

# **Accountability in re-arranged relations when Robotic Process Automation (RPA) becomes a co-worker**

Almost-ready-for-prime-time

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## **1 Introduction**

This study reports the findings from a research project about automated decision making in public sector focusing the changing role of the case worker in digitalized public administrations. During a round of interviews with front line case workers and middle managers at the Swedish Transport Agency (STA), the case worker sitting in front of us told us about this colleague who still had a lot to learn: “There is a lot he can’t do. Things that he might be able to learn. But he hasn’t yet” (Interview case worker STA). But it was not until after another two or so interviews that we realized that the colleague – Staffan<sup>1</sup> – who the case worker talked about was not another human, but an automatic case worker (ACW), an example of Robotic Process Automation (RPA).

Pivotal for public decision-making and just institutions and legitimate democratic governance, is the possibility to hold public administration accountable for decision made on behalf of the political system and its implications for citizens, i.e. public accountability (Bovens and Zouridis, 2002).

The impact of RPA in relation to practice among front-line service work has been described and discussed in previous studies situated in local governments (Lindgren, 2020), in social services in Sweden (Gustafsson, & Wihlborg, 2019) and Denmark (Ranerup, & Henriksen,

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<sup>1</sup> Staffan, a common name in Swedish and the name of the former CEO of the Agency, was the daily name used for the RPA.

2019), and for employment assistance in Norway (Breit, et.al., 2020). These recent case studies point to a need for further elaborations on implications and meanings of RPA, and questions about who can be accountable for the decisions made with or by RPA. Thus, we need to advance our understanding of how automatic decision-making change procedures and practices among case workers, in particular regarding accountability.

These RPA systems might seem strong and powerful, but from a socio-technical view the systems are re-framing relations in the network where they are residing, that in turn has implications on accountability (Neyland, 2015). Computers in general, and robots in particular, are not only supporting the automation of administrative processes, but are also attributed agency in their role as decision-makers (Lindgren, 2020; Wihlborg, Larsson and Hedström, 2016). The aim of this article is to analyse how accountability is re-arranged in relation to RPA at a national agency and discuss meanings of accountability in relation to RPA.

## **2. Accountability and automation in public administration**

Accountability is mainly formed in two ways; as answerability towards someone with a legitimate claim (Bovens and Zouridis, 2002), and as the commitment to account for procedures and decisions to those who have entrusted the decision-making. Accountability in public agencies is therefore constructed through the (power)relations among the parties involved; which is critical to e-government (Meijer and Bekkers, 2015; Hedström et al. 2015).

Accountability is a key public value for legitimacy and the upholding of a democratic society. In public-sector organizations accountability is carried by the front-line case worker and can be described as a triangular relation from the citizens who through public elections give power to the elected decision makers, who in turn govern the public administration, who

closes the chain of relations by providing public services to the citizens. Thus, the importance of taking on responsibility and be able to account for one's actions is often highlighted in conceptualisations of accountability (Behn, 2000) as seen in research on digital government (e.g., Pina, Torres and Royos, 2007; Wong and Welch, 2004).

Accountability is with this perspective a matter of agency and competence (Neyland, 2015). There is a focus on the role of case-workers, who cope with RPA by 'outsourcing' responsibilities to clients through digital platforms, and by reducing what is experienced as 'noise' related to incoming enquiries, and being careful about the content of client communications (Breit, et.al. 2020). Automation might have a negative effect on accountability evoking dysfunctions such as rule-obsession, rigidity, proceduralism, politics of scandal, and scapegoating (Smith, Noorman and Martin, 2010).

Automated decision-making, or algorithmic decision making (e.g., Zarsky, 2016) are commonly embedded in socio-technical frames assembling laws, regulations, technology, and humans, where technological, social and organisational aspects are interwoven (Ananny and Crawford, 2016). As automatic decision making is an emerging phenomenon currently transforming public sector administration and decisions, people working within governmental agencies are struggling to find some degree of stabilization. Accountability in relation to automatic decision making thus demonstrates a great deal of ambiguity.

When legislation and formal regulations are translated into an RPA system the transcribed routines and rules can be viewed as a working order, where the computer has been attributed a great deal of agency executing the underlying rules. The computer acts as a delegate on behalf of the governmental decision maker(s) as part of "organizing accountabilities" (Woolgar and Neyland, 2013, 39). Such a system is interpreted and become part of a sense-making accountability practice – the "account-able order of the algorithmic systems" (Neyland, 2015,

p. 55), having a powerful effect and ruling, not only the working-life of the public sector officials, but also our lives as citizens. This forms a more complex arrangement where the contextual setting of the RAP extends how we interpret accountability, beyond the simple argument that robots cannot be accountable since they lack intentions (Hedlund, 2020).

Use of RPA re-arranges power relations among the involved actors and re-locates accountability, since laws and other practices are embedded into the technology when it is designed as a case management system at a specific agency. i Martinez (2019) showed that there are limited mechanisms for transparency and accountability in algorithms decision-making and that public administrations so far are not driving change to ensure greater transparency and accountability in the use of algorithms. RPA systems may also increase risks of black-boxing the grounds for decisions, being detrimental to transparency which is an important virtue for achieving accountability (e.g., Diakopoulos, 2016).

### **3. Method**

The Swedish Transport Agency (STA) is one of the most digitalized Swedish agencies. They have digitalized and automated large parts of its internal case handling, as well as fully automatized certain government public services and decisions, such as decisions about driver license learner's permit. This made the STA and the driver license department a relevant case study for a project on how automatic decision-making changed procedures and practices among the case worker, and its implications on relationship with the clients.

The driving license department is responsible for handling and approving applications for learner's permits, issuing driver licenses, exchange of foreign driving licenses, health declarations, warnings and revocations of drivers' licenses and alco-locks. We study the output side of automation, where citizen-government contact is in focus. Through the large

number of client contacts that was handled, we could investigate how accountability was constructed in the interface between the government official, the ACW, and the clients.

We conducted in-depth interviews with seven experienced case-managers on the organizational and professional aspects of RPA in their daily work. These included informants working with customer support, investigations, IT, case handlers, and one manager. Their main tasks were customer support, investigations, case handling, and organizational support. Our questions focused on automatic decision-making, how technology was used for case management and making decisions as well as on how employees interacted with the technology. We asked questions about use of competences, organization, as well as responsibility. We also conducted observations where we listened-in at customer support when citizens called in to ask about learner's permit, and on how to use RPA for handling learners' permits. In addition, we had access to internal documentation on how to use the automatic case worker in daily management of the errands as well as process descriptions of the driver license process.

Our analysis focused on how automatic decisions of an application for a learners' permit at the STA changed the relations and distribution of public accountability. Based on the socio-technical approach (Woolgar and Neyland, 2013), we focused on the relations between the ACW, the professional case workers and the clients. By reading the interview transcripts and the notes from the observations we made our analyses empirically grounded and strived to uncover the interviewed employees' constructions of accountability. This opened up for an interpretative flexibility on how accountability can be formed by the case-workers in relation to the ACW in public decision making. Our first analyses and results have been validated through follow-up interviews with the management group at the STA.

## **4. Result - Automatic decision making at the STA driving licence department**

### ***4.1 The automatic case worker***

One of the core ideas of the management at STA was to have a unified way of working, with a high degree of automation to be as efficient as possible. The driver license department is a heavily digitalized organisation, where IT is used for e.g. case management and decision-making, including an e-service for applying for learners' permits. In 2017, the driver license department approved approximately 348 000 applications for driver license permits with 58 % of the applications being fully automated and 76 % of all applicants used the e-service for their application (STA, 2017).

When a citizen applies for a driver license permit, the STA examines the applicants' possibility to have the right to have a driver's license (includes evaluation of vision, health, as well as criminal record) as well as, if needed, other circumstances that may be of importance for assessing an applicant's suitability to hold a driver's license. The ACW manages applications about driver supervision, driver license permits and re-application of driver licenses for heavy vehicles. The ACW prepares and handles cases, and approves or dismisses a license based on the Driver License Act (SFS 1998:488), Driving ordinance (1998:980), and the STA's regulation about medical requirements for driver license. The ACW accesses different registries such as criminal record and traffic registry. The decision is further based on information about the applicant's medical condition and eyesight. The ACW is thus working based on a rule-based implementation: "The ACW only looks at strictly after how it is programmed. It follows rules given" (Interview, Organizational support STA). When an application for a learner's permit is sent into the STA (usually by a young person or a parent),

the ACW executes, according to internal documents, the following loop (STA, 2016) based on an algorithmic IF-THEN rule in sequence:

1. Controls if the application for the learner's permit is registered in the traffic registry
2. Controls if the applicant has paid the application fee
3. Controls if there is a submitted certificate about vision
4. Controls if there is a submitted certificate about health
5. Controls if the vision is in line with the rules
6. Controls if the health is within the rules
7. Controls if there is information in criminal record
8. Controls if there is information in the traffic registry – that the applicants do not have any remarks about being drunk

When making a decision, the decision-maker, irrespective of if it is a human or the ACW, work the same way. “We try to use the same rule-system irrespective if it is an automatic or manual case handling” (Interview, Organizational support STA). The ACW is seen as a co-worker managing the same information for the decision as the human case worker. There is however a difference for non-approved applications where a human case worker can deny an application, but the ACW only approves or dismisses applications if they are incomplete.

#### ***4.2 To work together with the automatic case worker***

The RPA takes decisions on standardised and non-complex applications without a need to investigate the application further. However, if the information is incomplete or if the applied information suggests a problem (e.g., health issues, previous convictions), the application is handed over to a human case worker: “We always try to work with the automatic case worker. We shall, if possible, avoid manual case handling. If we get a case, we look at it at and, ‘Oh, the automatic case worker needs help with only a minor thing’. Then I can send it back so he can continue to complete his controls. Then I don't have to sit here and control. Then the case might be returned to me. But he has at least done the controls he could. So, we won't have to. So, we try to minimize the manual case handling as much as possible” (Interview,

Organizational support STA). There is a close co-operation between the human case worker and the ACW. The internal educational material for the STA stipulates that the human case worker's role is to "help the automatic case worker" (STA, Educational material, 2016).

When discussing decision-making with the respondents who work with case handling, they refer to the RPA as the one making the decisions, thus indirectly, attribute RPA accountable for decisions made.

Cases are sent between the human and the ACW, with the purpose of making the ACW do as much work as possible, thus minimizing the effort put in by human case workers. The human case worker does not always trust the ACW and sometimes checks if the ACW has taken the right decision. "The automatic case worker takes positive decisions only. But we can dismiss an application if it is incomplete. There is information about how to appeal on those decisions as well [...] And in these cases a citizen can contact us [...]. And if you appeal such a decision, it ends up at customer service [...]. And we look it through and make an evaluation. To see if the automatic case worker has taken the right decision. And he usually has. But we still want to have the security that a human goes through it." (Interview, Organizational support, STA).

#### ***4.3 Accountability and the automatic case worker***

When discussing accountability and who can be seen as responsible for the decisions taken by the ACW there is a lot of vagueness: "There is no signature on these (automatic) decisions. So, it is....(hesitates) the government as a whole that stands behind these decisions. I don't think any of the bosses are assigned responsibility for these decisions. I don't really know. But I don't think so" (Interview, Organizational support STA). However, when asking the manager about responsibility in relation to the ACW, the manager said that "it is probably I who is supposed to be responsible". Although she does take responsibility for these decisions,

it is evident that it is not clear for the employees. This is also true for the applicant. The decision of approval is automatically sent to the applicant who receives an unsigned and anonymous decision in the form of a letter from the STA, in contrast to the signed and non-anonymous decision communicated if the decision is taken by a human case worker.

## **5. New Arrangements of Accountability through RPA -**

### **Conclusions**

As shown by the case study the locus of responsibility is changing when the public decision-making becomes automated. Automatic decision-making re-arranges relations around accountability in public decision making when the automatic case worker enters and changes the relations and balance of power. The locus of responsibility could change in two ways. The main re-location was to the ACW, who became responsible for all standard errands following normal predicted lines of decision. The ACW was in all these cases both making and communicating the decision. The ACW is thus delegated responsibility and assigned accountability, in line with the values guiding the public administration and the design of the systems is translating the specific rules and regulations and embedding general public values like rule by the law. However, when an individual case did not follow the lines of decision inscribed into the ACW, the locus of responsibility was transferred to a human case worker who here could gain increased flexibility in the decision based on professional competences and service-oriented values seeing the human client behind each case.

In addition to Petrakaki (2018), who argued that the design of technology in automated systems gave limited room for public officials' own discretion in relation to the client, our study shows that the case workers used their limited action space to include more case relevant and individual factors into their decision, factors that otherwise was out of scope of

the automated system. Based on their professional competences and experiences they could motivate how to do this without being partial.

All forms of accountability are framed by the structures around the decision, accountability is thus ascribed by well-managed arrangements of the roles assigned to decision-making, and their relations. This was illustrated when the decisions fall out of the ACW and into the hands of the human case worker. Accountability is thus formed in the practical interplay of balancing technology, organization, and humans. These results confirm Petrakaki's (2018) main arguments by adding empirical evidence that accountability within e-government is contextualized and relational.

Our interviews and observations showed, however, that neither the case workers nor the managers reflected upon accountability as a relational concept nor how it is embedding power structures and contextual factors.

We have shown how accountability is constructed and enacted in public sector work in the intersection of technology – human – organization. Automated decision making re-arranges the organizations where the constructions of accountability are floating, which makes it difficult to safeguard responsibility. In contrast to Petrakaki (2018) who sees accountability as inscribed in the technology, we suggest instead that accountability is formed in the organisational setting of laws, rules, technology, the organisation and the professional competences of case workers and not at least the unique individual case. There is therefore a need to extend the understandings of accountability by elaborating on and including technology and systems design as well as the new emerging practices among human case workers compensating for the limitations of the automated system.

Through the analysis of this case study, we identify a potential to extend meanings of socio-technical accountability (Woolgar and Neyland, 2013) into the practices of automated systems focusing on the interplay of the human case workers, the RPA and the unique case. Thus, there are demands to elaborate on meanings of accountability of public decisions making with RPA, both through comparative case studies and conceptually with ethical implications.

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