THE ALGORITHM SAYS NO

A STUDY INTO ALGORITHMIC GOVERNANCE IN PUBLIC AGENCIES

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Abstract
In this research, the perception of public agencies towards algorithmic governance will be examined. In the context of public agencies in the Netherlands, the view towards algorithmic governance and differences among those views will be researched. The main research question in this paper is: *How can differences in perceptions of algorithmic governance in public service delivery be explained?* Regarding the methodology for this research, an interpretive research design will be used. Looking at data collection, there will be qualitative data gathered which stems from official documents. As for the relevance of this paper, it has to be noted that with the novelty of algorithmic governance, especially within public agencies, little is yet known about how public agencies look at algorithmic governance and the use of it. In a practical sense, this study could be used for further developing a responsible way of dealing with algorithmic governance in public agencies, as there are risks involved in the use of it, especially when it involves the day-to-day life of citizens. This study therefore hopes to shine a light on how algorithmic governance is perceived by public agencies in light of the delivery of their specific public service and what the explanations are for these perceptions. Coming to a short explanation of what will be done in the remainder of this research, there are first a few notes about methodology need to be addressed. The research questions in this research will be answered through a comparative case study, after which a content analysis will be used to make sense of the findings. Also, this research involves the use of qualitative data, which is analyzed through with a self-produced coding scheme.

Then, looking at how this research is build up, it consists of an introduction in which the central issue of this paper, the different meaning of algorithmic governance within public agencies, is set out, resulting in a formulation of the research questions for this paper. Following this, the theory section will be devoted to an explanation in which the issues around algorithmic governance and the specific nature of it in public agencies will be highlighted. In the method section, the aim is to focus on how the differences between public agencies in their perception of algorithmic governance can be measured, leading to a coding scheme through which findings can be categorized. Next, the analysis section will set out that the differences between public agencies in terms of their perception of algorithmic governance seem to be minimal, as a result of a specific culture within public agencies. After this, it will be shown that these findings seem to confirm some arguments already made in the work of others in practice. All in all, this paper tries to argue that the specific culture within public agencies leads to a similar narrow perception of algorithmic governance as being a chance to improve the own organizational efficiency, leaving out of the equation the secondary consequences of the use of it.

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1. Introduction

In the Netherlands, a relatively recent debate has come up with regards to public agencies and their problems in public service provision. These problems mostly refer to the scandal in the Dutch tax authority, in which several people were unrightfully deemed as fraudsters (NOS, 2019). However, problems in public agencies in the Netherlands have become so numerous and omnipresent that the Lower House of Dutch Parliament has launched an parliamentary investigation into these agencies, their problems and the causes of these problems (Parlement.com, 2020). In parallel to this, there is a development of public agencies making more and more use of algorithmic governance (CBS, 2018, 5), in which data is used for purposes as informing in classic bureaucratic decision-making systems or decision-making authority is even outsourced to algorithm-based decision-making systems (Danaher et al, 2017, 2). This concept of algorithmic governance is a relatively new phenomenon which has nevertheless been discussed by authors like Yeung and Danaher, who try to get a grasp on the concept of algorithmic governance. Here, Danaher defines it as an addition in a traditional bureaucratic decision-making system or in an algorithm-based decision-making system, to which decision-making authority is outsourced (Danaher et al, 2017, 2), whilst Yeung distinguishes algorithmic decision-making, which refers to the use of algorithmically generated knowledge systems to execute or inform decisions, from algorithmic regulation, that refers to regulatory governance systems that utilize algorithmic decision-making (Yeung, 2018, 507). Next to this, a paper by the EPRS (European Parliamentary Research Service) considers the consequences of algorithmic governance in different areas, naming chances like the improvement of existing services, the creation of new services and the improvement of efficiency, transparency and accountability (EPRS, 2019, II). Amongst the risks, there is the risk of becoming overwhelming and oppressive, the risk of misuse by states to control people and the damaging of the integrity of democratic discourse (EPRS, 2019, II).

To provide further precision of the concept of algorithmic governance, a sub-part is distinguished which is algorithmic decision-making. Although algorithmic decision-making is also part of the discussion in literature around algorithmic governance itself, for example in the paper by the EPRS, there are more specific works regarding algorithmic decision-making. One of these is the work by Spielkamp, who defines it as procedures which are initially – partially or completely – delegated to another person or corporate entity, who use automatically executed decision-making models to perform an action (Spielkamp, 2019, 9). Also, there is a work by Malgieri which takes a more legal approach, looking at the way algorithmic decision-making can be accorded with the General Protection Data Regulation (GDPR), distinguishing negative, neutral, procedural and proactive approaches, the most important difference between them being the amount of safeguards (Malgieri, 2016, 6).

Combining the developments of public agencies' problems with public service delivery and the increasing use of algorithmic governance within these agencies, one could pose serious questions about the meaning of algorithmic governance for public agencies. In order to answer these questions, a whole body of research on public service provision and its goals can be used. For example, there is research of

Denhardt & Denhardt on New Public Service, whose main point is that 'the emphasis should not be placed on either steering or rowing the government boat, but rather on building public institutions marked by integrity and responsiveness' (Denhardt & Denhardt, 2015, 549). In addition to this, there is a framework for public service delivery as made by Osborne, et al, the SERVICE framework, that distinguishes system, embed, relationships, value, innovation, co-production and experience as the most important elements of public service delivery (Osborne et al, 2015, 434). Finally, there is work by Lopes et al, which also focuses on different aspects of public service delivery, being strategy, capacity, innovation and evaluation (Lopes et al, 2017, 6).

Considering these recent findings, it can be seen that there is some knowledge available about algorithmic governance and public service delivery. However, there is no consensus about the borders of the concept of algorithmic governance, especially with regards to public service delivery. To be more precise, the definition of algorithmic governance that has been developed in earlier scientific work is broad, somewhat ill-defined and not very suited for public service delivery. Therefore, the problem that this research wants to address is that the meaning of algorithmic governance in theory and especially in practice still remains rather unclear. The aim of this research is therefore to distinguish how algorithmic governance is perceived by a number of actors in the field of public administration, hoping to make sense of the different ways in which algorithmic governance is looked upon.

1.1 Research questions

From the central issue that is the different perceptions of algorithmic governance in public agencies, one can then go over to giving an account of the most important questions that need to be answered in the course of this paper. To start, there is the main research question, which is:

How can differences in perception of algorithmic governance in public service delivery be explained?

As explained before, there is, to this date, little research on how algorithmic governance is seen by public agencies with regards to their processes of public service delivery. Therefore, the argument can be made that this research question is a thing that has not been asked before. In addition to this, the research question can be considered as important, since public agencies are very likely to use algorithmic governance in the future and little is known about it in the context of public service delivery. Considering that it is argued that the upcoming AI revolution, to which algorithmic governance belongs, 'will have an even greater impact than both the industrial and digital ones combined' (Makridakis, 2017. 59), it seems important to look at this as public service delivery is a thing that affects every citizen. Also, the research question can be considered urgent as the developments in algorithmic governance are going fast and they might be developments that will take public agencies by surprise.

Therefore, it is urgent to look at algorithmic governance before it is fully embedded, perhaps even in the wrong way, in those public agencies. Not only is this important for the public agencies themselves, but also for the broader field of public administration. Considering that algorithmic governance is a new phenomenon on which no public authority has been fully able to get a grasp on, it

is important that practices with algorithmic governance need to be researched. From this research question, some sub-questions can be identified. First, it needs to be examined how algorithmic governance is actually perceived by public agencies, leading to the first sub-question:

a. How do public service providers perceive algorithmic governance?

First, it must be noted that also this sub-question is of particular importance to the field of public administration. Until now, it is known what the public and the media think of algorithmic governance, but it remains unclear how the people involved in the practice of algorithmic governance look towards it. Then, after the views of public agencies towards algorithmic governance are established, it is important to look at the differences in these views on algorithmic governance. So, the second sub-question is:

b. What are the differences in the ways public agencies in the Netherlands perceive algorithmic governance in light of their public service delivery?

When possible differences are established, an important question then seems to be what the explanation is for those differences. After all, one cannot find differences and leave those differences for granted, but must examine the possible causes for these differences. So, the third and last sub-question will be:

c. How can the differences in the ways public agencies in the Netherlands perceive algorithmic governance in light of their public service delivery be explained?

This question is yet again of particular importance to public administration, as public agencies can then learn how to transform the organization to make it an organization which adequately embeds algorithmic governance in its public service delivery. By knowing the explanation for the differences, they can also address these differences and what needs to be done to account for change.

1.2 Research approach

As for the approach of this research, it will be one of interpretive research. An interpretive research design does not predefine dependent or independent variables, does not set out to test hypotheses, but aims to produce an understanding of the social context of the phenomenon and the process whereby the phenomenon influences and is influenced by the social context (Andrade, 2009, 81-82). This means that in order to provide an answer to the research question posed earlier, the focus lies on understanding perceptions of public agencies towards algorithmic governance and how these perceptions are created within these agencies. Providing further clarity on the case selection in this research, it must be said that all will be so-called ‘uitvoeringsorganisaties’. There are plenty of them in the Dutch political landscape, but there will only be a few selected: UWV (Uitvoeringsinstituut Werknemersverzekeringen), the Belastingdienst (Dutch tax authority) and DUO (Dienst Uitvoering Onderwijs). After all, these agencies seem to be involved in highly delicate political matters which have great impact on the daily life of citizens. Their decisions and way of public service provision affect the numerous stakeholders that these

organizations have and the problems they face are directly transferred to those stakeholders. Looking at the sort of analysis this research will involve, it seems to be best to do a content analysis which focuses on a comparison between the three agencies. After all, in order to look at how algorithmic governance is seen by these agencies, it is important to look at documents stemming from the organization or the environment around the organization on the possible uses of algorithmic governance in their public service provision. In short, three Dutch agencies, the UWV, DUO and Belastingdienst will be examined in the way they perceive algorithmic governance through a comparative case study within an interpretive research design.

2. Theory

2.1 Introduction

It has become clear by now that algorithmic governance can be defined in different ways. However, to look at this in more depth and to give a sound answer to the research question, a theoretical model needs to be introduced. In doing this, three separate parts can be distinguished. First, my aim is to go in on the recent debate surrounding the rise of algorithmic governance, hereby developing a framework for what algorithmic governance holds. Then, my purpose is to go further in on the specific part of algorithmic governance that is automated decision-making, resulting in a construction of the concept of automated decision-making. Finally, my aim is to provide for a theoretical link between the specific concept of automated decision-making and the phenomenon of public service provision, ending with a construction of a model for algorithmic governance in public service delivery. Together, they must make for a sound theoretical model which can be used further in this research to give a precise answer to the research question which is central in this research.

2.2 The concept of algorithmic governance

Over time, there have been several attempts to look at algorithmic governance and the definition of it. To provide further context with regards to definition, the works of Danaher et al and Yeung have tried to give an account of what algorithmic governance holds. According to Danaher et al, this definition is twofold. In their view, algorithmic governance is used either as an addition in a traditional bureaucratic decision-making system or in an algorithm-based decision-making system, to which decision-making authority is outsourced (Danaher et al, 2017, 2). This is not the only definition there is, as Yeung in her paper also attempts to tackle the concept of what she calls 'algorithmic regulation' (Yeung, 2018, 506). In doing this, she distinguishes algorithmic decision-making, which refers to the use of algorithmically generated knowledge systems to execute or inform decisions, from algorithmic regulation, that refers to regulatory governance systems that utilize algorithmic decision-making (Yeung, 2018, 507). With this in mind, the recent scientific debate about algorithmic governance can be further explored. A large part of the recent debate takes an exploratory approach, looking for risks and opportunities of algorithmic governance.

An important work in this regard is that of the European Parliament Research Service (EPRS), which provides an overview of the risks and opportunities of what they call 'algorithmic decision systems' (EPRS, 2019, I). In their paper, they focus on the consequences of algorithmic decision-making for the individuals, public sector and private sector (EPRS, 2019, I). Since this research is about the public sector, it will only stress the consequences in that particular field. One of the things noted is that algorithmic governance can be used to enhance existing services and even provide new services (EPRS, 2019, II). In addition to this, they state that algorithmic governance can help make administrative decisions more efficient, transparent and accountable, under the condition that the algorithms used are transparent and accountable (EPRS, 2019, II). Looking at the risks, they distinguish several of them in their paper. Among those are the risk of becoming overwhelming and oppressive, the risk of misuse by

states to control people and the damaging of the integrity of democratic discourse (EPRS, 2019, II). Lastly, this paper makes a start with providing criteria for algorithmic governance. These are transparency, explainability, accountability, safety, integrity and availability, confidentiality and privacy and fairness (EPRS, 2019, III-IV).

In a paper by Engstrom & Ho, it can be seen that what they address in terms of the risks of and criteria for algorithmic governance are to a large extent the same issues. For instance, it goes in on accountability, saying that artificial intelligence is moving to the center of administrative governance (Engstrom & Ho, 2020, 48). However, their main thesis is that the body of law that there is at the moment is not suited for algorithmic governance and that a redesign is needed to maintain the principles of transparency and reasoned decision-making (Engstrom & Ho, 2020, 48-49). Lastly, the article by Yeung, which was mentioned earlier in this paper, also notes some critiques of algorithmic governance, dividing those in different categories. First, there are legal critiques, being the undermining of individual autonomy through algorithmic profiling, the lack of meaningful opportunities for affected individuals to contest algorithmic decisions and the subjective processes in every stage of algorithmic development (Yeung, 2018, 515-516). Second, there is a section about algorithmic accountability and the social foundations of democracy, which states items such as the need for meeting the requirement of explainability and the asymmetrical nature of power relationships, bringing the balance of constitutional democracy into danger (Yeung, 2018, 517-518).

All in all, one can create a model for conceptualizing the concept of algorithmic governance, which includes several elements. One of these elements are the risks associated with algorithmic governance, while yet another is the opportunities associated with it. Also, its key characteristics must be included. Visualizing this model, one can see that it takes a form like this:

Ways of use	**Opportunities**	**Risks**	**Relationship with**
Addition to regular decision-making: informing	Efficiency	No ability to contest decision	Transparency
Outsourcing of regular decision-making	Transparency	Balance of democracy	Accountability
Addition to regular decision-making: executing	Accountability	Undermining of individual authority	Safety
	Enhance existing services		Integrity
	Creating new services		Availability
			Confidentiality
			Privacy
			Fairness

2.3 Automated decision-making

With regards to automated decision-making, it can be seen that it is something that has been discussed for a long time. For instance, an article as early as 1964 already talks about the 'handing over such operations to machines' (Kraft, 1964, 99). More recently, automated decision-making has become linked to the phenomenon of big data (Monteith & Glenn, 2016), meaning that automated decision-making is, in the current day, inherently bound to the phenomenon of big data and artificial intelligence. Therefore, one could state that automated decision-making is a sub-part of algorithmic governance. This can also be seen in scientific publications on algorithmic governance, as for example the 'outsourcing of decision-making authority' by Danaher et al (Danaher et al, 2017, 2) ties up very closely with what one would call automated decision-making. Also, in the paper by Yeung, the term 'algorithmic decision-making' (Yeung, 2018, 507) seems very similar with what one would deem to be automated decision-making. Still, it is needed to be a bit clearer in a definition of what automated decision-making specifically is. An article by Spielkamp tries to develop such a definition. In doing this, they consider automated decision-making systems to be procedures which are initially – partially or completely – delegated to another person or corporate entity, who use automatically executed decision-making models to perform an action (Spielkamp, 2019, 9). Also, they note that automated decision-making falls under the broader phenomenon of artificial intelligence, but that that term is ill-defined and not very useful to address issues that are at stake (Spielkamp, 2019, 9).

However, the scientific debate about automated decision-making does not stop with just a debate around the definition of the concept. A paper by Spielkamp is only one of the many to discuss other aspects of automated decision-making. It focuses on four different issues. To start, it focuses on how society discusses automated decision-making (Spielkamp, 2019, 10). Then, it goes over to a discussion of the regulatory proposals for automated decision-making (Spielkamp, 2019, 10). Following this, they look at the oversight institutions and mechanisms in place (Spielkamp, 2019, 10). Lastly, an attempt is made to highlight the examples of automated decision-making already being used (Spielkamp, 2019, 10). Perhaps the most interesting conclusion here is that the report shows that automated decision-making systems are already used all around the EU, from Sweden to the United Kingdom (Spielkamp, 2019, 10).

Furthermore, there is a paper by Malgieri, which analyses Member States' laws that have implemented the GDPR in the field of automated decision-making (Malgieri, 2019, 1), In contrast to the paper by Spiel, this paper takes a rather legal approach, looking on the issues faced when dealing with legislation. One of the things this paper notes is that when looking at how national laws are implementing the GDPR in terms of automated decision-making, four different approaches can be found in the EU (Malgieri, 2019, 6). First, there is what the author calls the negative approach. This is an approach in which the Member State does not provide any specific case of permitted automated decision-making (Malgieri, 2019, 6). A second approach is the neutral approach. With this approach, the Member State

has implemented the Article 22 of the GDPR (which is about automated decision-making), but it proposes no specific suitable measure to safeguard the data subject's rights and freedoms and legitimate interests (Malgieri, 2016, 6). Third, there is the procedural approach. Here, the Member State provides specific safeguards, but these are mainly based on a description of procedures that data controllers should take when they perform automated decision-making on individuals (Malgieri, 2019, 6). Some examples of these procedures are notification and review and a number of ways in which the impact of the algorithm can be assessed (Malgieri, 2016, 6). Fourth, there is the proactive approach. Member States that have this approach propose new and more specific safeguards under Article 22 (Malgieri, 2019, 6). To give this approach some background, the writer distinguishes one of those specific safeguards, being the right to know weighting parameters of algorithms (Malgieri, 2019, 6). Looking at the specific context in which this research is situated, it is also helpful to look at the Dutch case he mentions in his paper (Malgieri, 2019, 11). Here, there are two matters to consider. First, the writer notes that the Dutch approach is rather general: where other countries base exceptions on a specific field, a specific act or a specific safeguard, the Dutch law bases it on the two specific bases that are legal obligation and public task (Malgieri, 2019, 11). More concretely, the only two legal bases on which automated decisions are not permitted are legitimate interests of the controller and vital interests of the subjects or of third persons (Malgieri, 2019, 11-12). Second, it is remarkable that the Dutch Law distinguishes between administrative authorities and private authorities, of which the first are free to choose and determine appropriate measures to safeguard individuals (Malgieri, 2019, 12). In contrast to this, private authorities have an explicit list of safeguards that should be taken (Malgieri, 2019, 12).

Furthermore, Goodman & Flexman look at the issues that are raised with automated decision-making. Here, it seems that the authors make a difference between issues about the data that is put in the algorithm and the working of the algorithm itself. To focus on the paper by Goodman & Flexman, it distinguishes two sets of issues that are raised in automated decision-making and the use of algorithms within automated decision-making (Goodman & Flexman, 2017, 56). One of these is that algorithms must not only be efficient, but also transparent and fair (Goodman & Flexman, 2017, 56), which is a concern about the algorithm itself. Another set of issues concerns the issue of discrimination within algorithms (Goodman & Flexman, 2017, 56), which is a concern about the data input for the algorithm. To find another issue identified in scientific literature, one must go back once more to the paper by Spielkamp, in which it is noted that it is not only needed to ask what data is used, but also whether the use of this data is legal (Spielkamp, 2019, 9). Concluding, one could say that there are differences between algorithmic governance and automated decision-making which are of importance to this research. Therefore, these need to be taken into account in a theoretical model. Visualizing this, one could spot the following differences:

	Automated decision-making	**Algorithmic governance**

Range	limited to decision-making powers	wider range of possibilities, including information gathering
Way of decision-making	Outsourced	Outsourced or addition to normal decision-making

2.4 Perceptions of algorithmic governance in public service delivery

Since this research takes place within the specific context of public agencies, it is good to look at how a theoretical model for perceptions of algorithmic governance in public service delivery can be made. An important question to be answered when developing this theory is how public service delivery can be best defined. An attempt to define it is made in a paper by Koppenjan, who sees it as having six distinctive characteristics (Koppenjan, 2012, 12). First, he notes that public services rarely involve the realization of a single, clear objective (Koppenjan, 2012, 12). In addition to this, he notes that public service delivery is more than cost and efficiency: it includes a social aspect (Koppenjan, 2012, 12). Following this, his statement is that public service delivery is not just about results, but also about the way those results are reached: legality, legitimacy and transparency are not to be forgotten (Koppenjan, 2012, 12). Next, governments do not have normal clients, as there is often a non-working supply and demand mechanism (Koppenjan, 2012, 12). Furthermore, quality in public services is only achieved in connection with other services (Koppenjan, 2012, 13). Finally, public service delivery calls for public service providers that are particularly committed (Koppenjan, 2012, 13).

A next step in developing a theory for perceptions of algorithmic governance in public service delivery is to look at existing frameworks for public service delivery and to see how they could tie in with algorithmic governance. To start with defining what public service delivery goals are, a paper by Denhardt and Denhardt says that 'the emphasis should not be placed on either steering or rowing the government boat, but rather on building public institutions marked by integrity and responsiveness' (Denhardt & Denhardt, 2015, 549). Still, this is rather abstract to serve as a framework for the goals of public service delivery. A more concrete attempt to capture the nature of public service delivery is the so-called SERVICE framework from a paper by Osborne et al, who identify seven elements in public service delivery: system, embed, relationships, value, innovation, co-production and experience (Osborne et al, 2015, 434). These elements are developed through several statements, of which the first is that public services are not to be seen as just organizations but as systems, recognizing the multiplicity of elements in such services (Osborne et al, 2015, 428-429). Then, there is the notion that public service providers need to embed organizational sustainability in the short term, as this is a sufficient condition for long-term sustainability (Osborne et al, 2015, 429). In addition to this, the authors say that public service providers are dependent upon building relationships, especially long-term relationships, rather than looking for transactional value on the shorter term (Osborne et al, 2015, 429). Moreover, they note that internal efficiency is a necessary thing for public service providers, but that this is not enough on

its own, as there needs to be an outward-facing focus on creating value (Osborne et al, 2015, 431). Also, they state that innovation is needed to achieve service efficiency and effectiveness for the delivery of public services (Osborne et al, 2015, 431). Furthermore, their statement is that for effective performance and innovation in public services, there is one major source: co-production, adding user involvement into the process of service delivery (Osborne et al, 2014, 432). Finally, they distinguish knowledge as a key resource for public service providers, as they can use it for delivering service experience (Osborne et al, 2014, 433).

In a work by Lopes et al, four elements in public service delivery are distinguished: strategy, capacity, innovation and evaluation (Lopes et al, 2017, 6). Here, the strategy dimension is composed by the policy and strategy that provides overall direction, priorities and guidelines for the delivery of public services (Lopes et al, 2017, 6). Examples of strategies are policy, strategy and planning, infrastructure development and promotion of public service (Lopes et al, 2017, 6). In addition to this, there is the capacity dimension, which considers the institutional development in the public sector and the abilities of civil servants with regards to initiatives, policies and decision-making (Lopes et al, 2017, 6). Examples of this are the integration of services, empowered civil servants and public awareness and consulting (Lopes et al, 2017, 7). Then, there is the innovation dimension, which consists of promoting collective learning, collective intelligence and social participation in service delivery and policy making (Lopes et al, 2017, 7). Examples of this are innovating citizens' experience, innovation for public service and engagement and participation (Lopes et al, 2017, 7). Finally, the evaluation dimension is concerned with the impact of the public service delivery and the monitoring and measurement of that impact (Lopes et al, 2017, 7). Examples of this are monitoring and evaluation, evidence-based policy making and improving measuring capabilities (Lopes et al, 2017, 7). A work by Engin and Treleaven seems to be in line with these categories of public service delivery in algorithmic governance, as they distinguish several strategies for algorithmic government, one of them being the interaction with and delivery of services to general public with digital government services, including digital government services and gathering public opinion to drive policy (Engin & Treleaven, 2019, 452). This seems to be in line with what Lopes et al call the innovation of public service. Another category is the support for civil servants with for instance real-time management (Engin & Treleaven, 2019, 452-453). There are similarities between this and the capacity element of the work of Lopes et al, as there is in the capacity element also the notice of the empowerment of civil servants. A last element which needs to be highlighted in the work of Engin & Traleaven is that of public policy development, as new technologies provide powerful tools for future policy development and modeling (Engin & Treleaven, 2019, 455). This public policy development is in agreement with the strategy element as noted in the work of Lopes et al.

With these academic works in mind, one could then build a theory of perceptions of algorithmic governance in public service delivery. This will then be built upon the existing framework of Lopes et al, who distinguish strategy, capacity, innovation and evaluation as elements of it. A further look can then be taken at how much of these elements is present in a public agency's perception of algorithmic

governance. It could for example be that one public agency perceives algorithmic governance more as a chance to improve the element of strategy, for instance through infrastructure development, whilst another agency sees it as a chance for capacity through more empowerment for civil servants. All in all, differences between public agencies in their perceptions will then concern differences in the perception of these elements in light of algorithmic governance.

Finally, taking into account that this research is not only there to look for differences, but also to explain those differences, one would need to form a theory about possible explanations for the differences that might be found in this research. When looking for differences between views of agencies, one possible explanation could be differences between those agencies themselves. These can be found in the work of Mintzberg, in which he points out five configurations of organizations: a simple structure, a machine bureaucracy, a professional bureaucracy, a divisionalized form and adhocracy (Mintzberg, 1980, 329). Furthermore, there are some additional contingency factors, to which belong age and size of the organization, the technical system of the organization, the environment of the organization and the external control on organizations (Mintzberg, 1980, 327-328). Through these configurations and the contingency factors, one should be able to explain the differences in perceptions of algorithmic governance through the differences amongst the organizations. A side note that needs to be placed here is that the theory of Mintzberg might not be specific enough to capture the differences between public agencies, as they are specific form of public organization, making them a too specialized category to use these elements in an appropriate way. In order to be fully able to capture those differences, it might be more helpful to use the elements of public service delivery as stated by Koppenjan, which were mentioned earlier: multiplicity of goals, the importance of the social aspect, the ratio between goal orientation and process orientation and the connection to other services (Koppenjan, 2012, 12). Together, they can make up for a sound explanation of similarities and differences between public agencies in their perception of algorithmic governance. In sum, one can visualize perceptions of algorithmic governance in public service delivery. In order to do this, the key characteristics of public service delivery and differences in those characteristics must be set out. Also, explanations for these differences must be included. All in all, a visualization of the theoretical model created in this section would look like this:

Differences in public service delivery	**Explanations for differences in public service delivery**
Strategy	Multiplicity of goals
Capacity	Importance of social aspect
Innovation	Process orientation in contrast to goal-orientation
Evaluation	Connection with other services

2.5 Conclusion

In this theory part, my aim has been to lay out a theoretical framework for the research work that is to be done in the following sections. In doing so, several parts have been distinguished in order to account for an appropriate theoretical model that will be able to answer the research question of this paper. What has been constructed in this theoretical framework is first a model that tries to capture the concept of algorithmic governance. Through combining key insights and key characteristics about the working of algorithmic governance, it is now sufficiently conceptualized in order to build upon in the remainder of this research. In addition to this, to make clear what perceptions of automated decision-making are possible in terms of public service delivery, the key aspects of this phenomenon have been distinguished. Moreover, more clarity has been provided with regards to the differences between algorithmic governance and automated decision-making. Finally, to be able to analyze the differences in perceptions towards automated decision-making in different public agencies, further notice has been given to the form these differences can take. After all, when the form of these differences can be clearly and quickly examined, an appropriate answer to the research question could be made in a more consistent way. Also, the key explanations for those differences have been identified, leading to a theoretical model of what explanations can be found when looking at differences between public agencies.

3. Methods

With the aim of this research in mind, which is looking at differences in perceptions of algorithmic governance and the possible explanations of those differences, there are some things that still need to be made clear. To start, an explanation must be given of the cases selected with regards to their current state in algorithmic governance. Behind this, there lies the logic of demarcation: to properly investigate public agencies' perception of algorithmic governance, one must draw a line with regards to what cases are selected. Furthermore, it needs to be shown that data available is suited to answer the general research question. In this research, that is the case, as there are news articles, official documents and academic reports which can help with answering that research questions. Finally, it is shown that data analysis will be done via a coding scheme, which includes the differences in perception and the causes for those differences as most important factors. Through focusing on these elements, the method of data analysis will pave the way for an adequate answer to the research question.

3.1 Case selection

In my view, this research has a certain amount of requirements for its case selection. First, it concerns a Dutch setting, so public agencies picked are only those who are embedded in the Dutch institutional framework. Then, the organization has to be a public agency, for which the report of the Algemene Rekenkamer is used, in which there are 22 public agencies distinguished (Algemene Rekenkamer, 2013, 111). Out of these 22 agencies, my decision is to pick three of them. In explaining why these three are picked to analyze, one needs to provide a bit further insight in how these cases are constructed. There are several steps in this process. First, there is a requirement that a case needs to be involved with algorithmic governance to a large extent. Not all public agencies are evenly part of the development of algorithmic governance, so this needs to be taken into account when trying to make cases comparable. Then, these organizations need to be heavily involved in public service delivery, preferably on a daily basis and with a high level of interaction between agency and individual. Also, the cases picked are close to citizens in the sense that they involve delicate political and personal matters, such as the personal financial situation of an individual. Combining all these elements, the following three cases have been identified.

To begin, there is the Belastingdienst, the Dutch tax authority. This organization is often involved in political discussions, as described before with regards to a fraud scandal in 2019 (NOS, 2019). Looking at where this agency stands with regards to algorithmic governance, research by Dutch news platform NOS has shown that predictive algorithms are already used in processes in the Belastingdienst (NOS, 2019). Besides this, there is little information about algorithmic governance in

the Belastingdienst and how algorithmic governance is seen by the agency.

Then, there is the UWV (Uitvoeringsinstituut Werknemersverzekeringen), which is responsible for handling welfare benefits in the Netherlands, such as unemployment benefits. Looking at where this agency stands with regards to algorithmic governance, it is known that they use algorithms for detecting fraud (Binnenlands Bestuur, 2020). However, there is not much further information on the use of algorithms and the perception of algorithmic governance in light of their public service delivery.

The last case is DUO (Dienst Uitvoering Onderwijs), a public agency that is concerned with the financial situation of students. There is, until now, little known about algorithmic governance in the agency and the view of the agency towards algorithmic governance, but according to the NOS, which bases itself on documents from the government, the agency uses algorithms for fraud detection and decision-making regarding the provision of financing for students (NOS, 2018). In short, all of these cases are politically controversial agencies who already use algorithms in some sort of way, making it interesting to look at how algorithmic governance is regarded in these agencies.

3.2 Data collection

With regards to research question of this paper, it is needed to be able to give an answer to it through data analysis. However, one needs then to be sure that data used is appropriate and adequate for finding a sound answer to the research question. The data in this research will be, for the most part, qualitative data. Since the analysis done in the research is a content analysis, one must rely on recorded documents. The qualitative stance used in this research cannot be explained only by the fact that a content analysis will be done. After all, there is a possibility to do a content analysis with quantitative data. However, the qualitative approach is used because documents in text give, in my opinion, a more concrete description of the view of these agencies. Of course, one could consider quantitative data like how often algorithmic governance is used or for how many people, but this does not coincide with the aim of interpretive research, which is developing an understanding of the views of agencies and the reasons behind those views (Andrade, 2009, 81-82). Therefore, this can only be done with qualitative data.

Further attention needs to go to the demarcation of the articles used in this research. Generally, they can be distinguished into three categories. A first category is news articles, which are of course to be drawn from reliable sources. These reliable sources are the major Dutch newspapers , for example the likes of NRC, Volkskrant and Trouw and other reliable websites from which the author can be identified. A second category is official documents from public institutions, like the official magazine of the UWV or information from the website of the Belastingdienst. A third and last category is semi-scientific papers, for example a study by statistics bureau CBS. Mostly, this category involves papers which have not been published in a scientific journal, but are semi-scientific and relevant for the topic of algorithmic governance. My consideration is that these three categories together can provide for a general understanding of algorithmic governance in public agencies, as news articles can give a more citizen-based perspective to algorithmic governance in public service delivery. In addition to this, documents from the agencies themselves can provide an insight into the way agencies perceive

algorithmic governance and semi-scientific documents can maintain an analytical view whilst not losing the sight on practical matters. Moreover, since algorithmic governance is a multi-faceted concept, it would be a waste to look at only one type of source, since different types can be more helpful when considering the multi-faceted nature of algorithmic governance in public service delivery.

There are some additional requirements for data collection, one of them being that the document needs to have algorithmic governance or automated decision-making in combination with public service delivery as main focus. However, this is easier said than done, as there still remains a large collection of documents which all have this main focus, but a different angle towards it. In my view, this is a rather positive thing. Furthermore, a requirement is that of the publishing date of the documents used. Since algorithmic governance is a relatively new concept, it is relatively easy to distinguish a time period for the documents used. Most documents which have been found about algorithmic governance have no date of appearance before the year 2010. Considering that there have been almost no articles before 2010 and that those probably are of inferior quality in comparison to the documents after 2010, my choice is to maintain a boundary being that they have to be published after the year 2010. In sum, it has been argued that data used for this research will be derived from three types of sources, being news articles, official documents from the agencies and semi-scientific articles which have not been published in a scientific journal. With regards to the number of documents, the collection consists of 27 documents. Together, they form a collection with a total number of 507 pages.

3.3 Method of data analysis

In order to provide an answer to the research question of this paper, there is another element besides data that needs some further attention, which is the method of data analysis. After all, the data for this research comes in large chunks and it is no need to analyze it without a good framework to make sense of the data that is used in this research. In order to make proper use of the data collection which has been highlighted before, there needs to be a reasoning behind finding an answer to every sub-question and eventually the general question of this paper. To start with the first sub-question, the focus here lies on what the perceptions of public agencies with regards to algorithmic governance actually are. These perceptions are oftentimes difficult and complex and therefore need to be separated in different categories. These categories will then be based upon the key elements of public service delivery which were mentioned earlier in the theoretical model. To begin, there is the element of strategy, which involves the general policy of the public service delivery. In addition to this, there is the element of capacity, being the resources that are used for the delivery of the public service. Next, there is the element of innovation, focusing on the promotion of public service and items like participation and engagement. Lastly, there is the element of evaluation, being the impact of the public service delivery and the measurement thereof. All these elements play a role in the perception of public agencies towards algorithmic governance. It could be that one element is more important in an organization than another in the light of algorithmic governance, but what needs to be made clear here is that perceptions of algorithmic governance will be examined on the basis of these elements. Through this, one can answer

the first sub-question. Consequently, one can then quickly give an answer to the second sub-question of this research, being the differences or similarities between these agencies in terms of their perceptions of algorithmic governance. Since the perceptions of these agencies are known, one can notice differences or similarities in the way they see the elements of strategy, capacity, innovation and evaluation in light of algorithmic governance. Going over to the third and last sub-question, being possible explanations for the differences or similarities between public agencies in terms of their perceptions of algorithmic governance, this question is one that needs to be answered with characteristics of the agencies themselves. Earlier, it was noticed that these characteristics might differ between agencies and therefore might be a good explanation for either similarities or differences between these agencies in terms of their perception of algorithmic governance. To be able to categorize the causes of these differences or similarities, work by Koppenjan is used. From that work, there are a total of five possible categories to which causes can be assigned. These are the connection to other services, the importance of the social aspect, the extent of a goal orientation within the agency, the extent of a process orientation within the agency and the multiplicity of goals. On the basis of data which highlights these characteristics in the specific public agencies, differences between the agencies in general and differences between the agencies in terms of their perceptions of algorithmic governance can eventually be linked. In sum, the coding scheme that helps going through the phases of answering the sub-questions and eventually the general research question of this paper would look as follows, with the concept of public service delivery mostly based on the work of Lopes et al and the work of Koppenjan as a basis for the agency characteristics.

Concept	**Dimensions**	**Keywords**
Perceptions in public service delivery	Strategy	priorities, guidelines, policy strategy
	Capacity	skills, employee empowerment
	Innovation	collective learning, collective intelligence, social participation
	Evaluation	monitoring, impact, assessment
Agency characteristics	Connection to other services	embeddedness, network
	Multiplicity of goals	stakeholders, trade-off,
	Goal-oriented	effectiveness, efficiency
	Process-oriented	legitimacy, legality, transparency
	Importance of social aspect	devotion, providing help

3.4 Conclusion

Concluding, there are a few key insights that this chapter has delivered. First, it has been shown that the cases picked for this research are the UWV, the Belastingdienst and DUO, for they are comparable in their state of algorithmic governance and their political and personal importance in the way they deliver their specific public service. In addition to this, it can be concluded that data used in this research can be categorized in news articles, documents from agencies themselves and semi-scientific documents, all needing to be published before 2010 and with algorithmic governance or public service delivery as major focus. Finally, the method of data analysis in this research is one which uses a framework for differences in perception that concerns the elements of strategy, capacity, innovation and evaluation and a framework for causes of those differences with the elements of the multiplicity of goals, the extent of goal orientation, the extent of process orientation, the connection to other services and the importance of the social aspect.

4. Analysis

4.1 Introduction

In this analysis, there a few things that will be argued. To start, the perception of algorithmic governance which is dominant in these public agencies is generally one that considers algorithmic governance as a chance to improve organizational efficiency and leaves the secondary consequences that come with algorithmic governance out of the equation. In addition to this, the differences between public agencies in their perceptions seem to be minimal. It will be stated in this chapter that these similarities between public agencies are to a large part a consequence of a specific culture within public agencies. A key message is that because of the specific characteristics of these agencies, algorithmic governance is first and foremost seen as a chance to improve the organizational processes instead of looking at the secondary consequences of this improvement.

4.2 Perceptions of algorithmic governance in public agencies

As noticed before, there is a problematic aspect to algorithmic governance in the sense that its meaning and purpose can be described in numerous ways. Taking into account that algorithmic governance is a relatively new phenomenon, it can be seen that there is not yet a common approach to what algorithmic governance actually is and what it can mean for an organization. However, it can generally be seen that the perception of algorithmic governance by public agencies is frequently focused on the sole meaning for the organization itself rather than on the public responsibilities that come with using algorithmic governance in public service delivery. To provide further context, the three cases will now be further highlighted, starting with an overview of how algorithmic governance is used and perceived before going in on possible problematic elements of that perception.

4.2.1 Uitvoeringsinsituut Werknemersverzekeringen (UWV): 'no combination of data from multiple organizations' deemed as 'incorrect and nonsense' .

Starting with the first case, the Uitvoeringsinstuut Werknemersverzekeringen, it can be noticed that their perception is one which focuses on innovation, strategy and the enhancement of existing services. However, the main thing here is that their perception leaves little to no room for a consideration of the consequences of their algorithms for secondary actors. Looking at the use of algorithmic governance, it can be seen that algorithms within UWV look at 'predicting factors to determine who enters the unemployment welfare program' (in Dutch, the WW) (UWV Magazine, 2019, 18). In doing so, they compare employees from East and Middle Europe with people with Dutch or other nationalities (UWV Magazine, 2019, 18). Going over to their perception of algorithmic governance, it is noted that the UWV sees algorithmic governance as a chance, as they want 'to gather as much relevant information as possible to make predictive analyses' (UWV Magazine, 2019, 18). Taking a closer look on the distinction between strategy, capacity, innovation and evaluation, it can be seen that the perception of

UWV mostly involves the categories of innovation and strategy. It suits innovation because this approach tries to develop collective intelligence within the public agency. Moreover, it suits strategy because it is a policy approach to look at trends before those trends are happening in order to harmonize the policy approach with those upcoming trends. All in all, it can be seen that the UWV perceives algorithmic governance mostly as a chance to enhance existing services and not as a chance to create new services.

However, there are some problematic and remarkable elements to the perception of algorithmic governance by the UWV. Recently, UWV said that it will investigate the systems it use for the detection of fraud, after a ruling by the judge to abolish another fraud system used by the Dutch government (NOS, 2020). One would say that these are 'questions which the agency should have answered before introducing such a system' (NRC, 2020), but doubt about their own systems was only thought of after a judge ruled out another government system. Whilst one could argue that an agency eventually executes tasks for government and that the government therefore should answer these questions for them, it still points towards a lack of thought towards the consequences of their algorithmic governance system for other actors than themselves, especially considering the fact that they are a 'autonomous agency of governance' (UWV, 2020). To look at what UWV has not given attention to by not answering questions beforehand, it would be best to illustrate the role that discrimination can play in data. It has long been stated that algorithms are in themselves not discriminatory, 'producing the same output from every input and therefore being amoral' (NRC, 2019). However, 'data are not free from human interference and can be biased in many ways' (NRC, 2019). These insights seem to be insufficiently present in the processes of the UWV, which does not make notice of this in any official document. In addition to this, there is a problematic aspect of the perception by UWV that concerns the sharing of data with other organizations. In their reaction to the judgment noted earlier, UWV says that it 'does not combine data from multiple organizations' (NOS, 2020). This seems to be highly doubtful, since an expert in the field notes that this is 'incorrect and nonsense because the UWV has copies of for example the population register' (Computable, 2020). In sum, there seems to be a pattern at the UWV with regards to their perception of algorithmic governance. This pattern reveals that UWV's perception is more focused on the beneficial aspects of algorithmic governance for the organization itself than on the beneficial aspects for public service delivery, which is a public task in which elements like transparency, accountability and the consequences for other actors should be taken into account.

4.2.2 Belastingdienst: risk scores and a 'hunt for fraudsters'

Then, there is the next case, that of the Dutch tax authority, the Belastingdienst. As with the UWV, it is again noticed here that the Belastingdienst's perception of algorithmic governance leaves little to no room for a consideration of the external consequences of their use of algorithms. Starting with a closer look on use of algorithmic governance within the Belastingdienst, an interview with a data scientist working at the Belastingdienst notes that algorithms are used within the Belastingdienst to 'establish linkages between claims that are not paid and possibilities to collect these claims' (Belastingdienst,

2020). It is also noted here that the goal of this is 'to provide insights which are needed to help advance both the organization itself as well as the Dutch citizen' (Belastingdienst, 2020). Still, this is a rather vague description of how algorithmic governance is used in the Belastingdienst and especially of what the Belastingdienst exactly wants to reach with algorithmic governance. A more concrete attempt can be found in a report about the so-called 'toeslagenaffaire', in which parents were mistakenly deemed as fraudsters (NOS, 2019). This report provides insights in the way of dealing with algorithms by the Belastingdienst. It notes that the Belastingdienst, in the same way as the UWV earlier did, 'makes risks analyses with algorithms' (Adviescommissie uitvoering toeslagen, 2020, 60). This risk analysis is done with 'a lot of indicators and every client gets a risk score for each indicator' (Adviescommissie uitvoering toeslagen, 2020, 60). Eventually, this 'results in an accumulated risk score which plays a large role in the decision for further control and judgment of a request for allowance' (Adviescommissie uitvoering toeslagen, 2020, 60). Taking a further look, it can be noticed that the perception of the Belastingdienst towards algorithmic governance is mostly one in which strategy and capacity play a large role. This strategy factor is due to the focus of the Belastingdienst on resource mobilization and utilization, illustrated by the comment that the Belastingdienst 'would not be able to function without computers, algorithms and automatized processes' (Adviescommissie uitvoering toeslagen, 2020, 62). Capacity plays a large role because algorithms of the Belastingdienst focus on empowering civil servants, illustrated by the comment that 'before the algorithms the employees had to investigate possibilities themselves, now they get a targeted advice' (Belastingdienst, 2020). This comment does not only put emphasis on the aspect of capacity in the Belastingdienst's perception of algorithmic governance, but also on the aspect of efficiency. In the perception of the Belastingdienst, a large emphasis is put on the beneficial aspects of algorithmic governance for efficiency. Illustrating this is a comment which says that 'the Belastingdienst works information-based, meaning that we use data to enrich our information position and make enforcement as efficient and effective as possible' (Belastingdienst, 2020).

Again, there are some problematic elements with the perception of the Belastingdienst. These mostly concern the issue of their heavy focus on efficiency. There is a good point in wanting to improve the efficiency of the agency and it also seems to be a quite normal requirement in an organization. However, a distinction between efficiency and the broader phenomenon of improving services must be made here, as enhancing services involves improving the public task of public service delivery, increasing the efficiency of it but at the same time keeping in mind aspects like transparency, controllability and accountability. In contrast to this, improving efficiency seems not to be part of the broader concept of improving services but rather an independent requirement. By stating this as an independent requirement, the way is paved for a 'whatever it takes'-attitude. This results in events like 'experts questioning the information hunger of the Belastingdienst' (NOS, 2020) and elements of the 'toeslagenaffaire' like 'the intensive control of citizens because millions of euros needed to be regained in the hunt for fraudsters' (RTL Nieuws, 2020). In sum, the perception of the Belastingdienst is one-

sided and focuses too heavy on efficiency without taking into account secondary consequences for the public task of public service delivery.

4.2.3 Dienst Uitvoering Onderwijs (DUO): 'parts of algorithms used are unknown to us'

Finally, there is the third case, that of the Dienst Uitvoering Onderwijs (DUO), an organization involved with student loans and other matters regarding education, mostly related to student financing. To a lesser extent than in the other two agencies, it can be seen that the perception of DUO is somewhat one-sided and focused on their own organizational processes instead of the consequences of their algorithms. Despite this, there are still important contradictories and problematic elements in their perception. To start, some notes must be made regarding what role algorithmic governance plays in the processes of DUO. In their answer to a question posed in earlier research about what algorithms are used in the organization, they state that they do not use so-called predictive algorithms (Rijksoverheid, 2019, 45). Instead, algorithms that are used are Rete-algorithms, which have as main task the highlighting of cases which are most deviant from a set of normal circumstances (Rijksoverheid, 2019, 46). Then, it is needed to go in a bit further on the perception of algorithmic governance which can be partly explained by the goals the organization wants to reach with it. What is noted by the organization seems to point towards three particular aspects. First, it notes that it wants to use algorithms to 'come to an optimal decision' (Rijksoverheid, 2019, 45) or, as they rephrase it later, 'a legitimate decision' (Rijksoverheid, 2019, 45). Within the financing of education, this 'involves a decision about the right, duration, height and ranking of the financing' (Rijksoverheid, 2019, 45). Second, it is noted by the organization that it wants to use algorithms to enhance the service delivery towards clients (Rijksoverheid, 2019, 45). This goal seems to be in line with the aspect of enhancing existing services. Third, DUO states that another goal which they want to reach with algorithms is 'to decrease risks through improving control' (Rijksoverheid, 2019, 45). Although this is a bit difficult to categorize, one could still see this aspect fitting in two categories. One way is that comment points at the perception of algorithmic governance as improving existing services. Another way is that the minimalization of risks seems to point at a focus on efficiency rather than the more general focus of improving public service delivery. My argument would be that, since the word control is explicitly named in this statement, it would be better categorized under a focus on efficiency. Furthermore, the perception of DUO seems to involve mostly the aspects of innovation and capacity. The aspect of innovation plays a role particularly because of the focus on enhancing the service delivery towards clients, illustrated in the notion 'of improving services towards the client (the public actor)' (Rijksoverheid, 2019, 45). With regards to capacity, this can be seen in the empowering of civil servants, as the 'goal is to come to an optimal decision or a legitimate decision' (Rijksoverheid, 2019, 45). Since the decisions 'can always be explained by DUO itself' (Rijksoverheid, 2019, 47), the civil servant uses the algorithm to make a better decision, making the algorithm a tool to empower civil servants.

Then, some remarkable or even problematic elements of the DUO must be laid out in further detail. Here, the question is again whether DUO lives up to the public task of public service delivery or

rather has a more strict focus on goals for the organization itself. A problematic element is that DUO notes that 'parts of the algorithms used by the organization are not known to them, since suppliers of these algorithms deem them to be company secrets' (Rijksoverheid, 2019, 45). Moreover, DUO notes that 'decisions by them about the financing of education can always be explained by the organization itself and that the development of a decision is always transparent', (Rijksoverheid, 2019, 47). This is somewhat contradictory as it was earlier noted that DUO does not know everything of their own algorithms for they are deemed company secrets. Therefore, this statement is highly doubtful: if the organization does not know how the algorithm works, a decision is almost impossible to be explained by them. Interesting as well is what they perceive as the negatives of algorithmic governance, responding to a question about this in a very extensive way. It recognizes two main negative effects. First, a negative effect is that with the algorithm, 'fraud cases that seem to be a standard pattern can slip through even though they should not' (Rijksoverheid, 2019, 48). Second, it notes that 'mistakes in the systems used can be enlarged in the algorithmic model, leading to cases that are investigated without a clear reason' (Rijksoverheid, 2019, 48). If this is really the case, one can pose the question if the perception by DUO that algorithms can improve the efficiency of public service is justified. After all, if algorithmic decisions must be eventually checked by humans, which is the case with DUO, and more cases of fraud have to be checked, one could highly doubt the fact that using algorithms improves the efficiency of the matter. Next to the statements from the organization itself, an expert says that 'data hunger and tunnel vision seem to have replaced every form of moral compass, due to following software in mails to students and taking in passports from ex-students who have not paid back their loan' (Bits of Freedom, 2019). At first glance, DUO seems to be aware of the consequences of their perception of algorithmic governance as a chance to improve the efficiency of their organization, even noting possible negative effects themselves. However, the critical comments placed by themselves in their own documents seem not to be present in the daily working of the organization. If one would maintain the credo 'no words but deeds', DUO would not be able to live up to it.

4.3 Differences in perceptions of algorithmic governance amongst public agencies

With the perceptions of algorithmic governance becoming a bit clearer, it is good to zoom in on the differences in perceptions of algorithmic governance between the public agencies selected. What can be noticed throughout this section is that the differences between the agencies are relatively limited, even more so in practice than in their own wording of the perception. Also, it can be seen that public agencies have in common that they see algorithmic governance as a chance to improve their own organization or even solve important organizational problems, whilst the secondary consequences seem to be put, to a high extent, to the background.

4.3.1 Strategy: a focus on fraud

First, a closer look will be taken at the element of strategy. In looking at the perception of the three cases towards algorithmic governance, it can be seen that all in the cases, there is a clear perception of what algorithmic governance can do with regards to strategy. Still, there are some remarkable elements to be noticed in this. What this section wants to set out is that algorithmic governance is rather narrowly perceived in how it can be used within the organization and that there are differences with regards to how resources can be used within agencies. Starting with similarities, it is striking to see that the policy context in which the three cases perceive algorithmic governance to be beneficial for their organization is quite alike. At UWV, 'people who request for an unemployment get a risk score which is calculated by a computer system' (NRC, 2020). At the Belastingdienst, 'an automatized control is used in which a so-called risk classification model is used, where a person requesting gets a risk estimation in points' (Adviescommissie uitvoering toeslagen, 2020, 60). At DUO, there is 'no use of predictive algorithms (Rijksoverheid, 2019, 45), but 'a pilot has been done with the University of Groningen with regards to fraud investigation' (Rijksoverheid, 2019, 45-46). Clearly, the policy context which they perceive to be an important one in their perception of algorithmic governance is that of risk management, especially when it comes to fraud detection. Undoubtably, there are differences in different forms of fraud detection, but it is still remarkable to see that this seems to be present to a large extent in all agencies. Whilst it is commented that 'the range of applications has broadened to almost all aspects of daily life' (Spielkamp, 2019, 8), the context of algorithmic governance here seems to be unexpectedly narrow, which is remarkable given the applications it could further be used for in these agencies. Focusing more on fraud, it is problematic that, in a recent judgment, a judge ruled that with a similar fraud detection program, 'the government has breached the private life of citizens with regulation that was insufficiently controllable, transparent and insightful' (NOS, 2020).

Another element with regards to strategy is resource mobilization and utilization. The public agencies investigated differ in the extent to which they see algorithmic governance as a chance to get a better grip on the resources they have or to improve their use of resources. For the UWV, it is a chance to 'look if we can make predictive analyses on the basis of data, to anticipate on particular trends' (UWV Magazine, 2019, 18). In addition to this, the Belastingdienst notes that 'they are sitting on a goldmine of data' (Belastingdienst, 2020) and that 'with dynamic monitoring, employees get a targeted advice about which possibility to get money back has the most chance' (Belastingdienst, 2020). In contrast to these agencies, DUO perceives resource mobilization and utilization in a different way, noting that 'they do not make use of predictive algorithms' (Rijksoverheid, 2019, 45), but that algorithms can be used to 'come to a legitimate decision' (Rijksoverheid, 2019, 45). Here, the difference lies in the fact that where the UWV and Belastingdienst see algorithmic governance as an opportunity to better utilize their resources in a revolutionary way, DUO is holding back a bit more, judging also by the fact that 'decisions can always be explained by DUO' (Rijksoverheid, 2019, 47) and that one can then question whether resource mobilization and utilization is still a great opportunity. After all, every decision then still has

to checked by employees, making the claim of better resource utilization a highly doubtful one. In sum, it seems like public agencies generally perceive strategy in such a way that the policy context becomes rather narrow and that public agencies differ in their estimation of to what extent algorithms can help them in their resource management.

4.3.2 Capacity: reducing workload but risking 'data hunger'

Next, a look must be taken at differences in perceptions towards the role of capacity in algorithmic governance. Here, it can be noticed that there are large similarities in terms of agencies perceiving algorithmic governance as a chance to reduce workload and strengthen their information position. These similarities seem rather obvious, but eventually result in phenomena like 'data hunger', where an organization tries to gather as many data as possible without considering the relevancy of that data.

In general, it looks like capacity is perceived as a chance to make sense of data and to relieve civil servants of parts of their job. Looking at enhancing information services, it can be seen that all agencies perceive algorithms to further their insights on the large chunks of information they gather. According to the UWV, their data services are 'like a richly filled jar of candy, not only for the large number of users of the policy administration but also for a data scientist of the UWV' (UWV Magazine, 2019. 18). This same perception seems to be present at the Belastingdienst, where they make notice of 'a goldmine of data' (Belastingdienst, 2020). In addition to this, the Belastingdienst notices that from this data, they get 'insights which are needed to help the Belastingdienst as well as the Dutch citizen' (Belastingdienst, 2020), making clear that they see algorithms as a way to advance their information services through the data that is put in these algorithms. Going over to DUO, they seem to be more careful in their policy documents, noting that 'they compare the characteristics of a request with all requests, after which an algorithm notices the requests which differ most from a normal request' (Rijksoverheid, 2019, 46). On the one hand, this seems in line with what the Belastingdienst and the UWV do. On the other hand, it need not to be forgotten that DUO points out that 'mistakes in the systems used can be enlarged in the algorithmic model, leading to cases that are investigated without a clear reason' (Rijksoverheid, 2019, 48). This points at a realization within DUO that if their own information services contain mistakes, it is seemingly meaningless to use algorithmic governance as a chance for enhancing information services. Finally, it must be said that the perceived importance of enhancing information services is not a surprise, since in a paper by EPRS, it is already noted that algorithmic decision-making is used to improve existing services (EPRS, 2019, II).

A second aspect that needs to be touched upon is the empowerment of civil servants. In all cases, algorithmic governance is seen as a chance to relieve employees of some their work. At the UWV, 'there is a development of picking up issues in a collaborative way' (UWV Magazine, 2019, 18) and 'UWV data services is looking at how things can be organized on a central level in such a way that the data barriers between departments are no longer a disturbance for the collaboration within UWV' (UWV Magazine, 2019, 18-19). Through more collaboration and data sharing, one could argue that civil servants are empowered in the sense of a more even workload. At the Belastingdienst, 'before the

algorithms the employees had to investigate possibilities themselves, now they get a targeted advice' (Belastingdienst, 2020), acknowledging that this new way of working leads to more empowered civil servants and a reduce of workload. At DUO, the decisions can 'still be explained and the goal of algorithms is to come an optimal or legitimate decision' (Rijksoverheid, 2019, 45). One could interpret this in a way that since these algorithms help employees to come to a better decision, they perceive algorithmic governance as an opportunity to empower their civil servants, being it in a more indirect way than the Belastingdienst and UWV do.

However, there is one main problematic factor with the similarity in perceptions on algorithmic governance as a way to enhance information services and empower civil servants through the use of data. Until now, there have been different notions of organizations using this argument to live up to a phenomenon called data hunger. Examples are DUO, where it is noted that 'data hunger and tunnel vision seem to have replaced every form of moral compass, due to following software in mails to students and taking in passports from ex-students who have not paid back their loan' (Bits of Freedom, 2019), the Belastingdienst, where 'experts question the information hunger of the Belastingdienst' (NOS, 2020) and the UWV, where the highly doubting term of 'a richly filled jar of candy' (UWV Magazine, 2019, 18) also seems to point in this direction. Remarkable here is what one could deem cognitive dissonance in the agencies with regard to the fact that the data they are working with, are not just pieces of information. Rather, it is sensitive information from individual citizens, who are affected heavily by what happens with these pieces of data. In sum, agencies tend to forget the sensitivity of their data gathering in the process of reducing their workload and strengthening their information position. This is not a complete surprise, as earlier research by CBS noted that 'many respondents do not name negative consequences of their algorithms' (CBS, 2018, 8).

4.3.3 Innovation: 'extra millions' but no attention to citizen interaction

A next aspect with regards to perceptions of algorithmic governance is how agencies see innovation within their perception in algorithmic governance. Here, the emphasis needs to be put on two specific aspects, being the aspect of innovation for public service and the innovating of citizens' experience. Comparing these two aspects, one can see that algorithmic governance is mostly seen by agencies mostly as a chance to improve their own organizational processes, leaving citizen experience out of the equation. In all three cases, there is a view of algorithmic governance as a way to innovate public service. At the UWV, they are 'looking whether we could make predictive analyses on the basis of data, to anticipate on particular trends' (UWV Magazine, 2019, 18). At the Belastingdienst, a data scientist is described as 'working on smart data innovations which bring the society extra millions' (Belastingdienst, 2020). In addition to this, DUO notes that one of 'their three core activities in which algorithms are used is execution of public service, having as goal to deliver public service towards the client in a legitimate and trustworthy manner' (Rijksoverheid, 2019, 45).

Alongside the notion of algorithmic governance being a chance to innovate public service, there are some small comments about innovating citizens' experience with algorithmic governance. However,

the attention to this aspect is very limited. Whereas no sign of this perception can be found at UWV, it can be found to a larger extent by the Belastingdienst, who makes a small comment that 'from large amounts of data, insights are retrieved which are needed to further the Belastingdienst and the Dutch citizen' (Belastingdienst, 2020). This however does not strike with the notion of the Belastingdienst as having 'intensive control of citizens to regain millions of euros in a hunt for fraud' (RTL Nieuws, 2020). In contrast to this, DUO is somewhat more clear and concrete, noting that they 'did research on algorithms to improve the customer service' (Rijksoverheid, 2019, 45), even resulting in 'a test with IBM Watson' (Rijksoverheid, 2019, 45-46). Generally, it can be noticed that public agencies regard innovation in such a way that they see innovation only as a chance for their own organizational processes, not as a chance to improve the experience of the citizen of the particular public service. A small exception needs to be made for DUO, which is somewhat more focused on citizen experience, but the general view is that the Dutch citizen needs to be removed from the comment that 'insights are retrieved which are needed to further the Belastingdienst and the Dutch citizen' (Belastingdienst, 2020).

4.3.4 Evaluation: underdeveloped and on the wrong targets

In the perception of algorithmic governance by public agencies, evaluation is not to be forgotten. Here, my attention goes out to two aspects, being data analyzes to predict trends and monitoring and evaluation. What I seek to emphasize in this regard is that the evaluation of the use of algorithms by public agencies is underdeveloped, especially with regards to the evaluation of external or secondary consequences. With regards to data analyzes to predict trends, there can be perceived important differences between the three cases of this research. First, there is the UWV, who, as they state themselves, 'are looking whether we could make predictive analyses on the basis of data, to anticipate on particular trends' (UWV Magazine, 2019, 18). With regards to the Belastingdienst, it is noted that 'a risk score is calculated through a number of indicators' (Adviescommissie uitvoering toeslagen, 2020, 60). In contrast to this, DUO notes that 'there is no use of predictive algorithms' (Rijksoverheid, 2019, 45). Although it is probable that DUO does make data analyzes to predict trends in another way, it is clear that they use predictive algorithms to a lesser extent than the other two cases do.

In addition to this, some explanation needs to be provided with regards to monitoring and evaluation. In all three cases, this is an underdeveloped phenomenon. Moreover, where algorithmic governance is seen as an enhancement to already existing monitoring and evaluation, a focus is laid on evaluation and monitoring for the own organizational processes, not taking into account external factors. Zooming in on the three cases, starting with the UWV, it is noted there that 'investigations are ex ante reviewed to view if they are in line with the GDPR and to see if there is a legal basis for the investigations' (UWV Magazine, 2019, 19). On the one hand, this would seem a very plausible and reasonable method. On the other hand, the legal basis is not concretized and a review which only uses the GDPR seems not be in line with the wish of politicians that is 'creating stricter rules and making sure that those are evaluated' (Binnenlands Bestuur, 2019). In the case of the Belastingdienst, 'individual civil servants had to supplement their income by sanctions, leading to a form of moral corruption where

there is an institutional interest to shorten as many welfare benefits as possible' (Adviescommissie uitvoering toeslagen, 2020, 61). Lastly, there is DUO, where 'a test and acceptation trajectory is used as a part of system development' (Rijksoverheid, 2019, 47). Still, this is a rather vague description which does not provide many information about how external consequences of the use of algorithms are evaluated.

In sum, there is a major problematic element in the perceptions of algorithmic governance with regards to evaluation which is the underdevelopment of evaluation for the use of algorithms. Most agencies do not seem to have a proper framework to evaluate the use of algorithms, even though the government and semi-scientific institutions have made attempts to provide such a framework (Rijksoverheid, 2020 & Rathenau Institute, 2018). In addition to this, when such frameworks do exist in agencies, for example in the case of DUO, they seem to be rather vague or even silent about the evaluation of external consequences. Mostly, their evaluation focuses on the own organizational processes, instead of external consequences for public service and citizens themselves. This finding is remarkable in the light of earlier research by CBS which said that most organizations do test and validate their algorithms (CBS, 2018, 9). It is even more remarkable since one could argue that algorithmic governance would need more safeguards than normal governance does. This is something which is also seen in the call for 'stricter rules and making sure these are evaluated' (Binnenlands Bestuur, 2019).

4.4 Explaining differences in perceptions of algorithmic governance

In the previous chapters, it has become clear that the most prominent finding was the narrow view of agencies towards algorithmic governance and the lack of attention to secondary aspects therein. In this chapter, it is observed that there seem to be certain organizational characteristics which together make a distinct organizational culture which creates this narrow view. These organizational characteristics are a large multiplicity of goals, a goal-oriented approach, a strong connection to other services which is extended into the domain of algorithmic governance and lacking attention to the social aspect. Together, they create a culture which is responsible for the similarity of perceptions across the three agencies: a perception which focuses on efficiency and effectiveness without taking into account secondary aspects.

4.4.1 Multiplicity of goals: 'more work with less employees' leading to 'digitalization of service delivery'

First, it is needed to shed a light on the multiplicity of goals as a matter of importance when considering differences among public agencies in their perception of algorithmic governance. In general, what can be seen is that the combination between a high number of goals and lacking means to reach those goals leads to a narrow perception which is focused more on efficiency than on secondary consequences. To start with the UWV, it is noted that 'at this moment, the end of 2019, the UWV executes nine laws which belong to the core tasks and a large number of other laws' (ABDTOPConsult, 2020, 29). Furthermore, it is stated that 'this legislation is spread over four clients within three ministries' (ABDTOPConsult, 2020, 29). Two other important side notes in the case of the UWV are that 'more work is done with less employees' (ABDTOPConsult, 2020, 29) and that 'economization has foremost been solved by

productivity improvements and digitalization of service delivery' (ABDTOPConsult, 2020, 29). In the next case, the Belastingdienst, it is noted that 'earlier, the Belastingdienst was foremost an organization equipped with the task of control' (ABDTOPConsult, 2020, 23). However, 'because of the rising number of tax-paying people and laws on taxes, the personal relationship had to be left behind' (ABDTOPConsult, 2020, 23). In addition to this, it is noted that 'by now, the range of instruments has increased, including counselling and public campaigns, providing help in tax declarations and installing a Tax Telephone' (ABDTOPConsult, 2020, 23). Also, it is noted that 'economization on the Belastingdienst should have been done with the relieve of tasks, but that there have only been added extra tasks' (ABDTOPConsult, 2020, 23). A last sign of the multiplicity of goals in the Belastingdienst can be spotted in a government attempt to split the organization in three parts, 'each with an own director-general' (NOS, 2020).

A last agency which is to be considered is that of DUO, for which it is noted that 'DUO executes 11 laws and regulations, spread over four clients and three ministries, with about 2800 full-time employees' (ABDTOPConsult, 2020, 26). Moreover, it is noted here that 'DUO realized the economization by digitalizing working processes' (ABDTOPConsult, 2020, 26). All in all, there seems to be two major common phenomena which are the same across all the three cases. First, they have gotten more and more tasks to do over time, leading to a high multiplicity of goals. Second, whilst they had to execute more tasks, they were asked to do this with less economic resources. This was mostly done within the public agencies by an increase of digitalization in working processes. Therefore, the similarity in perceptions towards algorithmic governance as a way to increase efficiency are partly the result of the combination between the multiplicity of goals and the lesser resources to reach that multiplicity of goals. Striking here is that this pattern can be found in all of the agencies investigated and that it appears in a same form. An unexpected fact is that earlier processes of digitalization seem also to have an effect on the similarity of perceptions: because these agencies have already been busy with digitalization, they all perceive algorithmic governance as a logical next step in digitalizing the organization, leaving out the important questions that come with that step. Lastly, the role of politicians in this is a remarkable one. On the one hand, these agencies should focus on economization and saving costs. On the other hand, politicians seem to be first at highlighting controversies, not realizing that these might be a consequence of their desires.

4.4.2 Comparison between goal orientation and process orientation: ends before means

Taking a further look at explanations for the similarity of public agencies in their perception of algorithmic governance, the aspect of orientation within an agency must also be taken into account. In this, there is a distinction between a goal-oriented or a process-oriented agency, as 'public service delivery is not just about the result, but also about the way this result is achieved' (Koppenjan, 2012, 12). What becomes clear here is that in all the three cases, the goal orientation seems to be the dominant one, leading to a similar perception on what algorithmic governance can do to reach the ends without taking into account the means. To start with the UWV, they describe their data services as 'a richly filled

jar of candy' (UWV Magazine, 2019, 18). In addition to this, there are numerous examples of the UWV perceiving algorithmic governance as a chance to improve their organizational efficiency, for example in the comment that they want 'to combine data in a smart way to get as many relevant information from it' (UWV Magazine, 2019, 18) or in the comment that 'they are looking to make predictive analyses on the basis of data' (UWV Magazine, 2019, 18). Another element of this can be seen in that 'UWV's data services are now looking how things can be organized on a central level so that data barriers between departments are no longer a disturbance for the collaboration within UWV' (UWV Magazine, 2019, 18-19). What seems to be problematic here is that there is not much talk about the means that are used to do this. Eventually, the means in terms of algorithmic governance are the data of citizens, which are odd to describe as 'a richly filled jar of candy' (UWV Magazine, 2019, 18). In the comment of 'combining data in a smart way' (UWV Magazine, 2019, 18), the term smart is somewhat strange, as the comment of 'getting as many relevant information from it' (UWV Magazine, 2019, 18) seems to point at efficiency, which is definitely not a synonym to smartness. This can be seen as a prominent sign of the fact that within UWV, there is a dominant goal-oriented approach towards handling issues.

Going over to the Belastingdienst, a similar pattern of goal orientation without taking into account other aspects can be distinguished, as they note that 'employees get a targeted advice about what possibilities there are to regain money' (Belastingdienst, 2020). Although this fact seems rather innocent, a more clear goal orientation can be distinguished in the so-called 'toeslagenaffaire', where 'intensive control of citizens was paid because of millions of euros that needed to be regained in a derailed hunt for fraud' (RTL Nieuws, 2020). Again, it seems to be the case here that the goals can be reached easier without thinking about the consequences of this focus on goals. Finally, there is the third case, DUO. Here, there also seems to be a focus on goal orientation, being it less so than in the other two cases. In the case of DUO, the balanced view between goal orientation and process orientation seems to be noticed through the fact that it 'has researched possibilities around risk-based fraud detection' (Rijksoverheid, 2020), but at the same time it has also 'done a test with IBM Watson with regards to service delivery towards clients' (Rijksoverheid, 2020). Also, this balance can be seen in the fact that they seem to be more aware of secondary consequences, noting that 'there are acknowledged negative effects' (Rijksoverheid, 2020). Still it remains unclear whether these negative effects are also taken into account in daily processes of the organization. In contrast to the positive signs stemming from the organization itself, there are also accounts of 'DUO violating privacy rules in the hunger to retrieve student loans in time' (Bits Of Freedom, 2019).

All in all, there seems to be within all agencies a focus on ends, which was already present but is even stronger fueled with the rise of algorithmic governance. Remarkable here is that there are hints that there is a possible connection between the multiplicity of goals, as that might lead to a focus on a goal orientation which does not seem to care much about secondary consequences of that particular focus on goals only. In sum, it seems to be the case that because these agencies are responsible for so many goals that need to be reached, the goal orientation seems to become dominant, leading to a goal-

oriented perception of algorithmic governance in which secondary consequences are not justly evaluated.

4.4.3 Connection to other services: strong connections are natural but not without risks

Another aspect which may explain differences in perceptions towards algorithmic governance is the connection to other services. After all, if a public agency already has deep connections with other services in the field, it may lead to a perception in which algorithmic governance is not only seen as a chance for the own organization, but also as a chance to improve the connection with other services through data sharing, thereby helping other organizations as well. A key insight in this section is that agencies seem to find it natural to extend the existing connection to other services also in the field of data, without noticing the sensitivity of data that is retrieved from individual citizens. To start with the UWV, the connection with other services can clearly be seen by the fact that 'legislation is divided over four clients within three ministries' (ABDTOPConsult, 2020, 29). So, a high degree of connection to other services can be established. This connection to other services can also be established in the fact that 'the data services of UWV are not only a richly filled jar of candy for UWV itself, but also for numerous users of the polis administration' (UWV Magazine, 2019, 18). Also, it is noted that 'the need for more collaboration does not limit itself to UWV but also includes universities and other knowledge institutes' (UWV Magazine, 2019, 19). Going over to the Belastingdienst, it can be seen that they 'execute tasks which are spread over ten clients (nine ministries and the EU)' (ABDTOPConsult, 2020, 24). Thus, it can also be noticed here that the agency in question has a large degree of connection to other services. Then, there is DUO, an organization which 'executes about eleven laws and regulations, which are spread over four clients and three ministries' (ABDTOPConsult, 2020, 26). In all cases, it can therefore be seen that there is a large degree of connection to other services.

On the one hand, one can see this large connection to other services as positive, as no organization is benefitted by working in isolation. On the other hand, one could wonder whether the existing connection to other services should also be extended to sensitive data which is retrieved from citizens. A sign of where this has gone wrong already is the case of SyRI, a fraud detection system, 'to which the Belastingdienst, IND, UWV and Inspection SZW are all attached' (NRC, 2019). Recently, it was declared that 'the legislation which regulates the use of SyRI is not in line with the European Convention on Human Rights' (Rechtbank Den Haag, 2020). Other signs of this viewpoint that existing connections can be extended into the field of data are DUO 'having plans to provide debt declarations to banks' (Bits Of Freedom, 2019) and the Belastingdienst 'not being afraid to withdraw information from social interactions' (NOS, 2018). So, an explanation for the lack of taking into account secondary consequences can be seen in the fact that connection to other services is natural for these agencies. Therefore, agencies consider it as natural to extend these connections into the domain of algorithmic governance without taking into account the consequences of this extension. Surprising here is not the large connection to other services, which seems to be the core of these agencies, but the fact that these

connections are extended into the domain of algorithmic governance without asking important questions that need to be asked in this context.

4.4.4 Importance of social aspect: from 'lack of empathy' to 'institutional bias'

Finally, an aspect which might have an effect on differences in perceptions of algorithmic governance may be the importance of the social aspect in a specific organization or agency. One could explain this as follows. If an organization or agency conceives the social aspect to be more important, its perception could focus more on secondary aspects like privacy, transparency and accountability than on only the aspects of efficiency and effectiveness. From this section, it becomes clear that, although there are some differences between the cases, the agencies researched do not seem to consider the social aspect in a way that is sufficient, which might lead to a narrow view on algorithmic governance as a means to only increase efficiency and effectiveness. To start with the UWV, it is noted that 'citizens understand that controls are needed to confirm the legality of a welfare benefit, but that they also say that the way in which the UWV executes those controls can be more personal and client-friendly, with a less pedantic tone' (ABDTOPConsult, 2020, 44). In the case of the Belastingdienst, 'they are in general more described as a supervisor than as a helping organization' (ABDTOPConsult, 2020, 44). Moreover, there is even spoken about the Belastingdienst as an organization which 'sometimes lacks empathic capacity' (ABDTOPConsult, 2020, 25) and as an organization in which there is 'institutional bias towards citizens' (Adviescommissie uitvoering toeslagen, 2020, 61). In contrast to this, DUO seems to be more balanced in this regard, as 'clients are satisfied about the telephone and email options with regards to customer service' (ABDTOPConsult, 2020, 26). However, this seems to be less so in practice, as 'within a week time, about a hundred complaints from students were made about DUO' (Trouw, 2019).

In general, the view is that the importance of the social aspect within all these agencies is lacking and laying behind. Most striking is that this can also be found in the fact that the government has agreed to an investigation which has as main goal 'to repair the human dimension in contacts between public agencies and citizens' (Parlement.com, 2020). Although one would consider this lack of the social aspect in these agencies to be expected in some sort given the general verdict of the public towards these agencies, the unexpected thing is the severity of the matter, looking at the investigation announced. In sum, it seems to be the case that the agencies are lacking with regards to involving the social aspect in their organization, leading to a narrow view that only considers algorithmic governance as a chance to increase efficiency and effectiveness. Therefore, the lack of attention to secondary aspects can be partly explained through the lacking 'social radar' in these agencies.

4.5 Conclusion

All in all, there are a few things that can be concluded from this chapter, including the answers to the sub-questions of this paper. To start, answering the question what the perceptions of algorithmic governance within public agencies are, the general perception is one which is focused on efficiency and improving organizational processes, without taking into account the secondary consequences of these

possible improvements. This finding cannot be seen as a surprise, since the general view of public agencies in the Netherlands seems to be likewise. With regards to the second sub-question, being what the differences in perception are, it can be seen that these differences are extremely minimal. One could see this as an unexpected finding, as public agencies on the one hand act within the same institutional framework but on the other hand are different in their fulfillment of tasks. To answer the last sub-question, being the causes of these differences, it can be seen that there is a specific culture within these public agencies is responsible for the large similarities in perceptions: one with a large multiplicity of goals, a strong connection to other services, a goal orientation and little attention to the social aspect of the organization. As the specific culture of public agencies is already somewhat known, this is not a completely unexpected finding. However, the large role culture plays in causing these similarities is a thing that could be seen as a surprise.

5. Conclusion

With the findings of the most recent chapter in mind, it is time to look at what can be concluded from this study, how it builds upon existing literature and what practical implications this study has. It can be concluded that the similarities in perceptions towards algorithmic governance, which are all focused more on efficiency and internal processes than on secondary consequences, are caused by a specific culture within public agencies. Furthermore, the results of this study are built upon the work of more classical authors in public service delivery, whose insights are nonetheless relevant for the new discourse around algorithmic governance. Lastly, practical implications of this study are that a watchdog for algorithmic governance should be formed and that governments need to be clear in what role they want public agencies to play.

5.1 Conclusion

With regards to the insights that this study has delivered, a first focus should be on the definitive answer to the research question that was: how can differences in perception of algorithmic governance in public service delivery be explained? Throughout this study, there are a number of insights that need to be highlighted when giving an answer to the question. First, it must be noted that although algorithmic governance can mean many things, it seems that public agencies in general see it similarly. These similarities are not only to be found in the definition the public agencies maintain when addressing algorithmic governance, but also in the practical implications that algorithmic governance already has in these public agencies. Besides the practical implications which there already are for processes of public service delivery in these agencies, the perceptions regarding the further possibilities of algorithmic governance are roughly the same. To be more precise, these perceptions are mostly founded on the aim of improving processes within the organization itself. Although this might seem very normal and reasonable, these perceptions leave out the important ethical and political questions that come to play a role in the field of algorithmic governance. Most important here is that they do not consider the consequences of their use of algorithmic governance to an extent that one would deem sufficient and appropriate.

Going over to the second part of the original research question, which focuses on possible explanations for differences or similarities in perception, a definitive answer to the research question can be formed. It has become visible in this study that there generally is a specific culture within public agencies. Aspects of this culture are a multiplicity of goals without having the means to fulfill all those goals, a goal-oriented approach to handling things, a large connection with other services and lacking attention to the social aspect in the organization. All these aspects, which were there long before algorithmic governance rose as a way of governance, are replicated and extended into the domain of algorithmic governance. This then leads to a similar perception amongst public agencies in which a goal-oriented approach without much attention to secondary consequences is maintained.

All in all, the key insights that have been formulated in this study deliver a concrete and precise answer to the research question. This answer consists of two parts. First, there is the insight that despite

the fact that algorithmic governance is a complex and ill-defined phenomenon, the perceptions of it within public agencies are roughly alike. Second, there is the insight that a specific culture within these agencies creates the similarities between them. So, the similarities in perceptions of algorithmic governance with regards to public service delivery can be explained from the specific culture of the agencies researched.

5.2 Discussion

It is also good to look at how the insights created in this study compare to earlier scientific works on the subject and to look at the strengths and weaknesses this study contains. With regards to earlier scientific works, there are a few articles that need to be addressed. To start, works regarding the risks of algorithmic governance need to be reviewed in light of the findings of this study. There is no doubt that the notion of the EPRS, who stress that algorithmic governance can be used to enhance existing services and even provide new services (EPRS, 2019, II), seems to be correct in terms of what is in practice done with algorithmic governance. However, it is also stated by the EPRS that algorithmic governance can help make decisions more efficient, transparent and accountable, under the condition that the algorithms use are transparent and accountable (EPRS, 2019, II). Regarding efficiency, this is certainly a thing that also has become clear in this study. Where my disagreement with the EPRS lies is in whether algorithmic governance can improve aspects like transparency and accountability. Given the findings of this study, those claims seem to be highly doubtful if not somewhat naïve. Where I do agree with the EPRS is the risks they identify in algorithmic governance: they are clearly and appropriately defined by them, as they state transparency, explainability, accountability, safety, integrity and availability, confidentiality and privacy and fairness (EPRS, 2019, III-IV). Although this is a comprehensive list, it must be said that all of these aspects are extremely relevant in algorithmic governance, also looking at what this study has aimed to set out.

Looking more specifically at public service, it can be seen that there have been numerous works about it over time. Examples are the work of Koppenjan, who distinguishes six distinctive characteristics (Koppenjan, 2012, 12) and the work of Osborne et al who identify seven elements in public service delivery (Osborne et al, 2015, 549). Despite the fact that these frameworks for public service delivery are to a large extent applicable to public service delivery which includes algorithmic governance, an important question is whether public service delivery should be partly redefined in the light of algorithmic governance. To answer this question, it seems like even recent work on algorithmic governance, like the work of Engin & Traleaven, uses classical elements from works regarding public service delivery to develop a good understanding of algorithmic governance in public service. In agreement with these studies, this paper has also used more classical elements of public service delivery, which one might deem a bit outdated in the light of algorithmic governance. However, they seem to be especially relevant with regards to algorithmic governance. Therefore, the claim that they might be outdated is not a thing that has come to light in this research as well as in earlier research.

Despite this, there are a few things that this study does not lay emphasis on but are nonetheless

worth considering for further research, given the limitations of this research. First, a more thorough look is to be taken at the culture within public agencies and the role they play with regards to the larger field of governance. Special attention here should go out to whether there is a change to be noticed in the role of public agencies with the rise of algorithmic governance, compared to their role before that rise. Second, there is need for more elaboration on algorithmic governance within other organizations, to be able to compare the perceptions in public agencies to those of others. Here, attention should go out to other actors in the public sector and how they deal with and perceive algorithmic governance. Finally, through field research within public organizations, a definition of algorithmic governance which is tailor-made for the public sector could be formed.

5.3 Practical implications

It must also be mentioned that this study has some practical implications for policymakers and governments. Since it is now clear that there is, within public agencies, a perception that does not take into account secondary consequences, it is time to look at what can be practically and realistically done to address issues regarding perception in public agencies. First, my observation is that these organizations do not have the capacity to review their own internal processes with regards to the use of algorithmic governance. Because of lacking capacity and resources, they cannot take time to review their acting in every single use of algorithmic governance. A solution for this would be the creation of an 'watchdog' for algorithmic governance. This can be solved within the existing institutional structure by adding it to the already existing privacy watch dog (the Autoriteit Persoonsgegevens) or by creating an entirely new watchdog. In addition to this, a suggestion would be that the GDPR, a relatively new regulation within the European Union that mostly focuses on data protection, could be extended to account for a legal framework for the use of algorithmic governance. There is already an article in the GDPR about algorithmic governance, but this can be extended to a more regulatory framework which focuses on more aspects than now is the case. A last suggestion would be that, since it has become clear that doing more with less resources leads to digitalization without taking into account the consequences of it, governments need to think about what role they want public agencies to play, especially in a changing field of governance. It is not enough to maintain a drip-feed method for these agencies without considering the large role they play in the institutional framework, so it is time to think for national governments about how they embed public agencies in a more natural way.

References

Algemene Rekenkamer, January 24th 2013. 'Bezuinigingen op uitvoeringsorganisaties', retrieved from https://www.rekenkamer.nl/publicaties/rapporten/2013/01/24/bezuinigingen-op-uitvoeringsorganisaties

Andrade, A. D. (2009). Interpretive research aiming at theory building: Adopting and adapting the case study design. The qualitative report, 14(1), 42.

Binnenlands Bestuur, March 5th 2020. 'UWV houdt algoritmes tegen het licht', retrieved from https://www.binnenlandsbestuur.nl/digitaal/nieuws/uwv-houdt-algoritmes-tegen-het-licht.12533129.lynkx

CBS, November 27th 2018. 'Verkennend onderzoek naar het gebruik van algoritmen binnen overheidsorganisaties'. Retrieved from https://www.cbs.nl/-/media/_pdf/2018/48/verkennend%20onderzoek%20naar%20het%20gebruik%20van%20algoritmen%20binnen%20overheidsorganisaties.pdf

Danaher, J., Hogan, M. J., Noone, C., Kennedy, R., Behan, A., De Paor, A., ... & Murphy, M. H. (2017). Algorithmic governance: Developing a research agenda through the power of collective intelligence. Big Data & Society, 4(2), 2053951717726554.

Denhardt, J. V., & Denhardt, R. B. (2015). The new public service revisited. *Public Administration Review*, *75*(5), 664-672.

Engin, Z., & Treleaven, P. (2019). Algorithmic government: Automating public services and supporting civil servants in using data science technologies. *The Computer Journal*, *62*(3), 448-460.

Engstrom, D. F., & Ho, D. E. (2020). Algorithmic Accountability in the Administrative State. *Yale Journal on Regulation, Forthcoming*.

European Parliamentary Research Service, March 5th 2019. 'Understanding automated decision-making: opportunities and challenges', retrieved from https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_STU(2019)624261

Goodman, B., & Flaxman, S. (2017). European Union regulations on algorithmic decision-making and a "right to explanation". *AI magazine*, *38*(3), 50-57.

Koppenjan, J.F.M. (2012). The New Public Governance in public service delivery. Retrieved from http://hdl.handle.net/1765/93164

Kraft, I. (1964). Automated Decision Making: A Threat, or a Promise? Science, 143(3602), 99-100. Retrieved from https://science.sciencemag.org/content/143/3602/99.2.long

Lopes, N. V., Soares, D. S., Nielsen, M. M., & Tavares, A. (2017, March). Research Gaps on Public Service Delivery. In *Proceedings of the 10th International Conference on Theory and Practice of Electronic Governance* (pp. 465-474).

Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms. Futures, 90, 46-60.

Malgieri, G. (2019). Automated decision-making in the EU Member States: The right to explanation and other "suitable safeguards" in the national legislations. *Computer Law & Security Review*, *35*(5), 105327.

Mintzberg, H. (1980). Structure in 5's: A Synthesis of the Research on Organization Design. *Management science*, *26*(3), 322-341.

Monteith, S., & Glenn, T. (2016). Automated Decision-Making and Big Data: Concerns for People With Mental Illness. CURRENT PSYCHIATRY REPORTS, 18(12), 1-12.

NOS, 2018. 'Algoritmen bij de Overheid', retrieved from https://app.nos.nl/datavisualisatie/2018/algoritmen/index.html

NOS, May 30th 2019. 'Overheid gebruikt op grote schaal voorspellende algoritmes, 'risico op discriminatie'', retrieved from https://nos.nl/artikel/2286848-overheid-gebruikt-op-grote-schaal-voorspellende-algoritmes-risico-op-discriminatie.html

NOS, November 14th 2019. 'Belastingdienst zat fout bij kinderopvangtoeslag, ouders krijgen schadevergoeding', retrieved from https://nos.nl/artikel/2310434-belastingdienst-zat-fout-bij-kinderopvangtoeslag-ouders-krijgen-schadevergoeding.html

Osborne, S. P., Radnor, Z., Kinder, T., & Vidal, I. (2015). The SERVICE framework: A public-service-dominant approach to sustainable public services. British Journal of Management, 26(3), 424-438.

Parlement.com, February 12th 2020. 'Tweede Kamer gaat problemen bij uitvoeringsorganisaties onderzoeken',retrieved from https://www.parlement.com/id/vl63k922yur6/nieuws/tweede_kamer_gaat_problemen_bij

Spielkamp, M. (2019). Automating Society: Taking Stock of Automated Decision-Making in the EU. BertelsmannStiftung Studies 2019.

Williamson, B. (2014). Knowing public services: Cross-sector intermediaries and algorithmic governance in public sector reform. Public Policy and Administration, 29(4), 292-312.

Yeung, K. (2018). Algorithmic regulation: a critical interrogation. *Regulation & Governance*, *12*(4), 505-523.

Appendix A: Data collection

ABDTOPConsult, February 5th 2020. 'Werk aan Uitvoering Fase 1: Probleemanalyse', retrieved from https://www.rijksoverheid.nl/documenten/publicaties/2020/02/14/werk-aan-uitvoering---fase-1---probleemanalyse

Adviescommissie Uitvoering Toeslagen, March 12, 2020. 'Omzien in verwondering 2', retrieved from https://www.rijksoverheid.nl/ministeries/ministerie-van-financien/documenten/kamerstukken/2020/03/12/omzien-in-verwondering-eindadvies-adviescommissie-uitvoering-toeslagen

Belastingdienst, 2020. 'Dit is Maarten. Datascientist bij de Belastingdienst.', retrieved from https://werken.belastingdienst.nl/persoonlijke-pagina-maarten

Belastingdienst, 2020. 'Hoe werken we?', retrieved from https://over-ons.belastingdienst.nl/over-de-belastingdienst/hoe-werken-we/

Binnenlands Bestuur, June 18th 2019. 'Kamer wil strenge regels voor algoritmes', retrieved from https://www.binnenlandsbestuur.nl/digitaal/nieuws/kamer-wil-strenge-regels-voor-algoritmes.9900199.lynkx

Binnenlands Bestuur, November 29th 2018. 'Wie controleert de algoritmen bij de overheid?', retrieved from https://www.binnenlandsbestuur.nl/digitaal/nieuws/wie-controleert-de-algoritmen-bij-de-overheid.9602273.lynkx

Binnenlands Bestuur, September 25th 2018. 'D66 wil 'algoritme-waakhond'', retrieved from https://www.binnenlandsbestuur.nl/digitaal/nieuws/d66-wil-algoritme-waakhond.9597736.lynkx

Bits of Freedom, November 26th 2019. 'DUO, SyRI en ZonMW door experts genomineerd voor Big Brother Award Expertprijs', retrieved from https://www.bitsoffreedom.nl/press/duo-syri-en-zonmw-door-experts-genomineerd-voor-big-brother-award-expertprijs/

Computable, May 4th 2020. 'Algobracadata (ofwel totale verwarring)', retrieved from https://www.computable.nl/artikel/opinie/security/6923078/1509029/algobracadata-ofwel-totale-verwarring.html

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, December 21st 2018. 'Kamerbrief over onderzoek naar het gebruik van algoritmen binnen de overheid', retrieved from https://www.rijksoverheid.nl/documenten/kamerstukken/2018/12/21/kamerbrief-over-onderzoek-naar-het-gebruik-van-algoritmen-binnen-de-overheid

NOS, 2018. 'Algoritmen bij de Overheid', retrieved from https://app.nos.nl/datavisualisatie/2018/algoritmen/index.html

NOS, January 11th 2020. 'Kabinet grijpt in bij Belastingdienst: opsplitsing in drie delen', retrieved from https://nos.nl/artikel/2318251-kabinet-grijpt-in-bij-belastingdienst-opsplitsing-in-drie-delen.html

NOS, March 5th 2020. 'UWV neemt fraudeopsoring onder de loep na privacyrechtszaak', retrieved from https://nos.nl/artikel/2325869-uwv-neemt-fraudeopsporing-onder-de-loep-na-privacyrechtszaak.html

NOS, November 14th 2019. 'Belastingdienst zat fout bij kinderopvangtoeslag, ouders krijgen schadevergoeding', retrieved from https://nos.nl/artikel/2310434-belastingdienst-zat-fout-bij-kinderopvangtoeslag-ouders-krijgen-schadevergoeding.html

NOS, November 15th 2018. 'Gaat de Belastingdienst te ver in data-speurtocht?', retrieved from https://nos.nl/artikel/2259350-gaat-de-belastingdienst-te-ver-in-data-speurtocht.html

NRC, August 23th 2019. 'Algoritmes discimineren niet', retrieved from https://www.nrc.nl/nieuws/2019/08/23/algoritmes-discrimineren-niet-a3970993

NRC, March 6th 2020. 'Schimmige algoritmes bij UWV en SyRI zijn topje van de ijsberg', retrieved from https://www.nrc.nl/nieuws/2019/10/28/willen-we-dat-de-overheid-zo-met-burgers-omgaat-a3978217

NRC, October 28th 2019. 'Willen we dat de overheid zo met burgers omgaat?', retrieved from https://www.nrc.nl/nieuws/2019/10/28/willen-we-dat-de-overheid-zo-met-burgers-omgaat-a3978217

Parlement.com, February 12th 2020. 'Tweede Kamer gaat problemen bij uitvoeringsorganisaties onderzoeken',retrieved from https://www.parlement.com/id/vl63k922yur6/nieuws/tweede_kamer_gaat_problemen_bij

Rathenau Instituut, July 20th 2018. 'Beschaafde Bits', retrieved from https://www.rathenau.nl/sites/default/files/2018-07/Beschaafde%20Bits.pdf

Rechtbank den Haag, February 5th 2020. 'SyRI-wetgeving in strijd met het Europees Verdrag voor de Rechten voor de Mens'., retrieved from https://www.rechtspraak.nl/Organisatie-en-contact/Organisatie/Rechtbanken/Rechtbank-Den-Haag/Nieuws/Paginas/SyRI-wetgeving-in-strijd-met-het-Europees-Verdrag-voor-de-Rechten-voor-de-Mens.aspx

Rijksoverheid, March 31th 2020. 'Algoritme: de mens in de machine – casusonderzoek naar de toepasbaarheid van richtlijnen voor algoritmen', retrieved from https://www.rijksoverheid.nl/documenten/rapporten/2020/04/15/casusonderzoek-richtlijnen-algoritme-de-mens-in-de-machine

Rijksoverheid, May 21st 2019. 'Bijlagen bij Wob-verzoek algoritmen', retrieved from https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/wob-verzoeken/2019/05/21/besluit-

wob-verzoek-over-informatie-en-of-documenten-naar-het-gebruik-van-algoritmen-binnen-de-overheid/Bijlagen+bij+Wob-verzoek+algoritmen.pdf

RTL Nieuws, March 27th 2020. 'Belastingdienst eiste toeslagen terug om fraudejacht te betalen', retrieved from https://www.rtlnieuws.nl/nieuws/artikel/5071066/belastingdienst-toeslagenaffaire-van-huffelen

Trouw, October 4th 2019. 'Studenten verdwalen in het doolhof dat DUO heet', retrieved from https://www.trouw.nl/onderwijs/studenten-verdwalen-in-het-doolhof-dat-duo-heet~b70f600a/

UWV Magazine, February 2019. 'Big Data', retrieved from https://uwvmagazine.uwv.nl/sites/default/files/printmagazines/uwv_magazine_1_2019.pdf

UWV, 2020. 'Wat is UWV?', retrieved from https://www.uwv.nl/overuwv/wat-is-uwv/organisatie/detail/missie-visie