November 29, 2017]

However, the interviewees reported that they have heard that not all citizens are satisfied with the Model and all aspects of the provided services:

The advantage with our way of working is that it is rapid. However, perhaps not everyone wants the plan offered [about becoming active in the labor market], but they get it anyway.
[Politician No. 2, September 26, 2017]

A caseworker had a similar message related to the "complex" nature of some Service values. Based on his daily interaction with citizens or clients he stated that:

When we say "service", we don't mean that we tell people the things they want to hear. Rather, we tell them the things that they need to hear. And this is not always received positively. Yet, from a longer time-perspective, I feel that the cooperation between us and the people we work with generates a good result!
[Caseworker No. 2, November 29, 2017]

In sum, the digitalization and automated decision-making reflected rather mixed opinions on the Service value position. While the managers, caseworkers, and politicians were generally supportive of the Service value explicitly mentioning its citizen centricity and human components, some citizens might be less satisfied.

6.1.4. Engagement

Engagement was the least mentioned value position in the interviews with the managers, caseworkers, and politicians. It was described mostly in terms of the dissemination of positive results, despite the cost, to other municipalities. For example, the interviewees spoke positively about an e-mail newsletter for the Model.

There is a huge interest in this. We have 550 subscribers of various kinds. It is very much appreciated.
[Manager No. 3, Labor Market Agency, November 29, 2017]

However, a few interviewees said that the dissemination of the Model was controversial because of the dissatisfaction expressed by some people in the Municipality.

Nevertheless, spreading the word about the Model had a larger deliberative agenda. A politician and a manger described the potential positive feedback as well as a role in the debate:

Part of the motivation is that when you are doing something good, you tell others about it. […] But you also get feedback.
[Politician No. 1, September 25, 2017]

Our activities are very much results-oriented. And this makes it important for us that, preferably, the "whole world" does as we do […] By applying for innovation prizes like the SVEA Prize, and things like that, we have the opportunity to disseminate our Model. Just think about our responsibility to Sweden!
[Manager No. 1, Labor Market Agency, September 26, 2017]

The Engagement value position thus appeared in forms that are in line with deliberative values in a larger debate, but also in forms that are relevant for the "local spirit" of civil servants as an effect of their participation.

6.2. Value positions in the documents, reports, communications, and presentations

Whereas the interviews reflect the various actors' perceptions of the digitalization and automated decision-making on a day-to-day basis, the official documents, reports, and other communications related to the Model presents its strategic and political ambitions and its expected benefits. The public presentations demonstrate the use and expectations of the technology investment in a way that was designed for a wider audience.

6.2.1. Professionalism

As expressed in the internal and external communications, the Model aimed to maintain Professionalism as a value position. The automation of the caseworkers´ decision-making highlighted the importance of legality and accountability. Before the Model was introduced, a very thorough analysis of the manual process was conducted.

The co-workers´ participation is decisive. They know the process. The process has to be thoroughly investigated and optimized in order for it to be automated. Through regular, monthly follow-ups and participation in the design of the automation, the co-workers are offered the option to "make a difference."
[Trelleborg Municipality, 2017c, p. 2]

Thus, the digitalization and automation of the application process is well-grounded in professional knowledge and continuous input with the aim of optimizing the work. Further, the automation provides certain legal safeguards since it is based on specific regulation.

The Model also encourages trust in the applicants. This contrasts with previous attitudes in which the applicants had to send extensive documentation as an obligatory part of the application process. The value of trust in the new Model was described in an official report from the municipality in the following way:

The trust in the citizens we serve is too low among public agencies in Sweden. The system is based on the notion that the majority cheat. The control system is designed with that in mind. Our activities are organized for the majority instead of the minority.
[Trelleborg Municipality, 2015a, p. 8]

The digitalization and automation Model shifted the management of cases for social assistance from the Social Assistance Agency to the Labor Market Agency. One goal was control with the aim of maintaining accountability.

The caseworker at the Labor Market Agency decides whether you are willing to accept employment offers or not. In other words, whether you are deemed "active." That evaluation is used in the decision-making on social welfare.
[Manager No. 1, Conference on automated decision-making, October 6, 2017]

In spite of the potential benefits of digitalization and automation, considerable confidence in human professional knowledge and capability remains. A manager explained:

One should not take away all knowledge about the decision process from the administration.
[Manager No. 1, Conference on automated decision-making, October 6, 2017]

The value positions of Professionalism, Service, and Efficiency were often seen as interconnected. This was shown in the following citation from a local conference on automated decision-making:

> The citizen should be in focus. Maybe those who work with social welfare know this. Service, accessibility, and a simpler, faster, and cheaper decision-process are needed. Actually, public administration law states that all administration should be run this way. And this will be even more so in 2018. There are no short-cuts.
> [Manager No. 1, Conference on automated decision-making, October 6, 2017]

In sum, the documents and communication reflected the Profession value position related to for example legality, accountability, professional knowledge and trust in citizens.

6.2.2. Efficiency

Efficiency features in the reports from the Labor Market Agency for the years 2013 to 2017. References are made to reduced administrative costs resulting from automated decision-making.

> In September 2015, the Labor Market Agency and its political assembly introduced a digitalized application process as the first municipality in Sweden. […] In the year-end report for 2016, it was noted that 75% of the applications for social assistance used the digitalized service. The stated goal is to reach 85%. […] The next step is to automate the decision process, something that can be partly accomplished in the first three months of 2017.
> (Trelleborg Municipality, no year, p. 3.)

The reduction in the citizen dependence on social assistance, with its related cost reduction, was presented as an Efficiency value.

> The Labor Market Agency manages the first phase in the automation process. To obtain a representative size in these activities, it is necessary that other municipalities´ cases of social assistance are included. A decision was taken in our political assembly in the Spring of 2017 (No: AMN 2017/35), and several municipalities have shown an interest in this. The next step is to settle the legal arrangements […] Through this change, more people will be able to support themselves, something which would benefit Sweden as a nation. The Labor Market Agency will spend another 600,000 Swedish crowns in 2018 to improve RPA.
> [Trelleborg Municipality, 2017a, pp. 3–4]

This comment links to the value position of Professionalism in the sense that legality and accountability are seen as important. The comment also links to the value position of Engagement because of the intention to disseminate the Model. The more direct efficiency values were related to reducing the administrative costs and the costs for social assistance.

6.2.3. Service

The Municipality's documents describe the Service values, in particular the emphasis on the capability of offering 24/7 access to the application forms through digitalization. The documents also emphasize the value of the Help Desk, claiming that because of the streamlined process, service to citizens has improved (Trelleborg Municipality, 2015a, p 7). In the same manner as in the interviews, these instances related to the Service value position are often closely interconnected with Professionalism and Efficiency.

6.2.4. Engagement

The Model promotes Engagement by its emphasis on eliciting interest from other municipalities and by its commitment to participation in political activities. One example is presenting the report titled “3 million Euros – to what use?” at Almedalen [a Swedish national public political conference that takes place every summer]. The report focused on the division of responsibility between the State and the municipalities on labor market issues. The presentation and report resulted in many invitations to representatives from Trelleborg to speak about the model (Trelleborg, 2013).

The Model's new work processes and the public dissemination of news on its results are presented as part of a larger deliberative agenda:

> The Trelleborg Municipality now hopes to influence the laws and the national agenda. Based on local experiences and results, Trelleborg has shown that improvements can be made in this area. The vague relationship between State and the municipalities is one such area. Municipalities with good local business relations and a good organization for labor market issues should be offered an opportunity to run a pilot project in which they (rather than the State) take the main responsibility.
> [Trelleborg Municipality et al., 2015a, p. 15]

However, this public dissemination program has also been criticized by the Municipality itself. As described by an official report from the Municipality:

> The biggest challenge has been our work model that challenges the way others handle these things. […] It was only very recently, when we could show a trend with good results and that we have been listened to rather than criticized.
> [Trelleborg Municipality, 2015a, p. 14]

In sum, the internal and the external reports included instances in line with the Engagement value position related to a larger deliberative agenda of disseminating the Model.

7. Discussion

7.1. Common value positions in digitalization and automated decision-making

Our analysis of interviews and documents confirms previous research (Persson et al., 2017; Rose et al., 2015; Sundberg, 2017) that found a greater focus on instances associated with the value positions of Professionalism, Efficiency, and Service (Table 3) than with Engagement (which is discussed in detail in Section 7.2). In 7.1 we will summarize what can be characterized as the more general “positive” instances of value positions, whereas in 7.2 we will summarize and discuss those which are more complex in nature. The later kind of values expresses critique as well as conflict between instances (“constellations of divergent value relationships”).

With reference to Professionalism, the application process for social assistance was considered to be well-designed, emphasizing the active participation of professionals in its development and implementation. In this manner legality was expressed. There was also trust in the citizens' capability to make the applications, at the same time as accepting some lack of transparency regarding the role of technology in decisions. The decision-process also evidenced confidence in human expertise and agency despite the intensive use of technology reflecting the expressed value of accountability.

With reference to Efficiency, the application process reduced the cost of social assistance. When the process was assigned to the Labor Market Agency, more attention was paid to encouraging citizens to join the labor market. This was an effort to reduce long-term reliance on social assistance. The importance of decreased costs for management and social assistance was communicated in interviews and documents.

With reference to the Service value position, citizen-centred and rapid 24/7 service, face-to-face meetings with caseworkers, and a Help Desk staffed with knowledgeable caseworkers were emphasized as important regardless of the presence of the new RPA colleague.

With reference to Engagement, spreading news about the Model and its successes in the Municipality to other municipalities was important in interviews and documents. This was partly seen as related to a larger deliberative agenda for example regarding the relationship between

State and the municipalities in the area of Labour Market issues.

Many of these findings about important value positions have general applicability to other areas of government where automated decision-making is introduced. They are not limited to the area of social services. Among such findings, we call attention to the well-designed digitalization and automation technologies that provide services more rapidly and at lower cost as well as to the importance of citizen centricity in interactions with government.

However, the value position of Professionalism, represented by the preservation of the human component in case management in social services, is reflected in the strong emphasis on the need for professionals and clients to meet face-to-face when dealing with social services (De Witte et al., 2016; Hansen et al., 2018). The value position of Efficiency represented by cost reduction in handling applications for social assistance and offering economic support is another example because the partly automated application process provides, or should provide, personalized help in specific situations (Minas et al., 2014). This example contrasts with more neutral situations that are characteristic, for instance, of student financial aid programs (Wihlborg et al., 2016) in which the emphasis on cost reduction is less in the provided economic support.

Further, in line with Persson et al. (2017) and Sundberg (2017), a focus was on the congruence between instances of values associated with Service and Efficiency and sometimes with Professionalism. This focus suggests that professionals (e.g., experienced caseworkers) can provide better service using streamlined, well-designed, and accountable digital processes. An important result may be the reduction in the costs of both social assistance and administrative support at the same time that the supplemental role of the professional caseworker is retained, contrary to some claims in the literature (e.g., Susskind & Susskind, 2015).

7.2. Divergent relationships

In our analysis we intended to capture instances of espoused or "official" values and actual values in use (Schein, 2004). This section addresses how some value positions we identified are "competing" or "negating" (i.e., divergent). Fig. 1 summarizes these divergent value relationships.

With reference to Professionalism, early in the introduction to the Model, concerns arose concerning the somewhat modified role of the caseworkers. One concern was that human judgment, which is thought to have strong value in social work, and direct face-to-face interaction would have a different focus and importance (De Witte et al., 2016) in automated decision-making. A second concern was the shift in focus from assisting applicants, based in a social services perspective, to encouraging self-support and employability. While supporting the view that citizens were worthy of trust, this development seemed to promote a narrative in which the applicants were seen as resources for the Municipality rather than as responsibilities of the Municipality. Further, the value of citizen trust was to some extent undercut by the limited transparency on the decision-making process and the need to check some applications.

With reference to Efficiency, cost reduction in social services through technology was promoted publicly, especially among other municipalities. However, dissemination of this claim, which was costly, meant some activities had to be rationalized and external financing was required. Furthermore, despite the claim that overall costs decreased, official municipal documents stated the desirability of sharing the design costs of the Model with other local governments (Trelleborg Municipality, 2017a).

With reference to Service, citizen centricity was promoted consistently in interviews and in publications. However, with the administrative change, the aim of the social services changed from assisting citizens along more traditional social services lines involving fiancial support to encouraging them to join the workforce (Minas, 2014). For some citizens, this was an unwanted change and therefore by some interviewees characterized as an "unwanted service".

The divergence in value relationships e.g., automated decision-making maintaining human competence vs. lack of professional discretion in the final decision, the paradox of both increases and decreases in costs, and improved although "unwanted" services in form of employment assistance (Minas, 2014) rather than payment of social benefits points to the contradictions inherent in automated decision-making in social services. For example, others may see this assistance as more disciplinary and punitive than beneficial and humanitarian (Umney, Greer, Onaran, & Symon, 2018). These and similar dichotomies ("constellations of divergent value relationships") that relate to discretion, transparency, and disciplinary intentions in automated decision-making contribute to a *critical agenda* in IS research (Rowe, 2018).

Fig. 1 presents our full repertoire of these constellations of divergent value relationships that are, admittedly, not neat and symmetric. Thus, a number of divergent instances supplement the well-represented, often "positive," values in Rose et al.'s (2015) value positions (see Section 7.1). Although these divergent instances are less common, they are mentioned by the interviewees and are revealed in the documents of our research. However, by and large the interviews contain a significant number of instances that are part of constellations of divergent value relationships. They in particular highlight certain problematic nuances in the daily interaction between the professional caseworkers and the "robots".

Some divergent value relationships have greater relevance to contexts in which the digitalization of public services and automated decision-making are introduced in social services while others have more general application. The divergent value relationship of "improvement of services" in terms of citizen centricity and 24/7 access vs. "unwanted services" in the application process, and the Engagement value of dissemination of the specific case management Model relate directly to social services (labelled "Context-Specific" in Fig. 1). Another example of a divergent value relationship is the following: "trust in citizens" vs. "lack of transparency" (labelled a "General" in Fig. 1). This later example points to the competing values that might exist in many other contexts such as the automated decision-making for student loans by public agencies (Wihlborg et al., 2016) (labelled "General" in Fig. 1).

7.3. The engagement value positions and beyond

With reference to Engagement, the instances of values we identified are associated with the aim of disseminating the Model rather than of engaging with civil society for the purpose of facilitating local policy development (Rose et al., 2015). The national digitalization agenda in part was the force behind these dissemination activities. According to some interviewees, in addition to the deliberative value perceived by external actors, these activities also had a "divergent" local intrinsic instance of value for the people involved (Fig. 1) because they get positive response as well as qualified feedback. It is of interest that a somewhat controversial model for social services assistance such as the Model (Persson, 2018) could generate positive local values related to Engagement. This finding contrasts with, for example, findings on strategies for resistance to proposed technologies as described in other research on caseworkers in social services (Devlieghere & Roose, 2018).

We also found that the Engagement value position was associated with a process of *institutionalisation* (Czarniawska & Cevon, 2005). The "Trelleborg Model" label, combined with descriptions of experiences with it in various external communications, reflected this kind of perspective. The Engagement values also reflected the developers' institutional intention to *translate* the Model to other contexts (Czarniawska & Cevon, 2005). They indicated the presence of a larger political agenda aimed at influencing the general conditions for municipalities in social assistance reforms. A reason for the translation effort is the somewhat futuristic character of the technological "robotization" in public sector

Professionalism

"Well-designed digitalization and automation while preserving human competence" versus:

- A focus on *labor market issues* that causes some critique and *resistance* (Context-Specific)
- Professional *discretion in parts* of the process but less so in the final decision (Context-Specific)
- Safeguarding legality and equal treatment through *automation* (General)

" Trust in citizen" versus:

- *Lack of transparency* in the decision-making by technology instead of by people (General)
- The need to *control some applications* to preserve accountability (General)
- *Control of citizens´* willingness to be active in becoming self-supporting (Context-Specific)

Efficiency

"Decreasing costs for administration and social assistance through the new ways of working" versus:

- A need to *improve efficiency* of dissemination activities (General)
- The need for *disseminating the model for automated decision-making* to other municipalities so as to share costs (General)

Service

"Citizen centricity of rapid, partly online 24/7 service" versus:

- *Providing a service* in the form of plans for becoming active in the labor market that not everybody wants (Context-Specific)
- Demands on citizens to perform *activities to become self-supporting* (Context-Specific)

Engagement

"Disseminating a model as a part of a national deliberative agenda" versus:

- The local*, intrinsic value* of the dissemination (General)
- Questioning the *relevance* of disseminating a partly controversial Model in social services (Context-Specific)

Fig. 1. Divergent relationships.

decision-making (Wirtz et al., 2018). This effort is, as observed above, consistent with the ambitions of important actors (SALAR, 2018).

The Engagement value position in social services also reflects the division of labor between the municipalities and the State as well as Swedish labor market policies. These issues touch upon the assignment of economic and practical responsibility for the unemployed and the kind of activities suitable for people in need. We found no evidence, however, of issues related to a standard interpretation of Engagement values in our data in the local context such as, for example, citizen involvement in local political activities (Persson et al., 2017).

7.4. Contributions, limitations, and future research

This research applies a value positions framework (Rose et al., 2015) to the introduction and use of automated-decision making in case management (cf. Wihlborg et al., 2016; Wirtz et al., 2018). Our findings derive from interviews and secondary evidence. Thus, we use triangulation to validate our data. This research methodology contrasts with research techniques that use a single group of actors (Rose et al., 2015), separate groups of actors (Rose et al., 2018), or one type of data (Persson et al., 2017). Our methodology also supports a holistic analysis of values in empirical contexts.

A contribution of our empirical research is its focus on values or rationalities in automated decision-making in social work (Devlieghere, Bradt, & Roose, 2017; Gillingham, 2018a; Gillingham, 2018b). A holistic understanding based on involved actors´ perceptions is created, albeit without showing the different perspectives of involved groups of actors like eg., Gillingham (2018b). This focus allowed us to identify General and Context-Specific divergent instances of value relationships that contribute to a critical, albeit admittedly not explicitly philosophical (Rowe, 2018), agenda in e-Government research and practice. Our theoretical insights might therefore contribute to increasing the potential for success of such technology in practice. In addition, our paper contributes with its addition of evaluation methods in e-Government programs that apply a framework of value positions (Papi et al., 2018; Rose et al., 2015; Twizeyimana & Andersson, 2019). In this manner, our emergent repertoire of divergent value relationships might serve to strengthen methods for what Cordella and Bonina (2012) described as balancing competing values. Furthermore, our theoretical insights are based on the specific technology of RPA. However, constructing a repertoire of instances of divergent value relationships in digital innovation might also be used as a means of involving digital social innovation of methods of interaction involving professionals and clients in social services. This is especially the case since new types of technology in the interaction introduces new ethical problems (see eg., Reamer Reamer, 2013).

There are potential biases in our findings given that the mapping of values was generated from a single case. The actors in the case may be inclined to take a positive view of the situation given their position as involved “insiders”. However, as Fig. 1 reveals, the list supports the relevance of the framework in identifying potential divergences in values.

We offer three recommendations for future research. A more thorough analysis of the interaction between human and technological agency in public sector case management (Ranerup, 2007a) is needed. Professional decision-making and discretion (Busch, 2017; Busch & Henriksen, 2017) related to automated decision-making in case management are important issues which require thorough scrutiny. The authors acknowledge that citizens´ experiences are very relevant and would add a view of the “outer context” compared to the present interviewees of civil servants and politicians. However, this raises demands for additional ethical permissions and methods of interviewing. Research is also needed on the procedures and issues related to the translation (Czarniawska & Cevon, 2005) of digitalization and automated decision-making models (including the transfer of the Model to other Swedish municipalities). In this investigation, the following question is pertinent: Is the list of General and Context-Specific instances of divergent value relationships identified in a public sector context (Misuraca & Viscusi, 2015) relevant in other cases?

8. Conclusions

This paper uses the value position perspective as a way to understand the “larger intentions” behind the use of technology in public sector organizations in terms of what they actually do (O'Flynn, 2007). The value position perspective is a response to NPM logic (Bannister & Connolly, 2014). To achieve that understanding, we applied a framework of value positions (Rose et al., 2015) to technology use in an innovative case of digitalization and automated decision-making in social services.

We found that, consistent with previous research, the most-often mentioned instances of value positions are those associated with Professionalism, Efficiency, and Service. We identified a congruence among some Professional, Efficiency, and Service values, which emphasized the close relationship among case management accountability, rapid service, and citizen centricity. Second, we found that constellations of instances of divergent value relationships exist, some of which are general while others relate to the specific context of social work. Third, we observed a strong emphasis on a slightly modified version of the Engagement value with respect to the dissemination of local models of digitalization and automated decision-making in the national, political debate.

The application of the framework of value positions (Rose et al., 2015) allowed us to identify a repertoire of values in general, as well as congruent values and divergent values in particular (Fig. 1), all of which relate to the introduction of automated decision-making. However, the framework's use in the introduction of automated decision-making should build on emergent constellations of divergent values generated from various empirical experiences with such technologies. A practical contribution of this research is the capability of the framework to identify divergent values. This capability should be considered in the use of digital innovation in e-Government, complementing, for example, other evaluation methods (cf. Papi et al., 2018).

We also found that two main categories of divergent value relationships exist in e-Government contexts where automated decision-making is introduced (Fig. 1). One category, which is associated with the closer context of automated decision-making, relates to issues of transparency, accountability, the role of professionals, and trust in citizens. This category also relates to the number of challenges to RPA in the public sector that include, for example, responsibility for decisions and workforce transformation (Wirtz et al., 2018). The second category of divergent value relationships is more closely associated with a larger, external context. It relates to the dissemination of activities that are perceived as interesting or provocative and to sharing the costs of automation with other entities.

In conclusion, our data show that in this early phase of automated decision-making, certain models may have influence beyond their local context. The case of the introduction of RPA in the Trelleborg Municipality invites compelling reflections on the role of “management fashion” (Abrahamson, 1996) in public administration.

Acknowledgments

We would like to thank the informants at Trelleborg Municipality for their willingness to provide insights to their RPA initiative. We would also like to thank the reviewers for their valuable comments and suggestions that have improved this article.

References

Abrahamson, E. (1996). Management fashion. *Academy of Management Review, 21*(1), 254–285.

Andersen, K. N., Medaglia, R., & Henriksen, H. Z. (2012). Social media in public healthcare: Impact domain propositions. *Government Information Quarterly, 29*(4), 462–469.
Bannister, F., & Connolly, R. (2014). ICT, public values and transformative government: A framework and programme for research. *Government Information Quarterly, 31*, 119–128.
Bayamlıoğlu, E., & Leenes, R. (2018). The 'rule of law' implications of data-driven decision-making: A techno-regulatory perspective. *Law, Innovation and Technology, 10*(2), 295–313. https://doi.org/10.1080/17579961.2018.1527475.
Bowens, M., & Zouridis, S. (2002). From street-level to system-level bureaucracies: How information and communication technology is transforming discretion and constitutional control. *Public Administration Review, 62*(2), 174–184.
Brauneis, R., & Goodman, E. (2018). Algorithmic transparency for the smart city. *The Yale Journal of Law and Technology, 20*, 103–176.
Busch, P. A. (2017). The role of contextual factors in the influence of ICT on street-level discretion. *Proceedings of the 50th Hawaii international conference on system sciences*. IEEE.
Busch, P. A., & Henriksen, H. Z. (2017). Digital discretion: A systematic literature review of ICT and street-level discretion. *Information Polity, 1*, 1–26.
Busch, P. A., Henriksen, H. Z., & Sæbø, Ø. (2018). Opportunities and challenges of digitized discretionary practices: A public service worker perspective. *Government Information Quarterly*. https://doi.org/10.1016/j.giq.2018.09.003.
Cho, J. Y., & Lee, E.-H. (2014). Reducing confusion about grounded theory and qualitative content analysis: Similarities and differences. *The Qualitative Report, 19*(32), 1–20.
Christensen, T., & Lægreid, P. (2018). An organization approach to public administration. In E. Ongaro, & S. Van Thiel (Eds.). *The Palgrave handbook of public administration and management in Europe* (pp. 1087–1104). Basingstoke (UK): Palgrave MacMillan.
Cordella, A., & Bonina, C. M. (2012). A public value perspective for ICT enabled public sector reform: A theoretical reflection. *Government Information Quarterly, 29*, 512–520.
Cordella, A., & Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government Information Quarterly, 32*(3), 279–286.
Curry, S. R., van Draanen, J., & Freisthler, B. (2017). Perceptions and use of a web-based referral system in child welfare: Differences by caseworkers´ tenure. *Journal of Technology in Human Services, 35*(2), 152–168.
Czarniawska, B., & Cevon, G. (Eds.). (2005). *Global ideas: How ideas, objects and practices travel in the global economy*. Copenhagen: Copenhagen Business School.
De Witte, J., Declercq, A. K., & Hermans, K. (2016). Street-level strategies of child welfare social workers in Flanders: The use of electronic client records in practice. *British Journal of Social Work, 46*, 1249–1265.
Devlieghere, J., Bradt, L., & Roose, R. (2017). Policy rationales for electronic information systems: An area of ambiguity. *British Journal of Social Work, 47*, 1500–1516.
Devlieghere, J., Bradt, L., & Roose, R. (2018). Creating transparency through electronic information systems: Opportunities and pitfalls. *British Journal of Social Work, 48*, 734–750.
Devlieghere, J., & Roose, R. (2018). Electronic information systems: In search of responsive social work. *Journal of Social Work*. https://doi.org/10.1177/1468017318757296.
Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). New public management is dead—Long live digital-era governance. *Journal of Public Administration Research and Theory, 16*, 467–494.
Evans, T., & Harris, J. (2004). Street-level bureaucracy, social work and the (exaggerated) death of discretion. *British Journal of Social Work, 34*, 871–895.
Gillingham, P. (2018a). Decision-making about the adoption of information technology in social welfare agencies: Some key considerations. *European Journal of Social Work, 21*(4), 521–529.
Gillingham, P. (2018b). From bureaucracy to technocracy in a social welfare agency: A cautionary tale. *Asia Pacific Journal of Social Work and Development*. https://doi.org/10.1080/02185385.2018.1523023.
Greve, C., Lægreid, P., & Rykkja, L. H. (2016). *Nordic administrative reforms: Lessons for public management*. London: Springer, Palgrave Macmillan.
Hansen, H.-T., Lundberg, K., & Syltevik, L. J. (2018). Digitalization, street-level bureaucracy and welfare users´ experiences. *Social Policy & Administration, 52*(1), 67–90.
Heeks, R., & Bailur, S. (2007). Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Government Information Quarterly, 24*(2), 243–265.
Henriksen, H. Z. (2018). One step forward and two steps back: e-Government policies in practice. In J. Gil-Garcia, T. Pardo, & L. Luna-Reyes (Eds.), Policy analytics, modelling, and informatics. Public Administration and Information Technology (Vol. 24), Cham: Springer.
Holgersson, J., Lindgren, I., Melin, U., & Axelsson, K. (2017). Not another new wine in the same old bottles – Motivators and innovation in local government e-service development. *Twenty-Fifth European Conference on Information Systems (ECIS), Guimaraes, Portugal*.
Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277–1288.
Jørgensen, T. B., & Bozeman, B. (2007). Public values: An inventory. *Administration & Society, 39*(3), 354–381. https://doi.org/10.1177/0095399707300703.
Lagsten, J., & Andersson, A. (2018). Use of information systems in social work – Challenges and an agenda for future research. *European Journal fof Social Work, 21*(6), 850–862.
Laurent, V. (2008). ICT and social work: A question of identities? *The future of identity in the information society*. Springer.
Layne, K., & Lee, J. (2003). Developing fully functional e-government. A four stage model. *Government Information Quarterly, 18*(2), 122–136.
Lipsky, M. (2010). *Street-level bureaucracy: Dilemmas of the individual in public services*. New York: Russel Sage Foundation (30th anniversary ed.).
Madsen, C.Ø., Berger, J. B., & Phythian, M. (2014). The development in leading e-government articles 2001-2010: Definitions, perspectives, scope, research philosophies, methods and recommendations: An update of Heeks and Bailur. *International conference on electronic government* (pp. 17–34). Berlin, Heidelberg: Springer.
March, J. G. (1994). *A primer on decision making. How decisions happen*. New York: The Free Press.
Margetts, H., & Dunleavy, P. (2013). The second wave of digital-era governance: A quasi-paradigm for government on the Web. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 371*. https://doi.org/10.1098/rsta.2012.0382.
Minas, R. (2014). One-stop shops: Increasing employability and overcoming welfare state fragmentation? *International Journal of Social Welfare, 23*, 40–53.
Minas, R., Bäckman, O., Jakobsen, V., Korpi, T., Lorentzen, T., & Kauppino, T. (2014). *Rescaling inequality? Welfare reform and local variation in social assistance payments*. Working Paper 1/2014Stockholm: Swedish Institute for Social Research (SOF), Stockholm University.
Misuraca, G., & Viscusi, G. (2015). Shaping public sector innovation theory: An interpretative framework of ICT-enabled governance innovation. *Electronic Commerce Research, 15*, 303–322.
Moore, M. H. (1995). *Creating public value: Strategic management in government*. Cambridge. MA: Harvard University Press.
O'Flynn, J. (2007). From new public management to public value: Paradigmatic change and managerial implications. *The Australian Journal of Public Administration, 66*(3), 353–366.
Papi, L., Bigoni, M., Bracci, E., & Gagliardo, E. D. (2018). Measuring public value: A conceptual and applied contribution to the debate. *Public Money & Management*. https://doi.org/10.1080/09540962.2018.1439154.
Persson, A., & Goldkuhl, G. (2010). Government value paradigms – Bureaucracy, new public management, and e-Government. *Communications of the AIS, 27*, 45–62.
Persson, E. (2018). *The successful Trelleborg-model causes resistance: "Too much copying" [Succémodellen i Trelleborg möter motstånd: "Man kopierar"]*. Arbetsvärlden. January 12 https://www.arbetsvarlden.se/succemodellen-i-trelleborg-moter-motstand-man-kopierar/, Accessed date: 30 September 2018.
Persson, J. S., Reinwald, A. K., Skorve, E., & Nielsen, P. A. (2017). Value positions in e-Government strategies: Something is (not) changing in the state of Denmark. *Proceedings of the 25th European conference on information systems* (pp. 904–917). The Association of Information Systems (AIS).
Rakar, F. (2018). The innovation project the Trelleborg model – From rebel to model. *Lärprojekt Trelleborgsmodellen – Från rebell till modell*. Rhetik Fabriken.
Ranerup, A. (2007a). Electronic government as a combination of human and technological agency: Testing the principle of symmetry. *Information Polity, 12*(3), 153–167.
Ranerup, A. (2007b). Rationalities in the design of public e-services: The case of quasi-markets in education. *Journal of e-Government, 3*(4), 39–63.
Reamer, F. G. (2013). The digital and electronic revolution in social work: Rethinking the meaning of ethical practice. *Ethics and Social Welfare, 7*(1), 252–259.
Rose, J., Flak, L. S., & Sæbø, Ø. (2018). Stakeholder theory for the e-Government context: Framing a value-oriented normative core. *Government Information Quarterly, 35*, 362–374.
Rose, J., Persson, J. S., Heeager, L. T., & Irani, Z. (2015). Managing e-Government: Value positions and relationships. *Information Systems Journal, 25*, 531–571.
Rowe, F. (2018). Being critical is good, but better with philosophy! From digital transformation and values to the future of IS research. Editorial. *European Journal of Information Systems*. https://doi.org/10.1080/0960085X.2018.1471789.
SALAR (2018). Robotic process automation – Saving time for value-adding activities. *Automatiserad ärendehantering. Att frigöra tid för värdeskapande arbete*. Stockholm: SALAR.
Schein, E. H. (2004). *Organizational culture and leadership*. New York: John Wiley & Sons.
Searle, J. R. (1980). Minds, brains, and programs. *Behavioral and Brain Sciences, 3*(3), 417–424.
Sundberg, L. (2017). Public values and decision-making in the Swedish e-Government context. *Thesis for licentiate degree in computer and system sciences*. Sundsvall: Mid Sweden University.
Susskind, R., & Susskind, D. (2015). *The future of the professions: How technology will transform the work of human experts*. Oxford: Oxford University Press.
The Internet Foundation (2018). *Internet in Sweden 2018 [Svenskarna och Internet 2018]*. Internet stiftelsen.
Trelleborg Municipality (2013). *Report 2013 – Labor Market Agency. [Årsanalys 2013 – Arbetsmarknadsnämnden.] Trelleborg, Sweden*.
Trelleborg Municipality (2015a). *Just continue! A way to better quality [Orka fullfölja. Det är en kvalitetsfråga.]*. Sweden: Trelleborg.
Trelleborg Municipality (2016). *Report 2015 - Labor Market Agency. [Årsanalys 2015 – Arbetsmarknadsnämnden.] Trelleborg, Sweden*.
Trelleborg Municipality (2017a). *Plan 2018. Labor Market Agency. [Verksamhetsplan 2018. Arbetsmarknadsnämnden]*. Sweden: Trelleborg.
Trelleborg Municipality (2017b). *Report 2017: first 9 months – Labor Market Agency [Delårsrapport 2 2017 Arbetsmarknadsnämnden]. Trelleborg, Sweden*.
Trelleborg Municipality (2017c). Application to the SVEA prize [Ansökan till SVEA-priset]. *När robotar sköter handläggningen ägnar sig kommunen åt medborgarna*. Sweden: Trelleborg.
Trelleborg Municipality (2015b). *The Agency for Municipal Statistics, & SALAR (2015) Trelleborg against the trend [Trelleborg mot trenden]. Trelleborg, Sweden*.
Tummers, L., & Bekkers, V. (2014). Policy implementation, street-level bureaucracy, and the importance of discretion. *Public Management Review, 16*(4), 527–547.

Twizeyimana, J. D., & Andersson, A. (2019). The public value of E-government – A literature review. *Government Information Quarterly, 36*, 167–178.
Umney, C., Greer, I., Onaran, Ö., & Symon, G. (2018). The state and class discipline: European labour market policy after the financial crisis. *Capital & Class, 42*(2), 333–351.
Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems, 15*(3), 320–330.
Weber, W. (1978). In G. Roth, & C. Wittich (Eds.). *Economy and society. An outline of interpretive sociology*. Berkeley, Los Angeles, London: University of California Press.
Wenger, J., & Wilkins, V. M. (2008). At the discretion of rogue agents: How automation improves women's outcomes in unemployment insurance. *Journal of Public Administration Research, 19*, 313–333.
Wihlborg, E., Larsson, H., & Hedström, K. (2016). "The computer says no!" – A case study on automated decision-making in public authorities. *Proceedings of the 49th Hawaii international conference on system sciences*. IEEE.
Willcocks, L., Lacity, M., & Craig, A. (2017). Robotic process automation: Strategic transformation lever for global business services? *Journal of Information Technology Teaching Cases, 7*(1), 17–28.
Wirtz, B., Weyerer, J. C., & Geyer, C. (2018). Artificial intelligence and the public sector – Applications and challenges. *International Journal of Public Administration*. https://doi.org/10.1080/01900692.2018.1498103.

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