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Opportunities and challenges of digitized discretionary practices: a public service worker perspective

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ABSTRACT

Public service workers exercise discretionary power during policy implementation. Due to an immense diffusion of information and communications technology (ICT) in public service provision, they are increasingly exposed to reforms aiming at more efficient and fair decision-making. Whereas extant literature has found that ICT can both enable and constrain public service workers' ability to exercise discretion, we know less about underlying explanations for these inconclusive findings. This paper addresses this research gap by exploring how and why public service workers react to digitized discretionary practices. We draw upon institutional logics to show the underlying considerations of public service workers when they are faced with multiple conflicting demands from market-oriented goals of digitization and professional norms. To identify their reactions and underlying considerations, we have conducted a multiple case analysis of two Norwegian organizations; a district court and a tax administration office. We conclude that public service workers are positive to digitization when it promotes professional aspects of their work and that professional discretion is considered necessary to accomplish tasks of greater complexity.

1. Introduction

Street-level bureaucrats (SLBs) are public service workers such as judges, teachers, and social workers who interact directly with clients. Common for SLBs is that they exercise a substantial amount of discretion during public policy implementation (Lipsky, 1980, 2010). In the last two decades, however, SLBs have witnessed that digital tools intended for private and commercial purposes stimulate the emergence of novel technology-driven organizational forms and practices in the public sector. The result is technology influencing traditional street-level work by supporting and automating decision-making (Bovens & Zouridis, 2002). Whereas the literature has concluded that information and communications technology (ICT) can have both enabling and constraining effects on the freedom SLBs have to exercise discretion (Buffat, 2015), less is known about the conditions under which ICT can influence street-level discretion (Buffat, 2015; Busch & Henriksen, 2018; Hupe & Buffat, 2014). Possible characteristics of public service provision that can explain these differences can be attributed to conditions such as culture, type of tasks, and work organization (Buffat, 2015). This study seeks to explain these differences by exploring the attitudes and behavior of SLBs.

To better understand attitudes and behavior of SLBs exposed to digitized structures and practices we here bring in the institutional lens. Digitized structures are often embedded in various institutional arrangements characterized by multiple institutional logics and demands (Johansen & Waldorff, 2017). Institutional logics are belief systems providing participants within an organizational field with "institutionalized templates for organizing" that direct their focus toward certain goals and their associated means (Friedland & Alford, 1991). The tensions arising from multiple competing logics can lead to a shift in focus and goals (Thornton, 2004), internal conflicts (Glynn, 2000) and instability (Besharov & Smith, 2014) if the organization is unable to handle the institutional conflict (Svenningsen, Boxenbaum, & Ravasi, 2016).

In digitized street-level bureaucracies, the institutional logics of state-professionalism and market-managerialism are salient (Hupe, Hill, & Buffat, 2016; Meyer, Egger-Peitler, Höllerer, & Hammerschmid, 2014; Noordegraaf, 2016; Pollitt & Bouckaert, 2011). Adhering to a state-professionalism logic, SLBs are considered professional rule-followers driven by inner motivations to help clients handle difficult life circumstances rather than the prospect of financial benefits (Christensen & Lægreid, 2018; Tummers & Rocco, 2015). Reflecting goals associated with a market-managerialism logic, they must also align with goals of efficiency and cost reductions (Meyer et al., 2014).

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On a daily basis SLBs need to cope with the conflicting demands from these two logics, and our study investigates how attitudes and behavior of SLBs can explain the impact digitization has on discretionary practices. The specific research questions we address are the following:

1. which strategies do SLBs adopt to cope with institutional complexity in digitized street-level bureaucracies?
2. which characteristics of public service provision can explain their preferences for a particular strategy?

To answer these questions, we have conducted a multiple case analysis of two Norwegian public sector organizations: a district court and a tax administration (NTA) office. They consist of SLBs who are professionals and expected to yield strong opinions about their work. Both organizations use case management systems (CMS) with predefined paradigms regulating how SLBs should conduct their work. We selected our case organizations since they represent different types of public service provision. Judges are independent and handle all types of inquiries brought to the court. SLBs in the NTA office report to superior management and specialize in tax matters. The two diverse empirical settings allow us to explore digitized discretionary practices through actors with different constitutional roles and responsibilities related to public policy implementation.

The paper is organized as follows. First, we describe digitization in public service provision and introduce the theoretical lens for our study. We thereafter present the research context and methodology of our study. We continue with presenting findings from our empirical analysis before discussing how SLBs react to digitized discretionary practices. We end the paper with concluding remarks and implications for practice and research.

2. Digitization and institutional complexity in public service provision

Public organizations are increasingly digitized as results of managerialization and marketization (Meyer et al., 2014; Pollitt & Bouckaert, 2011). Whereas digitization refers to the technical process of encoding practices into technical tools (e.g., CMS), digitalization involves the wider socio-technical system (Yoo, Lyytinen, Thummadi, & Weiss, 2010). The present study focuses on digitalization and thus the socio-technical system. The emphasis is on how technologies influence humans and their work practices. Bovens and Zouridis (2002) described various technological influences of digitized street-level bureaucracies as street-level, screen-level, and system-level bureaucracies. A street-level bureaucracy describes public service provision in the traditional sense where SLBs interact closely with clients and exercise discretion. In a screen-level bureaucracy, ICT is most commonly utilized for information processing where SLBs get access to more relevant information from clients and public databases. Albeit to a lesser extent, digitization has in the system-level bureaucracy led to the replacement of discretionary practices where decisions are made completely without human intervention (Peeters & Widlak, 2018; Wihlborg, Larsson, & Hedström, 2016). Characteristics of these categories are presented in Table 1.

The digitization of public service provision intends to serve multiple purposes: considerable cost reductions (Bovens & Zouridis, 2002), easy and fast access to public services for clients (Jansson & Erlingsson, 2014), and enforcement of certain procedures and interpretations of rules that may limit the freedom of SLBs (Henriksen, 2018). Digitalization can help SLBs to acquire more relevant information and thus have a more solid foundation for decision-making, they can communicate more easily with clients, and shift their focus from repetitive tasks to tasks that require analytical skills (Cordella & Tempini, 2015). ICT has also been considered a tool to tame the power SLBs have during policy implementation. The professionalized aspects of their work have made SLBs into powerful ministers on the street-level (Lipsky, 2010) who make up policies “despite the massive mechanisms designed to control and direct their behaviour” (Prottas, 1978, p. 288). Because of their influence, the actual outcomes of public policies can be experienced differently by clients (Lipsky, 2010). ICT has been used to solve several issues such as preventing rent-seeking behavior (Schuppan, 2009), hindering manipulation of information streams (Peeters & Widlak, 2018), and avoiding corruption (Smith, 2011) and bureaucratic and personal biases (Rodríguez & Rossel, 2018; Wenger & Wilkins, 2009). Whereas certain biases can be explained by factors such as differences in organizational rules, procedures, resources, and technical capacity (Rodríguez & Rossel, 2018), other biases are discriminatory favoring certain clients above others due to factors such as gender and race (Bovens & Zouridis, 2002; Rodríguez & Rossel, 2018; Wenger & Wilkins, 2009).

Extant research has shown that ICT can both constrain and enable the ability SLBs have to exercise discretion. However, less is known about the socio-technical influences that can explain effects of increased digitization (Buffat, 2015; Busch & Henriksen, 2018; Hupe & Buffat, 2014). Current research has focused on the need for interaction with clients (Lipsky, 2010), social complexity (Lipsky, 2010), technological features (Giest & Raaphorst, 2018), and professional autonomy (Tummers, Bekkers, & Steijn, 2009) as factors that can explain how street-level discretion is influenced by digital tools. Close interactions with clients are deemed important since SLBs more easily can identify unique characteristics of each case and clients can present their cases for them (Lipsky, 2010). Due social complexity, life situations are often better described through rich narratives instead of standardized text blocks frequently occurring in forms (De Witte, Declercq, & Hermans, 2016). Høybye-Mortensen (2013) studied how technological decision-making tools influenced decision-making practices in three different public agencies. She concluded that the more formalized the decision-making tools, the stronger was the impact on caseworkers' discretion. Finally, SLBs expect to be trusted with their professional expertise (Hupe & Hill, 2007). To be held accountable hierarchically resonate poorly with their sense of autonomy and can make them less inclined to use digital tools (Giest & Raaphorst, 2018).

Since technologies can serve multiple purposes, SLBs in digitized street-level bureaucracies must deal with tensions between the adherence to bureaucratic rules and professional norms on the one hand, and the need to address societal and managerial expectations on the other hand (Busch & Henriksen, 2018;Hupe et al., 2016; Meyer et al., 2014; Noordegraaf, 2016; Pollitt & Bouckaert, 2011). We use the theoretical lens of institutional logics to describe these tensions and explain how and why SLBs react to the digitization of discretionary practices. The two coexisting logics of state-professionalism and market-managerialism are salient within public service provision (Hupe

Table 1
Characteristics of street-level, screen-level, and system-level bureaucracies (Busch, 2018).

Characteristics	Street-level bureaucracy	Screen-level bureaucracy	System-level bureaucracy
Organizational role of SLB	Autonomous professional	System operator	System facilitator
Human interaction	Full interaction	Partial interaction	No interaction
Role of technology	Information processing tool	Decision support	Autonomous decision-maker
Resource use	Less efficiency	More efficiency	High efficiency
Individual attention	Full attention to client concerns	Partial standardization of decision-making process	Standardized, non- reversible decisions

et al., 2016; Meyer et al., 2014; Noordegraaf, 2016; Pollitt & Bouckaert, 2011). The logic of state-professionalism describes work scripts that reflect principles of Weberian-style state bureaucracy. The scripts allow SLBs to exercise control of the work they conduct within the boundaries of public policies (Pollitt & Bouckaert, 2011). The logic is characterized by professional conduct and core values such as fair and equal treatment of clients, attendance to client needs, procedural safeguards, professional autonomy, and impartiality (Freidson, 2001; Lipsky, 2010; Meyer et al., 2014). The logic of market-managerialism prescribes work practices emphasizing public interest, managerial control, and reconsideration of work roles. This logic introduces different priorities often associated with market mechanisms such as efficiency, performance orientation, competition within the public sector, and market receptiveness (Ferlie, Ashburner, Fitzgerald, & Pettigrew, 1996; Lynn, 2006; Pollitt & Bouckaert, 2011). Prior research and theory within the street-level bureaucracy, public administration, and professions literature describe these logics and characteristics of street-level work (Evans, 2016; Lipsky, 2010; Meyer et al., 2014). Table 2 contrast these two logics showing that each logic provides distinct values, modes of governance, control of knowledge and practice, and conceptions of what constitutes quality public services.

Institutional complexity can lead to institutional change which often is associated with the introduction of a new logic in the field. When this happens, incumbent institutional arrangements are challenged leading to frictions and questions regarding previously undisputed truths. When one institutional logic becomes dominant, it influences the behavior and decision-making in an organization "by focusing the attention of executives toward the set of issues and solutions that are consistent with the dominant logic and away from those issues and solutions that are not." (Thornton, 2004, p. 13). Institutional studies have found that multiple institutional logics can coexist within organizations both temporarily and for a longer period. New logics can also be hybrids of previously competing logics (Reay & Hinings, 2009). More recently, scholars have recognized that the coexistence of multiple logics can be a long-lasting phenomenon (Goodrick & Reay, 2011; Waldorff, Reay, & Goodrick, 2013). While several studies have focused on how field-level actors facilitate change, less studies have paid attention to how individual actors experience and react to institutional complexity caused by competing logics (Bjerregaard & Jonasson, 2014; Hupe & Buffat, 2014; McPherson & Sauder, 2013; Pache & Santos, 2010; Smets & Jarzabkowski, 2013). These studies show that less powerful actors can support the non-dominant logic overtly by using their knowledge of the context to devise activities that support their interests (Battilana, 2006; Reay & Hinings, 2009). Furthermore, old logics can be supported covertly by micro-level actors even though they appear to be accepting the dominant logic (e.g., Khan, Munir, & Willmott, 2007; Townley, 2002). Svenningsen et al. (2016) found that individuals within the same context, exposed to the same institutional tensions, responded differently. They focused on how cognitive-affective characteristics could explain these differences.

For our empirical analysis, we study judges in a court and caseworkers in a tax administration office. They are SLBs who traditionally have exercised considerable control of their work. As professionals, they engage in specialized street-level work that requires certain entry credentials for professional practice and adherence to a set of professional norms defined by government authorities and professional associations. The adherence to bureaucratic rules is an obvious aspect of their professional norms alongside with making decisions that are fair, attend to client needs, and preferably make clients satisfied. The work they conduct cannot be easily standardized and rationalized, and the exercise of discretion is a central aspect of this work. Thus, their work is strongly associated with the state-professionalism logic. Faced with digitization, they experience expectations of increased efficiency, reduced costs, and reconsiderations of work and work roles. Those are demands associated with a market-managerialism logic. These conflicting demands lead to institutional complexity, tensions, and agentic behavior; the judges and caseworkers reflect on the potential consequences of digitization and act accordingly. An adherence to societal and managerial expectations does not mean that bureaucratic rules and professional norms are put aside, but rather that SLBs increasingly strive to reconcile and satisfy multiple and opposing demands. In the present study institutional logics are applied to describe such shifting bases of legitimacy and help us delineate and understand digitized street-level bureaucracies.

3. Research context and methodology

We have selected a multiple case analysis since it favors the collection of rich data in multiple contexts. This methodology is particularly suitable for generating new and more robust theory of complex social phenomena and to prepare for theory-testing studies (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Yin, 2014). We use data from the case analysis to develop propositions that explain SLBs' reactions to digitized discretionary practices. These propositions can be used in other studies for theory-testing purposes.

3.1. Case organizations

Two case organizations were selected based on theoretical replication (Yin, 2014) to yield the opinions of actors with different responsibilities related to public policy implementation. Our attention was directed toward a district court and a regional tax administration office because of the differences in terms of societal mission and main work tasks, as well as our interest in studying street-level bureaucracies where professional practices seemed to be influenced by multiple institutional logics. Our initial observations suggested that these case organizations were constantly faced with pressures to meet strict professional standards, be loyal to the intentions of the policy maker, and achieve managerial goals.

The district court handles all incoming cases into the justice system in its region and employs 20–30 judges including judges in qualifying positions. The cases they handle include trials regarding varying matters such as commercial disputes and drunk driving along with grave cases of child custody and murder. Some of the trials are held with two lay judges. Judges in Norway are highly trusted and expected to use their professional judgment in the court room. Since judges are constitutionally independent, no judge can be instructed to make certain verdicts nor can another judge in the district court overrule a decision that is made. The court is an interesting case to study the digitization of discretionary practices since clients expect a due process where considerations by a judge can be inspected or challenged.

The second case organization is an NTA office employing 20–30 caseworkers ensuring the financing of the welfare society by handling tax matters. The NTA office is dependent on several other public agencies in a bureaucratic hierarchy. Representing the executive branch, its responsibilities and tasks are to exercise daily operational authority on tax matters. Decisions that are made can be overruled by the manager and as well as their peers. Contrary to judges, caseworkers in the NTA office are not independent but rather motivated by and co-responsible for achieving NTA goals. They are dependent on superior agencies to maintain their legitimacy and defend the resources that are allocated to them. This dependency makes the NTA office an interesting case to study since an increased achievement of objectives will increase their legitimacy.

3.1.1. Technology in use

The main information systems used in both case organizations are CMS developed for decision support in a large variety of cases. The CMS in the court is the award-winning[1] system *Lovisa* used in all Norwegian

[1] Global Awards for Excellence in Adaptive Case Management

Table 2
Institutional logics in digitized street-level bureaucracies (adapted from Goodrick & Reay, 2011; Meyer et al., 2014; Thornton, 2004; Thornton, Ocasio, & Lounsbury, 2012).

Characteristic	State-professionalism logic	Market-managerialism logic
Source(s) of authority	Government regulation and professional association.	Public agency hierarchy and management.
Mode of governance	Bureaucratic; based on laws, rules, and directives with multiple controls applied. Professional norms.	Contractual performance objectives and management tools.
Education/ training	Educational programs, requirements, or training are determined and controlled by a state and/or a profession.	Educational requirements or training determined by management.
Entry to practice	Credentials determined by a state and/or a professional association.	Credentials determined by management.
Scope of practice	Tasks that SLBs perform reflect state-determined parameters, and desires and standards of a professional association on content and boundaries of work.	Tasks that SLBs perform reflect management decisions and citizen preferences on content and boundaries of work.
Control of work processes	Work processes are subject to state rules, procedures, and routines and/or influenced by profession-determined standards controlled by SLBs.	Work processes are regulated by managerial rules, procedures, and routines.
Performance evaluation	Quality of work measured in terms of predictability of decisions according to state regulations and professional norms.	Quality of work according to contractual goals.

Table 3
Case management systems used by the case organizations.

Case org.	CMS	Description	Data sources	Support systems
Court	Adaptive case management system ("Lovisa").	Handling workflow and detailed support for legal processes.	Judge, police, court administration. Data provided before and during a case.	Databases ("Law Data" & "Court Data") providing access to online collections of legal resources.
NTA	Case management and workflow system ("SL").	Handling workflow and support for administrative routines.	Third party organizations such as employers, kindergartens, banks, insurance and credit card companies, housing companies, voluntary organizations, client. Data provided before and during a case.	Databases ("Law Data" & "Court Data") providing access to online collections of legal resources.

district and appeal courts. The *SL* system is a CMS used in all NTA offices in Norway. Both systems ensure that employees get the necessary guidance and knowledge they need in complex subject areas, that deadlines are met, and that users are provided with support so that procedural legislation is adhered to. Lovisa contributes to the quality of the court system by ensuring that trials are settled without errors and unnecessary delays whereas the SL system helps the NTA by supporting mandatory routines. In addition, the organizations use *Law Data* and *Court Data* which are databases that provide access to a wide variety of online legal resources such as legislation, decisions, and academic literature. The information systems in use by the case organizations are listed in Table 3.

3.2. Data collection

The data was collected by the first author. Data from personal interviews were utilized in addition to field notes from participant observations. The findings we present are a synthesis of the interviews and field notes. Table 4 provides an overview of the data collection.

3.2.1. Sampling

The guidelines for purposeful sampling provided by Lincoln and Guba (1985) were followed when selecting informants. Our research questions were the starting point and informants were selected based on who we believed were best able to inform us about the impact of digitization on the discretionary practices of SLBs. *In the court*, a list of judges was presented from which we could choose judges by random based on their position (chief judge, judges in permanent positions, and assistant judges). *In the NTA office*, the manager assisted us in selecting informants based on their position (manager, lawyers, and caseworkers) so that they could yield various views on the research questions. The data collection became an iterative process where data were constantly compared. Data relevant for the research questions were pursued by seeking new informants that could yield new insights and by making continuous adjustments to the interview guide. Through this process, the sample of informants evolved, and the data became increasingly focused until theoretical saturation was reached (Eisenhardt, 1989).

Table 4
Overview of data collection and participants.

	District court	NTA office
# of interviews	7	9
Informants	Chief judge, judges (in permanent positions), and assistant judges (in non-permanent positions)	Manager and caseworkers
Participant observations	4 trials in situ	–

3.2.2. Semi-structured interviews

The informants represented different positions in their organizations including managers and employees in ordinary and qualifying positions. In total, 16 interviews were conducted across the two organizations. All interviews were semi-structured and formulated with open-ended questions to allow informants to speak freely (Myers & Newman, 2007). The interviews were conducted face-to-face and recorded. On average the interviews lasted approx. 45 min, varying between 20 and 100 min. After transcribing them, the informants were given the opportunity to correct any errors in the transcribed text. The interviews covered key areas such as expectations of the case organizations, management and control, formulation and implementation of public policies, legal principles and processes, decision-making processes, current use of information systems, and specific conditions influencing this use.

3.2.3. Observations

To gain more in-depth knowledge of the phenomenon, the first author engaged in participant observations in the court observing the actions of the judges, how information about the cases was collected, the routines the judges followed when using the information systems, and how a verdict was decided. The participant observations took place in four one-day trials in situ during a period of two years and were based on the opportunity to participate since the researcher was

summoned as a lay judge. The trials dealt with cases of violence, misconduct, and drunk driving. Field notes were written down after each trial ended. The field notes did not contain any verbatim utterances but instead the essence of the communication was sought captured. Key observation events included pre-trial meetings, the trials, meetings during the trials, and post-trial meetings discussing the final verdict.

3.3. Data analysis

Qualitative analysis software (NVivo) was used to assist in coding and analyzing the data as well as searching through the entire data material whenever needed. The purpose of the analysis was to identify the different strategies that the SLBs devised and the characteristics of the context that could explain these strategies. We searched the public administration and institutional logics literature that could inform us about how individuals cope with multiple demands from institutional logics. With this theoretical framework serving as a reference, the first author engaged in a first-order analysis involving a detailed coding of the interviews and field notes. In this step, we cycled between data, emerging theory, and relevant literature as strategies and characteristics of public service provision emerged. The codes were consolidated into concepts labelled by the language of the informants whenever possible. When an in-vivo code was not available, a simple descriptive phrase was used. Related concepts were then identified and grouped into categories (open coding). Next, we engaged in axial coding (Strauss & Corbin, 1998) searching for relationships between the categories. Our coding resulted in nine characteristics of public service provision explaining important considerations that SLBs make regarding digitized discretionary practices. We further looked for patterns in the data material identifying strategic responses relating to each of the contextual characteristics resulting in five strategic responses: compliance, acquiescence, habitual acceptance, appropriation, and defiance. Fig. 1 illustrates the data structure of our analysis describing the underlying motivations SLBs have for particular strategic responses.

4. Findings

The court and NTA office continuously face efforts to digitize their work motivated by requirements of increased efficiency, effectiveness, and cost reductions. During the last decade, they have initiated several digitization initiatives. The court has digitized various aspects of its work such as large amounts of court documents and pre-trial communication between court actors. The NTA has received public praise for its digitization efforts. It has carried out several projects achieving goals such as reduced costs, improved convenience for taxpayers, and increased efficiency. Digitization efforts have mainly focused on online interactions and improved information processing. CMS use is mandatory in both case organizations to ensure that specific routines are followed.

Based on our empirical data, we identified five types of strategic responses that SLBs adopt to cope with institutional complexity in digitized street-level bureaucracies. Their attitudes toward digitized discretionary practices vary from compliance to active resistance: compliance, acquiescence, habitual acceptance, appropriation, and defiance. We further found how certain characteristics of street-level work motivate the strategies that SLBs choose. Table 5 lists strategic responses, their underlying motivations, and representative quotes that illustrate our findings. The representations are translated into idiomatic English.

4.1. Compliance

One strategy that SLBs adopt is to actively comply with computerized routines. When SLBs comply, they accept digitized discretionary practices as a conscious and strategic act anticipating benefits that serve their own and their organizations' interests.

4.1.1. Decision quality

Compliance suggests that SLBs believe computer systems, under certain circumstances, can improve decision-making. Decision quality is determined based on the extent professional norms are followed in the decision-making process. SLBs are motivated by the professional aspects of their work. If technology can help them to do a better job, they are positive to digitized discretionary practices. The CMS is used for a variety of tasks to assist SLBs in their daily work: collect information, keep track of case parameters (e.g., who is assigned to a case, basic case information, and completion time), and ensure that procedures required by law are followed. Both judges and caseworkers agree that technology enables them to follow professional norms more easily:

> I use the IT systems a lot to read. And learn. [..] You become proficient with good IT systems. Caseworker 3.

It is worth noticing that SLBs' understanding of what decision quality is may be influenced by the views of clients and their relatives. Clients' perceptions of decision quality are dependent on their status in the case (e.g., if they are convicted), the penalty level (e.g., if they face a long jail sentence), their sense of justice (e.g., if they feel the decision is correct according to their circumstances), and how they have been treated during the process (e.g., if they have been listened to by the SLB). Relatives belong to another group of people that may be emotionally involved and have strong opinions about the decisions that SLBs make (e.g., court decisions). These reflections lead to the suggestion of the following proposition:

Proposition 1. The perception of improved decision quality makes SLBs more positive to digitized discretionary practices.

4.1.2. Societal considerations

Policy makers and public managers can deliberately remove discretionary power to ensure standardized decision-making. For example, in cases of overspeeding there are generally no room for exceptions. Social considerations suggest that such exceptions should not be made since overspeeding is dangerous regardless of whatever (good) reason the client may have. Furthermore, to potentially assess each case of overspeeding is costly and would ultimately result in down-prioritizing other police tasks. Hence, the following proposition is suggested:

Proposition 2. SLBs are more positive to digitized discretionary practices if they are of societal interest.

4.2. Acquiescence

Whereas SLBs can comply to digitized discretionary practices willingly, they can also accept computerized practices reluctantly. Adopting an acquiescence strategy means that they ideally prefer to retain their discretionary practices but acknowledge that technology add benefits that are beneficial for street-level work. When SLBs acquiesce, their actions are not as active as in a compliance strategy.

4.2.1. Routinization

Routinization is the practice of converting work processes into routines, i.e., sequences of actions expected to be followed. Such routinization is mostly expected in street-level work of less complexity. SLBs acquiesce in cases where routinization is salient and where perceived benefits of digitized discretionary practices are too significant to ignore them. Our study suggests that SLBs become more positive to automated routines by time. They get accustomed to new tasks and see the benefits of replacing routine tasks with tasks requiring analytical skills. The following proposition is put forward:

Proposition 3. SLBs are more positive to digitized discretionary practices if routinization of work processes can yield significant gains compared to current practices.

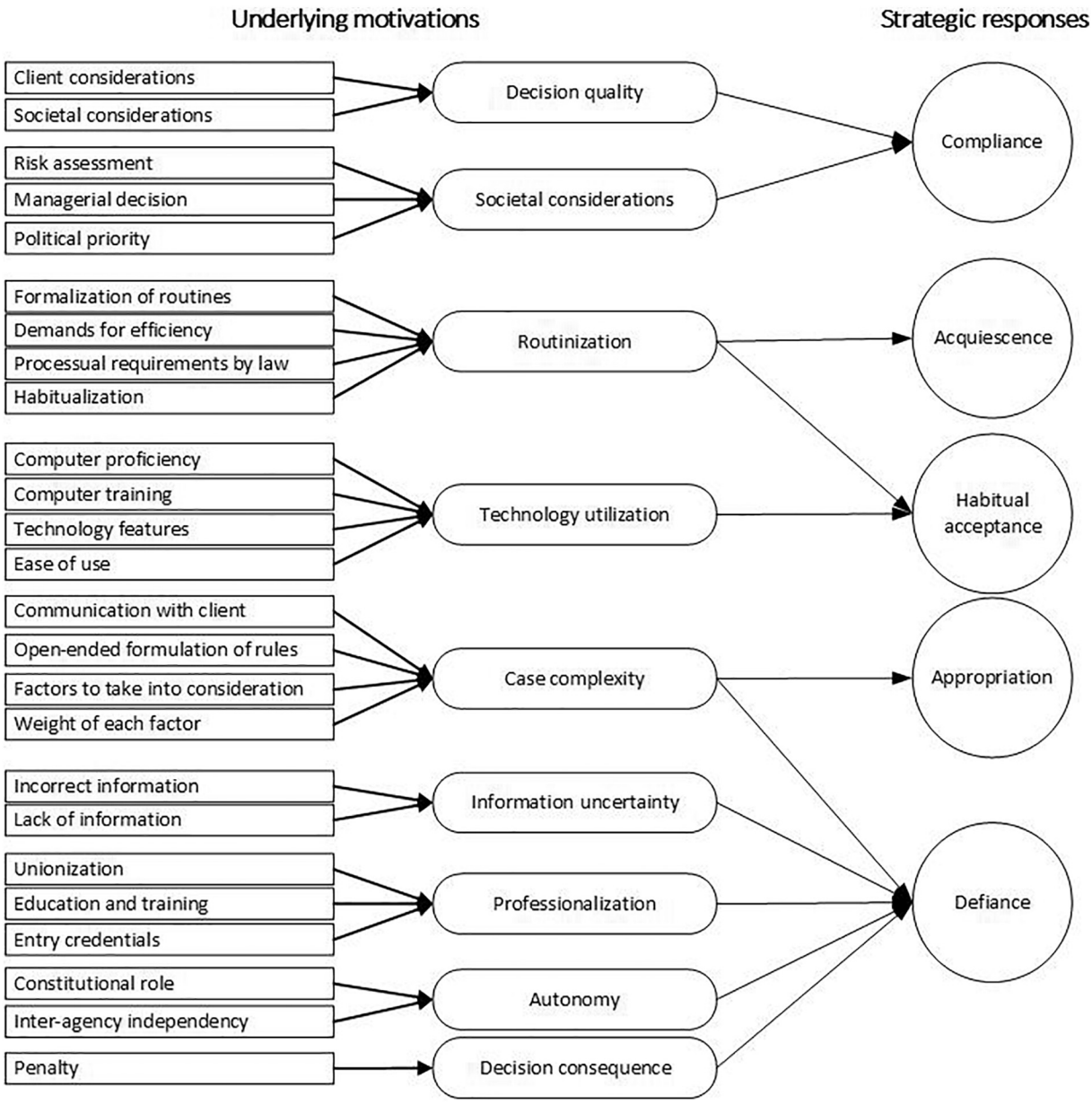

Fig. 1. Data structure.

4.3. Habitual acceptance

SLBs can accept digitized discretionary practices through habitual behavior. This behavior occurs when computerized routines become institutionalized. Habitual behavior can be a result of both conscious and unconscious acts.

4.3.1. Routinization

When processes are routinized, SLBs become familiar and comfortable with these routines to the point that they are repeated and taken-for-granted. Our findings suggest that the use of technology seems to have a habitual effect on SLBs. They can collect information more quickly and they trust the information provided by the computer screen. The SLBs do seldom look any further for more information from other sources.

4.3.2. Utilization of technology

The extent to which SLBs can utilize technology is based on a variety of factors such as computer proficiency, computer training, the features that technologies afford, and their ease of use. Habits may be established based on the convenience that technology offers in streamlining work processes and can be the practical outcome of technology use even if it is not intended. We observed that SLBs tended to use technology whenever it could assist them in conducting their work tasks more efficiently. In certain occasions, the SLBs use templates with pre-filled information for decisions. These templates are used for repetitive work tasks where different cases have similarities in terms of the type of information and the conditions for various outcomes. Our study suggests that younger and more computer proficient SLBs are more likely to utilize the features various technologies have to offer. Thus, the following propositions are suggested:

Proposition 4. When technology can ease the workload SLBs have, they are inclined to accept digitized discretionary practices habitually.

Proposition 5. SLBs with high computer proficiency are inclined to accept digitized discretionary practices habitually.

Table 5
Strategic responses.

Strategic response	Public service provision characteristic	Example	Representative quotes
Comply	Decision quality	Actively accepting benefits of technology	"It is a completely different world [..]. Now we can analyze large amounts of data much faster and people respond more quickly [..]. So, our societal mission is solved in a better way now." (NTA#2) "Through IT, we now have access to more legal sources than we had before [..]. So, IT influences us by providing a better basis for making decisions." (Court#1)
	Societal considerations	Actively accepting benefits of technology	"I think that IT systems lead to more equal treatment." (NTA#4)
Acquiesce	Routinization	Reluctantly accepting benefits of technology	"We see things pass that are wrong. However, they will not be checked since we must prioritize other areas. And this is not a good feeling [..]. So, there have been discussions about what is the smartest thing to do. If what the computer systems have picked out is the best selection." (NTA#9)
Accept by habit	Routinization	Following taken-for-granted computerized routines	"Even if it is not necessarily the intention, it may well be the practical outcome since it is a busy workday [..]. I believe many judges will make use of systems that can help." (Court#4) "The use of templates may reduce discretion [..]. We base our decisions on the information in the template without exercising too much discretion [..]. And that is a risk we must be aware of." (Court#2)
	Technology utilization	Following taken-for-granted technological features	"I should have liked to see how older judges go forth when they search 'Law Data' [..]. There are dozens of useful features, but you must be aware of them." (Court #6)
Appropriate	Case complexity	Adapting technology use to individualized situations	"It is a template that you need to customize a bit [..]. But you follow certain use patterns. Occasionally, we face the problem that Lovisa recommends a certain decision, and then you have to do something completely different." (Court#6)
Defy	Professionalization	Following professional norms	"This has simply to do with the rule of law […]. An individual assessment should be made by a judge. A decision will not be independent and individual if automation is used." (Court#4)
	Information uncertainty	Prioritizing fair treatment	"We must get hold of the facts in a case [..]. We contact the taxpayer and get the facts. And sometimes, taxpayers do not respond, and we have to make an assessment." (NTA#1)
	Case complexity	Prioritizing individualized care	"[..] life comes in so many facets [..]. If you can exercise discretion, then a rule may be adapted, and the result will be correct." (Court#1)
	Decision consequence	Prioritizing respectful treatment	"From a psychological perspective, one has stressed that children should meet whoever made the decision that they should stay with mom or dad and explain why [..]. This is no easy task for a computer." (Court#5)
	Autonomy	Opposing digitized discretionary practices	"Because we want to retain our ability to exercise discretion as granted by law. And we would not accept reduced discretionary power since we are loyal to the law and the legislator. And that is the aim of and our job. ICT shall not put anything of this aside." (Court #1)

4.4. Appropriation

Yet another strategy that SLBs can adopt is appropriation which is a mild form of resistance to technology use. Appropriation refers to how SLBs "may choose not to use the technology or use it in ways that undermine its 'normal' operation" (Orlikowski & Robey, 1991, p. 153) contrary to the intentions of its designers and adopters. Whereas technology is purposely designed to encourage certain use patterns, its use may be adjusted according to the needs and goals of SLBs. Appropriation can be done overtly by openly adapting the use of the technology, or covertly by decoupling elements of practices from expected routines (Berente & Yoo, 2012; Jorna & Wagenaar, 2007; Keymolen & Broeders, 2011).

4.4.1. Case complexity

SLBs often handle complex cases which require them to take many different factors into consideration. Because of complex social relations, even seemingly similar cases must be treated differently. The nature of social relations makes it difficult to create computerized routines that capture this complexity. By initiating a non-intended use of the technology, unreasonable outcomes can be avoided, and procedures adapted to individual situations. This leads us to our fifth proposition:

Proposition 6. Case complexity makes SLBs more inclined to appropriate technology to avoid rigid routines.

4.5. Defiance

When SLBs choose defiance as strategy, they actively refuse computerized routines that can influence their discretionary practices. When SLBs defy digitized discretionary practices, they challenge their application area arguing that there is something about the nature of public service provision calling "for human judgment that cannot be programmed and for which machines cannot substitute" (Lipsky, 2010, p. 161). Their negative stand against digitized discretionary practices can be expressed actively where their opposition is defended and even presented as a virtue. Being negative to digitized discretionary practices is the most common response of SLBs (Busch & Henriksen, 2018). Several underlying motivations can explain why they defy digitized discretionary practices.

4.5.1. Professionalization

The more professionalized SLBs are, the more likely they are to be negative to any influence on their ability to exercise discretion. The degree of professionalization is stronger in the court where almost all judges are organized as members of the union reflecting their long history as a profession. The union has been active in discussing a variety of topics that safeguard the profession of judges and their role in society. These discussions include the use and effects of technology in increasingly digitized courts. Whereas judges are highly professionalized, caseworkers experience increased professionalization. Compared to earlier practices where caseworkers were hired without any formal education and thereafter received training at work, they are now often educated within areas such as law and economics. Whereas entry credentials for work in the NTA office can be decided by management based on the competence the office needs, requirements for becoming a judge are enshrined in law. To become a judge, one is required to have completed law education and two years of practice in a court or law

firm as well as gained substantial experience afterwards:

> The process of appointing judges is very thorough [..] It is not just a lawyer, but a character who is appointed [..] The person under consideration must be able to demonstrate high quality in his or her work, show respect for other people, be conscientious and thorough. All these things.
> Chief judge.

Judges and caseworkers are motivated by the professional aspects of their work. Professional norms are often taken-for-granted and upheld by professional associations delineating street-level work. Whereas caseworkers are subordinated to management and experienced that they were strictly controlled by hierarchical structures, the judges did not experience any kind of control from management due to their constitutionally independent status. One of the judges explained how they will prioritize professional norms over managerial goals if they are required to make such a prioritization:

> There is a balance between quality and efficiency. The legislation clearly states the expectations in terms of quality and politicians impose requirements for efficiency. And this is a continuous balance … There is always a new case. At the same time, you should be able to vouch for the decision you have made.
> Assistant judge.

Computerized routines are defied since they influence discretionary practices which are considered a vital professional aspect of their work. The following proposition is put forward:

Proposition 7. Highly professionalized SLBs are inclined to defy digitized discretionary practices since they consider technology to influence professional aspects of their work negatively.

4.5.2. Autonomy

Professionals often have *autonomy* in their work. Autonomy is the state of having a self-directing freedom to make certain choices. Whereas judges belong to a group of SLBs that enjoy a high level of independency due to their constitutional status, caseworkers in the NTA office enjoy limited autonomy even though they are increasingly professionalized. When SLBs have autonomy, they will defy efforts that impair their professional status and ability to exercise discretion. We propose that the level of autonomy is likely to influence the acceptance of digitized discretionary practices:

Proposition 8. Autonomous SLBs believe that digitized discretionary practices can lead to less autonomy and are therefore more inclined to defy technological influence.

4.5.3. Information uncertainty

SLBs may not have sufficient information required to make decisions. In some cases, they are not able to retrieve this information either and hence forced to exercise discretion to identify the most likely factual basis for their decision. This observation leads us to suggesting the following proposition:

Proposition 9. SLBs are more inclined to defy digitized discretionary practices in cases with uncertain information.

4.5.4. Case complexity

In some cases, SLBs must take a variety of factors into consideration and assess them individually. For example, a dispute concerning child custody can involve a question of full custody or whether custody should be shared between parents. In all cases, a judge is required to listen to details about the case, and if necessary ask for further information before deciding. The details in these cases can vary to a significant extent. Reasons for why a parent considers herself or himself better suited to have the custody of the child can depend on widely different reasons such as accusations of domestic violence, psychological issues, job security, and the (imagined) wishes of the child. The potential complexity of cases suggests the following proposition:

Proposition 10. SLBs do not consider digitized discretionary practices to be suitable for decision-making in complex cases and will therefore defy technological influence.

4.5.5. Decision consequences

Decisions can affect clients in several ways. Following up on the previous example, the nature of child custody cases implies strong emotions and decisions that judges make will have a considerable impact on the lives of the child and its parents. Since the consequences of certain decisions can be severe, clients will seek to present their case and arguments before decisions are made. We therefore propose:

Proposition 11. SLBs consider decisions with severe consequences to be unsuitable for a technological influence of discretionary practices and will therefore defy it.

5. Discussion

This study shows how SLBs react to institutional complexity created by digitization. Whereas SLBs traditionally have enjoyed professional autonomy adhering to professional norms associated with a logic of state-professionalism, digitization efforts can promote goals such as efficiency and shifts in work roles associated with a market-managerial logic. Emerging from an empirical analysis of SLBs residing in digitized public agencies, we advance our understanding of how and why technology can influence discretionary practices in public service provision. One contextual explanation relates to the attitudes and behavior of professional SLBs who reflect on how digitization changes street-level work and seek to influence their work environment. The aim of this study has been to investigate how SLBs consider the opportunities and challenges that increased digitization creates, and how they react to multiple and conflicting goals. Our research is guided by the following research questions:

1. which strategies do SLBs adopt to cope with institutional complexity in digitized street-level bureaucracies
2. which characteristics of public service provision can explain their preferences for a particular strategy?

We found that SLBs react to a potential impact on their discretionary practices through five strategic responses: compliance, acquiescence, habitual acceptance, appropriation, and defiance. These responses are explained by several characteristics of public service provision such as case complexity, information uncertainty, professional autonomy, and societal considerations. Our work – studying SLBs' strategic responses to digitization and their underlying motivations – has implications for research on street-level bureaucracy. The literature has shown that discretionary practices characterized by routine tasks most often are influenced by ICT and that more complex discretionary practices seem to continue as before. Since SLBs are motivated by helping clients and attending to individual needs, they have great interests in how digitization impacts street-level work and their discretionary practices. Our findings suggest that SLBs working in the area between routinized, mass-transactional tasks on the one hand and complex tasks on the other hand, are increasingly exposed to and influenced by various technologies. Whereas Lipsky (2010) claimed that society is not prepared "to abandon decisions about people and discretionary intervention to machines and programmed formats" (p. xix) and that "the nature of service provision calls for human judgment that cannot be programmed and for which machines cannot substitute" (p. 161), our findings suggest that society *does* leave certain decisions to computers and that public service provision is changing to a certain

degree. However, this influence happens gradually and is characterized by moving SLBs from the streets in front of computer screens in office buildings.

Similar to previous research, our findings further suggest that the digital imprint on street-level discretion is influenced by different digital tools and that SLBs may be inhibited from fully utilizing technology as a result of limited training and age (e.g., Giest & Raaphorst, 2018; Høybye-Mortensen, 2013). Further research should investigate how and why different technologies can have different effects on discretionary practices. Moreover, since street-level work shares some characteristics across different public services (Lipsky, 2010), we posit that our findings not only apply to judges and caseworkers in Norway, but also to SLBs working in different countries and other types of public service provision where SLBs are professionalized, resources are scarce, and demands for efficiency and effectiveness are high. However, despite many similarities, street-level bureaucracies may differ in terms of societal role, work tasks, clients, and the consequences of the decisions SLBs make. Therefore, further research is required to establish the validity of our findings in other contextual settings.

Our second contribution is to the institutional literature. Organizational and individual responses to institutional complexity has become central to our knowledge about institutional change (Smets & Jarzabkowski, 2013). Yet, extant research has mostly focused on the role of field-level actors (Bjerregaard & Jonasson, 2014; Johansen & Waldorff, 2017; McPherson & Sauder, 2013; Pache & Santos, 2010). This study adds to research that pays attention to how micro-level agency can explain institutional stability and change. Other studies have shown that individuals within the same context exposed to the same institutional challenges respond differently based on cognitive-affective characteristics (Svenningsen et al., 2016) or social identities (Meyer et al., 2014). We contribute by showing how specific characteristics of street-level work motivate the reactions of SLBs. The characteristics we identified were decision quality, societal considerations, routinization, technology utilization, case complexity, information uncertainty, professionalization, autonomy, and potential consequences of decisions. Whereas SLBs may differ in opinions, they share much of their perceptions of street-level work meaning that SLBs within the same context, exposed to the same institutional challenges, mainly respond in the same way.

Finally, we make two recommendations to policy makers and public management related to the digitization of discretionary practices. The first recommendation concerns the utilization of different digital tools. Giest and Raaphorst (2018) studying barriers to digitized public service provision recommended that policy makers and public management should pay attention to the ability SLBs had to utilize various technologies. Our findings are similar and suggest that there are considerable differences in how SLBs utilize technologies based on their training and age. SLBs that are more familiar with ICT and are younger seem to be more trustful of novel technology. Therefore, we recommend that digitization efforts having the potential to change street-level work and influence discretionary practices should be accommodated by thorough digital training of SLBs.

The second managerial recommendation suggests that policy makers and public management should pay attention to how technology can support the professional aspects of street-level work. Our propositions represent early steps toward an understanding of the attitudes and behavior of SLBs in digitized street-level bureaucracies. SLBs are strongly motivated by helping clients (Tummers & Rocco, 2015). They are professionals who have power and autonomy, reflect on their work, and actively seek to influence it. Therefore, to avoid resistance from SLBs, assertions on how technology can improve public service provision should be stated clearly.

6. Conclusions

This study began with an effort to unravel reasons SLBs have for why discretionary practices can be or should not be digitized. We have focused on the attitudes and behavior of SLBs who are in possession of professionalized knowledge and traditionally have exercised a substantial amount of discretion in street-level work. We were able to show that SLBs react strategically to the influence of digitization. Our study can help resolve the inconsistency in the extant literature which states that technology both can enable and constrain the ability SLBs have to exercise discretion. We observed that SLBs are positive to digitized discretionary practices when professional aspects of street-level work are enhanced, and societal considerations suggest practices to be digitized. We also saw that technology can create habits that influence discretionary practices and become taken-for-granted over time. We conclude that certain aspects of street-level work are changing. Technology has led to a change from traditional discretionary intervention on the streets to screen-level work where technology is used for information processing tasks in discretionary practices.

Our findings have relevance to the work of public management and policy makers. They should pay attention to how different digital tools can provide different results as well as the ability SLBs have to make use of the various features that different technologies offer. Computer proficiency can explain attitudes toward digitized discretionary practices. The more proficient SLBs are, the more they seem to understand the opportunities and challenges of digitization. This study shows that resistance against digitized discretionary practices are far less likely when technology supports professional aspects of street-level work. The literature has convincingly shown that SLBs are motivated by helping clients and working for a better community. Therefore, any technological aid that can assist in a busy work situation is appreciated. These findings might encourage public management and policy makers to include SLBs more in change processes and ensure proper training in digital tools.

In conclusion, the data show that digitization can create tensions in street-level bureaucracies that SLBs must cope with. They reflect on the impact of digitization in public service provision and react accordingly. The attitudes and behavior of SLBs are potential explanations to whether technology enables or constrains the discretionary practices of SLBs. Whereas recognizing the impact technology can have on discretionary practices is important, the literature rarely investigates this prominent issue. Digital solutions have experienced radical changes in supply and capacity and have the potential to shift bases of legitimacy from street-level work driven by professional norms to goals associated with a market-managerial orientation. We hope that these findings provide some initial paths and suggestions for further research to explore.

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