



Automated, Administrative Decision-making and Good Administration

Friends, Foes or Complete Strangers?

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**AUTOMATED, ADMINISTRATIVE
DECISION-MAKING AND GOOD
ADMINISTRATION**

FRIENDS, FOES OR COMPLETE STRANGERS?

**BY
ULRIK BISGAARD ULSROD RØHL**

DISSERTATION SUBMITTED 2022



AALBORG UNIVERSITY
DENMARK

AUTOMATED, ADMINISTRATIVE DECISION-MAKING AND GOOD ADMINISTRATION

FRIENDS, FOES OR COMPLETE STRANGERS?

by

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“There is no exception to the rule that every time a culture works out an empirically valid answer to a problem, it thereby generates a host of derivative problems”

Some Social Functions of Ignorance, Wilbert E. Moore & Melvin M. Tumin, 1949, p. 795

“To invent the sailing ship or steamer is to invent the shipwreck. To invent the train is to invent the rail accident of derailment. To invent the family automobile is to produce the pile-up on the highway. To get what is heavier than the air to take off in the form of an aeroplane or dirigible is to invent the crash, the air disaster”

The Original Accident, Paul Virilio, 2007, p. 10



ABOUT THE AUTHOR

Ulrik B.U. Røhl is a PhD Fellow at the Centre of IT Management (CIM), Department of Society and Politics at Aalborg University as well as strategic advisor at the publicly owned ICT company, KOMBIT Ltd. in Copenhagen, Denmark. He has previously been a visiting scholar at the Public Governance Institute at Katholieke Universiteit Leuven in Belgium and is today affiliated with the institute as a research fellow.

After 15+ years in managerial positions in Danish local and national government, he joined Aalborg University in 2018 with the hopes of cultivating his professional experience with procurement, development, and implementation of large ICT systems into deeper and broader academic knowledge on the future of public administration.

Ulrik's research focuses on automated decision-making, good administration, and public management mirroring larger issues regarding digital government, bureaucracy, and contemporary state power. He takes a particular interest in how use of automated, administrative decision-making affects organisational practices and adherence to regulations and norms of good administration within public administration.

ENGLISH SUMMARY

Public authorities around the world increasingly employ semi and fully automated decision systems when deciding to grant unemployment or childcare benefits, disapprove an application to build a private house or deny parole. The increase in such automated, administrative decision-making is driven partly by advancements in underlying technology and partly by political and administrative ambitions of gains in terms of, e.g., consistency and efficiency.

This thesis takes this development as its starting point and casts light on how the increased use affects public administrative bodies' adherence to internationally accepted regulations and norms of good administration (and vice versa). Such regulations and norms shape casework of public authorities in relation to individual citizens and firms thereby ensuring efficiency, reducing maladministration and protecting the rights of individual citizens and firms.

Departing from the academic discipline of Public Administration, the thesis is interdisciplinary and draws on insights from Law, Information Systems, and Science and Technology Studies to grasp emerging trends in digital government including artificial intelligence and big data in relation to automated, administrative decision-making. The thesis employs broad neo-institutional thinking in combination with a sociotechnical understanding of humans and technology, stressing how technology shapes and constrain human possibilities for action but does not determine them.

Five inter-linked sub-studies are combined in the thesis: I) the development of six ideal types of usage of automated, administrative decision-making based on a structured literature search; II) a systematic review and synthesis of existing literature within the social sciences from 2000-2020; III) an explorative analysis of qualitative interviews with 43 policy makers and decision-making practitioners in a wide area of policy areas in the Danish government; IV) an in-depth explorative analysis of two selected themes from the aforementioned interviews in combination with a dogmatic jurisprudential approach and V) a case-based thematic analysis of Danish administrative bodies' use of automated, administrative decision-making in four policy areas.

Viewing relations between usage of automated, administrative decision-making and good administration via 9 underlying values of good administration (i.e., accountability, carefulness, efficiency, fairness, resilience, respecting-citizen-integrity, responsiveness, rule-of-law and transparency), the thesis concludes that relations are widespread and tend to be particularly complex regarding the values of responsiveness, accountability and fairness. It further finds that automated, administrative decision-making usage tends to both support and undermine good administration which indicates that such usage is rarely a "silver bullet" that supports all 9 values of good administration at the same time.

Across administrative bodies and policy areas, roughly the same relations between automated, administrative decision-making usage and good administration tend to emerge. Nonetheless, employed technologies, work practices and organisational context matter a great deal for how administrative bodies manage the relations including to what extent approximate similar relations appear as supportive or undermining for good administration.

Empirically, the thesis builds on data from Denmark which is a global front runner in terms of digital government including use of automated, administrative decision-making. Based on these data, there appears to be an underdeveloped awareness among practitioners – e.g., high-level and mid-level public servants – of the breadth of relations between automated, administrative decision-making usage and good administration. This is particularly unfortunate as the empirical data also indicate that supportive relations seldomly occur by themselves, while the opposite seems to hold for undermining relations.

DANSK RESUME

Over hele verden anvender offentlige myndigheder i stigende grad semi- og fuldautomatisk sagsbehandling, når de træffer afgørelse ang. kontanthjælp, børnepenge, afviser en ansøgning om husbygning eller afviser en ansøgning om prøveløsladelse. Stigningen skyldes dels, at den underliggende teknologi bliver mere og mere avanceret og dels politiske og administrative ambitioner om at opnå fx større ensartethed og effektiviseringer.

Denne afhandling tager denne udvikling som udgangspunkt og belyser, hvordan den stigende anvendelse påvirker myndigheders overholdelse af internationalt accepterede regler og normer for god myndighedsadfærd (og vice versa). Sådanne regler og normer påvirker myndigheders sagsbehandling i relation til individuelle borgere og virksomheder og understøtter dermed effektivitet og reducerer fejlagtig forvaltningsskik, ligesom de beskytter individuelle borgeres og virksomheders rettigheder.

Med udgangspunkt i den akademiske forskningsdisciplin, offentlig forvaltning, er afhandlingen interdisciplinær og henter viden fra jura, "information systems" og "Science and Technology Studies" for at forstå tendenser inden for digital forvaltning, herunder kunstig intelligens og "big data" i relation til automatiseret sagsbehandling. Afhandlingen er baseret på neo-institutionel tænkning kombineret med en socioteknologisk forståelse af mennesker og teknologi og lægger vægt på, hvordan teknologi påvirker og begrænser menneskelige muligheder for handling uden at bestemme dem.

Afhandlingen kombinerer fem forbundne del-undersøgelser: I) udviklingen af seks idealtyper for anvendelse af automatiseret sagsbehandling baseret på struktureret litteratursøgning; II) et systematisk review og syntese af eksisterende forskningslitteratur inden for samfundsvidenskaberne i perioden 2000 – 2020; III) en eksplorativ analyse af kvalitative interviews med 43 "policy-makers" og mellemledere på en række fagområder inden for dansk forvaltning; IV) en dybdegående eksplorativ analyse af to udvalgte temaer fra den nævnte interviewundersøgelse kombineret med en traditionel retsdogmatisk analyse; og V) en case-baseret tematisk analyse af danske myndigheders anvendelse af automatiseret sagsbehandling på fire fagområder.

Baseret på en forståelse af sammenhængene mellem automatiseret sagsbehandling og god myndighedsadfærd via ni underliggende værdier for god myndighedsadfærd ("accountability"; "carefulness"; "efficiency"; "fairness"; "resilience"; "respecting-citizen-integrity"; "responsiveness"; "rule-of-law"; og "transparency"), konkluderes det, at sammenhængene er mangfoldige og tenderer til at være særlige komplekse i forhold til "responsiveness", "accountability" og "fairness". Desuden konkluderes det, at anvendelse af automatiseret sagsbehandling tenderer til både at understøtte og

underminere god myndighedsadfærd, hvilket indikerer, at en sådan anvendelse sjældent er et ”Columbusæg”, der understøtter alle ni værdier for god myndighedsadfærd på samme tid.

På tværs af myndigheder og fagområder er det omtrentlig de samme sammenhænge mellem anvendelse af automatiseret sagsbehandling og god myndighedsadfærd, som ser ud til at eksistere. Ikke desto mindre påvirker de faktisk anvendte teknologier, arbejdspraksisser og organisatoriske kontekst i høj grad, hvordan myndigheder håndterer sammenhængene, herunder i hvilket omfang de samme sammenhænge er understøttende eller underminerende for god myndighedsadfærd.

Empirisk bygger afhandlingen på data fra Danmark, som globalt set er førende med hensyn til digitalisering af den offentlige sektor, herunder anvendelsen af automatiseret sagsbehandling. Baseret på disse data ser der ud til at være en underudviklet opmærksomhed blandt praktikere – fx offentlige top- og mellemledere – omkring omfanget af relationer mellem automatiseret sagsbehandling og god myndighedsadfærd. Dette er særlig uheldigt, idet de empiriske data også indikerer, at understøttende sammenhænge sjældent opstår af sig selv, mens det modsatte ser ud til at være tilfældet for underminerende sammenhænge.

PREFACE

For the last 3½ years, it has been my privilege to immerse myself in what I believe to be both a very interesting and very important subject: How the increasing use of automated, administrative decision-making in public administration relates to regulations and norms of good administration. Paraphrasing the in-depth interview programme on BBC, “Hard Talk”, it has been 3½ years of “hard fun”.

While the subject of this doctoral thesis is “only” an example of the ongoing, greater social and ethical debates regarding the use and regulation of increasingly advanced technologies in society, I strongly believe the subject is also important in its own right. Automated, administrative decision-making has the potential to benefit us in a number of ways, but it must be used in a way that is conscious of the historical development towards increased control of arbitrary state power vis-à-vis individual citizens and firms. This brings relations to regulations, norms, and values of good administration to the forefront.

Writing this thesis has meant an entry into the scholarly world after having pursued a more traditional career that lies at the crossroads of advanced technology and public administration for the first many years of my professional life. A special thanks goes to the former head of the Department of Politics and Society at Aalborg University, Professor Anette Borchorst, as well as Professor Morten Balle Hansen, who both enthusiastically welcomed me from the very first day I approached you.

Morten has been my primary supervisor and Professor Sten Bønsing of the Department at Law at Aalborg University has been my secondary supervisor. You both have put up with my continuous questions, ideas, and expectations. I am not sure it has been what you expected in terms of the “average PhD ride”, but I am indebted to both of you for your assistance, inspiration, and support.

I am also grateful to my colleagues in the two research groups at the Department of Politics and Society, Center for Organization, Management and Administration (COMA) and Center for IT Management (CIM). Not only did you welcome me warmly, but many of you have shown a strong interest in my so-called “practical” knowledge as you encouraged and assisted my development towards something vaguely akin to an academic scholar.

The doctoral thesis at hand is first and foremost based on an interest in real-life experience with use of automated, administrative decision-making. An absolutely crucial element in pursuing this interest has been the willingness of persons and organisations in and around the Danish public sector to share their experiences and reflections on use of automated, administrative decision-making with me. I have done nearly 100 qualitative interviews and have approached people for informal

knowledge-sharing countless times. Every single time this meant taking time off from the tasks and activities others expected the interviewees to care for.

A related thanks goes to my +200 colleagues of KOMBIT Ltd., of who many have shared ideas, experiences, and reflections with me over lunch or in front of coffee machines. Having had the benefits of being an “Industrial PhD Fellow”, I am particularly grateful for the members of my advisory panel at KOMBIT who have regularly given me feedback (and emotional support) on emerging work from a more practical perspective based on a well of diverse, professional expertise. It has meant much more than I think you realise!

Having entered the scholarly world as a somewhat mature newcomer has also been an opportunity to undertake informal organisational studies of academic organisations. Many elements are great, some elements are more peculiar. In the latter category falls for me the still thriving myth of “the lone researcher” (Denicolo et al., 2018) perceiving research as a mostly isolated, individual endeavour. I therefore wish to thank all the many people who have helped me – not only with their academic knowledge and research skills but also with encouragement and interest.

I have learned and benefitted from working with the co-authors of three of the articles presented in this thesis: Professor Joep Crompvoets of KU Leuven, Morten Balle Hansen (as already mentioned), and Assistant Professor Søren Stig Andersen of the University of Copenhagen. I have enjoyed the daily company of a small group of scholars from the Department of Politics and Society at the Copenhagen Campus of Aalborg University of which I have been the oldest (although not the wisest) member. Included here is Jon Aaen, my so-called PhD Mentor – if there ever is a global PhD Mentor prize, you will definitively be in the run-up! I have also benefitted greatly from becoming part of an informal but dedicated Scandinavian network of junior scholars who have an interest in advanced technology use and public administration: Ida B. Løberg, Karl K. Larsson, Liesanth Nirmalarajan and others. Associate Professor Ninna Meier, Associate Professor Kasper Elmholdt, and former Municipal Executive Officer and now PhD Fellow, Kenneth Kristensen, have all helped improve my thinking and writing. Student assistant, Sofie Bach, has been particularly helpful with transcribing many of the aforementioned interviews. Tamara R. McGee of TRM English has shown great persistence introducing me to the finer details of academic writing.

Being a PhD Fellow also traditionally entails a stay at another university. Professor Annie Hondeghem was so kind to invite me to be part of the Public Governance Institute at KU Leuven for six months despite the challenges of Covid-19. It was a great professional as well as personal experience and I thank everybody at the institute for having welcomed me and showed interest for my work. I hope to continue the cooperation in the future.

I owe a very special thanks to KOMBIT and particularly CEO Thomas R. Christiansen and the rest of the management team for being able to see the potential in letting me out through the door as chief of staff and back in as an industrial PhD fellow producing knowledge for the company. Without KOMBIT being part of the project, things would have been really different!

Finally, I have also benefitted from two voluntary research assistants, who have had to accept lousy management, low remuneration and short deadlines. My father, Steffen, has given me valuable feedback on ideas and writings based on his insights from a long professional life in public service – this has really been a privilege. And, of course, my wife, Anne, who from the very first, early writings in a hotel on the German island of Sylt, has provided enormous amounts of love, encouragement, support, and practical help. I do not think you believe me, but I could not have done it without you!

Ulrik B.U. Røhl

Summer 2022, Copenhagen

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CHAPTER 1. INTRODUCTION

Control of arbitrary state power has been a defining characteristic of the rise of liberal, democratic governmental systems since the French and American revolutions. One element of such control is the gradual development of regulations and norms referred to as good administration in this doctoral thesis (Sordi, 2017).

These regulations and norms shape administrative decision-making in executive branches of government around the world today. Administrative bodies are, for example, by and large, obligated to offer addressees an accurate reason for administrative decisions¹ just as they are obligated to handle affairs of individual citizens and firms impartially and fairly. Taken as a whole, these regulations and norms revolve around an attempt to level the inherent imbalance in power and resources found between the state and individual citizens (or firms²) (Hasenfeld et al., 1987). These regulations and norms additionally work to prevent misconceptions regarding public interest and corruption among public servants (Rosenbloom et al., 2015) Rothstein & Sorak (2017) even argue that such hard and soft standards of public administration are as important for legitimacy of government as are democratic rights and effective policy outcomes.

Just as regulations and norms have developed over time, administrative decision-making is changing around the world. Today, an increasing share of administrative decision-making is based on semi or fully automated decision systems made via techniques such as robotic process automation, rules-based (expert) models and machine learning. In all likelihood, this will increase in the future, making automated, administrative decision-making (henceforth, AADM³) in its various forms the future norm in executive branches of government.

One driver of this growth is expected advancements in technologies such as machine learning (Juell-Skielse et al., 2022) that are expected to further strengthen advantages of AADM in terms of efficiency, speed and consistency. Another driver is political

¹ “Decision-making” and “decisions” are some of the most frequent words used in this thesis. Although I later go into detail regarding “administrative decisions”, there is no hidden meaning employed here. “Decision-making” is thus taken as an explicit or implicit process that results in “decisions”.

² “Citizen” and “firm” are used in this thesis to describe individuals and legal entities, respectively, subject to administrative decisions no matter whether they are residents (rather than formal citizens), voluntary organisations (rather than firms) etc. “Addressee” is used as a common description of citizens and firms that are subject to administrative decisions.

³ “ADM” is a common abbreviation for automated and algorithmic decision-making which is used interchangeably by many authors. I use “AADM” to emphasise the focus on automated, administrative decision-making vis-à-vis other types of decisions within public administration (the latter being briefly discussed in chapter 3).

ambitions. For example, as part of the “Digital Economy Strategy”, the Australian Government (2022) wishes to accelerate use of automated decision-making in both public and private sectors by 2030. On the other side of the globe, and exemplifying the same trend, the Danish government (2022) has published a vision of increasing automation of the public sector. This ambition would reduce the number of manual tasks performed which would equal 10,000 public servants over 10 years.

Such plans and visions do not come without doubts. Assessing the ongoing digital transformation of public administration, the UN Human Rights Special Rapporteur on extreme poverty and human rights, Philip Alston, warned governments of the “grave risk of stumbling zombie-like into a digital welfare dystopia” in 2019 (Special Rapporteur on Extreme Poverty and Human Rights, 2019, p. 1). In Denmark, the Danish Parliamentary Ombudsman (Folketingets Ombudsmand, 2005, 2014) has twice warned the national government as well as the Parliamentary Legal Affairs Committee that the increasing use of technology in public administration could compromise administrative law. As far back as 2008, he observed that:

“Obviously, it does not give me any reasons to object to the fact that public administrative bodies – within the limits of existing law – seek to streamline administrative decision-making as efficiently as possible.”
 “[But] in this connection, I believe that the objective of efficiency must yield for essential considerations of due process etc.” [my translation]
 (Folketingets Ombudsmand, 2008, p. 13)

Although they do not put it in these words, both the UN Human Rights Special Rapporteur and the Danish Parliamentary Ombudsman question if increasing usage of advanced technology within public administration (including increasing use of AADM) might inevitably subvert the historic gains of good administration.

In this way both political ambitions of increased use of AADM and accompanying doubts serve as a microcosm of ongoing social and ethical debates on use, potentials, and regulation of increasingly advanced technologies (e.g., Mittelstadt et al., 2016, Margetts et al., 2021). This includes lack of accountability, mass surveillance and the future of human expertise vis-à-vis computational expertise.

Venturing into this microcosm, this thesis will cast light on how AADM usage affects public administrative bodies’ adherence to regulations and norms of good administration. It also intends to examine how these regulations and norms affect such decision-making among administrative bodies.

The normative backdrop of this thesis is that control of arbitrary state power is a crucial element of modern, enlightened societies, which we must not forget despite the alluring sirens of advanced technology. Although today’s public administration is

different from yesterday's, and tomorrow's public administration most likely will be different from today's, some deeper values should ideally be protected.

1.1. PUBLIC ADMINISTRATION AND TECHNOLOGY

Public administration and technology are no strangers. Zygmunt Bauman wrote extensively on how the advent of modernity meant the advent of the “gardening state”. Such states sought to cultivate, plan and design society within a clearly demarcated territory (Bauman, 2003). While Bauman speaks in a more metaphorical manner, such modern states necessitated surveyors who – aided by simple technology – could measure and define the territory of the state and depict this on increasingly sophisticated maps. Even earlier, “public administration”, in the form of parish records necessitated use of the simple technology of pen and paper ultimately paving the way for tax collection, military conscription etc.

Fast forwarding to the present era, it is rather uncontroversial to argue that increased use of technology and information and communication technology (ICT), in particular, “...is having and has had profound and pervasive effects on how public administration is conducted.” (Pollitt, 2011)

Observing the increasing importance of digital government, Dunleavy et al. (2006) coined this development “digital era governance” approximately 15 years ago and argued that increased use of ICT is *the most important* change to public administration and government:

“The advent of the digital era is now the most general, pervasive, and structurally distinctive influence on how governance arrangements are changing in advanced industrial states.” (Dunleavy et al., 2006, p. 478)

Digital era governance is the academic reflection of ongoing digital government reforms of which the application of AADM is a key component, i.e., the aforementioned government policies in Australia and Denmark. Other components of such reforms are, e.g., one-stop portals and shops (e.g., Askim et al., 2011), open data (e.g., Worthy, 2015) and smart city (e.g., Meijer & Bolívar, 2016).

1.1.1. GOOD ADMINISTRATION

Briefly put, I understand good administration as a group of regulations and norms rooted in selected values of public administration that shape and constrain activities of administrative decision-making. Regulations, norms and values of good administration are discussed in detail later. In section 1.3.3, I discuss regulations, norms and values at a more conceptual level. A few introductory comments are therefore sufficient at this early stage.

As defined in this thesis, good administration includes both regulations and norms applicable to administrative bodies. They can thus be considered a combination of legally binding obligations and rules of conduct (Wakefield, 2007). As such, regulations and norms can – ideally – be seen as working in concert with professional expertise, personal and collective incentives, public service ethics, and institutional control mechanisms to secure the appropriate and desirable functioning of public administration (Rothstein & Sorak, 2017).

At the beginning of this chapter, I started by pointing to regulations and norms of good administration as an example of the development towards increasing control of arbitrary state power. However, as Harlow (2006) observes, when discussing underlying values of administrative law, control of government power is not the only perspective. Equally important is the perspective that good administration establishes procedures and structures that support the smooth implementation of government policies.

One linguistic issue is necessary to tackle head-on: Without clarification, the prefix ‘good’ in regulations and norms of good administration can give rise to confusion and imply a universal, normative standard based on which activities of public administration can and should be evaluated. This is not the intention here. Instead, the use of ‘good’ is due to a conceptual tradition primarily within the discipline of law and secondarily the discipline of public administration. The concept of good administration is thus taken to delimit *a group of regulations and norms* relevant to certain public administrative activities rather than a standard for evaluation of specific activities as “good” or “bad”.

Drawing on the simplified terminology of “etic” and “emic” can help illuminate the issue. “Etic” can be taken to mean the social scientific description of phenomena used to assist with comparison across specific contexts, while an “emic” perspective is more of an insider view of real-life phenomena (Schwandt, 2007). Although not fully comparable, the perspective of regulations and norms of good administration employed here is such “etic” as it serves to delimit a certain group of regulations and norms. An “emic” perspective would in contrast focus more on specific understandings of “good” and “bad” administration.

Does that mean that one cannot rely on regulations and norms of good administration to evaluate activities of administrative decision-making from a more normative position? It certainly does not. Just as few motorists evaluate the quality of driving solely based on their adherence to traffic law, evaluations of activities of administrative decision-making as “good” solely based on adherence to regulations and norms of good administration might not be fully meaningful either.

1.1.2. AUTOMATED, ADMINISTRATIVE DECISION-MAKING

Writing in a British context, Margetts & Partington (2010, p. 56) observe that “there is no doubt” that administrative decision-making relies on and is heavily shaped by “a myriad of large-scale information systems and databases, created over decades.” Beyond media counts and reports from interest groups (e.g., Algorithm Watch & Bertelsmann Stiftung, 2020), few quantitative assessments exist of the extent of use of semi and fully automated, administrative decision-making.

To my knowledge⁴, the most trustworthy exemplary assessment of the use of AADM is a recent report by the Swedish National Audit Office which estimated that 137 million, automated, administrative decisions were made by 13 national government agencies in Sweden in 2019 covering 112 types of decision-processes. Of these, 121 million administrative decisions made were fully automated (Riksrevisionen, 2020). While it is hard to evaluate the magnitude of this number (e.g., how many administrative decisions were made in total by the mentioned government agencies?), it illustrates that *use of AADM is no minor phenomenon* in contemporary public administration.

Building on Helen Margetts' (1998) account of ICT in the UK and US public administration from the 1960's onwards as well as Jon Bing's (1990) observations and personal, approximal knowledge⁵ of similar developments in Scandinavia, it is worth noting that use of AADM is not an entirely recent development. As far back as the 1970's some administrative bodies have calculated personal income tax via semi and fully automated processes based on relatively simple rules-based techniques. The aforementioned Swedish report indicates, that use of AADM has multiplied since 2000 (Riksrevisionen, 2020) – a development most likely due to increasing technological possibilities and increasing technological maturity.

I will later go into much greater detail on empirical examples of AADM and will suggest a detailed classification of AADM usage. Authors have studied AADM usage in such diverse contexts as administration of minor traffic offences in the Netherlands (Bovens & Zouridis, 2002); administration of support for unemployed in Poland

⁴ Two recent reports seek to survey use of artificial intelligence in public administration in federal government agencies in the US (Engstrom et al., 2020) and in national government agencies of the European Union (Misuraca & van Noordt, 2020). Both reports are technology focused on the sense that they survey use of *artificial intelligence techniques* rather than, e.g., AADM. They both report that approximately 5-10% of the identified examples of artificial intelligence use regards automated, administrative decision-making. This, however, does not cast light on the use of AADM across techniques such as robotic process automation, rules-based (expert) models and machine learning.

⁵ As shortly described in chapter 2, I have spent approx. 15 years of my professional carrier focussing on the procurement, implementation and use of large scale, administrative ICT systems in Danish public administration.

(Kuziemski & Misuraca, 2020) and administration of child benefits in Norway (Larsson, 2021).

AADM usage by administrative bodies stands out from other components of digital government reforms as it involves the direct exercise of public authority over individual citizens and firms as administrative bodies decide what is lawful in specific cases (Goodsell, 1981). Relations to regulations and norms as well as underlying values of good administration thus become particularly relevant regarding AADM usage.

1.1.3. TENSIONS, IMBALANCES AND COMPETING VALUES

What we seem to enter here is an area of tensions, imbalances and possibly competing values. The policy objectives as well as the doubts cited in the beginning of this chapter point to both the advantages of AADM as well as the tensions between such use and good administration.

Observing early forms of fully automated AADM in Dutch public administration, Bovens & Zouridis, (2002, p. 175) pointed out that the transition to “system-level bureaucracies” would have consequences for the “democratic control of administrative power and [...] the rule of law”. Writing within the discipline of law and anticipating further technology use within public administration, Vang (2005, p. 2) observed that:

“...administrative decision-making can be expected to change significantly and develop beyond our current paradigm of public administration thereby particularly positioning fully automated administrative decisions as a new, fundamental category of law.” [own translation]

Several authors within and beyond the academic (sub)disciplines of public administration, eGovernment, information systems, organisational theory, science & technology studies, and critical algorithmic studies have examined the consequences of increasing AADM usage and other forms of advanced technology within the public sector. Eubanks (2017), for example, describes how semi automated AADM usage in relation to child protective services in the US de facto leads to like-minded cases being treated unequally due to bias and differences in underlying data. Ranerup & Henriksen (2019) describes how semi automated AADM usage in social welfare leads to both reduced costs and accountability problems as the basis for administrative decisions become opaque. Schartum (2020) points out the possible negative consequences for equity and fairness as increasing complex cases are decided via an “invisible predefined digital process” rather than in situations where citizens are given the chance to explain their “personal situation to an officer who intently listens and asks questions to clarify uncertainties.”

A limited number of authors draw on the aforementioned literature and point out how use of advanced technology in public administration includes trade-offs between different values of public administration (Cordella & Bonina, 2012; Schiff et al., 2021). These authors point to the need to explicitly prioritise or balance competing values such as, e.g., equity, transparency, and responsiveness rather than solely emphasising efficiency and other economic goals (Schiff et al., 2021). Analysing existing eGovernment literature, Cordella & Bonina (2012, p. 513) found that there was:

“...a common tendency towards what Orlikowski & Iacono (2001) have defined as the ‘tool view of technology’, which considers the deployment of ICT in the public sector as a linear process of change which leads to more efficient and less costly organization management.”

Although Cordella & Bonina (2012) do not explicitly consider if this tendency also dominates empirically, it seems rather safe to assume at least some kind of overlap between research and empirical understandings. In other words, many decision-makers within public administration have probably primarily had eyes on the advantages of advanced technology in terms of productivity, speed and (manual) labour substitution thereby overlooking more complex, non-linear consequences.

As a whole, this points to a possible – either temporal or more permanent – disequilibrium between technological and societal development (Achten et al., 2016) where regulations and norms of good administration are particularly “out of sync” with advanced technology usage in public administration⁶. In a recent book on changes to public administration and “administrative justice” in the UK due to increased use of technology, Tomlinson (2020) reflects on this understanding of current, more fundamental imbalances as he argues that increased technology use in public administration “forces us to revisit some fundamental questions concerning the relationship between law, administration and justice.”

1.2. RESEARCH GOALS

Page 5 of this thesis contains two essential quotes on human – and technological – progress. Specifically, when humans invent or work out a solution to a problem, the new solution tends to come with a Janus-face whether in the form of potential accidents (Virilio, 2007) or as derivative and unanticipated problems (Moore & Tumin, 1949).

⁶ The “out of sync” metaphor is misleading in the sense that it implies regulations and norms of good administration and technology usage might sometimes be “in sync”. This has most likely seldom been the case historically. The point here is that we live in a period of time where the two might be *particularly* out of sync.

Tensions, imbalances, and possible competing values surrounding AADM usage and good administration should therefore not be a surprise but seen as a repetition of an age-old pattern that necessitates more knowledge on emerging phenomena to prevent the “accidents” and handle the problems. Relations between AADM usage and good administration can thus be understood as an emerging, understudied phenomenon that requires more knowledge in order to be fully understood. Based on this broad acknowledgement, this thesis can be seen as reflecting four types of scholarly calls for such further knowledge:

- *Relevance of administrative values in different empirical contexts:* There is no shortage of suggestions regarding specific public administrative values (often interchangeably termed public values). Authors (e.g., Beck Jørgensen & Bozeman, 2007), however, call for inquiries into the relevance of particular groups of values in different contexts. Here the thesis attempts to contribute with insights on the importance of particular values of good administration as AADM usage increases.
- *Effects of increased use of advanced technology for administrative values:* A number of authors call for inquiries into the effects of advanced technology use for administrative values including which administrative values shall guide advanced technology usage within public administration (e.g., Bannister & Connolly, 2014; Margetts, 2021). Here the thesis zooms in on AADM usage as an example of increased use of advanced technology and casts light on what this means for values of good administration.
- *Need for detailed empirical knowledge in times of change:* Several authors observe that much of the research on advanced technology use in public administration tends to be conceptual or theoretical. Authors, therefore, point to a critical need for detailed empirical research (e.g., Lips, 2020). Writing on work and technological change, Barley (2020, p. vii) put it like this: “Unless we produce not only more but better empirical studies, we are likely to stumble our way into a future that the majority of us may or may not want.” The thesis attempts to contribute with an identification of selected empirical relations of AADM usage and good administration as well as necessary key capabilities for administrative bodies to support good administration.
- *The discipline of public administration should contribute to emerging scholarly insights:* Authors point out that emerging use of advanced technology in public administration is best studied in a multidisciplinary or interdisciplinary manner which includes insights from the discipline of public administration in order to grasp necessary nuances (e.g., Schartum, 2018; Veale & Brass, 2019). While being rooted in the discipline of public administration, the thesis attempts to draw on valuable insights from the discipline of law, in particular, to satisfactorily understand relations between AADM usage and good administration.

1.2.1. RESEARCH QUESTION

It is against this empirical and scholarly background that this thesis casts light on how AADM usage affects public administrative bodies' adherence to regulations and norms of good administration. Vice versa, it casts light on how those regulations and norms affect such decision-making among administrative bodies. I do this based on the following principal research question:

What are the relations between usage of automated, administrative decision-making, and regulations and norms of good administration, and to what extent do they support or undermine each other?

Following the calls mentioned above, this thesis aims to combine both the empirical and explorative. *Empirical* as the main body of underlying work relates to empirical inquiries of real-life AADM usage vis-à-vis good administration. *Explorative* as the relations of the two is an understudied phenomenon, and the identification of those relations, therefore, is as important as the possible formulation of explanations regarding said relations.

Taking the research question as point of departure, the research revolves around the noun "relations". Before proceeding, it makes sense to detail what is meant by this term thereby adding nuance to the expectations for the research question's answer.

According to the Oxford English Dictionary (2021), relations are in their simplest forms a "connection" or an "association" which are expressed by two entities touching each other. A relation can also describe a "contrast" of entities that brings tensions, antagonism, and conflicts – or partnerships, friendships, and alliances – to mind. According to the same dictionary, a relation can also describe "a particular way in which one thing or idea is connected or associated with another" making one imagine relations as being 1- or 2-directional in their nature (1-directional implying that entity A affects entity B or causes entity B; 2-directional relation implying that entity A and B affect or cause each other).

The research question consists of two parts that reflect the ambition of the thesis as well as the multiple meanings of "relations":

- *What are the relations between usage of automated, administrative decision-making, and regulations and norms of good administration...:* This first sub-clause of the research question regards the simple meaning of "relations" as two entities touching each other which corresponds to the aim of identifying relations of usage of AADM and good administration.
- *... and to what extent do they support or undermine each other?:* This second sub-clause of the research question regards the more advanced meaning of

“relations” as the way in which entities relate. It thus corresponds to an ambition of explaining (some of) the identified relations. Throughout the thesis, I describe possible explanations in different ways thereby touching upon the meaning of “relations” as tensions or associations. I will, for example, apply the concepts of synergies, trade-offs and limits to better understand the relations between AADM usage and good administration.

The phrasing of the research question does not imply a certain directionality but openness for both one and two-directional relations. In other words, AADM usage might influence adherence to regulations and norms of good administration just as regulations and norms of good administration might influence AADM usage.

1.3. BASIC THEORETICAL PREMISES

The Norwegian professor and grand “old” man of legal informatics in Scandinavia, Schartum (2018a), argues that developments of digital government must be understood as combined processes of I) technological, II) organisational and III) regulatory changes.

Following this, I introduce four basic theoretical premises of how those broad processes interact in order to aid the answering of the research question.

1.3.1. INSTITUTIONS BOTH CONSTRAIN AND ENABLE SOCIAL ACTION

Not being able to do full justice in a few pages to one of the classic questions of the social sciences, I start with the question of social action: What is the basis of human behaviour and how can we understand it vis-à-vis regulations and norms of good administration? To answer this question, this thesis relies on broad neo-institutional thinking (e.g., March & Olsen, 2009; Powell & DiMaggio, 1991; Scott, 2014), understanding regulations, norms, and values of good administration as instances of institutions.

Attempting to review 50 years of theoretical development within institutional thinking, Scott (2014: xi–xii) mentions a number of key questions that such thinking can help answer. Among those questions are I) why individuals and organisations conform to institutions; II) why individuals’ behaviour often can be observed to depart from formal goals and rules of organisations and III) to what extent behaviour should be regarded as reflecting conscious, rational choices or more unintentional conventions, routines, and habits.

I rely on the definition of institutions forwarded by March & Olsen (2009, p. 1) as it encapsulates a number of relevant features of institutional thinking for this thesis:

“An institution is a relatively enduring collection of rules and organized practices, embedded in structures of meaning and resources that are relatively invariant in the face of turnover of individuals and relatively resilient to the idiosyncratic preferences and expectations of individuals and changing external circumstances”.

Several authors (e.g., Campbell, 2004; Friedland & Alford, 1991; Scott, 2014) have suggested alternative definitions of institutions. Drawing on the mentioned definition of March and Olsen as well as the alternative definitions, five features of institutions are central.

Firstly, institutions are collective in the sense that they are shared by groups of individuals and organisations and operate across such levels (Campbell 2004; Scott 2014). Regulations, norms, and values of good administration can thus be assumed to be “relatively invariant” (March & Olsen, 2009, p. 1) – although not identical – across public servants, administrative bodies and administrative traditions.

Secondly, institutions consist of both formal and informal elements as well as both instrumental and symbolic elements. To grasp this, Scott (2014, pp. 59) suggests that institutions can be analysed as regulative, normative and cultural-cognitive on a continuum “from the conscious to the unconscious.” The three analytical types of institutions vary across a number of dimensions, but a key differentiator is their basis. Specifically, regulative institutions are tied to legally enforced rules; normative institutions to social expectations and appropriateness; and cultural-cognitive institutions to constitutive, taken-for-granted schemas for individual action.

Thirdly, institutions influence human action and social life by providing individuals and organisations with not only “the ends to which their behaviour should be directed, but [also] the means by which those ends are achieved” (Friedland & Alford, 1991). Institutions of good administration can thus be seen as influencing not only how activities of public administration including administrative decision-making are to be conducted but also the reasons for this.

Fourthly, institutions both enable and constrain behaviour as they provide guidelines, resources, and purpose as well as establish borders and limits on behaviour. Because institutions are numerous, they must be consciously or unconsciously applied to any given situation. They thus also leave room for individuals and organisations to act, choose strategically among options and possibly contribute to their adjustment (Scott, 2014). As Powell (1991, p. 194) puts it. “Constraints open up possibilities at the same time as they restrict or deny others.”

Finally, institutions provide stability precisely because they influence how individuals and organisations make choices. Their influence on human action and social life covers time and space and are “relatively resilient” to individuals’ preferences and

changing circumstances. While institutions develop and change over time – including due to the mentioned strategic behaviour by individuals and organisations – one should not expect regulations, norms and values of good administration to evolve overnight.

1.3.2. TECHNOLOGY MUST BE UNDERSTOOD *IN USE*

Looking at technology, including automated decision systems, institutional thinking offers at least two perspectives. One perspective is understanding change as often slow and gradual. This means that institutions have a strong impact on the supply and demand of technology, and the availability of advanced technology is a necessary but not sufficient factor for increased technology use in public administration. Institutional thinking thus inspires the expectation that technology usage will differentiate across contexts and its development over time will be affected by path-dependency (Kitsing, 2020).

A second perspective is the importance of users and context for the understanding of technology usage. Following the expectations of differences in usage across contexts, it becomes central to understand how technology, use and context interact. Drawing on a broad socio-technical understanding, this interaction comes about as technology shapes work practices and organisations as well as humans' use of technology and institutional context influence technology (Bailey & Barley, 2020). Lips (2020, p. 62) puts it like this: “In interactions with each other and with digital technologies and data, human actors socially construct, design, apply, process, manage, use and re-use digital technologies and data.” As with other social action, such interactions with technology are shaped and constrained by institutions. Within public administration we can thus expect technology usage to be shaped and constrained by regulations and norms of good administration as well as by other institutions.

Further, specific ICT systems, including automated decision systems are designed with certain – sometimes unconscious – ends in mind that change over time in response to social, economic, cultural, and political pressure. One end might conflict with other ends of the same system (Liu & Graham, 2021). In this way, technology itself and technology usage in public administration reflect broader underlying conflicts of values within public administration, cf. section 1.3.4 below.

Seen through these glasses, “[t]he same technology can lead to very different and often unanticipated outcomes in different workplaces.” (Bailey & Barley, 2020). If we are to comprehend consequences of technology usage, technology should thus be studied in actual use and in different contexts. Writing specifically on automation of decision-making within public administration, Tomlinson (2020) follows suit and argues that consequences of automation in public administration will only be clear upon close examination in specific contexts.

Applying these insights to the subject of this thesis, it becomes clear that a nuanced understanding of the relations between AADM usage and good administration ideally calls for a detailed examination of the interplay of technology, work practices, bureaucratic procedures, responsibilities of public servants, management practices, and organisational structures of public administrative bodies. While these elements are in focus throughout the thesis, particularly article 5 of the thesis focuses on this interplay.

1.3.3. REGULATIONS AND NORMS ARE ENDS OF THE SAME CONTINUUM

The third basic understanding important here is the difference between regulations, norms and values which all can be seen as instances of institutions.

1.3.3.1 Regulations and norms

Following Scott's (2014) analytical framework, I understand regulations⁷ of good administration as regulative institutions and norms of good administration as normative institutions. Table 1.1 describes different dimensions of regulative and normative institutions including examples of exemplary sources of good administration.

Dimension	Regulative institutions	Normative institutions
<i>Basis of compliance</i>	Expedience	Social obligation
<i>Basis of order</i>	Regulative rules	Binding expectations
<i>Mechanisms</i>	Coercive	Normative
<i>Logic</i>	Instrumentality	Appropriateness
<i>Indicators</i>	Rules Laws Sanctions	Guidelines and guidance documents Certification Accreditation
<i>Basis of legitimacy</i>	Legally sanctioned	Morally governed
<i>Exemplary sources* of good administration</i>	General Administrative Law Acts Freedom of information acts Case law (courts, ombudsman institutions etc.) Explicit codes of conduct	Legal custom Agency guidance documents Implicit codes of conduct Professional norms Procedures, responsibilities, and organisational structures

Table 1.1: Dimensions of regulative and normative institutions; inspired by Scott (2014).

*Sources amount to "carriers" as described by Scott (2014, p. 96).

⁷ Chapter 3 provides more detail, but it should be noted that "regulations" as used here refers to a wider concept than traditionally applied within the discipline of law. It thus includes sources legislation as well as case law, statutory instruments, legislative guidance etc.

Table 1.1 is misleading in the sense that it conveys that the types of regulative and normative institutions are strictly separated and do not merge. Instead, one should expect to observe multiple blends of the types empirically. Regulations and norms can thus be understood as opposite ends of the same continuum merging in the middle.

Although focusing on international law, Abbott et al. (2000) have suggested three dimensions which can help inform blends of regulations and norms of good administration. Taken together they form a continuum from “hard”, legally binding and judicially controlled regulations via “semi-hard” regulations to “soft”, non-legal norms (Terpan, 2015). *Obligation*⁸ describes to what extent actors are bound by a rule or commitment, and the authors define “binding rules” as the hard form and “expressly non-legal norms” as the soft form (Abbott et al. 2000). *Precision* describes to what extent rules and norms “unambiguously define the conduct they require, authorise, or proscribe” (Abbott et al. 2000, p. 401). Here the authors define a continuum from “precise, highly elaborated rules” to “vague principles”. Finally, *delegation* implies the extent to which an actor has been “granted authority to implement, interpret, and apply” rules and norms as well as the solving of disputes and in some instances creation of further rules or norms (Abbott et al., 2000). The authors here suggest a continuum ranging from hard forms of delegation to “neutral”, external actors such as tribunals and courts that make direct, binding decisions in situations of doubt to situations where no such actors have powers to interpret and apply rules and norms (Abbott et al., 2000).

The three dimensions also help illustrate how regulations and norms can be seen as dynamic over time and space. It is thus possible to imagine a norm developing into a regulation over time (“going harder”) just as the opposite (“going softer”) is feasible (Terpan, 2015). Correspondingly, a basically similar obligation of good administration might have the form of a hard regulation in one jurisdiction while it has the form of a soft norm in another jurisdictions. Those dynamic changes to regulations and norms of good administration are issues I return to in chapter 3 when discussing regulations, norms and values of good administration in much greater detail.

⁸ Throughout the thesis I occasionally use “obligation” as a common denominator for ‘regulation’ and ‘norm’ to ease reading. To enhance readability, I further sometimes use “good administration” as shorthand for regulations, norms and values of good administration. Specific reference to either regulations, norms and/or values of good administration is always via mentioning of “regulations”, “norms” and/or “values”.

1.3.3.2 Values

Supplementing this understanding of regulations and norms, I further understand values⁹ as “deeper”, broader institutions that underlie and often serve as foundations for both regulations and norms.

The first definition of values within the modern era of social sciences seems to be that of Clyde Kluckhohn. In Parsons’ & Shils’ book *Toward a general theory of action*, Kluckhohn (1952, p. 395) defined values as “conception[s], explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available models, means, and ends of action.”

Of particular importance to the use of values as a concept in this thesis is the “desirable” in Kluckhohn’s definition: Values are deeply held conceptions of the desirable by individuals and groups of individuals. As such, they are not restricted to strictly ethical considerations of morality and right and wrong but also include less strict considerations of better and worse (Bannister & Connolly, 2014; Kluckhohn, 1952).

This definition of values is inherently related to the definition of institutions and their five features brought forward in section 1.3.1 above. Kluckhohn thus stresses that “explicit” and “implicit” “conceptions” influences humans’ choice of “available models, means, and ends”. Values can thus be understood as normative institutions (Scott, 2014).

Neither Kluckhohn nor Scott discuss the “deeper” characteristic of values as they underlie regulations and norms. Instead, this perspective can be laid out with inspiration from the Finnish legal scholar, Kaarlo Tuori, who draws on the thinking of, among others, Fernand Braudel, Michel Foucault, and Anthony Giddens.

For Tuori modern law is seen as a phenomenon consisting of three different levels which correspond to different “layers of consciousness”. The upper, surface level consists of what in this thesis is termed regulations including legislation, case law, legal science literature etc., and is subject to continuous – although often minuscule – change and adaption as legislation is revised, courts arrive at new decisions etc. (Tuori, 2002). Beneath is the more stable, intermediate level dominated by values which are, for example, important for the resolution of contradictions or interpretation of ambiguous formulations in the surface level (Tuori, 2002). Tuori further describes a “deep structure” as a third level of law. Here, fundamental legal structures and

⁹ The concept of values employed in this thesis refers to public values (plural). It does not relate to the value (singular) of this and that (in principle in measurable form) as employed in the literature on public value (Moore, 1997; Rhodes & Wanna, 2007; Stoker, 2006).

categories dominate and influence how human beings understand and discuss law (Tuori, 2002).

Combining neo-institutional thinking with Tuori's three levels of law results in an understanding of specific regulations and norms as placed in the surface level, while underlying, broader values are situated in the intermediate level which again builds upon the structures and categories of the deep structure. While I will not seek to cast light on the third, "sub-conscious" level, it should be noted that this level is somewhat comparable with the focus on cultural-cognitive institutions in neo-institutional thinking. Conversely, the understanding of regulations and norms of good administration as being placed in the surface level and of underlying values being placed in the intermediate level is important throughout the thesis. This understanding is illustrated in Figure 1.1.

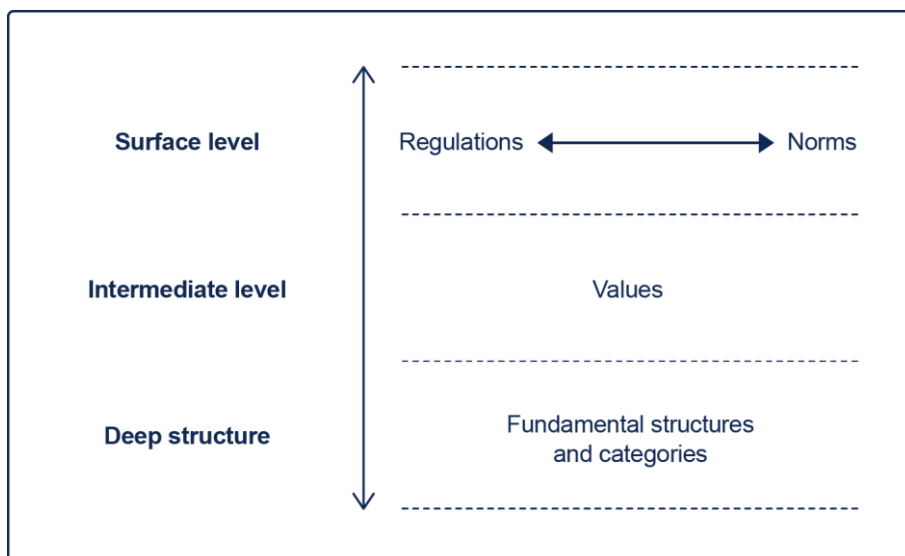


Figure 1.1: Understanding of regulations, norms and values employed in thesis. Inspired by Abbott et al. (2000) and Tuori (2002).

1.3.4. VALUES ARE SELDOMLY ABSOLUTE; INSTEAD, THEY COMPETE (PART I)

An important insight from institutional thinking as laid out in section 1.4 is that values (as other institutions) shape action but are multiple and therefore must be consciously or unconsciously applied to any given situation. They therefore also leave some room for individuals and organisations to act as it becomes possible to choose strategically among different options.

This also goes for values relevant to public administration. Different subsets of such public administrative values exist, and public servants and administrative bodies must continuously – either consciously or unconsciously – apply them to any given situation in conjunction with varying numbers of more specific institutions across the regulative, normative and cultural-cognitive continuum mentioned above. This applies equally to situations involving AADM usage.

Although Bozeman (2009) uses the term “public values”, his definition is a good starting point for understanding the scope of what I term (public) administrative values. He describes those values as values:

“[...] providing normative consensus about (A) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; (B) the obligations of citizens to society, the state, and one another; and (C) the principles on which governments and policies should be based” (Bozeman, 2009, p. 371).

A critical reading of Bozeman’s phrasing of (B) will bring into question the almost all-encompassing meaning of the here-mentioned obligations of citizens to one another. (B) should thus be primarily understood as citizens’ obligations to government bodies. Further, and as pointed out by Chantillon et al. (2020), Bozeman’s focus on citizens in (A) and (B) should be supplemented with a similar focus on firms.

Several authors have discussed and attempted to define the most dominant values of public administration¹⁰. Underlying these attempts is the observation that public administration is marred by certain inherent “impossibilities” (Pollitt & Bouckaert, 2017) of different subsets of competing values, which cannot all be met at the same time (Hood, 1991; Kernaghan, 2003). This observation thus matches the above idea that institutions are numerous and must be continuously – consciously or unconsciously – applied to any given situation.

Speaking from different disciplinary and empirical backgrounds, Hood (1991), Mashaw (1983) and Rosenbloom (1983, 2013) all suggest three subsets of partly competing values. The three authors’ suggestions are summarised in Table 1.2.

¹⁰ Other authors have also discussed values of public administration in terms of different sets (often synthesising other contributions). Within the last decades, Kernaghan (2003) applied the partly overlapping categories of ethical, democratic, professional and people values. Beck Jørgensen & Bozeman (2007) identified seven “constellations” of values of public service and Bannister & Connolly (2014) suggested duty oriented, service oriented, and socially oriented values as specifically appropriate for the study of advanced technology usage in public administration. Finally, Rose et al. (2015) discussed four “value positions” for the management of digital government in the form of professionalism, efficiency, service and engagement. Beck Jørgensen & Bozeman’s (2007) and Bannister & Connolly’s (2014) suggestions are discussed in detail in article 3.

Hood (1991)			
<i>Subset</i>	Theta	Sigma	Lambda
<i>Primary goal</i>	'Keep it honest and fair'	'Keep it lean and purposeful'	'Keep it robust and resilient'
<i>Dominating values</i>	Fairness, mutuality, proper discharge of duties	Efficiency (matching of resources to tasks for given goals)	Reliability, adaptivity, robustness
Mashaw (1983)			
<i>Subset</i>	Moral judgement	Bureaucratic rationality	Professional treatment
<i>Primary goal</i>	Conflict resolution	Programme (policy) implementation	Client satisfaction
<i>Dominating values</i>	Fairness	Accuracy, efficiency	Service, client satisfaction
Rosenbloom (1983; 2013)			
<i>Subset</i>	Law	Management	Politics
<i>Primary goal</i>	Adjudication	Execution	Legislation
<i>Dominating values</i>	Constitutional integrity, rights, procedural due process	Cost-effectiveness, customer orientation	Representation, responsiveness, political accountability

Table 1.2: Competing subsets of values of public administration; subsets are not fully comparable across authors.

Taking new public management inspired reforms in Great Britain as his point of departure, Hood summaries three 'families' of values which he argues are the base of many discussions of administrative reforms. Each subset comes with different standards and currencies of success and failure: "...the discussion [...] suggests the hypothesis that any two out of the three broad value subsets may often be satisfied by the same organizing principle for a subset of basic administrative design dimensions; but that it is hard to satisfy all three value subsets equally for any of those dimensions, and probably impossible to do so for all of them." (1991, p. 15)

Rosenbloom builds his framework of three "approaches" on an analysis of what he calls the administrative branch of US government, where the three approaches in effect have been collapsed into one: "...public administrators make rules, (legislation), implement these rules (an executive function), and adjudicate questions concerning their application and execution (the judicial function)." (1983, p. 225)

Originally a legal scholar, Mashaw studied the administrative decision process regarding disability claims in the American Social Security Administration Agency (SSA) in the 1980's and suggested three different models of 'administrative justice': "...each justice model is composed of distinctive goals, specific approaches to framing the questions for administrative determination, basic techniques for resolving

those questions, and subsidiary decision processes and routines that functionally describe the model” (1983).

Although the three authors analyse public administration at different levels – from the administrative decision-making of a single agency to the macro design of public administration – a common trait across the three subsets can be traced: all three authors identify a subset of what they see as legally oriented values emphasising rights, duties and fairness under the labels of *Law*, *Moral judgement* and *Theta*. Those subsets are close to the core of what chapter 3 suggests as values of good administration. That chapter will touch upon related values of fairness, rule-of-law and transparency.

Comparing the three suggestions is not clear-cut and indicates the need for public servants and administrative bodies to continuously choose and apply values to different situations. Mashaw, for example, includes accuracy and efficiency in his separate subset of *Management*. This is in contrast to Hood who posits accuracy as belonging to the *Theta* subset. In a similar vein, Mashaw includes client satisfaction in *Professional treatment*, while Rosenbloom includes the almost identical customer orientation in his *Management* subset. Further, Rosenbloom and Mashaw expand the width of administrative values by suggesting the respective subsets of *Politics* (emphasising representation, loyalty and responsiveness); and *Professional treatment* (emphasising professional knowledge, self-sufficiency and individual contexts).

Following the neo-institutional thinking forwarded above, the competing nature of values can thus be expected to lead to confusion and inertia but also leaves room for public servants and administrative bodies to act, choose strategically among options and possibly contribute to the continuous adjustment of selected values (Scott, 2014).

1.4. WHAT THE THESIS DOES NOT FOCUS ON

While the research question encapsulates the focus of this thesis, it is indicative to stress what the thesis does not cover. Doing so, Pollitt (2011) and Bailey & Barley (2020) offer some useful categories of research in relation to advanced technology use.

First and foremost, and following the basic theoretical premises introduced above, the focus of the thesis is on the *internal workings* of public administrative bodies in order to understand relations between AADM usage and regulations and norms of good administration: technology, work practices, bureaucratic procedures, responsibilities of public servants, management practices, and organisational structures of public administrative bodies. I thus do not seek directly to cast light on relations of AADM usage and good administration from the perspective of citizens (and firms) or from the perspective of elected policy-makers just as I do not directly consider perspectives of commercial ICT suppliers (Pollitt, 2011). While those perspectives are relevant to

the wider research goals described above, and authors have pointed to the questionable role of data scientists, software engineers and commercial ICT suppliers for today's public administration (Zouridis et al., 2020), I solely touch upon those perspectives to contribute to a stronger understanding of the "internal workings".

Secondly, and as a natural consequence of the emphasis on understanding technology *in use* forwarded in section 1.3.2, my focus is not on automated decision systems as such but on usage of automated, administrative decision-making. Although I occasionally touch upon characteristics of underlying techniques such as unsupervised machine learning – as they have specific implications for adherence to regulations and norms of good administration – and return to five characteristics of automated decision systems in chapter 4, my interest is not decision systems in the perspective of "computing machines", i.e., as systems containing a number of computational procedures that transforms input to output (Dahlbom & Mathiassen, 1993).

Finally, and despite Bailey & Barley's (2020) critical assessment of current research on "technology in the workplace" as being too narrow in its focus on design and use of technology, I have chosen not to focus on broader issues of, on one hand, power and ideology (e.g., what interests benefit from increased use of AADM) and, on the other, broad societal institutions that may be affected by increased use of advanced technology in public administration (e.g., what does increased use of AADM mean for public authority in the future). Although the focus on good administration is somehow related to the latter issue of consequences for broad, societal institutions, my disregard for the mentioned issues does not mean they are not important.

1.5. PERSONAL AND CULTURAL ASSUMPTIONS

Just as an understanding of what the thesis does *not* cover supplements the research question's focus, a brief introduction to the personal and cultural assumptions of the research also provides valuable context for the understanding of the thesis. Discussing the future of the academic discipline of public administration, Bouckaert & Jann (2020) emphasises the importance of more explicit normative approaches where researchers aim less for general mechanisms and are more aware of both their own and others' cultural features. Following this suggestion, particularly two assumptions are relevant to share here.

The first assumption regards good administration. I have already stated that I consider regulations and norms of good administration as broadly positive as they not only help control arbitrary state power but also support smooth policy implementation. In chapter 3, I describe how a common core of good administration exists among liberal, democratic governmental systems in the so-called Western World. And the empirical data of the thesis is drawn from exactly such a governmental system, namely the Danish.

Does this mean that regulations, norms and values of good administration are genuinely shared across liberal, democratic governmental systems or for that sake the monopoly of such systems – or even of the Danish governmental system? Or, on the other hand, that they are uniform and the rest of the world is fated to eventually “...follow in the footsteps of the Western World” (Mungiu-Pippidi, 2020) and adopt identical regulations, norms and values?

Not at all. Rather, it means that regulations, norms and values of good administration must be understood as having arisen in a particular context. While likely to provide valuable inspiration, they should not blindly be transferred to other contexts without thoughtful consideration of their “fit” with the governmental system in question.

The second assumption regards the understanding of AADM and advanced technology in public administration in general. Although technology is often associated with facts and scientific knowledge, technology is not neutral. This of course goes for AADM as well.

Langdon Winner (1980) famously differentiated between technology’s design as being political (and thus open to debate and change) and technology as being inherently political de facto necessitating certain arrangements of power and authority (e.g., use of nuclear power as a centralizing force of control). While I acknowledge that use of some technologies is inherently political, I do not consider use of AADM as belonging to this group or representing a “distinct algorithmic governmentality” that by definition is negative (see Henman, 2021 for a discussion of the latter).

Instead, the perspective here is that use of AADM can potentially be a positive force both in terms of good administration and in terms of other societal objectives, just as it can be a negative force. This principal duality is a perspective which I believe is confirmed by the conclusions of the thesis identifying both supportive and undermining relations of AADM usage and good administration. I further assume, maybe optimistically, that most public servants are well-intentioned characterized by rather benign motives and grounded in widely accepted values. Again, I do not assume that this means use of AADM and other advanced technology cannot lead to undesirable and possibly alarming developments in public administration and society as a whole (Bannister & Wilson, 2011).

1.6. STRUCTURE OF THE THESIS

This thesis consists of four chapters and five articles as illustrated in Figure 1.2. The central output of the underlying research is the five articles which have either been or

are intended to be published as separate research articles. Summaries of the included articles are given below in section 1.6.1.

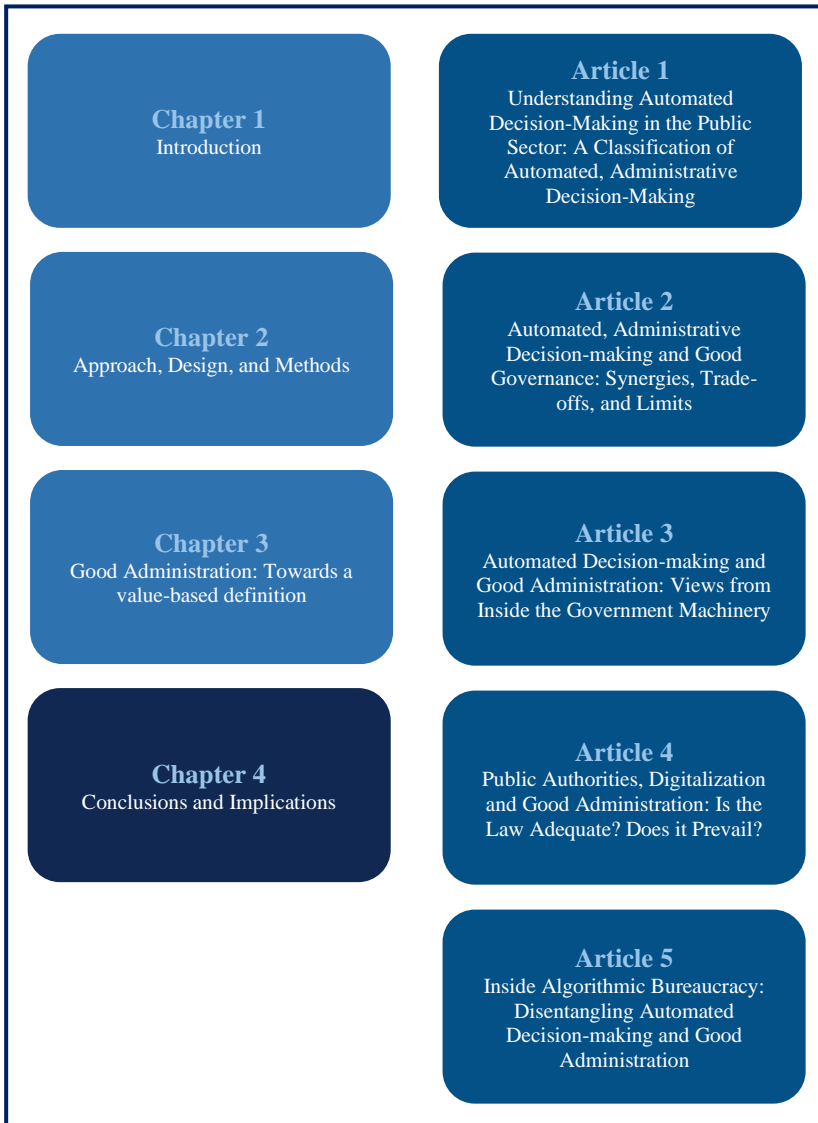


Figure 1.2: Structure of the thesis.

Writing a doctoral thesis in an academic world where the dominant currency tends to be research articles of typically 7,500 – 10,000 words challenges the coherence of the presented narrative. As the articles focus on the same overall subject following the

principal research question, it is unavoidable that some repetition across chapters will occur.

Following the empirical nature of the thesis, three out of five of the articles (no. 3, 4 and 5) are based on empirical inquiries in Danish public administration. The empirical research context of the thesis is thus Denmark which is often pointed to as global digital government front-runner (United Nations, 2020). It is therefore no surprise that use of semi and fully automated AADM appears rather widespread among Danish administrative bodies.

As a distinctive taste of what is to come in the three mentioned articles, it can be noted that all 98 Danish municipalities operate semi automated decision-making in relation to approvals of large-scale livestock farming, while the municipality of Holstebro (approx. 57,500 inhabitants) is the only Danish municipality that decides on applications for installation of private and commercial infiltration well works in a fully automated manner.

The thesis proceeds in the following manner:

- **Chapter 2**, “Approach, Design and Methods”, lays out the philosophical and methodological choices underlying the thesis. I start by briefly introducing the underlying research paradigm, critical realism, and then move on to research design, employed methods, types of data and employed analytical strategy. I argue that four characteristics are key to understanding the research: empirical, explorative, qualitative, and abductive. These characteristics are particularly well suited for studies of an understudied phenomenon such as relations of AADM usage and good administration. The chapter ends with a discussion of relevant quality criteria as well as a discussion of selected issues of research ethics.
- **Chapter 3**, “Good Administration: Towards a value-based definition”, discusses and defines regulations and norms of good administration. The chapter draws on the above understanding of regulations and norms as being ends of the same continuum and characterised by underlying values. Discussing literature within the academic disciplines of public administration and law, I attempt to describe a common core (or “sweet spot” to use a tennis metaphor) of broadly accepted understandings of good administration across traditions and jurisdictions. The chapter ends with a suggestion for the definition of regulations and norms of good administration that relies on nine selected public administrative values which shape and constrain activities of administrative decision-making.
- **Chapter 4**, “Conclusions and Implications”, I lay out five main conclusions of the thesis based on the previous chapters as well as the five articles. A rather banal, but nonetheless important, conclusion is that relations between AADM

usage and regulations and norms of good administration are abundant. One way to grasp the diversity of relations is to focus on relations between AADM usage and the values of good administration that underlie these regulations and norms. Following the five primary conclusions, I discuss the primary contributions as well as implications for research and policy and practice. The chapter – and the thesis – finishes with reflections on future use of advanced technology in public administration.

1.6.1. SUMMARIES OF INCLUDED ARTICLES

The five articles included in the thesis can be summarised as follows:

- **Article 1**, “Understanding Automated Decision-Making in the Public Sector: A Classification of Automated, Administrative Decision-Making” conceptualises a classification of six ideal types of AADM usage ranging from Minimal automation to Autonomous decisions. Each type describes a configuration of decision authority between public servants and automated decision systems which illustrates how the use of advanced technology does not exist independent of its users and contextual factors. The article emphasises the need to understand empirical instances of AADM usage as ambiguous and often consisting of several ideal types of use.
- **Article 2**, “Automated, Administrative Decision-making and Good Governance: Synergies, Trade-offs, and Limits” builds on a systematic review of relations between increasing use of AADM and values of good governance as depicted in the literature within social sciences over the last 20 years. Drawing on Fukuyama’s, Hood’s, Rothstein’s and Rotberg’s understandings of good governance 6 synergies, 11 trade-offs and 3 limits are identified, which revolve around 9 values of good governance: equality, rule-of-law, efficiency, transparency, fairness, accountability, right-to-privacy, responsiveness and resilience.
- **Article 3**, “Automated Decision-making and Good Administration: Views from Inside the Government Machinery” builds on qualitative interviews with 43 public administration stakeholders in a wide area of policy fields in Denmark. AADM usage is articulated as providing both opportunities of supporting good administration as well as risks of undermining good administration. Six values of good administration particularly related to AADM are identified: non-erroneous, respecting-individual-integrity, professional administration, trustworthy, responsive and empowering. Put simply, risks to good administration can be expected to occur by themselves while opportunities must be actively nurtured through managerial attention.

- **Article 4**, “Public Authorities, Digitalization and Good Administration: Is the Law Adequate? Does it Prevail?” combines a jurisprudential analysis with a qualitative study of public authorities’ practice by examining how legal rules, values, and extra-legal norms affect authorities’ use of automated, administrative decision-making within the Danish public administration. The article focuses on two themes of good administration: I) authorities’ wording and communication of reasons for automated administrative decisions, and II) authorities’ continuous quality assurance of underlying ICT systems. The study shows that whether or not themes are clearly addressed in legal sources, deeper, more immanent values of administrative law may have difficulties manifesting themselves in government practice.

- **Article 5**, “Inside Algorithmic Bureaucracy: Disentangling Automated Decision-making and Good Administration” builds on a multiple case-study of how empirical use of AADM influences and transforms issues of good administration in four policy areas in Denmark. The article exemplifies how public authorities struggle to apply automated decision-making in ways that support rather than undermine good administration. We identify six empirical relations of usage of automated, administrative decision-making and good administration and pinpoint related key capabilities for administrative bodies in order to support good administration.

CHAPTER 2. APPROACH, DESIGN AND METHODS

Four characteristics are key to understanding the research that forms the foundation of this thesis: empirical, explorative, qualitative, and abductive.

Having already introduced the empirical and explorative nature of this thesis in the previous chapter, I will in this chapter argue that all four characteristics are particularly well suited for studies of understudied phenomena such as relations of AADM usage and good administration. I will additionally discuss how the thesis relates the empirical to the theoretical and the explorative to the explanatory.

The chapter progresses as follows. First, I briefly introduce the underlying philosophy of science and what this means for my research ambitions. I then continue with a discussion of research design, employed methods, types of data and employed analytical strategy. The chapter ends with a discussion of relevant quality criteria as well as a discussion of selected issues of research ethics.

Following conventions of academic writing (Patriotta, 2017), articles 1-5 each include a discussion of the employed methods. To avoid excessive repetition, the current chapter primarily focuses on the overall design etc., and only dives into specifics where the latter influences the overall picture.

2.1. PHILOSOPHICAL ASSUMPTIONS

Research paradigms can be seen as philosophical starting points for disciplined inquiries, i.e., research, that determine what a suitable inquiry is and how it is to be practised. Paradigms provide a somewhat coherent answer to questions of ontology (what is the nature of “reality”?), epistemology (what is the nature of “knowledge”?) and methodology (how can one create “knowledge” about “reality”?) (Guba, 1990). The word “somewhat” in the previous sentence is important for the approach taken here, as research paradigms do not necessarily have to be seen as unified, fixed sets of answers to the three abovementioned questions. Instead, they can be seen as selections of core beliefs that bleed into other paradigms’ beliefs at the margins as the researcher goes about her inquiry and makes methodological choices (Abbott, 2004).

The paradigm I take as starting point for the research in this thesis is critical realism which, briefly put, is based on three core beliefs. I) A real world, e.g., the keyboards, tablets and other computer hardware used to operate automated decision systems, exists independently of our perceptions and constructions. II) Mental and social phenomena, e.g., institutions such as regulations, norms and values of good administration, contribute to social action and are therefore relevant to study. III)

Despite the existence of a real world, research can never produce any objective or certain knowledge of it (Maxwell & Mittapalli, 2015).

Following these core beliefs, a “logic” of effect and analysis in research can be described (Kringelum, 2017). The logic is based on three “domains” of reality: the real, actual and empirical. The three domains underscore that what is being experienced or is experienceable is not reality but our understandings of reality (Bhaskar, 1998). As illustrated in Figure 2.1, critical realist thinking argues that our knowledge is based on empirical observations derived from actual events and outcomes. As researchers (and humans), our interpretations constitute an intervening element between events and outcomes, on the one hand, and observations on the other. There may also be events and outcomes we simply do not observe at all. Events and outcomes further occur as a result of structures and mechanisms operating in the real domain. Taken together, “[w]e see just the tip of an iceberg but that doesn't mean that the invisible three-quarters is not there or is unconnected to what we see.” (Easton, 2010, p. 123)

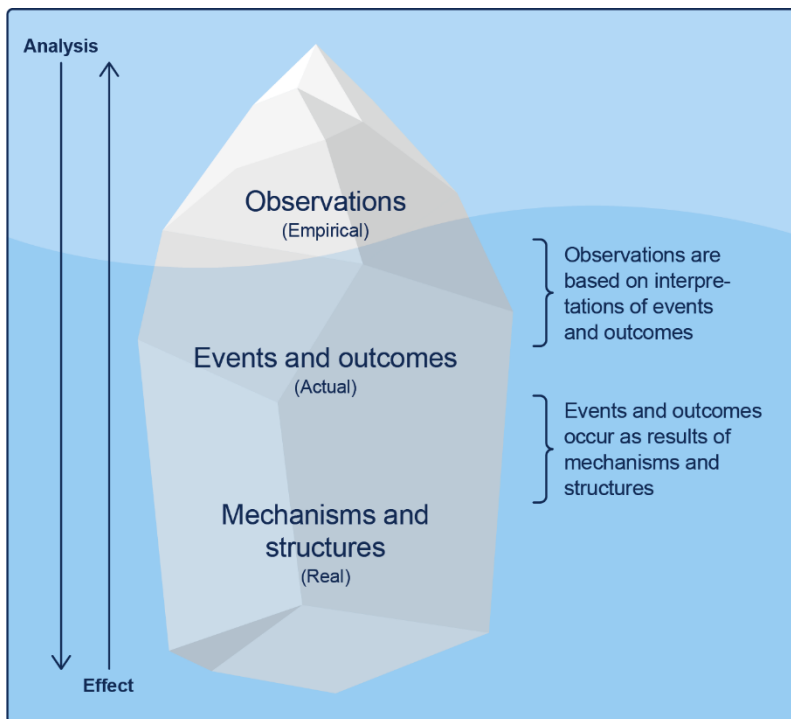


Figure 2.1: “We see just the tip of an iceberg” – domains of reality in critical realism; inspired by Easton (2010) and Kringelum (2017)

Taking critical realism as a starting point, events and outcomes become of interest. In a general sense, why does an actual outcome occur (Easton, 2010)? In a specific sense,

why does actual AADM usage appear to sometimes support regulations and norms of good administration? Why does actual AADM usage seem to sometimes undermine regulations and norms of good administration?

Seeking to understand this and following Figure 2.1, a key aim within critical realism is to understand the structures and mechanisms that connect different entities thereby causing outcomes to occur (Easton, 2010).

2.1.1. RESEARCH AMBITION

Rather than expecting to find universal mechanisms, critical realism understands causal mechanisms as dependant on the social context within which they operate (Fryer, 2020; Maxwell & Mittapalli, 2015). The same mechanism may thus produce different outcomes just as the same outcome may be produced by different mechanisms depending on the context (Easton, 2010). This has led some critical realists to speak of “tendencies” rather than mechanisms as the most fitting causal category (Bhaskar, 1998). I also find the term *tendencies* is more appropriate.

Put in those terms, the ambition of this thesis is to identify and understand possible causal *tendencies* that help explain relations between AADM usage and good administration depending on their *context*. Anticipating the answer to the research question, the supportive or undermining nature of relations can thus be understood as *causal effects* of usage of AADM and good administration, while the description of each relation can be understood as a *causal tendency* (discussing the same differentiation, Johnson et al., 2019, p. 147, apply the terms “causal description” and “causal explanation”).

As an example, article 2 showed that AADM usage may support good administration as it sometimes involves the codification of service standards that inform addressees’ expectations of the administrative decision process. Here, the support of good administration can be understood as the effect while the possible codification of service standards informing addressees’ expectations can be understood as the tendency.

Adding further nuances to the ambitions of the thesis, the explorative character of the underlying research indicates the intended level of abstraction of the conclusions. Theories or explanations tend to operate with a varying range or level of abstraction from simple empirical associations to advanced, general frameworks (Neuman, 2006). Seeking to contribute to nascent theory (Edmondson & Mcmanus, 2007), my ambition is to *identify relations of AADM usage and good administration (thereby suggesting propositions)*. I furthermore intend to *suggest explanations regarding the relations (thereby suggesting tentative explanations)* that can hopefully inform and inspire future research on the same phenomenon.

2.2. RESEARCH DESIGN

Research design is about ensuring a suitable fit between research goals, research question, theories and concepts, methods and considerations of quality (Maxwell, 2012). The aim is to achieve congruence and mutual reinforcement of the five mentioned elements (Edmondson & Mcmanus, 2007).

Contemporary work on research design stresses the cyclical or “interactive” nature of design. None of the five elements has primacy upon the others, and these elements often develop during the entire “research journey” (the period from early initiation to completion of reporting) instead of being decided from the start (Maxwell, 2012). Maxwell (2012) describes the research question as the centre or the “heart” of the design as it is this question that most directly connects to the other elements. The interactive nature is illustrated in Figure 2.2 with references to relevant chapters and articles.

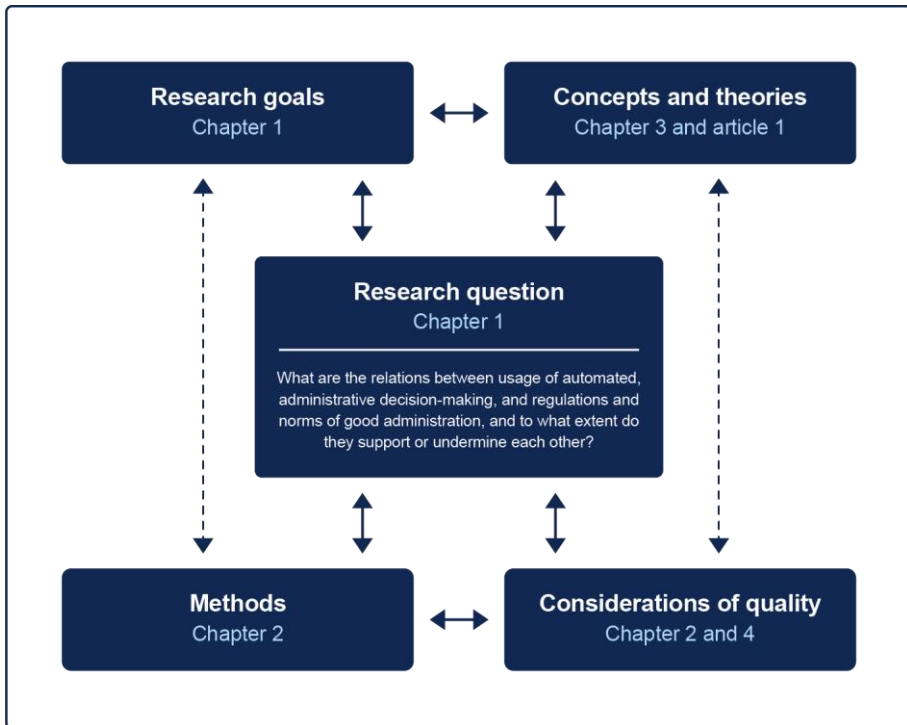


Figure 2.2: *The interactive nature of research design with reference to relevant chapters and articles; inspired by Maxwell (2012)*

Supplementing the already given description of the thesis as empirical and explorative, the research is *qualitative* in its nature. This matches understandings of research of understudied phenomena – such as relations of AADM usage and good

administration – where authors argue that qualitative methods including detailed and evocative data are particularly suitable (Edmondson & Mcmanus, 2007).

A fourth key characteristic of the research is its broad *abductive* inclination. Rather than taking empirical observations as the sole basis for explanations and theorising (induction) or attempting to test hypotheses based on existing theory (deduction), abduction describes a research process that moves recursively back and forth between empirical observations and possible explanations (Timmermans & Tavory, 2014).

Different authors tend to use different labels when discussing abduction (e.g., Reichertz, 2014; Timmermans & Tavory, 2012); nonetheless, they agree on three – intertwined – steps that help the researcher connect empirical observations to possible explanations and vice versa. The first is use of “mnemonic” devices such as transcription, coding and memo-writing to familiarise oneself in a balanced and detailed manner with the empirical observations. The second is defamiliarisation where one distances oneself from observations attempting to see aspects previously taken for granted or seen in a specific light. The third step is the revisitation of observations which seek explanations by relating and comparing observations with existing theoretical accounts thereby considering how to explain empirical observations (Timmermans & Tavory, 2014).

Figure 2.3 illustrates the overall design of the research underlying the thesis while emphasising the approximate “breadth” and “depth” of the respective sub-studies. Chapter 3 and article 1 are comparable in the sense that they each discuss and define the key concepts of the thesis, i.e., AADM usage and good administration. Article 2 is broad in its breadth, as it reviews existing literature on both good governance and good administration in relation to usage. Articles 3 and 4 are “deeper” as they are empirically based on qualitative interviews with a large number of Danish public administration stakeholders. Article 4 draws on data regarding two selected themes from the aforementioned interviews and combines them with a dogmatic jurisprudential approach. Article 5 is the “deepest” and the “narrowest” of the sub-studies as it is based on a multiple case-study of Danish administrative bodies’ AADM usage in four policy areas and its relations to good administration.

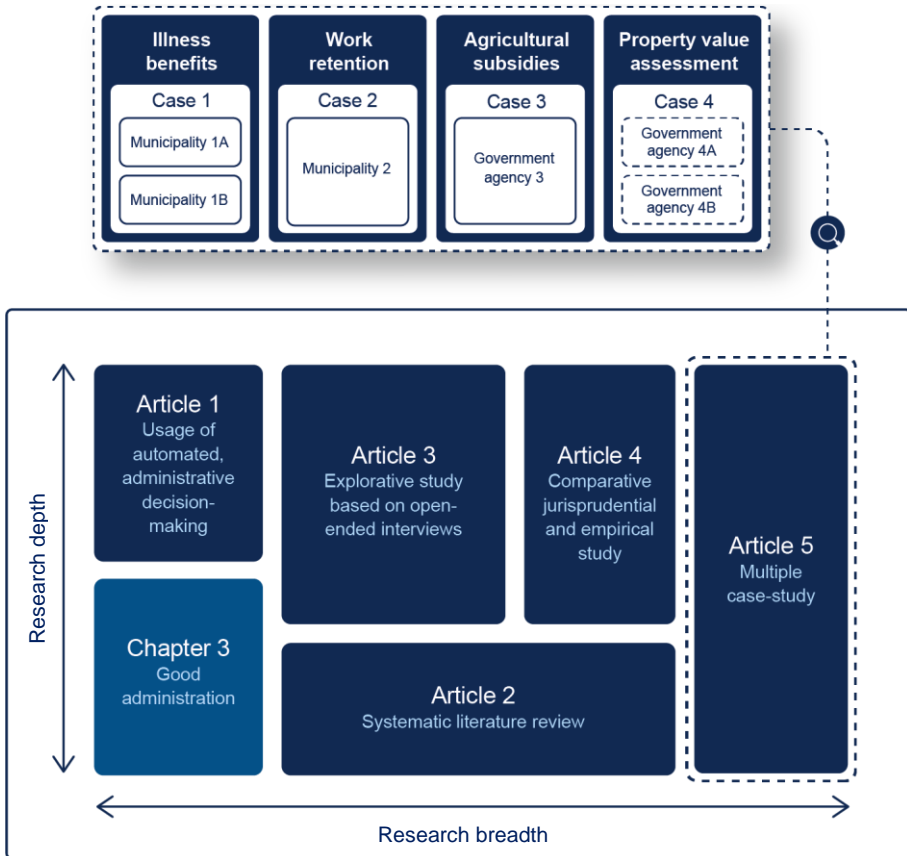


Figure 2.3: Design of research and sub-studies underlying the thesis; indications of “breadth” and “depth” are approximate.

Figure 2.3 also helps illustrate the abductive inclination introduced above as it manifests itself in two ways. Firstly, it is a characteristic of the *entire* research journey, from early initiation to completion of reporting, including the five sub-studies of articles 1-5. Secondly, abduction was an important element of the research underlying *each* of the three sub-studies presented in articles 1, 3, and 5.

While abduction helped balance empirical observations and possible explanations, the starting point for the inquiry underlying this thesis had a strong empirical focus. The first sub-study undertaken was the one presented in article 3. This sub-study consisted of open-ended qualitative interviews with 43 key public administration stakeholders. The emerging themes from those interviews served as sensitising concepts used primarily for data collection and analysis of the case-study presented in article 5 and secondarily for the other sub-studies.

Sensitising concepts is meant to alert the researcher to specific elements and provide initial directions (Patton, 2015). They offer a transparent acknowledgement of the fact that no observer enters empirical fields with a completely blank slate (a fact to which I return to below). The ambition was to use the emerging themes as “weak” sensitising concepts which give the empirical observations of the case-study priority over the concepts in order to avoid bias and mistaken limits regarding findings (Eisenhardt, 1989). This meant that the 6 values of good administration as well as the 29 underlying themes identified in article 3 were used as open-ended inspiration for the data collection and analysis but not as a definite list of what to look for.

2.2.1. THE CASE-STUDY: LOOKING ACROSS FOUR POLICY AREAS

While the sub-study presented in article 3 was the first undertaken during the research journey, the case-study presented in article 5 is central to the research design as it provides for a “deepening” of findings.

Despite differences in underlying assumptions about the purpose of case-studies, authors tend to argue that qualitative case-studies are particularly suitable for investigating new phenomena or phenomena of which little or only conflicting knowledge exists (e.g., Eisenhardt, 2021, and Yin, 2009). This is due to the detail and density of context possible to obtain through qualitative case-studies. As such, a case-study is an ideal supplement to the sub-studies presented in articles 2-4.

Article 5 is based on a multiple case-study (Miles & Huberman, 1994) of four policy areas in which Danish public administrative bodies employ semi and fully automated administrative decision-making in connection with illness benefits, work retention, agricultural subsidies and property value assessment. The design is illustrated above in Figure 2.3. Case 1 (Illness benefits) consists of two embedded sub-cases (two municipalities). The design is thus a combination of what Yin (2009) labels holistic and embedded designs. Each case represents *a particular example of administrative bodies’ AADM usage and its relations to good administration*.

As described in article 5, the selection of the four cases was inspired by purposeful (Patton, 2002) and theoretical sampling (Eisenhardt, 2021) aimed at information-rich cases which showed variation in relevant contextual aspects. This makes it possible to cast light on context-specific causal tendencies underlying relations of AADM and good administration both within each case and across the four cases. To ensure relevance of the findings over time, it is appropriate to pursue variation not only in terms of current AADM usage but also in terms of more deeply rooted characteristics of the cases.

To guide selection, the four cases were selected from a preliminary list of 10 potential cases that were drawn up based on publicly available sources and personal knowledge (the list is reproduced in appendix I). Each potential case was

categorised according to its professional (level of disagreement of cause and effects of policy interventions) and political complexity (level of disagreement of preferred policy outcomes) as inspired by Thompson & Tuden (1959). The assumption was that the complexity of each policy area influences AADM usage as well as the attention of administrative bodies to regulations and norms of good administration. Differences in professional and political complexity can thus be argued to represent more deeply rooted characteristics of each policy area than, e.g., current use of technology. Those differences were therefore deemed a relevant, primary basis for sampling.

I will – when discussing relevant quality criteria for the research underlying the thesis in section 2.6 below – return to the issue of sampling and the extent to which it is possible to transfer selected tendencies to other contexts.

2.2.2. INTERDISCIPLINARITY: COMBINING PUBLIC ADMINISTRATION AND ADMINISTRATIVE LAW

It is almost unavoidable to escape the law, and particularly administrative law, in real-life public administration, i.e., administrative bodies and their overall purposes are rooted in legislation, and policy aims are often enshrined in legislation and other regulation. Administrative decision-making as well as many other activities of public administration are influenced by legislation and case-law. Yet, relations between public administration and law as academic disciplines are seldomly as close as this explanation would suggest (Hustedt et al., 2020).

In principle, this is a challenge as real-life problems seldomly adhere to the disciplinary boundaries of academia. The focus of this thesis potentially magnifies the problematic part as regulations and norms of good administration are just as much a matter of public administration as they are of (administrative) law. And understandings of underlying values of good administration including basic notions of relationships of citizens and state are equally informed by the two (sub)disciplines.

To overcome this, the research that lays the foundation of this thesis is based on an interdisciplinary approach combining public administration and administrative law¹¹: Interdisciplinary work is characterised by use of methods, concepts and perspectives from other disciplines than the “host” discipline exclusively in order to address a question adequately (in comparison to multidisciplinary work that builds more evenly

¹¹ I also borrow from the academic (sub)disciplines of eGovernment, information systems, organizational theory, science & technology studies and critical algorithmic studies. This is, however, more ad hoc, as these (sub)disciplines are more frequent “visitors” in public administration and basic methods etc., to a much larger extent are shared between the disciplines. Contrary to the discipline of law, borrowing from the mentioned disciplines do therefore not necessitate the same level of consideration.

on different disciplines or transdisciplinary work that merges approaches across disciplines) (Klausen, 2014).

I thus “borrow” or “import” from administrative law and this discipline’s descriptions, methods and analysis of legal elements of “the legislative and executive facets of public administration” (Burgi, 2020, p. 159). This is done with a particular focus on regulations of good administration as laid out in chapter 3. One sub-study – presented in article 4 and written in collaboration with the legal scholar, Assistant Professor Søren Stig Andersen of the University of Copenhagen – includes a dogmatic jurisprudential analysis, representing a multidisciplinary approach.

Ideally, the interdisciplinarity of the thesis has the advantage of expanding understandings of empirical observations and theories thus allowing for the connection of my findings to conversations within administrative law (Locker, 1994). However, interdisciplinarity also risks leading to superficiality as one borrows methods, concepts and perspectives without sufficient understanding of their knowledge basis in the “lending” discipline (Kincheloe, 2001).

In part to mitigate this risk, I introduced four basic theoretical premises in chapter 1 including an understanding of regulations and norms of good administration as positioned at the “surface level” with broader values of good administration underneath. This corresponds with the basic theoretical idea of “critical legal positivism” (Tuori, 2002), also described in chapter 1, which perceives modern law as a phenomenon consisting of a surface level and two broader, underlying levels of values, and fundamental structures and categories.

2.3. RESEARCH METHODS

The five sub-studies underlying the thesis are characterised by the use of particular methods which reflect the sub-studies’ specific research questions. These research questions serve as subsidiary or contributory research questions as they help me answer my primary research question (White, 2009). They therefore provide the link between the research question of the thesis and the detailed research methods. Both specific research questions and detailed methods are discussed in articles 1-5, but Table 2.1 provides a summary as well as information on data and employed analytical strategies.

The structured literature search and systematic literature review employed in the sub-studies underlying articles 1 and 2 are described in detail in these two articles. Sharing a few reflections on the interviews, document retrieval and observations employed in relation to articles 3-5 is, however, relevant.

Article	Subsidiary research question	Methods	Data	Analytical strategies
1	How is usage of automated, administrative decision-making best conceptualised in order to understand its wider consequences for the public sector and society?	<ul style="list-style-type: none"> Structured literature search (Zins, 2000). 	<ul style="list-style-type: none"> Sources containing generic classifications or typologies of automation. Sources containing classifications or typologies within particular contexts. Search finalized Jun 10, 2021. 	<ul style="list-style-type: none"> Abductive classification development (Nickerson et al., 2013)
2	How do usage of automated, administrative decision-making and good governance relate and to what extent can the relations be considered synergies, trade-offs or limits?	<ul style="list-style-type: none"> Systematic literature review (Moher et al., 2009; Sundberg, 2017; Webster & Watson, 2002) 	<ul style="list-style-type: none"> 80 academic articles (63 journal articles and 17 books or book chapters) Literature from 2000 – 2020. 	<ul style="list-style-type: none"> Qualitative coding and analysis (Saldaña, 2013)
3	What are the relations of automated, administrative decision-making and good administration as articulated by key public administration stakeholders?	<ul style="list-style-type: none"> Loosely structured, open-ended interviews (Brinkmann & Kvale, 2015; Silverman, 2014) 	<ul style="list-style-type: none"> 36 interviews with 43 Danish public administration stakeholders. Data collected July 2018 – April 2019. 	<ul style="list-style-type: none"> Thematic coding and analysis (Boyatzis, 1998; Gioia et al., 2013)
4	Do regulations and norms of good administration prevail in relation to public authorities and digitalisation, and are those regulations and norms adequate?	<ul style="list-style-type: none"> Loosely structured, open-ended interviews (Brinkmann & Kvale, 2015; Silverman, 2014) 	<ul style="list-style-type: none"> 36 interviews with 43 Danish public administration stakeholders. 	<ul style="list-style-type: none"> Thematic coding and analysis (Boyatzis, 1998; Gioia et al., 2013) Dogmatic jurisprudential analysis (e.g., Zahle, 1999)

Article	Subsidiary research question	Methods	Data	Analytical strategies
5	<p>What are the primary empirical relations between usage of automated, administrative decision-making and good administration? How do administrative bodies manage relations between usage of automated, administrative decision-making and good administration?</p>	<ul style="list-style-type: none"> ▪ Semi structured interviews (Brinkmann & Kvale, 2015) ▪ Document retrieval (indirect observations) (Bernard et al., 2017) ▪ Shadowing and stationary observation (Czarniawska, 2017). 	<ul style="list-style-type: none"> ▪ Data collected July 2018 – April 2019¹². ▪ 60 interviews with public servants of administrative bodies ▪ 159 documents ▪ 13 observations ▪ Data collected October 2019 – December 2020. 	<ul style="list-style-type: none"> ▪ Thematic within-case and cross-case analysis (Boyatzis, 1998; Miles & Huberman, 1994)

Table 2.1: Summary of research methods, data and analytical strategies for each article. Some elements of subsidiary research questions are moderately rephrased to fit with broader use of concepts across the thesis.

¹² Article 4 is partly based on selected data collected as part of the sub-study presented in article 3.

2.3.1. INTERVIEWS

Interviews were used in relation to article 3 and 4 as well as in relation to the case-study presented in article 5. Reflecting the differences in research depth and width of the sub-studies illustrated in Figure 2.3, interviews carried out in relation to articles 3 and 4 were loosely structured, open-ended interviews (Brinkmann & Kvale, 2015; Silverman, 2014), while interviews carried out in relation to article 5 were semi-structured (Brinkmann & Kvale, 2015). All interviews related to article 5 were recorded. However, approx. half of the public administration stakeholders interviewed in relation to articles 3 and 4 were hesitant, reluctant or directly objected to recording which resulted in those interviews not being recorded.

2.3.1.1 Interviews underlying articles 3 and 4

Open-ended interviews are characterised by a shared creation of meaning and knowledge between the interviewee and the interviewer and are based on a rather limited structure (Brinkmann & Kvale, 2015; Silverman, 2014). This form of interview was chosen to mirror the explorative nature of the sub-study underlying articles 3 and 4 and focused on the width of articulations of the interviewees. Seven interviews were carried out as "duo interviews" as the interviewees themselves invited specialist employees to participate. The number of interviewees was thus 43, but the total number of interviews was 36, cf. Table 2.1.

As detailed in article 3, all interviewees were introduced to the broad subject – "digitalisation, automated, administrative decision-making, management and good administration" – by email. On this basis, the interviewees were simply asked to mention relevant regulations, norms and other topics that came to mind. Most interviewees began (with no prompting) to talk about relevant regulations and norms and interrelated topics of AADM and good administration based on their experience. Many had already considered relevant topics prior to the interview and expanded and reflected on these topics during the interview.

The interviews were conducted in person by me and took approx. 45-90 minutes. In case the conversation stalled, or the interviewee ventured into highly irrelevant territory, I attempted to steer the conversation back to tangible topics of administrative decision-making and good administration.

2.3.1.2 Interviews underlying article 5

In the multiple case-study underlying article 5, interviews were the primary form of obtaining data. Here interviews were made with top and mid-level managers, specialists and caseworkers of the administrative bodies of the four cases (all interviewees formally being considered public servants). While managers and specialists potentially provided overview of relations of AADM and good

administration as well as access to managerial considerations of trade-offs and dilemmas, caseworkers represented detailed knowledge of administrative decision-making processes as well as use of decision systems. One potential interviewee declined participation due to apparent work pressure while all other potential interviewees participated.

All interviews were semi-structured. Brinkmann & Kvale (2015, p. 150) define such interviews as "...an interview with the purpose of obtaining descriptions of the life world of the interviewee in order to interpret the meaning of the described phenomena." A semi-structured interview "...has a sequence of themes to be covered, as well as some suggested questions. Yet at the same time there is an openness to changes of sequence and forms of questions to follow up on the specific answers given and the stories told..." (Brinkmann & Kvale, 2015).

The interviews were individually designed according to the position of the interviewee, took 45-90 minutes and were conducted in Danish either physically or by video by me. All interviewees received an email introducing the research project and detailing confidentiality, data protection etc. Generally, interviews covered an introduction to the research project; the role of the interviewee; the administrative decision-making process; specific elements of the process and / or the decision system pending the position of the interviewee; issues of good administration; trade-offs and dilemmas and interview closure. Appendix II contains three anonymised examples of interview guides used in relation to the case-study illustrating the variation in themes and questions.

All interviews were transcribed "semi" intelligent verbatim by internal and external assistants, keeping significant mistakes and cues but excluding verbal fillers, grammatical mistakes etc. (McMullin, 2021).

A particular element to consider in relation to the interviews conducted as part of the case-study is the extent to which interviewees spoke freely and frankly. This can, of course, potentially lead to bias or deceit in data. While most interviewed public servants spoke willingly and openly shared negative experiences, errors etc., some were more reluctant. It is impossible to say if this may be due to personal leanings, collegial respect or organizational loyalties which led interviewees to desire avoidance of publicity regarding "algorithmic shock stories" (Veale et al., 2018). I stressed the anonymity of individual interviewees and administrative bodies during the interview. Experiencing possible ambiguous issues or "missing links", I sought to subsequently clarify them via other interviewees or documents.

2.3.2. DOCUMENT RETRIEVAL

As part of the case-study presented in article 5, a number of documents were retrieved in relation to the four cases. Forming a heterogenous body, such documents included

short as well as longer sources in the form of internal guidelines and checklists for use of decision systems as well as internal decision-making processes, software documentation for decision systems, internal teaching material, examples of decision system templates etc. Documents additionally shared with or produced by external parties in the form of public fact sheets, newspaper articles etc. were also accessed. Sometimes these were used solely as background knowledge. Some external sources were coded and analysed in line with the internal sources.

I did not gain access to a handful of potentially interesting documents due to lack of response from individuals. Although impossible to fully assess, this seemed to be the result of work pressure rather than a deliberate act of non-disclosure.

2.3.3. OBSERVATIONS

Supplementing interviews and document retrieval, a limited number of observations were carried out in relation to the case-study presented in article 5. As described in article 5, these took two forms of non-participant observation: shadowing and stationary observation (Czarniawska, 2017). Shadowing was carried out by following caseworkers for entire days at work and focusing on operation of decision systems, formal and informal communication with addressees (including physical meetings), colleagues and managers plus – in one instance – during an internal course on operating an automated decision system. In a literal sense, this primarily meant looking over the shoulder of the shadowed, taking notes and asking questions when the situation allowed (akin to Czarniawska's, 2017, description of “shadowing the screens”) and was done in relation to three cases. Stationary observations were carried in relation to physical and online meetings of 50+ participants in relation to two cases. Notes were made during and immediately afterward for all observations and were supplemented with photos, screenshots etc., of interior, artefacts and decision systems.

2.4. DATA

Table 2.1 in section 2.3 lists the type and quantity of data used in relation to each of the five sub-studies. While the collection of data via literature searches and the type of data in the form of primary academic articles was well structured and rather homogenous in relation to articles 1 and 2, the collection and type of data used for articles 3-5 were more diverse. Somewhat contrary to what Figure 2.3 and Table 2.1 indicate, the research journey underlying this thesis was not entirely linear or completely well-planned.

Beyond the issue of transparency and replication, it seems important to acknowledge the somewhat coincidental nature of getting practical access to administrative bodies, interviewees and data that unfolded as I undertook my research. Getting access to data sometimes necessitated a high degree of flexibility as well as insistence on my part and was therefore not carried out in an entirely well-planned or similar manner across

the sub-studies. Instead, I took a flexible approach to the minor methodological choices constituting of the everyday life of the researcher attempting to balance the well-planned with emergent possibilities and the need for spontaneity.

Besides affecting the type of data I gained access to, this also meant that the separation of data gathering and data analysis that the structure of this chapter inherently convey is in effect partly misleading. Instead, the two processes unfolded in a partly overlapping manner. This continuous balancing of the different activities corresponds quite well with the abductive idea of moving back and forth between empirical observations and possible explanations described in section 2.2.

2.5. ANALYTICAL STRATEGIES

The analysis and its underlying analytical strategy are what connect empirical observations with possible explanations, cf. the moving back and forth between the two.

For me, analysis is not an independent, contained activity but something that has taken place continuously during the research journey leading to this thesis. It involves unstructured as well as structured activities and procedures such as early thoughts on patterns formed during interviews, preliminary read-throughs of documents, forming interpretations of empirical observations, organising, coding data, drawing displays and penning conclusions. These activities and procedures are interconnected and typically progress in a cyclical, interwoven manner leading to explanations and conclusions (Creswell, 2013). I have attempted to make the activities and procedures reflect the abductive steps of use of “mnemonic” devices, “defamiliarisation” and “revisit” as described above.

Reflecting the description of research methods and data above, each sub-study is characterised by particular analytical strategies which are summarised in Table 2.1 and described in more detail in articles 1-5. Across the sub-studies, the dominant approach has been thematic coding and analysis as described by Richard E. Boyatzis (1998). Boyatzis (1998, p. vii) understands a theme as “a pattern found in the information that at the minimum describes and organizes possible observations or at the maximum interprets aspects of the phenomenon.” Such themes are based on initial coding of simple, but likeminded, topics in data with each theme becoming a code. Building on these themes, I have sought to identify relations of AADM usage and good administration.

Generally speaking, topics – understood as relevant segments of data comprehensible in and of itself and containing one piece of information (Tesch, 1990) – were used as 1st order units for the coding. Themes consisting of likeminded topics were used as 2nd order constructs incorporating initial relations between AADM usage and regulations and norms of good administration. Groups of themes have served as 3rd order constructs linking AADM usage to values of good administration. This part of the coding and analytical process is further described in articles 3 and 5, but Figure 2.4 illustrates this general analytical strategy with a partial example of the data structure underlying article 3.

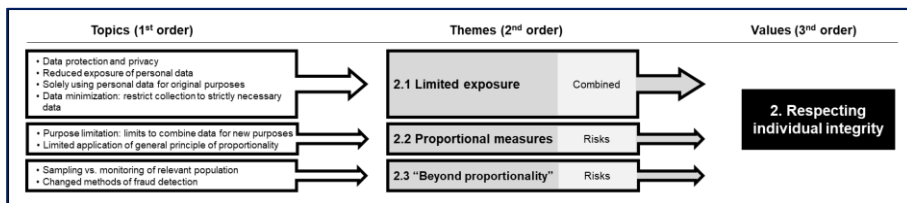


Figure 2.4: Example of data structure from article 3 (full structure is available in appendix B of article 3).

Partly reflecting the abductive character of the thesis, Boyatzis' (1998) hybrid coding was used in the sub-studies underlying articles 3-5. Hybrid coding blends inductive coding with existing theoretical assumptions in the identification of themes in the data and is particularly appropriate in relation to understudied phenomena (Boyatzis, 1998). Creating these codes is thus a tangible example of how findings and conclusions from the sub-study underlying article 3 served as sensitising concepts for the multiple case-study presented in article 5.

A few caveats regarding the analytical strategies are, however, appropriate. Firstly, the image of a well-planned analytical process both within each sub-study and across sub-studies is partly misleading. While abductive steps, sensitising concepts and hybrid coding have contributed with structure to the actual analysis, it has been unavoidable that empirical observations or emerging conclusions in one case-study have more or less subconsciously influenced analytical activities in other sub-studies. While this can be argued to be a weakness in terms of transparency and replication, I see this as a strength which adds nuance and coherence to the overall findings and conclusions of the thesis.

Secondly, it is a widespread and often mentioned obligation of the researcher to avoid selective reporting and to discuss all relevant data (e.g., Faculty of Social Sciences, 2020). This norm makes sense in relation to specific themes of empirical observations which must be presented in a balanced manner taking both confirmatory and contradictory data into consideration. However, the norm becomes muddier when considering it in relation to identifying themes and delimiting them from other potential themes. Best practices on coding – e.g., how to define and delimit codes

(Boyatzis, 1998) etc., – helps the researcher keep balance. Nonetheless, it is ultimately a question of interpretation linking the research question to segmented topics in data. Other codes can thus potentially lead to a different understanding of topics and themes in the data. All coding – including the coding done in relation to this thesis – inevitably includes *most* relevant data but also excludes *some* relevant data.

2.6. CONSIDERATIONS OF QUALITY

“The battles in this domain have been extensive, and they continue.” Miles et al. (2014, p. 311) remark on how to assess the quality of qualitative research. Even agreeing on labels of what is under discussion can be difficult: Is “good” research a question of replicability, trustworthiness, authenticity or something else?

I aim for a pragmatic position and discuss quality, strengths and limitations of the thesis based on a more modest ambition of “not get[ting] it all wrong” rather than “getting it all right” (Miles et al., 2014, p. 311). Based on a broad critical realist approach, Miles et al. (2014) suggest five partly overlapping criteria of quality for qualitative research. Inspired by their suggestion, Table 2.2 provides an overview of what I assess to be relevant quality criteria for this thesis. In the following, I will shortly touch upon each criterion. Chapter 4 includes a more thorough assessment of the strengths and limitations of the thesis.

#	Criterion	Key question(s)
A	Relative neutrality	Is the research characterised by relative neutrality, and is it reasonably free from unacknowledged biases of the researcher?
B	Reliability and auditability	Are analytical constructs clearly specified and are the approach, design and methods consistent and executed with appropriate care?
C	Internal validity and authenticity	Are findings and conclusions plausible and credible to both practitioners and scholars based on, e.g., consideration of both confirmatory and contradictory data?
D	External validity and transferability	Are characteristics of samples, cases etc. sufficiently described to assess possible transfer of conclusions to other contexts?
E	Utilization	Are findings and conclusions of value to scholars, practitioners and beyond in the form of awareness raising, practical recommendations, policy advice etc.?

Table 2.2: Relevant quality criteria; inspired by Miles et al. (2014).

Criterion A covers the extent to which research is characterised by relative neutrality which is reasonably free from unacknowledged biases and consistent decisions from initiation of the research journey to completion of reporting (Miles et al., 2014). A

key element in this regard is the application of an *empirical* and *explorative* focus combined with an *abductive* inclination of the *qualitative* research underlying this thesis.

The scope of **criterion B** is rather wide. One element concerns the extent to which the main concepts of this thesis – “usage of automated, administrative decision-making” (AADM), “regulations and norms of good administration” and their “relations” – are clearly specified. Simply put, any answer to a research question will inevitably be unreliable if one does not know what it covers. Those three main concepts are therefore discussed and defined in chapter 3, article 1 and chapter 1, respectively.

Another element of criterion B is the auditability of research allowing readers to follow “the analytical trail” from detailed empirical observations to increasingly condensed 2nd and 3rd level constructs (Barbour, 2014). For me, this has been a question of attempting to provide insights on the trail from simple topics in data via themes to relations between AADM usage and regulations and norms of good administration. Articles 2,3, and 5 therefore all contain several tables and figures to provide this insight with appendices containing further information, displays and data structures.

Reflecting authenticity in a basic sense, one element of **criterion C** is the extent to which descriptions of empirical contexts are detailed and rich thereby becoming meaningful to readers (Miles et al., 2014). The conventional format of research papers of 7,500-10,000 words provides a challenge to this element as it limits descriptions of empirical contexts. This is particularly true for the multiple case-study presented in article 5 but also for the sub-studies presented in articles 3 and 4.

Another element of criterion C is the extent to which complementary methods and data are used, and the extent to which those lead to partly converging findings and conclusions thus reflecting the idea of triangulation (Miles et al., 2014). Drawing on Denzin (1978), Patton (2002) describes four kinds of triangulation: methods, data, investigator and theory. As introduced in section 2.3 and 2.4, I have particularly used the first two kinds.

The question regarding the extent to which it is possible to transfer or generalise conclusions of qualitative research including research based on case-studies is much-discussed (e.g., Welch et al., 2011) and is central to **criterion D**. Among other elements, the question is whether the identified relations between AADM usage and good administration as well as the possible explanations of these are relevant in other empirical or theoretical contexts, and whether my descriptions are sufficiently informative and “rich” enough to support readers’ assessment of such possible transfer or generalisation.

Following the introduction of critical realism in the beginning of the chapter, the quality of the research underlying this thesis should not be assessed on its ability to identify universal mechanisms which reflect a traditional positivist approach to generalisation. Instead, it might be – but is not necessarily – possible to transfer selected causal tendencies to other contexts sharing specific characteristics. In this perspective, it becomes a shared responsibility of me (the researcher) and you (the reader) to assess the value of tendencies and conclusions to other contexts (Chenail, 2010). While the thesis ideally provides sufficiently informative descriptions which indicate scope and limits of a possible transfer, it is ultimately the reader who has the foundation to consider the “resonance” (Lund, 2014) of the conclusions for other contexts.

Criterion E concerns the value of findings and conclusions to scholars, practitioners and beyond (Miles et al., 2014). Drawing on the wider research goals described in chapter 1, this criterion concerns the extent to which my findings and conclusions are beneficial for the intentional or unintentional pursuit of good administration in relation to use of advanced technology.

I have sought to prioritise an increase of credibility and a strengthening of potential utilisation via initiatives that can be broadly characterised as member-checking (Creswell & Miller, 2000) and to some extent “engaged scholarship” (van de Ven, 2007). Expanding traditional member-checking into “engaged scholarship”, van de Ven (2007, pp. 10) argues that researchers should seek to “...step outside of themselves to obtain and be informed by the interpretations of others...”.

The continuous involvement of a cross-functional advisory panel of 8-10 employees of KOMBIT Ltd. has been particularly valuable (see section 2.7.1.1 for further information on KOMBIT). Consisting of practitioners from a number of professional backgrounds and experiences (computer science, law, project management, public administration etc.), I have met and presented emerging work to these individuals roughly every three months during the research journey. Further and as described in chapter 4, I have presented and received feedback on emerging findings and conclusions from representatives of administrative bodies participating in the case-study presented in article 5 as a more traditional form of member-checking.

2.7. RESEARCH ETHICS

On principle, no research is value-free. All research carries potential ethical risks for the people and organisations studied as well as for the researcher (Bernard et al., 2017). Initiatives rooted in ethical considerations are thus meant to protect, e.g., interviewees and organizations, and support trust in research.

2.7.1. ETHICAL CONSIDERATIONS

Just as chapter 1 introduced a continuum ranging from “hard” regulations to “softer” norms of good administration, ethical considerations can be seen as ranging from “hard” to “soft” to some extent.

The research underlying this thesis was undertaken within the framework of the Danish Code of Conduct for Research Integrity (Danish Ministry of Higher Education and Science, 2014). It emphasises three central principles of research integrity: honesty, transparency and accountability. I also adhered to the Guidelines for Promoting Responsible Research Practice of the Faculty of Social Sciences of Aalborg University (Faculty of Social Sciences, 2020). The guidelines outline six principles of responsible research practice rooted in six general standards outlined in the aforementioned Code of Conduct: research performance and practice; data administration; publication and dissemination; authorship; research collaboration and conflicts of interest. Among several other initiatives, this led me to compose a personal action plan for sound scientific practice which focuses on issues such as research planning and data management.

Special attention was given to the data collection in relation to the sub-studies presented in articles 3-5. With regards to the administrative bodies being part of the case-study presented in article 5, letters of understanding of participation were made with each body before any inquiry was undertaken. The letters were roughly identical in content but have minor differences due to the participating bodies’ preferences (appendix III contains an anonymised example of a letter of understanding). The letters included description of the purpose of the case-study, type of potentially relevant data, rules of anonymisation and confidentiality, data protection, freedom of inquiry, freedom of publication etc. An important element was the option of giving access to confidential data as ‘background information’ thereby obliging the anonymisation of such data by me.

Following section 2.3.1, a rather high number of open-ended (articles 3 and 4) and semi-structured interviews (article 5) were carried out with public administration stakeholders and public servants. Before interviews, interviewees were informed regarding the focus of the research project, the purpose of the interview and confidentiality and anonymisation by email. This information was repeated in short form when starting the interview. All quotes from the interviews used in the thesis have been anonymised (names, places, specific places etc.) and specific use of quotes has been cleared with the relevant interviewee.

The observations of public servants’ work as part of the case-study, cf. section 2.3.3, included observations of meetings between public servants and individual citizens in three instances. On those occasions, citizens initially consented to my participation

and were offered detailed information on the research project and management of data in writing.

2.7.1.1 The role of KOMBIT Ltd.

Potential conflicts of interest can cause doubts regarding credibility and integrity of research and should always be declared openly (Faculty of Social Sciences, 2020). It is therefore important to note the role of KOMBIT Ltd. in relation to this thesis. KOMBIT is a non-profit corporation fully owned by all Danish municipalities via their mutual association, Local Government Denmark. KOMBIT's main objective is to support the digital transformation of Danish municipalities including procurement of large ICT systems on their behalf. In effect, KOMBIT can thus be expected to have an organisational interest in furthering the use of advanced technology among Danish municipalities.

KOMBIT has co-financed the research underlying the thesis. Additionally, minor parts of the data collection of the case regarding illness benefits in article 5 was done at KOMBIT (KOMBIT procured the automated decision system of the said case on behalf of all Danish municipalities). Further, and as described above in section 2.6, a number of employees from KOMBIT – on my initiative – also formed a “feedback board” which continuously gave feedback on preliminary ideas, findings, and conclusions in relation to the thesis.

The cooperation between Aalborg University and KOMBIT was regulated in a cooperation agreement describing the responsibilities of the parties. To protect potential confidential information connected to KOMBIT, the latter was given the opportunity to comment on all material before publication including this thesis (with the explicit right to final versions given to Aalborg University and myself). At no point has KOMBIT requested any changes following this clause. While the role of KOMBIT has not led to any manifest adjustments of my research or conflicts of interest, I cannot – on principle – dismiss the risk of minor adjustments of a more subconscious character on my side.

2.7.2. BEING A SCHOLAR AND A PRACTITIONER

An important element in fostering trust in research is awareness of the researcher's role as an active producer of knowledge. Specifically, what kind of possible bias in the form of preconceptions, assumptions and emotions does one as a researcher bring to “the field” (Löwstedt, 2015)? Or phrased in the words of Mills & Gitlin (1959/2000, p. 230):

“...your past plays into and affects your present, and [...] it defines your capacity for future experience. As a social scientist, you have to control

this rather elaborate interplay, to capture what you experience and sort it out...”.

Having spent the first approx. 15 years of my professional carrier primarily in managerial positions in organisations affiliated with national and local government in Denmark, I have learned that I can be labelled a “practitioner”. The recurring element in the first part of my working life was collaboration with public authorities and ICT suppliers in relation to the procurement, implementation and use of large scale, administrative ICT systems in public administration. While those systems were not all automated decision systems, and I never had the role (or skills) of operating a decision system as a public servant, I did start the journey with preconceptions and assumptions – as well as emotions – about the relations between AADM usage and good administration and its context. Indeed, these were some of the main reasons for writing this thesis.

I believed that many administrative bodies and ITC suppliers were insufficiently aware of the potential in informing addressees’ expectations of the administrative decision process. I also felt that in a larger sense, administrative bodies were too preoccupied with “avoiding trouble” that they overlooked the possibilities of supporting good administration through use of AADM.

One might say previous professional experience like mine are – at best – patterns of more or less coincidental empirical observations and interpretations of events and outcomes that risk distorting not only findings and conclusions but also the choice of approach and design. My vision of the phenomenon in question – relations of AADM usage and good administration – might be distorted due to proximity. Based on my past experience I risk seeing a myriad of potential relations and causal tendencies rooted in the specific but might not be able to gain critical distance and see the bigger picture.

My experience offered not only preliminary insights which were continuously modified during the research journey but also a number of practical as well as more tacit advantages in the empirical field. This ranged from being able to prepare a list of potentially relevant cases as the informed basis for sampling of cases (cf. appendix I); getting access to administrative bodies and interviewees that might otherwise be reluctant to share experiences; building trust and rapport with interviewees based on my status as a partial insider and noting tangible, yet relatively unacknowledged, patterns in public servants’ use of decision systems.

I attempted to balance the advantages and drawbacks by being aware of the risk of making my experience overly shape data collection and analysis (Hales et al., 2021). To accomplish this, I relied on three approaches. Firstly, the first sub-study undertaken (presented in article 3) was based on open-ended qualitative interviews with key public administration stakeholders in Denmark. This served as sensitising concepts

for later activities and served as an early “check” on my preliminary, personal insights. Secondly, the thesis is based on combinations of different data sources as well as several different methods. Returning to the issue of triangulation when discussing strengths and limitations in chapter 4, this mitigated risk of one-sided confirmation of initially held preconceptions and assumptions. Thirdly, and specifically helping to clarify the bigger picture, preliminary findings and analysis have continually been discussed and refined via feedback from my supervisors and co-authors as well as colleagues and reviewers.

2.8. CONCLUSIONS: EMPIRICAL, EXPLORATIVE, QUALITATIVE, AND ABDUCTIVE

This chapter has described and discussed the philosophical assumptions, the design, the methods, and the analytical strategy of the thesis. Examining qualitative studies in public administration research, Ospina et al. (2018, p. 601) argue that what matters in terms of approach, design and methods is that “...the study reports on the standards chosen, showing their legitimacy within a given qualitative research tradition and making consistent decisions along the research process”. I hope the chapter has shown exactly that.

As mentioned, four characteristics are key to understanding the research underlying the thesis: empirical, explorative, qualitative, and abductive. I have argued that those characteristics are particularly well suited for studies of an understudied phenomenon such as relations of AADM usage and good administration.

Taking critical realism as a starting point, the overall focus is to identify and understand possible causal tendencies explaining relations between AADM usage and good administration depending on their context. The research question therefore covers an ambition to I) identify relations of usage of AADM and good administration and II) suggest explanations regarding the relations.

The five sub-studies presented in articles 1 - 5 are the central output of the research and build on somewhat different methods, data and analytical strategies. Across the sub-studies and their subsidiary research questions, the ambition in terms of quality has been to avoid “get[ting] it all wrong” rather than “get[ting] it all right” (Miles et al., 2014, p. 311). Among several initiatives, I have sought to prioritise an increase of credibility and a strengthening of potential utilisation via member-checking (Creswell & Miller, 2000) and selected elements of the “engaged scholarship” approach (van de Ven, 2007).

CHAPTER 3. GOOD ADMINISTRATION: TOWARDS A VALUE-BASED DEFINITION

Following the understanding of regulations, norms and values put forward in chapter 1, this chapter applies the three concepts to good administration.

Although good administration is increasingly mentioned in literature within both public administration and law, it is seldomly defined in clear terms (Koivisto, 2014; Kovač et al., 2016). This chapter attempts to bridge understandings within public administration and law and arrives at a rather pragmatic definition of good administration by relying on selected values of public administration.

Common features of good administration exist across administrative traditions and jurisdictions in the Western World (Ponce, 2005). The aim of this chapter is not to dissect differences at the margins but to describe a common core (or “sweet spot” to use a tennis metaphor) of broadly accepted understandings across traditions and jurisdictions. Where differences exist, the departure point is the Danish tradition of administration which is nested within a broader Nordic tradition (Mäenpää & Fenger, 2019). The Nordic tradition is often characterised as one of four broad administrative traditions of liberal, democratic governmental systems and is placed alongside Anglo-American, Napoleonic and Germanic traditions (Painter & Peters, 2010).

Some of the academic discussion surrounding good administration concerns whether good administration should primarily be understood as a legal right for individual addressees rather than primarily as regulations and norms governing the activities of administrative bodies (e.g., Nehl, 2009). The definition suggested here is not intended to take sides with any of those perspectives but to function as a description of a phenomenon – regulations and norms of good administration – that makes it possible to investigate it in relation to AADM.

It is worth addressing the implication of “good” in good administration (as touched upon in chapter 1). Specifically, the use of ‘good’ is due to a conceptual tradition primarily within the discipline of law. As I argue in this chapter, good administration delimits a group of regulations and norms relevant for certain public administrative activities and is not in itself a standard for evaluation of such activities.

The chapter starts out by discussing the concept of administrative decision-making, as a clear understanding of this is central for the later suggested definition. I will then discuss good administration as a roughly shared tradition among liberal, democratic

governmental systems. The chapter will become increasingly specific via a delamination of the concept of good administration. This will be followed by a discussion of regulations and norms as well as values of good administration. The chapter will close with a short conclusion which includes the suggested definition of good administration.

3.1. ADMINISTRATIVE DECISION-MAKING

Before approaching regulations and norms of good administration, it is advantageous to define the functional scope of the concept: To what activities of government are regulations and norms applicable?

This is a question discussed primarily by legal scholars and to some extent defined in relevant legislation. In the Danish General Administrative Law Act (2018, sec. 2) for example, most provisions solely cover “cases in which a decision has been or will be made by an administrative authority”, i.e., administrative decision-making. Some provisions, however, cover “all public administration activities” and some “the formation of contracts or similar private law transactions” (Danish General Administrative Law Act, 2018, sec. 2). The same duality can be found in the understanding of the so-called “good administrative behaviour” (“god forvaltningsskik”) in Denmark which is a group of semi-hard regulations developed by the Danish Ombudsman. Most of these regulations concern administrative decision-making while a smaller number concern activities of public administration and behaviour of public servants in more general terms (Gammeltoft-Hansen, 2011).

Discussing regulations of good administration at the European Union level, Hofmann & Mihaescu (2013) finds considerable differences between the provisions of the Charter of Fundamental Rights (art. 41) which stresses single-case decision-making, i.e., administrative decision-making, while case-law by the Court of Justice of the European Union includes further administrative activities by executive institutions of the union. Surveying more than 25 Western jurisdictions, Auby (2013, p. 27) reports a similar mixed picture but also concludes that administrative decision-making is often “the backbone” and always a central focus of administrative law.

Following the ambition to build a common core of broadly accepted understandings within public administration and law, the understanding of good administration put forward here is tied to *activities of administrative decision-making* within the executive branch of government including relevant organisational aspects of these activities. By referring to relevant organisational aspects, I emphasise that activities of administrative decision-making do not occur in isolation but are surrounded and affected by more general aspects as laid out in chapter 1, i.e., work practices, bureaucratic procedures, responsibilities of public servants, management practices, organisational structures, and technology. To avoid misunderstandings, it should be noted that these aspects do not equal *all* activities exercised by public administrative

bodies, cf. the above differentiations within administrative law, but solely aspects related to administrative decision-making.

While most regulations of good administration concern activities of administrative decision-making and only indirectly point to wider organisational aspects, some semi-hard regulations and norms regard the latter more directly (see for example Boe, 2020, for a discussion of the differentiation in Norwegian law). As will be clear in articles 3, 4 and 5 of this thesis, several of the relevant relations between AADM usage and good administration identified in this thesis involve wider, organisational aspects.

The disciplines of public administration and law offer two broad but distinct descriptions of activities of administrative decision-making which, taken together, form a coherent whole to which I will now turn.

3.1.1. ADMINISTRATIVE DECISION-MAKING THROUGH THE LENS OF LAW

Taking into consideration the basic centrality of administrative decision-making for many traditions of administrative law, legal literature defining or comparing concepts of administrative decisions is surprisingly limited.

Across jurisdictions and administrative traditions, legal literature tends to approach administrative decision-making by way of administrative acts¹³. Administrative decisions are thus a subgroup of administrative acts concerning individual addressees or groups of addressees (in contrast to “regulatory” or “general” decisions describing general rules for an indefinite number of cases such as, e.g., ministerial orders) (Auby, 2013).

Muñoz et al. (2016) compare the understanding of administrative decisions in several countries across civil law (e.g., France and Germany) and common law traditions (e.g., Australia and the US). They find such decisions can commonly be defined as “an individual decision taken by a public authority to rule a specific case, submitted to public law and immediately executed without judicial intervention”.¹⁴ Within Danish administrative law – which historically draws on French and German traditions – an administrative decision is seen as “a decision whereby the

¹³ Or “acte administratif” (Napoleonic tradition); “Verwaltungsakte” (Germanic tradition); and “förvaltningsakt” / “forvaltningsakt” (Nordic tradition).

¹⁴ Among others, Reitz (2014, p. 591) discusses the labelling of administrative decisions across jurisdictions and administrative traditions. Ignoring minor legal differences in the scope of the concept and looking across state law and federal law, he finds administrative decisions are roughly comparable to the use of “adjudications” and “orders” in the US (being the result of “adjudication”). Similarly, administrative decisions are known as “acte administratif individuel” in the Napoleonic tradition; “Verwaltungsakte” in the Germanic tradition; and “förvaltningsbeslut” / “forvaltningsafgørelse” in the Nordic tradition.

administration unilaterally and with binding effect for the addressee(s) decides what is or should be the law of the land in any given situation.” (Fenger, 2013)

An administrative decision can thus – broadly speaking – be regarded as the “end product” (Eberle, 1984) of a single-case decision-making process by a public administrative body. Following the final nature, intermediate decision-making steps leading to administrative decisions are – generally – not to be considered administrative decisions in themselves just as the decision is only to be modified due to possible later remedial processes (formal complaint, review or appeal procedures within or beyond the decision-making body). Decisions with an internal scope regarding, e.g., the organisation of administrative activities are furthermore excluded from this understanding mirroring organisational decisions described in Figure 3.1 below.¹⁵

3.1.2. ADMINISTRATIVE DECISION-MAKING THROUGH THE LENS OF PUBLIC ADMINISTRATION

In the 1960’s, Herbert A. Simon and Robert N. Anthony suggested some categories for decision-making – by public authorities as well as other entities – which are still useful today.

Simon (1960) focused on decisions’ complexity and frequency and argued they range from highly structured via semi-structured to highly unstructured decisions (illustrative for the subject of this thesis, Simon actually used the terms ‘programmed’ and ‘nonprogrammed’ decisions). Structured decisions refer to routine and repetitive problems for which procedures and solutions are well known, while unstructured decisions are unclear and/or complex and characterised by no obvious solutions. Semi-structured decisions are decisions where some (but not all) elements are structured (Averweg, 2010).

For his part, Anthony (1965) distinguished between three levels of decisions. Like Simon, he envisaged a continuum. At one end lie operational decisions regarding the execution of specific tasks characterised by a high frequency. At the midpoint of the continuum lie management control decisions on utilisation of resources in accordance with organisational goals are placed. On the opposite end of the continuum are

¹⁵ Scholarly and legal definitions of administrative decisions vary across jurisdictions and administrative traditions and is – for instance – affected by the specific distribution of power between the three branches of government as well as the existence (or non-existence) of administrative courts. What is of interest here is the predominant character (the “sweet spot”) of administrative decisions and not issues on the margins of the concept. Within Danish legal research, for example, more marginal issues would be decisions in relation to *service delivery* (Madsen, 2000), exercise of public authority by *private entities* (Bønsing, 2018), recruitment and disciplinary actions in relation to *personnel* (Fenger, 2013) and decision-making (procedural) *steps* of crucial importance for addressees (Blume, 1995).

infrequent, strategic decisions regarding long-term objectives including the necessary resources to attain said objectives.

Inspired by Gorry & Scott Morton (1971), who combined the thinking of Simon and Anthony, it is possible to apply Simon's and Anthony's concepts to four main types of decisions within the executive branch of the public sector. This is illustrated in Figure 3.1, and delimits administrative decisions from policy, management and service delivery decisions.



Figure 3.1: Main types of decisions within the executive branch of the public sector

Although the four types of decisions shade into one another at their margins, the core of administrative decision-making is the very epitome of Weberian bureaucracy. That is, the application of general rules to specific cases by impartial public servants (Meier & Hill, 2007). Most administrative decisions are thus operational as they regard what is lawful in specific cases. They are additionally mostly structured or semi structured as their regulatory basis to some extent stipulates which decision attributes that must be taken into consideration (this perspective is further explored in article 1).

Administrative decision-making is related to the understanding of street-level bureaucrats' activities (Lipsky, 1980) but not on a 1-to-1 basis. One of the important points of Lipsky's work was the 'de facto' character of policy-making. Namely, policies are heavily influenced by decisions made at street-level, and policy-makers are not only high-ranking politicians and high-level public servants but also social workers prioritising which families to focus on in troubled neighbourhoods or wardens in welfare centre excluding young men due to disruptive behaviour. While such actions of social workers or wardens can be considered service delivery decisions, they are not to be considered administrative decisions. This does not mean that public servants involved in service delivery do not make administrative decisions. The social worker might, for example, make an administrative decision regarding social benefits for a family based on relevant regulation¹⁶.

3.2. GOOD ADMINISTRATION AS A SHARED TRADITION

Arguing that regulations, norms, and values of good administration are a shared tradition across administrative traditions risks implies a kind of predetermined rationality in societal development which might not be empirically correct.

3.2.1. A COMMON CORE

In spite of such fallible historical determinism, discerning the development of approximately similar regulations and norms of good administration in liberal, democratic governmental systems across the world is possible (Appel & Coglianese, 2020). When looking at a variety of European countries and building upon legal research, Remac & Langbroek (2011, p. 90) state the following: "In different countries, similar principles could bear different names. They have in common that they guide the decision-making processes and administrative actions in relation to the citizens and therefore constitute basic norms for administrative behaviour in administration–citizen relations and communication."

A report surveying regulations and norms of good administration among 18 countries of the European Union done by the Swedish Agency for Public Management in 2005 supports this observation. Here "a common core of principles of good administration" is found ("principles" are equivalent to regulations and norms as used in this thesis) (Swedish Agency for Public Management, 2005, p. 73) although these principles vary in two dimensions. Firstly, they differentiate in the level of detail which means the same principle might be codified in a general or highly specific manner. Regulations of a more general nature open for a higher degree of interpretation by administrative bodies as well as remedial institutions such as ombudsmen and courts. Secondly, the principles differentiate in the extent to which they are formulated in a manner which

¹⁶ Lipsky allows for some flexibility in the understanding of roles of street-level bureaucrats but, for example, excludes public servants employed at motor vehicle bureaus who have no in-person contact with citizens (Lipsky, 1980). Such public servants, nevertheless, also make administrative decisions.

allows for either only a few exceptions or a high number of exceptions (Swedish Agency for Public Management, 2005).

The report mentions the obligation of reason-giving as an example of a regulation being almost identical and having rather specific content across administrative traditions. Conversely, the obligation for administrative bodies to document decision-making (procedural) steps vary considerably. In some countries, the obligation is codified as a specific regulation and in other countries it has the form of a vaguer norm (Swedish Agency for Public Management, 2005). Building upon the understanding forwarded in chapter 1, we thus see the Swedish report effectively plots the surveyed regulations and norms on the mentioned continuum from hard regulations to soft norms.

3.2.2. HISTORICAL ROOTS

So why these shared traits? Without going into detail of the historical origins and evolution of the relation between state and individuals as well as the shaping of this through regulations, norms, and values for administrative authorities (see for example Sordi, 2017), it is worth noting that countries with liberal, democratic governmental systems share a broad historical development affecting the development of those regulations, norms and values. Some traits – such as a broader notion of legality – go as far back as ancient China (Hood & Dixon, 2016). It is, however, the rise of modern administrative power by the end of the eighteenth century that led to the emergence of what we today understand as relevant regulations, norms and values (Sordi, 2017).

Many authors share the following broad analysis. Gaining intellectual traction in the prelude to the French and American revolutions, thinkers stressed the principal differences between state and citizens. This led to a need to regulate decisions of public administrative authorities affecting rights and obligations of citizens (and later firms) to prevent such decisions from being made solely at the will of those authorities (Szente, 2017). With the expansion of government in the 20th century to include investments in education, public health and social protection, administrative bodies gained influence on many aspects of citizens' personal lives often by way of broad, delegated legislation which entrusted administrative bodies with wide discretion (Henrichsen, 1997; Widdershoven & Remac, 2012). Simultaneously, differing concepts and understandings within Anglo-American, Germanic and Napoleonic traditions converged onto broadly shared paths (Sordi, 2017) creating the basis for a common core of good administration.

In Denmark, initial ideas of administrative law and broader ideas of good administration were formulated in the 1920's and took considerable inspiration from Germany and France (Fenger, 2013). Significantly, the Danish ombudsman institution was established in 1954 by way of inspiration from Sweden. Since then, the

Ombudsman has often been the initiator of a gradual elaboration and codification of obligations of good administration:

“Quite often the Ombudsman has laid the first foundations for an administrative procedural principle by finding that it would have been “best”, “most considerate” or “in line with good administrative behaviour”¹⁷ to take a given procedural step. Later, when that view had become commonly accepted, the Ombudsman would sharpen the language and label the step in question a principle or unwritten rule. When the courts later would be faced with the same issue, much more often than not they followed the line taken by the Ombudsman and thereby supported his attempts to further develop unwritten principles of administrative procedure.” (Fenger, 2013, pp. 252)

A number of those principles were legislated with the Danish General Administrative Law Act in 1987, while others have been codified in the Danish Freedom of Information Act. Since 1987, further elaboration and “hardening” have taken place particularly driven by a strengthening of the position of citizens (Fenger, 2013) and the increasing use of advanced technology within Danish public administration (Motzfeldt, 2020).

Over the last century and across administrative traditions, one can thus observe a shared pattern of regulations and norms of good administration expanding not only in scope and level of elaboration but also by getting “harder” in the sense of a gradual codification from norms towards regulations¹⁸.

3.2.3. BENEFITS OF GOOD ADMINISTRATION

Just as it is possible to observe a common core of good administration, it is also possible to trace roughly similar explanations for the need for – or societal benefits of – regulations and norms of good administration across jurisdictions and traditions. Providing an overview, Ponce (2005) suggests differentiating between instrumental and non-instrumental reasons.

Instrumentally, regulations and norms help to level the inherent imbalance in power and resources between the individual addressee and public authorities (Hasenfeld et al., 1987). This imbalance is generally due to the former’s superior resources in terms of unilateral interpretation of relevant legislation, professional expertise, and authoritative sanctions (fines, imprisonment etc.). In this perspective, good

¹⁷ See below for the concept of “good administrative behaviour” vis-à-vis the understanding of good administration suggested in this thesis.

¹⁸ Svara (2015) describes the same tendency for the development of general professional standards of public administration in the US from the nineteenth century onwards.

administration attempts to protect the rights and interests of the individual citizen or firm against the random, discretionary powers of public servants and the mighty powers of the state. Good administration can thus be argued as ensuring quality and efficiency of public administration as regulations and norms support, e.g., the careful and impartial examination of attributes of individual cases and thereby the quality of the final, administrative decision (Ponce, 2005).

It is possible to ascertain two reasons for the existence of regulations and norms of good administration within the literature although these bleed into each other. Some authors (e.g., Mashaw, 2007) emphasise that administrative bodies' adherence to good administration supports the legitimacy of not only the actual administrative decision by, e.g., providing the addressee with reasons for the decision. By doing this, these decisions also support the legitimacy of the broader governmental system. Taking the rights-based approach of the first reason a step further, authors also argue that basic human dignity necessitates administrative bodies treat citizens transparently and fairly thereby acting in accordance with regulations and norms of good administration (e.g., Szente, 2017).

3.3. DELIMITATING RELEVANT REGULATIONS AND NORMS

Despite the common core of regulations and norms of good administration across administrative traditions, the precise delimitation of relevant regulations and norms differentiates across authors and jurisdictions upon closer examination.

Based upon the continuum of regulations and norms discussed in chapter 1, roughly three alternative delimitations of relevant regulations and norms of good administration are traceable in the literature. Some authors (e.g., Cane, 2011; Remac & Langbroek, 2011) regard good administration as a label for regulation not rooted in legislation and case law of the courts (non-statutory law). Simply put, we here speak of "excess" elements of traditional understandings of administrative law often defined by ombudsman institutions, audit offices etc. To a large extent, this understanding is equivalent to the understanding of the earlier mentioned group of semi-hard regulations of "good administrative behaviour" in Denmark (Bønsing, 2018) and other Scandinavian countries. Applying the understanding from chapter 1, these authors perceive good administration as constituted by semi-hard regulation. Such regulation often has a somewhat less *obligatory* and less *precise* form than, e.g., legislation, but are at the same time actively *interpreted* and *applied* by neutral, external actors, e.g., ombudsman institutions.

Other authors (e.g., Addink, 2019; Bell, 2006) seem to equate good administration with both relevant legislation and case law *and* regulation not rooted in the aforementioned. In this manner, good administration is seen as having a hard core consisting of legislation and case law with a softer shell of semi-hard regulation.

Regulations and norms of good administration can thus be found in “...legislation, case law, policy rules, and in ombudsman reports.” (Addink, 2019, p. 109)

Although not uncommon in other “families” of regulation (e.g., traffic law), the first two understandings of good administration are particularly prone to certain conceptual weaknesses. The understandings tend to 1) be hard to precisely delimit and 2) not sufficiently open to change over time (Koivisto, 2018). Discussing the first understanding of good administration (regulation not rooted in legislation and case law), Rønsholdt (2012) observes that such an understanding is too static and formalistic as it does not allow for the fact that some semi-hard regulations can also be considered case law just as some semi-hard regulations might over time be codified as legislation or case law. Along these lines, Boe (2018) argues that in practice – more or less until the point in time when a given obligation is reflected in hard form in legislation – it can be difficult to determine precisely where on the continuum from norms to regulations such an obligation is positioned. Thomas (2000) raises the issue of who decides on relevant regulations and norms of good administration which relate to both of the mentioned understandings. Specifically, do regulations and norms of good administration first become good administration when the courts or ombudsman institutions decide they are, or do relevant regulations and norms of good administration have a more intrinsic or generic character?

This brings us to a third understanding of good administration. Here authors tend to expand the group of relevant regulations and norms even further to include norms which have not necessarily been touched upon by courts and ombudsman institutions. Such an understanding stresses the more intrinsic character of regulations and norms of good administration. As Widdershoven & Remac (2012, p. 404) remark:

“Because of their character, principles of good administration can be based either on the law (as much as they overlap with general principles) or on norms that exist outside the realm of the law, whether moral or ethical principles.”

The two authors mention the so-called obligation of de-escalation (the obligation to prevent or limit further escalation of a given situation in contact with addressees) as such a norm. Again, applying the understanding from chapter 1, this understanding perceives good administration as constituted not only by hard and semi-hard regulations but also by soft norms. An understanding like this is also “open-ended” while at the same time more stable in its form as it includes softer norms of good administration which might or might not end up being “hardened” (codified) into regulations over time.

The latter understanding also allows for differences in the “hardening” of the same obligation across jurisdictions. It further matches the ambition of this thesis: To trace the empirical relations between AADM and regulations and norms of good administration as long as they can be expected to shape and constrain administrative decision-making no matter what their form. It is this understanding that is applied in this thesis. Figure 3.2. provides an overview of the three alternative understandings of good administration.

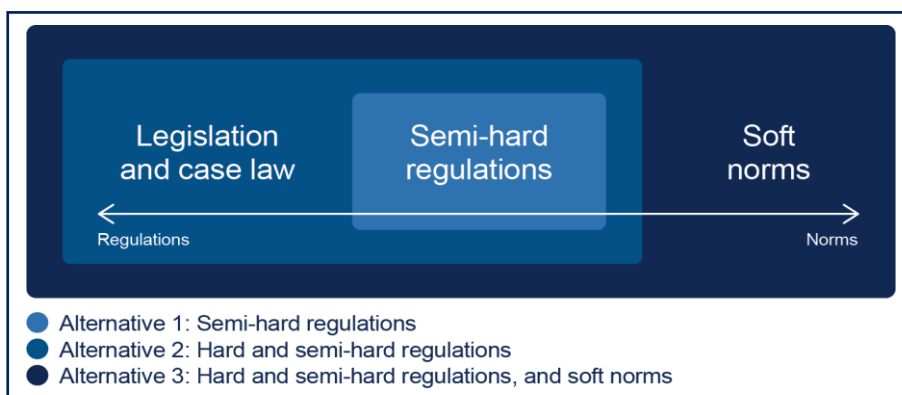


Figure 3.2: Alternative understandings of groups of regulations and norms of good administration

3.4. VALUES OF GOOD ADMINISTRATION

In order to circumvent the open-ended nature of regulations and norms of good administration, it is helpful to draw on the relation of regulations and norms vis-a-vis values as established in chapter 1. By way of Kaarlo Tuori, I argued that values are broader in their scope, situated in the intermediate level and provide support for regulations and norms in the surface level¹⁹. Through the identification of relevant values of good administration, it therefore becomes possible to reach a more finite understanding of regulations and norms of good administration.

Drawing on both chapter 1 and article 3, values of good administration are a subset of public administrative values. They can be understood as basic conceptions of desirable modes of action aiming to secure the quality and efficiency of public administrative activities as well as the legitimacy of these. In line with the understanding forwarded in chapter 1, values principally have a broader functional scope than regulations and norms do. Public administrative values, including the

¹⁹ It follows from this understanding of values as broader than, and underlying to, regulations and norms that one value will often be linked to multiple regulations and norms, while regulations and norms on the other hand often will be linked to only one value or a few values. For sake of clarity, I seek to focus on the *primary* value of good administration underlying a given regulation or norm of good administration.

subset of values of good administration, therefore cover activities including – but not limited to – administrative decision-making.

I will approach values of good administration by way of the broader concept of good governance which can be understood as a preferable institutional and administrative order of government, cf. article 2. Good governance can thus be understood as generic or overarching to good administration (Koivisto, 2014; Kovač et al., 2016). As discussed in more detail in article 2, authors such as Francis Fukuyama, Christopher Hood, Robert Rotberg, and Bo Rothstein have thoroughly discussed defining values of good governance. Drawing on these authors, article 2 suggests a list of values of good governance particularly relevant to AADM. Supplementing those values to incorporate the breadth of understandings of good administration with the two values of carefulness and respecting-citizen-integrity, Table 3.1 suggests a list of nine values of good administration including examples of regulations and norms of good administration rooted in these values.

Value	Description related to good administration	Example of related regulation or norm of good administration²⁰
Accountability	To explain and justify activities, to accept questions and judgement, and to face consequences of malperformance (Bovens, 2010).	“Appropriate reasons shall be given for any individual decision taken, stating the legal and factual grounds on which the decision was taken, at least in cases where they affect individual rights” (Council of Europe).
Carefulness	To carefully prepare activities and balance relevant interests (Addink, 2019).	Public authorities shall take “...reasonable, timely decisions, based on all relevant considerations” (English Local Government).
Efficiency	To be efficient “in the sense of being run at least cost, without waste or extravagance.” (Hood & Dixon, 2016, p. 411).	Public authorities shall “...seek the best means to obtain the best results” (Council of Europe).
Fairness	To prevent distortion, inequity, bias, and abuse of office (Hood, 1991).	“The obligation to handle affairs of citizens impartially and fairly” (Swedish Agency).

²⁰ Examples refer to examples of regulations and norms in appendix IV (Council of Europe refers to Council of Europe, 2007); Swedish Agency refers to Swedish Agency for Public Management, 2005; English Local Government refers to Local Government and Social Care Ombudsman 2018); example related to resilience does not refer to appendix IV.

Value	Description related to good administration	Example of related regulation or norm of good administration ²⁰
Resilience	To keep operating even in adverse 'worst case' conditions and to adapt rapidly in a crisis (Hood, 1991).	The obligation to "...prevent or limit further escalation..." of a given situation in contact with addressees (Widdershoven & Remac, 2012)
Respecting-citizen-integrity	To respect citizens and protect them from intolerable intrusions of government (Allen, 2019).	"Public authorities shall have respect for privacy, particularly when processing personal data" (Council of Europe).
Responsiveness	To be open and willing to respond to outside inputs in a just and uncorrupted manner (Stivers, 1994).	"Private persons shall be entitled to seek, directly or by way of exception, a judicial review of an administrative decision which directly affects their rights and interests" (Council of Europe).
Rule-of-law	To apply general, predictable, recognisable rules conditioned by law consistently to everyone (Rothstein & Teorell, 2008).	"Public authorities shall act in accordance with the law. They shall not take arbitrary measures, even when exercising their discretion" (Council of Europe).
Transparency	To provide information and conduct activities candidly so these activities can be trusted and subject to public scrutiny (Addink, 2019).	Public authorities "...shall ensure that private persons are informed, by appropriate means, of their actions and decisions which may include the publication of official documents" (Council of Europe).

Table 3.1: Values of good administration including examples of related regulations and norms.²¹ Values are listed alphabetically.

In the literature on public administrative values and good governance, there is a discussion of how to meaningfully classify or rank values. Values can in principle be divided into instrumental values (values representing a means to achieve another value) and prime values (values representing an end in themselves) (Beck Jørgensen & Bozeman, 2007). A value – e.g., fairness, proportionality or rule-of-law – can moreover be pointed to as the singular most important value which implies or encompasses other values (Rothstein & Teorell, 2008). Values can also further be listed based on their frequency in relevant literature or their chronology of development (e.g., Rutgers, 2008).

²¹ Article 2 also discusses the values of equality and impartiality. They are here treated as encompassed by the value of fairness and are therefore not included in Table 3.1.

It is therefore important to stress that the relevant values suggested in Table 3.1 are not based on any such criteria but have been selected to incorporate the breadth of understandings of good administration within public administration and law while seeking to exclude values that are clearly encompassed by the listed values (e.g., equality and proportionality, which are not listed, can be said to be encompassed by fairness, which is listed). A few authors attempt to provide *a full list* of what can approximately be considered values of good administration²². Following the aim here of describing a common core across administrative traditions, it is noteworthy that these suggestions mainly display differences at the margins.

One observation is that the suggested group of values are primarily instrumental in nature with the values of fairness and respecting-citizen-integrity as the only values which can be considered prime values. Taking the functional scope of good administration as employed here – activities of administrative decision-making – into consideration this is not surprising. After all, administrative decision-making is not an end in itself but a means to other ends.

3.4.1. A NOTE ON FOUR VALUES

Most of the mentioned values are discussed in more detail in article 2, but four values are worth exploring here as they stand out from the other five values on two different dimensions.

The values of carefulness and respecting-citizen-integrity are both values that are seldomly prevalent in the literature on good governance discussed in article 2 but are more often mentioned within the discipline of law. **Carefulness** can broadly be taken to mean two things (*Oxford English Dictionary*, 2021): I) Acting anxiously and being troubled or II) showing solicitous attention and being attentive to tasks and duties. Here, it is the latter understanding that is in focus. In article 3, a number of interviewees hint at the value of carefulness by describing the lower level value of non-erroneous decisions as relevant for AADM usage. Analysing the Dutch General Administrative Law Act, Addink (2019), traces a substantive and formal aspect of this value. The substantive element indicates that different interests, viewpoints and values must be explicitly considered by public servants. The formal – or procedural – aspect on the other hand indicates that all elements of decision-making processes must be characterised by carefulness. Put shortly, carefulness can be crystallized as “[t]aking reasonable, timely decisions, based on all relevant considerations” (see Local Government and Social Care Ombudsman, 2018, in appendix IV).

²² Addink (2019) suggests eight “sub-principles” of “proper administration” based primarily on Dutch traditions. Harlow (2006) surveys several authors’ suggestions within the Anglo-American tradition summarising seven “principles and values” from administrative law and good governance, and Kovač et al. (2016) suggest five “sub-categories” based primarily on Slovenian traditions and work of the Council of Europe, the European Union and the OECD.

Respecting-citizen-integrity as a value goes back to John Locke’s “Second Treatise of Government” written in 1690: The fundamental differences between citizens and governments and how governments respect those differences. In brief, the value revolves around “the right to be let alone” (Allen, 2019). Although particularly strong in the Anglo-American tradition, the value is also observable in other administrative traditions. In the context of AADM, the value is particularly evident in discussions of privacy and surveillance of citizens, cf. article 2, although some interviewees in article 3 also articulated the value in relations to individual firms vis-à-vis the state.

Additionally, efficiency and resilience represent values not always associated with good administration but are prevalent in writings on good governance. Referring to Table 3.1, **efficiency** covers modes of action that “...run at least cost, without waste or extravagance” (Hood & Dixon, 2016, p. 411), and is often emphasised as a key value of good governance (e.g., Fukuyama, 2014). Rotberg (2014), when writing about good governance, also stresses the importance of the related value of effective (as in generating desired effects). By pointing to efficiency as a selected value of good administration rather than effectiveness, I seek to underscore that definitions of desired effects are often – to a large extent – given by outsiders to activities of administrative decision-making (e.g., higher levels of government or legislatures) thereby making efficiency more appropriate than effectiveness.

In the literature, **resilience** covers modes of action that allow for operation even in adverse “worst case” conditions and prescribes the rapid adaptation in crisis (Hood, 1991). One can understand resilience as a value of good administration both specifically in relation to administrative decision-making and in relation to wider organisational aspects of such activities, cf. section 3.1. For example, the obligation of de-escalation mentioned in Table 3.1 can be seen as rooted in the value of resilience. When situations turn heated with addressees, the obligation of administrative bodies is to adapt to such “micro crises”, and seek to de-escalate in order to continue operations. It is possible to trace the value in recent opinions of the Danish Ombudsman but related to wider organisational aspects such as administrative bodies’ adaption to abnormal caseloads in times of crisis. Addressing a long delay in the processing of a request for information by a journalist, the Danish Ministry of Health cited extraordinary circumstances in relation to the Covid-19 pandemic. Although accepting the strains of Covid-19 on the administrative decision-making process regarding requests for information, the Danish Ombudsman (Folketingets Ombudsmand, 2021, p. 8) nevertheless found that:

“...a point in time arises where public authorities must be expected to have adapted administrative decision-making processes etc. to ensure the handling of Covid-19 does not hinder the satisfactory processing of requests for information” [my approximate translation].

3.4.2. VALUES ARE SELDOMLY ABSOLUTE; INSTEAD, THEY COMPETE (PART II)

Drawing on Christopher Hood, Jerry L. Mashaw and David H. Rosenbloom, I argued that public administration is characterised by different subsets of competing values in chapter 1. These values can seldomly, if ever, be met at the same time.

As mentioned, the nine values of good administration suggested here are a subset of values of public administration. As such, they cut across the different subsets suggested by Hood, Mashaw and Rosenbloom. Additionally, the nine values of good administration are not fully congruent with each other. Values of good administration thus not only compete with alternative values of public administration – e.g., hierarchical loyalty, budgetary constraints or client focus – but can also seldomly all be met at the same time. One can thus expect public servants and administrative bodies to find themselves in situations where regulations and norms as well as values of good administration must be balanced and traded off in relation to other public administrative values just as they potentially must be balanced and traded off with each other.

Applying the neo-institutional thinking introduced in chapter 1, the competing nature of values of good administration can be expected to lead to some confusion and inertia but also leaves room for public servants and administrative bodies to act, choose strategically among options and possibly contribute to adjustment (Scott, 2014).

3.5. REGULATIONS AND NORMS OF GOOD ADMINISTRATION

Building upon the previous sections, regulations and norms of good administration do not exist in a finite form. They instead continually emerge rooted in the nine values listed in Table 3.1 and take different forms of “hardness” across administrative traditions and jurisdictions as well as across time.

Broader developments such as the strengthening of the historical position of citizens vis-à-vis administrative authorities as well as the increasing use of advanced technology within public administration are examples of empirical factors shaping this development at the macro level. At the micro level, the competing nature of broader administrative values indicate that regulations and norms of good administration must continually be interpreted either consciously or unconsciously, applied and possibly adjusted to activities of administrative decision-making. This may lead to changes and thereby non-definite forms.

Building upon the initially stated ambition of identifying the “sweet spot” of broadly accepted understandings of good administration, appendix IV lists three different sources of regulations and norms of good administration. These have been chosen to

describe the breadth in broadly accepted understandings of regulations and norms of good administration.

The first source is a so-called recommendation of the Council of Europe (2007) *de facto* covering both regulations and norms and suggesting its member states adhere to said recommendations. This list is relatively detailed and covers 62 regulations and norms sorted under 23 broader “principles” and can be argued to be a “minimum standard” of good administration (Council of Europe, 2008).

The second source is a synthesis of relevant regulations and norms in the Charter of Fundamental Rights of the European Union and the Code of Good Administrative Behaviour of the European Union prepared by the Swedish Agency for Public Management (2005). While the list draws on regulation applicable to institutions of the European Union, it should be seen as a “reasonable minimum selection” of regulations and norms of good administration “embraced by a majority of member states” of the European Union in their national regulation (Swedish Agency for Public Management, 2005, pp. 16). Here 14 higher-level obligations of good administration are listed.

The third source is a publication on “principles of good administrative practice” by the Local Government and Social Care Ombudsman in England. Originally published in 1993, the list is considered best practice standards across ombudsman institutions in Great Britain (Local Government and Social Care Ombudsman, 2018). The list is nested in an Anglo-American common law tradition but its content shares traits with other administrative traditions and is thus also an example of regulations and norms in the “sweet spot” of good administration. It lists six overall principles detailed in 27 sub-principles.

While the impact of these sources across traditions and jurisdictions – including the Danish tradition – can be discussed (e.g., Andrijauskaitė, 2017), they represent as-good-as-it-gets proxies of regulations and norms of good administration particularly of the hard and semi-hard forms. Each jurisdiction represents different configurations of hard, semi-hard and soft forms of the listed regulations and norms but are nonetheless likely to include approximate reflections of most of these regulations and norms. Such approximate reflections might be specified in both general or “horizontal” regulation (e.g., freedom of information acts) and in “vertical” regulation (e.g., urban planning acts).

What is to some extent “missing” from the three sources are soft norms of good administration as the lists – themselves being prepared and approved in bureaucratic settings – by definition represent some “hardening” of obligations. Given the open-ended nature, any listing of soft norms of good administration will, in principle, always be exemplary. Widdershoven & Remac (2012), for example, mention the three norms of correct treatment and courtesy (treating addressees politely and with

sympathy), “coulance” (reaching out and offering addressees compensation for things having gone wrong where no one can be blamed), and, as already mentioned, de-escalation.

These three norms can all be argued to be rooted in the nine values of good administration relating particularly to the resilience and responsive values. They can, however, only to a very limited extent be considered hard. In Denmark, the norm of correct treatment and courtesy has been acknowledged by the Ombudsman several times (Bønsing, 2018) hereby taking the form of a semi-hard regulation. Similarly, it is related – although not fully identical – to the obligation of service-mindedness listed in appendix IV. The norms of “coulance” and de-escalation are very soft in Danish tradition and do not seem to have been explicitly articulated by the Ombudsman or other relevant parties. A careful guess is that they might “harden” over some years by slowly being included in opinions of the ombudsman, internal guidelines of administrative bodies and so on. As an example, on-the-job training of front-line public servants in Danish municipalities often includes techniques of de-escalation. Although this is also a matter of safety for personnel, the training implicitly supports the norm as a matter of good administration.

Relating the lists in appendix IV to the values mentioned above, it is clear that the values are represented by the mentioned regulations and norms to a varying degree. This means that the values of accountability, carefulness, fairness, rule-of-law and transparency are the most dominant and represented by a high number of regulations and norms just as they are mentioned in both sources.

Efficiency, respecting-citizen-integrity and responsiveness are represented by a lower number of regulations and norms. While this might have something to do with phrasing and the nature of the individual values (there might be a limit to the number of relevant representations of efficiency), it might also illustrate a historical development where these values have only recently started to be considered part of good administration.

Finally, one value does not really seem to be represented by regulations and norms of good administration: Resilience. As is made clear in article 2, this weak relation is also a recognisable trend in relevant literature relating AADM with good administration. Articles 2 and 5 illustrate the importance of the value to good administration in relation to AADM.

3.5.1. REGULATIONS AND NORMS OF GOOD ADMINISTRATION UNDER DANISH JURISDICTION

Denmark belongs squarely in the Nordic administrative tradition. Very briefly put, this tradition combines a “soft” or organic étatist inheritance with a large, often decentralised, welfare state (Painter & Peters, 2010). As already mentioned, elements

and understandings from German and French administrative law have served as significant inspiration in Danish civil law tradition and has – in terms of good administration – been combined with a strong reliance on an ombudsman institution. The latter is the primary means of redress for citizens and firms suffering alleged injury from public administrative bodies rather than, say, general courts or specialised, administrative courts (Swedish Agency for Public Management, 2005). The ombudsman institutions have been, and are, strong shapers of semi-hard regulations and to some extent soft norms of good administration influencing both courts and relevant legislative initiatives.

Administrative law in Denmark is traditionally said to primarily rest on three pieces of general legislation (Blume, 2012): The Danish General Administrative Law Act (“Forvaltningsloven”), the Danish Freedom of Information Act (“Offentlighedsloven”) and the General Data Protection Regulation of the European Union. Related to those acts, the Danish Data Protection Act (“Databeskyttelsesloven”) supplements and implements the General Data Protection Regulation (GDPR) in Denmark, and the General Administrative Law Act and the Freedom of Information Act are supplemented by detailed legislative guidance from the Danish Ministry of Justice. Several “vertical” acts regulate activities of administrative decision-making in particular policy fields such as the Danish Environmental Information Act (“Miljøoplysningsloven”) and the Danish Tax Control Act (“Skattekontrolloven”).

Looking beyond the General Data Protection Regulation, other regulation of the European Union and case law of European Court of Justice are generally considered to have (and have had) a limited impact on Danish regulations and norms of good administration as similar or more far-reaching obligations have followed from existing hard and semi-hard regulations in Denmark (Abkenar, 2016; Fenger, 2013).

Following the mentioned role of ombudsman institutions, opinions and case-law of the Danish Parliamentary Ombudsman is an important source of regulations and norms of good administration as the Ombudsman not only interprets rules stemming from the above-mentioned acts but also interprets wider notions of good administration thereby continuously developing and modifying unwritten obligations of good administration (Fenger, 2013). The Ombudsman is thus also a source of the continuous hardening of soft norms into semi-hard regulations. Historically, the Danish Ombudsman has employed a vocabulary of criticism (“kritik”), error (“fejl”), disagreement (“uenig”), request (“henstilling”) and recommendation (“anbefaling”) in case law that conclude possible injury from public administrative bodies (Folketingets Ombudsmand, 2022b). Drawing on chapter 1, this is comparable to a continuum ranging from certain, semi-hard regulations represented by “criticism” to almost suggestive, soft norms represented by “recommendations”.

Denmark does not have any specialised administrative courts, and in contrast to the role of the Ombudsman, the general courts have – following the establishment of the Ombudsman institution in 1955 – taken a backseat role regarding the development of semi-hard regulations of good administration. Danish courts generally tend to follow the line laid out by the Ombudsman in specific cases (Fenger, 2013). To the extent the courts can be said to have a particular role regarding good administration, they have been more willing to hear cases concerning substantial obligations (e.g., questions of proportionality) while the Ombudsman tends to focus on formal and procedural obligations (e.g., reason-giving) (Rønsholdt, 2012).

No legislation regulating the use of AADM exists in Denmark, and it is traditionally assumed that administrative bodies can organise and manage their activities freely as long as they observe relevant regulation (Mørup, 2018). It is additionally assumed that the requirement to authorise fully automated decision-making usage with “legal effects” (a category including fully automated, administrative decision-making) by national legislation in the General Data Protection Regulation (2016, art. 22, para. 2b) does not necessitate that such legislation specifically stipulates that administrative decisions can be reached without intervention of a public servant (Danish Ministry of Justice, 2017).²³

The Danish Ombudsman has emphasised several times that regulations and norms of good administration in Denmark are to be considered “technology neutral” and apply equally to paper-based and automated administrative decision-making (Motzfeldt & Næsberg-Andersen, 2018). Critics argue that “neutrality” is merely a question of surface, as most regulations and norms have been developed based on paper-based administration and are therefore in effect not fully “neutral” (Vang, 2005).

Analysing a number opinions and case-law of the Danish Ombudsman from 1997, Motzfeldt & Næsberg-Andersen (2018) trace the emergence of at least two particular obligations for administrative bodies employing automated, administrative decision-making: “Administrative law by design” obliging authorities to consider regulations and norms of good administration when implementing and using automated decision-making, and “good administration impact assessment” placing the responsibility of ensuring compliance with regulations and norms with the administrative body (compared to possible external actors). Taken together, opinions and case-law indicate an emergent pattern of not only obliging administrative bodies to comply with regulations and norms but also seeking to strengthen good administration by way of deploying and operating advanced technology (Motzfeldt, 2015).

²³ Recent legal research has questioned this traditional interpretation and pointed to art. 22, para. 2b, of the General Data Protection Regulation (2016), arguing that this rule necessitates a clear legal basis stating that administrative decision-making within a given policy area can take place without human intervention (Wisborg, 2022).

Recent years have seen signs that the Danish Data Protection Authority is also de facto contributing to the emergence of semi-hard regulations of good administration. This appears to be rooted in the increasing focus on privacy and data protection following the adoption of the General Data Protection Regulation. The Data Protection Agency for example criticised the Capital Region Authority (“Region Hovedstaden”) in 2022 for not having considered and tested implications for third party inter-connected ICT systems when the region deployed changes in a major ICT system (Datatilsynet, 2022). This seems to represent an emerging obligation for administrative bodies to consider consequences for inter-connected ICT systems rooted in the good administration value of carefulness (the same obligation is detectable in two opinions of the Danish Parliamentary Ombudsman (Folketingets Ombudsmand, 2022a) later the same year). Similarly, it also represents a growing focus on wider organisational aspects of administrative decision-making rather than the decision-making itself as indicated in section 3.1 of this chapter. The management of often highly complex relations between automated decision systems and the wider algorithmic systems they are nested in is an issue I return to in article 5.

3.6. CONCLUSIONS: DEFINING GOOD ADMINISTRATION

In this thesis, good administration is taken as regulations and norms concerning administrative decision-making in relation to an individual citizen, firm or group of these as well as organisational aspects of such decision-making. Drawing on Simon’s and Anthony’s understandings of decision-making, such decisions are typically operational and either structured or semi-structured. Although the prefix ‘good’ gives the impression, good administration does not imply a standard for evaluation of specific administrative activities.

As seen over the last century and across administrative traditions, there is a shared pattern of regulations and norms of good administration expanding not only in scope but in level of detail. Similarly, regulations and norms have tended to get “harder” in the sense of a gradual codification of norms towards regulations.

Common features of good administration exist across administrative traditions and jurisdictions (Ponce, 2005), and the aim in this chapter has been to build upon the common core or the “sweet spot” of broadly accepted understandings. Taking this approach, I define good administration as shown in Text box 3.1 with reference to the nine values listed above in Table 3.1.

“Good administration” is a group of regulations and norms rooted in nine selected public administrative values that shape and constrain activities of administrative decision-making.

Text box 3.1: Definition of good administration

I have also stressed that regulations and norms of good administration do not exist in a finite form. Rather, they continually emerge rooted in underlying values of good

administration and take different forms of “hardness” across administrative traditions and jurisdictions as well as across time. While the values are more stable and represent what in chapter 1 was described as the middle layer of law, they are in themselves not entirely resistant to change just as they are not entirely identical across administrative traditions.

CHAPTER 4. CONCLUSIONS AND IMPLICATIONS

This thesis is devoted to exploring the relations between automated, administrative decision-making (AADM) usage and regulations and norms of good administrations.

Although quantitative empirical knowledge is scarce, I have argued it is reasonable to believe that use of AADM is on the rise in public administration around the world and is likely to continue rise in the foreseeable future. I have also argued that this has consequences for administrative bodies' adherence to regulations and norms of good administration just. Vice versa, administrative bodies' adherence to regulations and norms has consequences for usage of AADM. The rise in use of AADM thus has the potential to influence the historical trajectory towards increased control with arbitrary state power as well as the levelling of the inherent imbalance in power and resources between the state and the individual citizen or firm.

Fundamentally, exploring relations between administrative bodies' AADM usage and good administration serves as a microcosm of ongoing social and ethical debates on use and regulation of increasingly advanced technologies in society (e.g., Mittelstadt et al., 2016). These relations can be seen as an example of the contemporary key tension between biotechnological and technological systems on the one hand, and social and societal mechanisms and systems on the other (Bouckaert, 2020).

In this final chapter of the thesis, I will first return to the research question and lay out the primary conclusions of the thesis including strengths and limitations. I will then discuss the primary contributions as well as implications for research and policy and practice. I will finish with a few reflections on the future use of advanced technology in public administration.

4.1. CONCLUSIONS

To conclude, it is helpful to recall what the purpose of the inquiry underlying this thesis was. In chapter 1, I laid out the following research question:

What are the relations between usage of automated, administrative decision-making, and regulations and norms of good administration, and to what extent do they support or undermine each other?

4.1.1. A PRELUDE ON AUTOMATED DECISION SYSTEMS

Before proceeding to the main conclusions which concern AADM *usage* and good administration, I wish to draw attention to five key characteristics of *automated*

decision systems themselves. That is, the ICT systems underlying AADM usage. I have thus occasionally hinted at five interlinked characteristics of such systems that seems to run underneath many of the relations of AADM usage and good administration. Although each is known from existing literature, together they form a more nuanced picture of automated decision systems than normally described.

Firstly, decision systems are nested in wider algorithmic systems consisting of multiple systems, government databases, citizen portals, and intertwined networks resembling “bureaucratic information architectures” (Peeters & Widlak, 2018). Although an automated decision system will be accessed by public servants through the operation of smart phones, tablets, websites, office applications and/or case management systems, it might be very hard to effectively delimit the system itself from the wider algorithmic system.

Secondly, decision systems rely on procedural standardisation and functional simplification as suggested by Kallinikos (2006). This sets strict limits on the type of information being digestible as input for administrative decisions as well as the allowed steps that can be taken en route to the final, administrative decision (Schartum, 2016).

Thirdly, many decision systems are characterised by a complexity and opacity of their algorithmic logics that are not only due to specific techniques such as machine learning (Burrell, 2016) but also to an ever-increasing number of functionalities and code lines.

Fourthly, the three mentioned characteristics work to produce decision systems which increasingly resemble “complex and tightly coupled systems” (Perrow, 2001, p. 33) characterised by interconnectedness, singular decision-processes and limited slack (as compared to segregated subsystems, availability of alternative processes and sequential slack).

Finally, and building on the four previous characteristics, most decision systems have an inherent “amplification effect” (den Hamer & Schulte, 2020) where possible errors quickly amplify to greater size and magnitude. At its core very banal, potential errors rooted in the programming, configuration etc. of automated decision systems will most likely not only relate to one administrative decision (one individual case) but to multiple decisions sharing the same characteristics.

Together with work practices and organisational context, these five underlying characteristics of automated decision systems influence the majority of the supportive and undermining relations of AADM usage and good administration which I now turn to.

4.1.2. FIVE MAIN CONCLUSIONS

Following the prelude and based on the results of its five underlying sub-studies, five main conclusions of the thesis can be drawn. They are summarised in Text box 4.1.

Firstly, there are many relations between AADM usage and regulations and norms of good administration. Referring to the title of this thesis, AADM and good administration are thus no “strangers” to each other. Taken together, the relations are detailed, interrelated and complex. It is therefore necessary to simplify and exemplify these relations in order to increase understanding for both researchers and practitioners. One way to simplify is to focus on relations between AADM usage and the

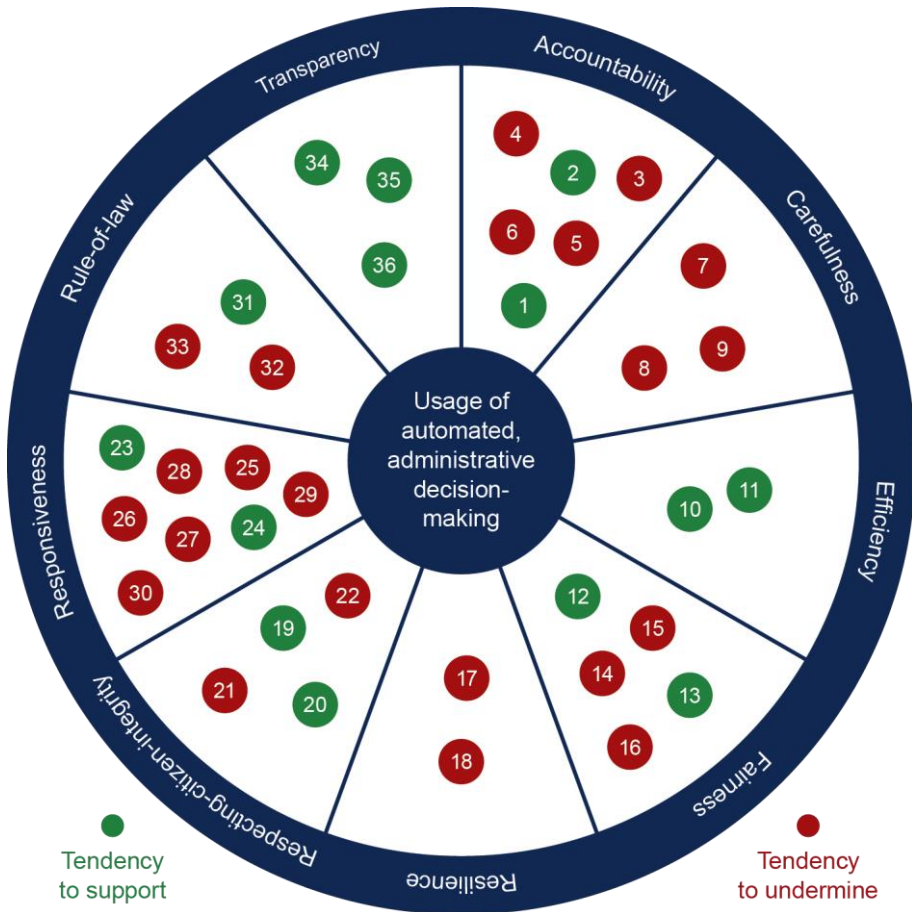
1. Relations between usage of automated, administrative decision-making and good administration tend to be particularly complex regarding values of responsiveness, accountability, and fairness.
2. Usage of automated, administrative decision-making tends to support values of efficiency and transparency, and tend to undermine values of accountability, carefulness, resilience, and responsiveness.
3. Usage of automated, administrative decision-making is rarely a “silver bullet” and thus seldomly supports all suggested nine values of good administration at the same time.
4. Practitioners exhibit an underdeveloped awareness of the width of relations between usage of automated, administrative decision-making and, particularly, softer norms of good administration.
5. Supportive relations between usage of automated, administrative decision-making and good administration seldomly occur by themselves. The opposite seems to be true for undermining relations.

Text box 4.1: Summary of main conclusions of thesis

values of good administration that underly regulations and norms as described in chapter 3. At the same time – following the understanding of the importance of context laid out in chapters 1 and 2 and the design of the underlying research – the answer given here to the research question must necessarily be based on *selected* relations (examples) between AADM usage and values of good administration.

On this basis, Figure 4.1 provides an overview of the identified relations between each of the primary values of good administration suggested in chapter 3 and AADM usage

Figure 4.1: Overview of identified relations between automated, administrative decision-making usage and good administration; proximity to centre does not indicate complexity, importance, or magnitude of relation.



Value	Tendency to support	Tendency to undermine
Accountability	<ol style="list-style-type: none"> 1. Predefined “boilerplate texts” may support completeness and comprehensibility of reason-giving 2. Varied forms of communication may support comprehensibility of reason-giving 	<ol style="list-style-type: none"> 3. Vague accountability may undermine systemic accountability 4. Algorithmic opacity may undermine reason-giving 5. Complex algorithms and high-volume data may undermine reason-giving 6. Lack of effective oversight may undermine “chain” of delegation

Value	Tendency to support	Tendency to undermine
Carefulness		<p>7. Lack of access and low quality of data may undermine correct decisions</p> <p>8. Confined discretion may undermine statutory obligation of discretion</p> <p>9. Lack of quality assurance may undermine quality of decision-making</p>
Efficiency	<p>10. Reduced costs may support efficiency</p> <p>11. Novel avenues for quantitative oversight may support control of “production”</p>	
Fairness	<p>12. Reduced human involvement may support impartiality</p> <p>13. Reduced human involvement may prevent corruption</p>	<p>14. Data bias may undermine equal treatment</p> <p>15. Confined discretion may undermine equity</p> <p>16. Restrictions in access may undermine equal access</p>
Resilience		<p>17. Cybersecurity risks may undermine ability to protect decisions-making</p> <p>18. Inability to manage high complexity may undermine ability to handle effects of “petite decisions”</p>
Respecting-citizen-integrity	<p>19. Reduced exposure of personal data to public servants may support addressees’ privacy</p> <p>20. Strong attention given to GDPR may support addressees’ privacy</p>	<p>21. Use of “big data” may undermine addressees’ privacy</p> <p>22. Underdeveloped use of data limitation etc. may undermine addressees’ privacy</p>
Responsiveness	<p>23. Novel technologies may support new avenues for feedback</p> <p>24. Novel technologies may support customised advice</p>	<p>25. Simplification of communication etc. may undermine avenues for feedback</p> <p>26. Intertwined ICT networks may undermine principle of contradiction</p> <p>27. Simplification and physical distancing may foster systemic dehumanisation</p> <p>28. Simplification and physical distancing may undermine ability to serve addressees with special needs</p> <p>29. “Predictive” administration may undermine addressee’s control of own circumstances</p> <p>30. One-sided focus on algorithmic expertise may undermine ability to advise</p>
Rule-of-law	<p>31. Confined discretion may support consistency</p>	<p>32. Fettering may undermine legality</p> <p>33. Reliance on irrelevant considerations may undermine lawfulness</p>
Transparency	<p>34. Improved access to information may support transparency</p> <p>35. Codified service standards may inform addressees’ expectations</p> <p>36. Automated forecasts etc. may inform addressees’ expectations</p>	

as identified in articles 2–5²⁴. As can be seen, the number of identified relations across values differs and thus approximately indicate differences in the “density” of relations.

Relations between administrative bodies’ AADM usage and the value of responsiveness is characterised by the highest number of relations thereby indicate a broader scope and complexity of these. In contrast, relations regarding the values of efficiency and resilience are relatively straight forward which indicates less complexity. In other words, and exemplifying the relation to the value of efficiency, Figure 4.1 illustrates that AADM usage simply tends to reduce operation costs and provide novel avenues for quantitative oversight.

Figure 4.1 also lists the identified relations between *regulations and norms* of good administration and AADM usage indicating the extent to which they tend to support or undermine each other. In other words, to what extent AADM usage tends to support administrative bodies’ adherence to regulations and norms of good administration (and vice versa), and to what extent AADM usage tend to undermine adherence to the same regulations and norms (and vice versa).

Once again referring to the illustrative title of the thesis, AADM usage and good administration are thus both “friends” and “foes”. AADM usage seems to particularly support values of efficiency and transparency, and particularly to undermine the values of accountability, carefulness, resilience, and responsiveness. Relations between AADM usage and the values of fairness, respecting-citizen-integrity, and rule-of-law appear more mixed in their nature.

An important element of the understanding of the identified relations is that context matters. Across contexts roughly the same relations between values of good administration and AADM usage by administrative bodies tend to emerge. Nonetheless, technologies, work practices and organisational context matters a great deal for how administrative bodies manage the relations including to what extent approximate similar relations appear as supportive or undermining for good administration. Namely, while AADM usage seem to support some values of good administration in one contextual setting, it might undermine them in another (and vice versa).

²⁴ Figure 4.1 includes the relations presented in the mentioned four articles (where relations are identical, they are only mentioned once). Across the articles, specific relations are also discussed vis-à-vis values of trustworthy non-erroneous decisions, professional administration, equality, right-to-privacy and empowering. As these values can be considered encompassed by the nine values of good administration suggested in chapter 3 and listed in Figure 4.1, all relations have here been categorised according to the nine values. Further and to enhance auditability, the relations included in Figure 4.1 from article 3 are based on the 14 “themes” discussed in detail in the article rather than the 29 themes identified in the underlying sub-study.

Interestingly, the case-study of AADM usage among Danish administrative bodies in four policy areas presented in article 5 does not point to systematic differences in identified relations across the policy areas. Following the description in the article, the cases were purposefully sampled based on variation in the professional and political complexity of each policy area. While especially increased professional complexity (disagreement of cause and effects of relevant policies among stakeholders) seems – quite naturally – to lead to increased volumes of relevant data, specific patterns of complexity of policy areas and relations to values of good administration are not observable. Instead, five of six relations identified in the case-study are observable in all four policy areas. This increases the thickness of the observations of scope and complexity of each relation described above as those emerge out of heterogeneity rather than homogeneity (Patton, 2002).

The identified relations show that AADM usage does not have a uniform supportive or undermining relation to values of good administration. In other words, usage of AADM is no “silver bullet” (or the opposite) for administrative bodies’ adherence to good administration as such usage seldomly seems to make all nine values of good administration meet. In this manner, AADM usage confirms broader views of public administration as a field of “balances and contradictions” characterised by subsets of competing values that cannot all be met at the same time (Hood, 1991; Pollitt & Bouckaert, 2017) but must be actively prioritised depending on context.

Building on the empirical sub-studies presented in article 3, 4 and 5 and based on data from Denmark, there appears to be an underdeveloped awareness among practitioners of the breadth of relations between AADM usage and, particularly, softer norms of good administration. Practitioners are, for example, generally aware of the obligation of reason-giving (clearly regulated in the Danish General Administrative Law Act, 2018), while they are much less aware of the need for continuous quality assurance of automated decision-making processes (more loosely rooted in the value of carefulness). While this does not necessarily mean practitioners are not aware of softer norms of good administration, they simply do not perceive them as relevant to AADM usage.

This is particularly unfortunate as the empirical sub-studies also indicate that supportive relations seldomly occur by themselves, while the opposite seems to hold for undermining relations. Article 5, for example, illustrates how several administrative bodies struggle with transforming complex algorithms and high-volume data to reasons that balance accuracy and comprehensibility for the addressee (following the obligation of reason-giving mentioned above) thereby in effect undermining good administration. On the other hand, it takes high-level managerial attention and available resources to deploy novel ways of communication etc. based on automated decision-making to support the comprehensibility of reasons for addressees.

4.1.3. STRENGTHS AND LIMITATIONS

All research designs, methods and analytical strategies have strengths and limitations. Reflecting the critical realist paradigm introduced in chapter 2, the basic analytical ambition of this thesis is to identify and understand possible causal tendencies that explain relations between AADM usage and good administration. With this ambition as a backdrop, strengths and limitations of the research design, research methods and analytical strategy must be assessed.

Chapter 2 introduced five, partly overlapping, criteria of quality for qualitative research inspired by Miles et al. (2014). Table 4.1 lists my considerations regarding the five criteria serving as an assessment of the strengths and limitations of the thesis. In the following, I briefly expand on considerations related to criteria D (External validity and transferability) and criteria E (Utilization) as those two criteria have represented a particular focus in the research underlying the thesis.

#	Criterion	Main strengths	Main limitations
A	Relative neutrality	<ul style="list-style-type: none"> Consistent application of an empirical and explorative focus combined with an abductive inclination throughout the research journey. 	<ul style="list-style-type: none"> Prior personal assumptions from previous professional experience may distort ability to gain critical distance. Risk of subconscious adjustments in findings and conclusions to please KOMBIT Ltd. as a co-financing party.
B	Reliability and auditability	<ul style="list-style-type: none"> Empirical observations and main concepts are discussed in relation to emerging or existing theory and supplemented by a literature review (article 2). Illustrating “the analytical trail” (Barbour, 2014, p. 505) from detailed empirical observations to increasingly condensed 2nd and 3rd level constructs by way of appendixes containing detailed information, displays and data structures. 	<ul style="list-style-type: none"> High reliance on qualitative interviews may potentially lead to bias or deceit in data due to personal leanings or organizational loyalties.
C	Internal validity and authenticity	<ul style="list-style-type: none"> Methods triangulation (Patton, 2002) via literature review (article 2), explorative, empirical study (article 3), dogmatic jurisprudential 	<ul style="list-style-type: none"> Richness and details of empirical settings risks disappearing in reporting thereby making findings less meaningful for readers.

#	Criterion	Main strengths	Main limitations
		<p>analysis (article 4) and multiple case-study (article 5).</p> <ul style="list-style-type: none"> ▪ Data triangulation (Patton, 2002) via use of different types of data (interviews, documents, and observations). ▪ Feedback from peers and reviewers on conferences and via double-blind review (article 1-5). 	
D	External validity and transferability	<ul style="list-style-type: none"> ▪ Suggested definition of good administration is inspired by existing work on good administration and good governance. ▪ Systematic review of international literature (article 2) supports congruence with existing knowledge across disciplines and administrative traditions. 	<ul style="list-style-type: none"> ▪ Risk of insufficient descriptions of samples, cases and findings to assist readers in assessing the transferability to other contexts. ▪ Despite attempted use of “technologically neutral” concepts and theory, findings and conclusions might be outdated due to continuous developments in technology.
E	Utilization	<ul style="list-style-type: none"> ▪ Research goals and research question nuanced via discussions with cross-functional advisory panel of KOMBIT. ▪ Open-ended interviews with key public administration stakeholders (article 3) used as sensitizing concepts for subsequent work. ▪ Feedback on emerging findings and conclusions from representatives of participating administrative bodies (article 5) via workshops. ▪ Findings and conclusions nuanced via discussions with cross-functional advisory panel of KOMBIT. 	<ul style="list-style-type: none"> ▪ Findings and conclusions do not provide a basis for considering the importance or magnitude of each relation vis-à-vis other relations. ▪ Inside-out perspective to administrative bodies risks overlooking important relations of use of AADM and good administration.

Table 4.1: Considerations regarding strengths and limitations of thesis; inspired by Miles et al. (2014); criteria are introduced in chapter 2.

An important element of criteria D is the extent to which cases are sufficiently described in order to assess possible transfer to other contexts. In this perspective, it

becomes a shared responsibility of me (the researcher) to provide sufficiently informative descriptions and you (the reader) to assess the “resonance” of the conclusions for other contexts. (Chenail, 2010; Lund, 2014).

The conclusions build on empirical observations and data from literature primarily rooted in liberal, democratic governmental systems (article 2), interviews with key public administration stakeholders in Denmark (article 3 and 4) and a case-study of specific administrative bodies’ AADM usage in four policy areas (article 5). Empirically, it is relevant to consider if the relations and other conclusions have resonance with AADM usage and good administration in other administrative bodies, in other policy areas of varying complexity and in administrative traditions beyond the Scandinavian administrative tradition to which Denmark belong.

In terms of theoretical transfer, it seems particularly relevant to consider if selected relations have value beyond AADM usage and good administration. They might thus have resonance for relations of good administration and other types of technology usage, just as they might be relevant for understanding relations between administrative bodies’ technology usage and other groups of regulations and norms (e.g., wider “tech ethics” or regulations and norms of specific policy areas).

An element seldomly considered in relation to external validity and transferability – but which has importance for the quality of this thesis – is the extent to which conclusions are relevant not only across contexts but also across time. It follows from the three core beliefs of critical realism introduced in chapter 2 that observations and understandings of the world including its social dimensions are (almost by definition) provisional and unlikely to reveal a full picture (Easton, 2010). This presents a particular challenge when studying AADM usage which is influenced by continuous technological developments. Although several of the identified relations of AADM usage and good administration are likely not to be heavily influenced by technological changes, and I have attempted to employ “technologically neutral” concepts and theory of a more stable nature (e.g., public administrative values), this challenge might prove to be a particular limitation to the long-term quality of the thesis.

Moving on to criteria E (Utilisation), I have drawn inspiration from ideas of engaged scholarship (van de Ven, 2007) and member checking (Creswell & Miller, 2000) thus emphasising the importance of perspectives of participants as well as of practitioners for both problem formulation and relevance and quality of findings and conclusions.

To this end, I organised a permanent advisory panel of 8-10 employees from KOMBIT of differing professional backgrounds and experiences (computer science, law, project management, public administration etc.). I met and presented emerging work with this group roughly every three months focusing on initial formulation of research goals and research question to findings and conclusions.

I further presented and received feedback on findings and conclusions from representatives of participating administrative bodies of the case-study presented in article 5²⁵. Although the format of those workshops differentiated according to the needs and number of participants, all workshops gave me the opportunity to present emerging findings and conclusions, as well as the participants the opportunity to discuss and reflect upon the findings and conclusions in their own specific organisational context. While the workshops did provide further nuance as well as impetus for practical utilisation, they did not fundamentally challenge the conclusions in article 5 nor the main conclusions listed in Text box 4.1.

4.2. CONTRIBUTIONS AND IMPLICATIONS FOR FURTHER RESEARCH

Chapter 1 pointed to calls in existing literature for studies of specific public administrative values in different contexts (Beck Jørgensen & Bozeman, 2007), effects of increased use of advanced technology for administrative values (Bannister & Connolly, 2014), detailed empirical studies of effects of use of advanced technology in public administration (Lips, 2020) and the importance of insights from the discipline of public administration (Veale & Brass, 2019) for multi- and interdisciplinary studies of digital government (Schartum, 2018). As a response to the calls, this thesis makes a number of contributions based on the combination of the five underlying sub-studies. These contributions motivate a number of theoretical and empirical implications for further research which I will also touch upon in this and the following section.

Firstly, *the importance of work practices and organisational context for understanding of use of advanced technology* as put forth in sociotechnical literature (e.g., Orlikowski, 2007) and supported by broad neo-institutional thinking is reaffirmed by my findings within public administration. As mentioned, it matters how administrative bodies manage relations of AADM usage and good administration including to what extent approximate similar relations appear as supportive or undermining for good administration. While this conclusion is hardly surprising, it supplements more dominating meso and macro perspectives on use of advanced technology in public administration thriving particularly within the academic disciplines of information systems and law.

Secondly, and considerably more pioneering, is *the comprehensiveness of the conclusions demonstrating the high number of relations between AADM usage and good administration*. The identified relations go well beyond existing praise of

²⁵ Workshop with representatives of administrative bodies from the illness benefits policy area took place in September 2021; from the agricultural subsidies policy area in June 2022; and from the work retention policy area in September 2022 (a workshop with representatives from administrative body of the property value assessment policy area is expected to be held in October 2022). Workshops had different formats to suit needs of administrative bodies.

AADM in terms of for example efficiency, consistency, and prevention of corruption (e.g., Young, Bullock, and Lecy 2019) and existing critique in terms of for example data bias, threats to equity and lack of accountability (e.g., Peeters, 2020). Figure 4.1 thus represents a holistic source of novel knowledge which future research ideally should seek to elaborate on in other empirical contexts.

The literature review underlying article 2 showed a lack of research in relations between AADM usage and the three values of resilience, responsiveness and transparency. Here, further research that investigates how AADM usage undermines resilience and responsiveness can be avoided will be an obvious focus. In the same respect, research that casts light on how the value of transparency can be further supported is relevant.

Thirdly, *the empirical basis of the thesis also helps to nuance “outside-in” perceptions in some academic quarters of high-level and mid-level public management.* Often, these actors are cast as a uniform body of naïve techno-optimists who do not question negative effects of advanced technology use (Veale et al., 2018). This is most clear in article 3, where a number of the interviewed public administration stakeholders point to the risk of a slowly evolving “systemic dehumanisation” of administrative bodies as well as a furthering of the inherent imbalance in power and resources between individual citizens (or firms) and government due to AADM usage.

Fourthly, my research clearly illustrates *that advanced technology usage, including AADM, do not resolve existing trade-offs between different public administrative values.* Both within what I have defined as nine primary values of good administration and beyond, I have shown how AADM usage does not resolve the need to balance different considerations and objectives of public administration. As stated in Text box 4.1 above, AADM usage is no silver bullet. In fact, it seems rather similar to many other public administrative activities as it necessitates a balancing of different values as discussed by public administration authors such as Hood (1991), Mashaw (1983) and Rosenbloom (1983, 2013). While this might sound banal, the realisation indirectly questions much current literature within information systems, law and science & technology studies that explicitly or implicitly tend to perceive challenges created by use of advanced technology as unique and such technology as the principal reason for those challenges. In that manner, the thesis suggests that existing, well-established literature on competing values can help nuance some of the “excesses” of current, more techno-centric literature.

Pointing towards the importance of work practices and organisational context for use of technology does not mean technology and its use in a narrow sense are not important. Article 1 was devoted to AADM usage and represents a fifth contribution as it argues that *such decision-making is best understood as a continuum of six ideal types with each representing a configuration of decision authority between public servants and the wider algorithmic systems.* This stands in contrast to more simplified

understandings of AADM as being *either* semi or fully automated and emphasises an almost inevitable development towards the latter.

The suggested ideal types instead underline the need to understand empirical instances of AADM usage as ambiguous and often consisting of several ideal types. While administrative bodies with responsibility for a large, rather uniform body of cases – e.g., “mass administration” (Schartum, 2016) or “decision-making factories” (Bovens & Zouridis, 2002) – often rely more on fully automated decisions, many issues gradually emerge across the continuum of ideal types rather than suddenly setting in with use of fully automated decision-making. This thesis confirms that ordinary public servants – although increasingly sharing decision authority with automated decision systems – will be an important part of administrative decision-making in many policy areas in the foreseeable future. This expectation essentially reflects existing, more general thinking on the pervasiveness of automation and its consequences for the future of work and labour markets (Susskind, 2020).

Finally, and responding to calls for multi- and interdisciplinary studies of digital government, several of the underlying sub-studies illuminate *the increasing importance of what I refer to as organisational aspects of administrative decision-making* for the understanding of relations between AADM usage and good administration. As noted in chapter 3, much historical understanding of good administration, including the vast majority of regulations and norms, is tied to individual administrative decisions and individual public servants making such decisions.

This is somehow at odds with administrative bodies’ AADM usage where work practices, bureaucratic procedures, public servants’ responsibilities, management practices, organisational structures and technology have considerable influence on administrative decision-making processes. Article 4, in particular, shows how the obligation of continuous quality assessment of decision-making processes is vaguely rooted in hard or semi-hard regulations leading administrative bodies to overlook more abstract obligations stemming from underlying values of good administration. In a partly similar vein, article 5 shows how administrative bodies struggle with the management of multiple “petite decisions” across wider algorithmic systems that can ultimately influence individual administrative decisions. In both examples, the organisational aspects of AADM have effects for individual administrative decisions.

While I return to the question when discussing implications for policy and practice below, several significant issues regarding AADM usage are not captured by current understandings of good administration focusing on individual administrative decisions and individual public servants. This awareness points towards a need for future research within public administration, law, information systems etc. that can help advance and update our understandings of good administration vis-à-vis such organisational aspects of administrative decision-making.

4.2.1. IMPLICATIONS FOR EMPIRICAL RESEARCH

Supplementing the implications of research of a more theoretical leaning discussed in the previous section, a few implications for empirical research are worth mentioning.

Building on the identified tendencies of supportive and undermining relations between AADM usage and good administration, future empirical work should systematically focus on circumstances of AADM usage that foster relations supporting good administration across administrative bodies, while simultaneously attempting to understand circumstances that give rise to undermining relations. Why do some administrative bodies succeed in primarily supporting good administration in their use of AADM while others do not?

As mentioned in section 4.1.2, no specific patterns of complexity of policy areas and relations of AADM usage and good administration have been observed. While this initially works to confirm the relations identified, it also calls for research into other possible patterns influencing relations between AADM usage and good administration. A few authors hint at the criticality of administrative decisions (that is, the impact of decisions on addressees) as somehow influential for the existence of supportive or undermining relations (e.g., Ng et al., 2020). Another line of relevant enquiry could take inspiration from policy design theory (Schneider & Ingram, 1993) and systematically seek to trace patterns between perceptions of “worthiness” of groups of addressees and relations between AADM usage and good administration.

Further, and based on the intentional focus on the internal workings of public administrative bodies in this thesis, a logical suggestion for supplementary research in relations of AADM usage and good administration is an “outside-in” perspective. Namely, how do citizens and firms perceive such relations, and what factors influence their perceptions? To what extent do such perceptions differentiate from the relations identified in this thesis?

A further supplementary perspective will be to empirically investigate what understandings of AADM usage and good administration dominate among data scientists, software engineers and usability experts of commercial ICT suppliers who often play a significant role in the development and continued configuration of automated decision systems and the wider algorithmic systems they are nested in. Although it is wrong to assume all ICT suppliers belong to what is popularly labelled “big tech”, it seems safe to assume that increased use of technology in general means increased reliance on commercial suppliers by administrative bodies (e.g., Margetts' & Partington's, 2010, description of the role of global ICT service providers in British public administration). Authors argue that data scientists, software engineers and usability experts tend to operate in a vacuum of oversight and accountability (Zouridis et al., 2020). It therefore becomes relevant to survey such professionals' perceptions

of relations of AADM usage and good administration and how those perceptions influence their work on decision systems.

Finally, the case-study presented in article 5 illustrates how automated decision systems cannot be reduced to advanced, more “hyped” techniques such as machines learning and predictive analytics. Instead, decision systems and the wider algorithmic systems they are nested in comprise a diverse combination of both well-established and newer techniques including, but not limited to, robotic process automation, rule-based (expert) models, regression, big data, predictive analytics, machine learning and neural networks.

Much current theoretical and conceptual research investigates how machine learning and predictive analytics relates to, e.g., issues of accountability and transparency. For example, of the 80 research articles identified and analysed as part of the literature review underlying article 2, at least 27 of them focus on the consequences of inference by data correlations as employed in machine learning. The findings and conclusions of this thesis indicates that many of these issues are at least as much due to historically given combinations of different techniques and the complexity of wider algorithmic systems as it is to specific characteristics of machine learning and predictive analytics. The thesis thus confirms arguments of Margetts & Partington (2010), who point to the importance of public administration of large-scale information systems and databases often created over several decades, and Schartum (2020, p. 303), who points to a form of techno-institutional path-dependency and observes that current “digital motorways have developed from [digital] cart roads.” There is therefore a need for empirical research that take this “messiness” of techniques and technologies as a starting point and digs deeper into its consequences for good administration, including issues of accountability and transparency, as a supplement to more theoretical and conceptual research focusing solely on singular techniques and technologies.

4.3. IMPLICATIONS FOR POLICY AND PRACTICE

Several detailed implications for practice can be drawn from the 36 relations shown in Figure 4.1 above. It is, however, also possible to derive four more broad implications from the findings and conclusions of this thesis for practice and policy. These are summarised in Text box 4.2 and discussed in the following.

Above I argued that the precise nature of relations of AADM usage and good administration is strongly influenced by work practices, bureaucratic procedures, responsibilities of public servants, management practices and organisational structures of administrative bodies.

What implications do this have in practice? It assigns the management of administrative bodies

- High-level and mid-level public servants have key roles to ensure that administrative bodies' use of automated, administrative decision-making supports good administration.
- High-level and mid-level public servants can leverage their roles by reflecting and explicitly engaging in considerations of use of advanced technology and good administration.
- Strengthening understandings of values of good administration and how they relate to use of advanced technology among high-level and mid-level public servants is at least as important as expanding the scope of regulations to address specific issues of advanced technology use and good administration.
- An expansion of the functional scope of regulations and norms of good administration to better encapsulate relevant organisational aspects of automated, administrative decision-making must be considered by policymakers and regulators.

Text box 4.2: Summary of implications for policy and practice

in the form of high-level and mid-level public servants²⁶ a particularly important role in “designing” and continuously managing AADM usage in the administrative bodies for which they bear responsibility. These actors are the ones best equipped to consider how technology, work practices and organisational context interact by taking the specifics of policy areas into consideration. The bad news is the apparent underdeveloped awareness of the breadth of relations between AADM usage and, particularly, softer norms of good administration. Many high-level and mid-level public servants either do not seem to be aware of – or maybe even find it convenient to dodge responsibility for – the multiple relations between AADM usage and good administration or do not believe they apply to use of less advanced automated decision systems. To a large extent, tangible usage of advanced technology, including AADM, tends to exist outside the realm of traditional management.

Much can be gained by actively accepting that AADM usage is an integrated and key dimension of administrative decision-making. This implies that high-level and mid-level public servants must reflect and explicitly engage in considerations of relations

²⁶ I do not intend to imply that elected policy-makers, low-level public servants, professional associations, educational institutions, commercial ICT suppliers, or power and ideology do not impact relations of AADM usage and good administration. The risk of AADM usage undermining equal access via de facto restrictions in access for some groups of citizens and firms is thus an example of a relation individual high-level and mid-level public servants has relatively little influence on. The local and often rather mundane character of interactions of technology, work practices and organisational context nevertheless assign high-level and mid-level public servants with a particular important role thus explaining the focus here.

between AADM usage and good administration. Today, both supportive and undermining relations tend to be seen much more as a static, given effect of increased technology use in public administration.

Both high-level and mid-level public servants must ideally ask how work practices, bureaucratic procedures and management practices can foster supportive relations and how they can hinder undermining relations. How should job descriptions of public servants be updated? What skills are necessary to operate automated decision systems in a way that supports good administration, and how are those skills best acquired? How is an organisational culture that also encompasses softer norms of good administration encouraged and furthered, and how are organisational structures regularly amended to strengthen supportive relations between AADM usage and good administration?

While this might sound relatively simple, in real life it is most likely not. AADM usage seldomly makes all nine values of good administration meet thus making it necessary for management to actively decide which values to prioritise. Values of good administration must also be balanced with other sets of values and considerations within public administration such as hierarchical loyalty, budgetary constraints, professional knowledge specific to given policy area, and employee welfare.

While those reflections ideally occur at the organisational level in all administrative bodies applying semi or fully automated AADM, I believe my findings and conclusions also provide some impetus at policy level. While these are based on AADM usage in Denmark and Danish administrative tradition, they are most likely of approximate relevance for other liberal, democratic governmental systems.

As noted in chapter 1, (high) hopes of further use of automated decision-making in public administration are emerging around the world while appropriate regulation of technology use within and beyond public administration is increasingly gaining more focus in the public agenda. Article 4 showed how underlying values of good administration have difficulty impacting administrative bodies' AADM usage. There are thus limited signs that usage is significantly affected by underlying values if these are not simultaneously expressed in the form of hard or at least semi-hard regulations. One example of this is discussed in both articles 4 and 5 and regards the obligation of continuous quality assurance which is rooted in the value of carefulness. Here it was shown how administrative bodies struggle to ensure effective procedures of continuous quality assurance of AADM usage and, if they do, these procedures are seldomly related to values of good administration.

While this realisation might at the outset lead to suggestions of an *expansion of the scope* of relevant hard and semi-hard regulations to explicitly address specific issues raised by AADM usage and other types of advanced technology, there also seems to

be a need to *strengthen understandings of underlying values* of good administration and how they relate to use of advanced technology particularly among high-level and mid-level public servants via awareness raising activities, individual and collective incentives, dissemination of best practises etc. A strengthening of understandings of underlying values will likely enable a continuous adaptation of administrative bodies' use of advanced technology over time in concert with those values. Solely expanding the scope of regulations might – at the very best – hinder undermining relations between AADM usage and good administration but is unlikely to lead to a noticeable fostering of supportive relations. Additionally, relying solely on an expanded scope of regulations might not prevent the risk of an unintended “systemic dehumanisation” of administrative bodies seen from the position of citizens and firms as described in article 3.

Earlier in this chapter, I discussed how organisational aspects of AADM affects individual administrative decisions, while the vast majority of regulations and norms are tied to individual administrative decisions and individual public servants performing the decision-making. There seems to be a need to consider if the functional scope of regulations and norms should be expanded to affect such organisational aspects, or – in other words – if the traditional focus of good administration on *individual cases* should be supplemented by a focus on *relevant organisational aspects* of AADM. Such an approach would also imply a supplementary focus on *ex-ante* obligations of administrative bodies (obligations regarding aspects prior to the administrative decision-making itself) as compared to the *ex-post* nature (obligations regarding the administrative decision-making itself) of most current regulations and norms of good administration.

What I am suggesting here is not a dramatic expansion of existing regulations and norms of good administration, but a supplementary focus in the activities of ombudsman institutions, audit offices etc., that will gradually shape soft norms and “harden” them into semi-hard, and perhaps hard, regulations. Such a development will also supplement and reinforce the suggested reflections and considerations at organisational level.

There are signs that such a change in focus is underway. Schartum (2020) points out how requirements regarding security of data processing (article 32) and data protection impact assessments (article 35) in the General Data Protection Regulation (2016) of the European Union in effect concerns the broader “architecture and software of the [decision] system”. As described in chapter 3, both the Danish Parliamentary Ombudsman (Folketingets Ombudsmand, 2022a) and the Danish Data Protection Agency (Datatilsynet, 2022) have described an emerging obligation for administrative bodies to consider consequences for external but inter-connected ICT systems when implementing changes in own ICT systems. Indirectly, this reflects the challenges of managing the complexity of “petite decisions” across wider algorithmic systems as discussed in article 5. Such an obligation can be seen as concerning wider

organisational aspects of administrative decision-making rather than the decision-making itself.

4.4. THE FUTURE

What will the future bring for use of advanced technology in public administration and its relations to good administration?

Nobody knows for certain, of course. Nonetheless, and responding to calls for the discipline of public administration to contribute with anticipation of possible future(s) (Bouckaert & Jann, 2020), the remaining pages of this thesis present a few reflections on the future usage of advanced technology in public administration based on questions like “What is likely to happen?”, “What could happen?” and “What should ideally happen?”.

I have argued throughout this thesis that AADM usage is on the rise in public administration and that this rise affects administrative bodies’ adherence to regulations and norms of good administration. This development seems set to continue. Use of advanced technology will most likely further advance in the future due to increased algorithmic capabilities, increased computational capacity, and increased connectivity (Susskind & Susskind, 2016) just as these advances will be employed within public administration. At the same time problems of, e.g., opacity and accountability that haunt artificial intelligence techniques will likely be with us for a long period (Bolander, 2019). Tensions between technological systems on the one hand, and social and societal mechanisms on the other are therefore not likely to disappear.

Despite expected technological advances – and following this thesis’ basic understanding of social action – the development should not be seen as given or pre-determined. It is tempting to see the future as an almost causal extension of the past, but the future is as much the result of human plurality and ideas and hopes becoming real (Joyce, 2020). The way technology will be put to use in public administration will thus not only be shaped by technology itself but also by human beings and institutional factors with the latter including – but not limited to – regulations, norms, and values of good administration.

We have been here before, though: New technologies almost always have both positive and negative consequences (Henman, 2020). To paraphrase Moore & Tumin (1949) and Virilio (2007) quoted on page 5, new solutions and technologies always generate further problems and “accidents”. What is important is society’s ability to shape and use technologies in a timely manner that enhances and protects social, economic, cultural, and political objectives including good administration.

As mentioned, regulations, norms and values of good administration represent a historical development towards increased control with arbitrary state power as well as the levelling of the inherent imbalance in power and resources between the state and the individual citizen (or individual firm). The big question regarding usage of AADM and good administration in the future will be if the increasingly complex and able automated decision systems will work to strengthen and continue this development or if technology impedes or even derails the historic trajectory towards increased control.

Building on the findings and conclusions of this thesis, it is definitively possible to enlist administrative bodies' AADM usage as a friend for a continuous strengthening of regulations, norms and values of good administration in the future. There is, however, also a risk of societies sleepwalking into a future where AADM usage seriously undermines good administration tempted by what I in chapter 1 described as the alluring sirens of advanced technology.

It is sometimes said that we tend to overestimate the effects of technologies in the short run but underestimate the effects in the long run (Ratcliffe, 2018). This seems to be the case with increased use of AADM and its relations to good administration. Both within and beyond academia, much is written on the explicit or implicit assumption that advanced “robots” are on the verge of conquering public administration leaving either radical positive or negative consequences for good administration in their wake. This does not seem to be the case as found in this thesis. As shown in article 2, in particular, many of the synergies, trade-offs and limits of AADM usage are not new to public administration.

In the long run, however, my assessment is that it will be difficult to underestimate the consequences of the steadily increasing usage of advanced technology by administrative bodies for the rights of citizens and firms as well as the correctness and legitimacy of administrative decision-making. Borrowing from Susskind & Susskind (2016, p. 231), it is likely that “...change will come in increments, [but] its eventual impact will be radical and pervasive.”

To shape the future, it is important that more than just data scientists, software engineers and usability experts inside and outside administrative bodies focus on the development, design, and configuration of automated decision systems. High-level and mid-level public servants must actively seek to shape how technology, work practices and organisational context interact in ways that supports good administration. Policy-makers, regulators etc. must consider how awareness raising activities and individual and collective incentives, as well as semi-hard and hard regulations best enhance supportive relations between AADM usage and good administration. In addition, particularly elected policy-makers have an important role to play in fostering and shaping public debate on appropriate synergies, trade-offs and limits of advanced technology use and good administration within public administration.

Looking to the future, the questions do not seem to be whether to automate administrative decision-making or not, or where the limit for use of AADM (although article 2 does provide the contours of a contingency theory for use of AADM). Instead, the key question is how societies and administrative bodies can shape AADM usage to support good administration.

As discussed in article 4, it should be noted that both regulations and norms tend to be slow-evolving and somehow “out of sync” with the latest technological development. Elected and non-elected policy-makers, regulators etc. should continuously attempt to debate and address this issue. In addition, administrative bodies including individual high-level and mid-level public servants should look beyond mere compliance of regulations and actively consider how to apply and use AADM in ways that further support and develop good administration. Only then, it seems, can we achieve that the expected future increase in use of AADM makes good administration a real friend and not a foe.

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APPENDICES

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APPENDIX I. POTENTIAL CASES

This appendix was prepared in relation to the case-study presented in article 5.

Before approaching relevant administrative bodies of each case for cooperation, 10 potential cases were considered. Each potential case represents a policy area in which Danish public administrative bodies employ automated, administrative decision-making.

The following list of potential cases was prepared based on publicly available sources as well as personal knowledge (descriptions are preliminary and have not been researched in detail). Each potential case was categorised based on an assessment of its professional complexity (level of disagreement of cause and effects of policy interventions) and political complexity (level of disagreement of preferred policy outcomes) inspired by Thompson & Tuden (1959).

- A. *Reimbursement of illness benefits*: This is a municipal task which primarily involves firms (as well as self-employed and unemployment insurance companies). The administrative decision-making process is expected to be fully automated in up to 80% of the cases using a new automated decision system which was commissioned in 2019-20 (the system has been procured by the joint municipal company KOMBIT and will therefore be used by all Danish municipalities). This policy area is characterised by low professional complexity and automated decision system is based on advanced rules-based algorithms. Politically the area is characterised by low complexity.
- B. *Property value assessment*: This is a task of the Danish national government which is carried out by the Ministry of Taxation and involves citizens and firms. The administrative decision-making process is expected to be fully automated in a large number of cases using a new automated decision system which was commissioned in 2021. The policy area is characterised by very high professional complexity, and automated decision-making is based on advanced machine learning algorithms as well as large amounts of data from multiple sources. Politically the area is characterised by medium complexity as it has previously been subject to a public “scandal” involving wide discrepancies in the property value assessment of properties in close vicinity of each other.
- C. *Personal income taxes*: This is a task of the Danish national government which is carried out by the Ministry of Taxation and involves citizens. The administrative decision-making process is fully automated in a large number of cases. This policy area is characterised by medium professional

complexity, and automated decision-making is based on advanced rules-algorithms. Politically this area is characterized by low complexity.

- D. *Child protective services*: This is a municipal task that involves citizens. A partial component of the decision-making process will possibly be automated as some municipalities plan to introduce automatic identification of potentially vulnerable children and young people who then – likely based on further manual assessment – will be the subject of a municipal examination which will assess the child/young person’s welfare, family life, school etc. (decisions regarding the initiation of such examinations are formally considered administrative decisions). The commissioning of the automated identification is, however, dependent on the Danish Ministry of Justice and the Parliamentary Legal Affairs Committee approving the necessary compilation of data sources. This policy area is characterised by very high professional complexity, and automation takes place on the basis of advanced rule algorithms. Politically this area is characterised by very high complexity.
- E. *Work retention*: This is a municipal task that involves citizens. A partial component of the administrative decision-making process is automated as an automated decision system compiles relevant data and guides case workers through a number of processing steps. The information is used by caseworkers to prepare interviews with citizens as part of the citizen’s obligation to be available for employment after long-term illness. This policy area is characterised by high complexity, and automation is based on simple algorithms. Politically the area is considered characterized by high complexity.
- F. *Accounting control and firms threatened by bankruptcy*: This is a Danish national government task performed by the Danish Business Authority that involves firms. A partial part of the administrative decision-making process is automated so that companies with an above-normal risk of bankruptcy are automatically identified and thereafter – based on manual case processing – subjected to further control measures. This policy area is characterised by medium- professional complexity, and automated decisions take place on the basis of advance machine learning algorithms and large amounts of data. Politically the area is considered characterised by low complexity.
- G. *Industrial injury insurance*: This is a task of the Danish national government and carried out by the Labour Market Business Insurance and involves citizens. A partial part of the assessment (administrative decision-making process) of whether an injury or illness is an occupational injury is automatically processed based primarily on compiled data. This policy area is characterised by medium professional complexity, and automation takes

place on the basis of advanced rule algorithms. Politically this area is characterised by low complexity.

- H. *Housing benefits*: This is a municipal task performed by Udbetaling Danmark and involves citizens. Udbetaling Danmark is a semi-public authority responsible for the administration of certain public benefits. The administrative decision-making process is fully automated in a large number of cases based on reported data and publicly held data in databases such as CPR (registry of personal identification data), BBR (registry of buildings and properties) etc. This policy area is characterised by low professional complexity, and automation is based on less advanced rule algorithms. Politically this area is characterized by low complexity.
- I. *Agricultural subsidies*: This is a task of the Danish national government which is performed by the Ministry of Environment and Food and involves companies (which are owned by farmers). The administrative decision-making process is fully automated in a large number of cases based on reported data and basic public data (CPR, BBR, etc.). This policy area is characterised by medium professional complexity, and automation takes place based on advanced rule algorithms. Politically the area is characterised by low complexity.
- J. *Registration of real estate*: This is a task performed by the Registry Court that and involves citizens and firms. Although de facto an administrative process, the Registry Court is formally a court and not part of the executive branch of government. The decision-making process is fully automated in a large number of cases based on compiled data and basic public data (CPR, BBR, etc.). There is low professional complexity, and automation is based on advanced algorithms. Politically this area is characterised by low complexity.

APPENDIX II. EXAMPLES OF INTERVIEW GUIDES

This appendix contains three anonymised examples of interview guides used in relation to the sub-study presented in article 5.

All interview guides were designed according to the position of the interviewee(s) but broadly followed the same structure across interviewees and cases. The guides contain draft questions and keywords upon which specific questions were phrased during interviews. Information in square brackets (“[]”) is background information used solely by the interviewer. Shaded information in square brackets (“[XXX]”) is information anonymised due to confidentiality.

The selected examples illustrate the variation in the design of interview guides. These interview guides address the cases of work retention (case 2; example 1), agricultural subsidies (case 3; example 2), and property value assessment (case 4; example 3).

*** ** **

Example 1: Interview guide used in relation to work retention (case 2)

Master information	
Name(s)	
Position(s)	
Contact Information	
Organisation	
Place	
Date	
Interview situation To be described after the interview	
Recorded	

To be described after the interview
Case

1. Introduction to the research project	
Formalities	Request to record for subsequent use – use of any direct quotes agreed on after recording.
Confidentiality	Overall results of research will be published. Possible to label some topics as “confidential” resulting in use of this information as “background information”. Possible personal data treated confidentially and will not be published in any way.
The research project	Focus on how and to what extent fundamental values of “good administration” should be adapted to use of new technology. Focus on semi-/fully automated, administrative decision-making vis-à-vis good administration with a particular focus on organisational and managerial facets.
The case-study	Elucidate relations between semi-/fully automated decisions, management and good administration in an actual organisational context – concrete, detailed experiences – e.g., the advisory obligation and ongoing quality assessment. Option of research-based feedback to participating organisations.
Focus of study in [name of administrative body]	Primarily automated, administrative decision-making relating to follow-up processes for citizens who are on sick leave for a period after 8 weeks (work retention). Primarily case processing via [name of automated decision system] but also interactions with other ICT systems, and internal and external stakeholders.
Today’s focus	<ul style="list-style-type: none"> • Introduction to case processing and its “main paths” • Case processing steps and final, administrative decisions • Automated decision-support • Documentation and communication • Management, statistics and quality assurance

2. Interviewee(s)	
Position	Tell me about your position and responsibilities
Background	Tell me a bit about your background and seniority

3. Introduction to case processing and its “main paths”	
Purpose	What is the purpose of the case processing [decision-making process]?
Types and “main paths”	Is it possible to describe different types of cases and/or some “main paths” of the case processing? What makes the “main paths” start? How do they end?
Input and output	What is input and what are output [initiated internally or externally]?
Discretion and legislation	Where is discretion exercised, and where do the processing rely on legislation and rules?
Automation	What happens automatically? What is done manually?
Addressee perspective	How do things look from the person who is long-term ill?
Information to addressee	How is the addressee prepared? Where can the addressee find additional information?
Stakeholders	Where and when do internal and external stakeholders “participate” in the decision-making process? How much time does it take to process a case / reach a final administrative decision?
Time	How long is the typical time span (calendar time)?
Examples	Illustrative examples?
Other	Other relevant topics?

4. Case processing steps and final, administrative decisions	
Types	What types of administrative decisions does an caseworker make [other than decisions regarding obligation to be available for employment]?

4. Case processing steps and final, administrative decisions	
	[What about rehabilitation cases?]
Processing steps	Seen through the eyes of both the caseworker, the administrative body, and addressees: What are the process steps, and what is rooted in regulation (e.g., obligation to consult)?
Data	Which information and data are used where?
Documents	Which formal and informal documents used where [e.g., "MinPlan" and others]?
Stakeholders	Where and when do internal and external stakeholders "participate"?
	At what point do you conduct a hearing of the addressee?
Complexity	What is particularly challenging?
	What is particularly easy?
	Trade-offs and dilemmas?
Particular considerations	Are there any significant choices or "tipping points" as part of the process?
Examples	Illustrative examples?
Other	Other relevant topics?

5. Automated decision-support	
	Which systems etc. are used in addition to [name of automated decision system]
Systems	External systems, registries, portals?
	What is the overall purpose of using [name of automated decision system]?
Data	What is input and what is output [likely to have been covered by questions above]?
Tasks	What is the overall purpose of the "tasks" functionality of the automated decision system used?

5. Automated decision-support	
	[The functionality seems to provide assurance of a certain level of quality and assures decision steps are taken on time. It might also serve as a communication tool between colleagues.]
User interface	Disadvantages of the task functionality [lack of overview; too rigid procedures; etc.]? How does the system present relevant data to the caseworker?
User friendliness and logic	What data are not presented or are disregarded? What works well?
"Outliers"	What does not work as well?
Interaction with addressees	What types of cases are challenging to process via the automated decision system or do simply not fit in? How is the interaction with addressees supported [or not supported]?
Computational logic	Does the way the automated decision system work always make sense? What is the system particularly good at? When does what the automated decision system does not make much sense? What do you do in those situations?
Particular considerations	What can go wrong when using the automated decision system? Why? [Remark from other interviewee: "One must consistently insist on not immersing oneself too much in the administration but stick to the addressee's perspective instead"] Trade-offs and dilemmas? Are there any significant choices or "tipping points" as part of the process?
Examples	Illustrative examples?

5. Automated decision-support	
Other	Other relevant topics?

6. Documentation and communication	
Before the case processing is initiated	<p>What is communicated and how?</p> <p>What is not communicated?</p> <p>[Including advise to citizens (including citizens who do not “belong” at administrative body / must be referred to other authority)]</p>
During the case processing, meetings etc.	<p>What is communicated and how?</p> <p>What is not communicated?</p>
“After” the final administrative decision has been made	<p>What is communicated and how?</p> <p>What is not communicated?</p> <p>Are addressees typically referred to other authorities?</p>
“Translation”	<p>Is it sometimes necessary to “translate” the formal information to addressees in a manner so they better understand it [the interviewee has previously mentioned that it can be important, for example, to notify the sending of the different letters etc., so that the addressee can understand them]?</p> <p>In which cases is it necessary [e.g., different levels of conflict]?</p>
Insecurity	<p>What are addressees usually unsure about? Why?</p>
Complaints	<p>What types of complaints are most typical? Why?</p> <p>Illustrative examples of documents?</p>
Examples of documents	<p>[I have previously received examples of “MinPlan”]</p>

6. Documentation and communication	
Other	Other relevant topics?
7. Management, statistics, and quality assurance	
Skills	<p>What are the key competencies for caseworkers? Have these changed over time?</p> <p>What are the most important tasks? Have these changed with automation?</p> <p>What do unit, department heads etc. emphasise as important [does management emphasise adherence to deadlines and number of open (i.e., non-finished) cases]? Are there specific targets on deadlines and number of open cases?</p>
Management	<p>How does management achieve insights on quality and quantity of the case processing?</p> <p>Do certain "narratives" about automation thrive in the organisation? What do caseworkers tell each other about automation?</p> <p>How are cases and assignments distributed among caseworkers [in the four teams of the unit]?</p>
Division of tasks	<p>How and how often does the team lead or unit head attend to the distributions?</p> <p>What does work and what does not work?</p>
Statistics	<p>What information is available about "production"? Is it primarily output based or outcome based?</p> <p>How does this take place?</p>
Quality assurance	<p>Is the ongoing quality assurance mainly formal or informal [it has previously been described as primarily taking place via the nearest colleague]?</p> <p>Via colleagues, manager, audit? Samples or full population?</p> <p>What type of remarks are received from internal and external audit?</p>

7. Management, statistics, and quality assurance	
Examples	Illustrative examples [e.g., management reports]?
Other	Other relevant topics?

8. Good administration	
Introduction	<p>Broad understanding of administrative law and good administration, i.e., legislation, rules, and softer norms: What comes to mind?</p> <p>Can some of the themes be related to the semi-automated case processing [purpose is to "open up" new themes and not to categorise what has already been said]?</p> <ul style="list-style-type: none"> • Non-erroneous decisions <ul style="list-style-type: none"> • Real-time data, e.g., possible issues of "delay" in data? • Narrow/strict understanding of cases in the automated decision system? • Respecting individual integrity <ul style="list-style-type: none"> • Is all available data used? • Professional administration: <ul style="list-style-type: none"> • Level of "downtime" of decision system? • Trustworthy <ul style="list-style-type: none"> • Obligation to advise? • Responsive <ul style="list-style-type: none"> • Where does the need to adjust in deadlines for applicants come from? • Does your organisation collect feedback from addressees? How? How is the feedback used?
Themes	

8. Good administration	
	<ul style="list-style-type: none"> • Empowering • Is it expressed in any way? Something that your organisation attempts to promote, for example, through access to own information, etc.?
Supports	Strengths of automated decision-making in relation to good administration
Challenges	Disadvantages of automated decision-making in relation to good administration
Other	Other relevant themes? Dilemmas or trade-offs?

9. Closing	
Reflections	What should I have asked? Did something come up during the interview?
Regulations	[Has any relevant regulations, rules, etc., been mentioned?]
Internal guidelines	[Has any relevant internal guidelines, etc., been mentioned?]
Reports, etc.,	[Has any relevant reports, etc., been mentioned?]
Other	If you come to think about other issues, documents, etc., please let me know.
Upcoming events	[Has any relevant events, etc., been mentioned?]
Relevant colleagues	Who else will it be interesting for me to speak with?

Immediate reflections and follow-up	
Own reflections	To be described immediately after the interview

Example 2: Interview guide used in relation to agricultural subsidies (case 3)

Master information	
Name(s)	
Position(s)	
Contact Information	
Organisation	
Place	
Date	
Interview situation To be described after the interview	
Recorded To be described after the interview	
Case	

1. Introduction to the research project	
Formalities	Request to record for subsequent use – use of any direct quotes agreed on after recording.
Confidentiality	Overall results of research will be published. Possible to label some topics as “confidential” resulting in use of this information as “background information”. Possible personal data treated confidentially and will not be published in any way.
The research project	Focus on how and to what extent fundamental values of “good administration” should be adapted to use of new technology. Focus on semi-/fully automated, administrative decision-making vis-à-vis good administration with a particular focus on organisational and managerial facets.
The case-study	Elucidate relations between semi-/fully automated decisions, management, and good administration in an actual organisational context – concrete, detailed experiences – e.g., the advisory obligation and ongoing quality assessment. Option of research-based feedback to participating organisations.

1. Introduction to the research project	
Focus of study in [name of administrative body]	My focus is on direct subsidies for the area of land due to very high automation supplemented with insights from project grant areas (lesser degree of automation).
Today's focus	<ul style="list-style-type: none"> • Introduction of use of satellite-based control • Administrative law and “good administration”: Advantages and disadvantages • Expectations for the future

2. Interviewee(s)	
Position	Tell me about your position. Tell me about your responsibilities including the number of caseworkers you are in charge of. What is your placement on the organisation’s organisational s chart?
Background	Tell me a bit about your background and seniority

3. Introduction to use of satellite-based control	
Business processes etc.	How will it work [step-by-step; practical terms]?
Overall aim	Stakeholders, frequency, etc.?
Political (dis)agreement	What does the control aim to accomplish? Will the target/purpose change?
Changes	(Dis)agreement on means and ends? How has the aim changed over time?

4. Administrative law and good administration: Advantages	
Introduction	Broad understanding of administrative law and good administration, i.e., legislation, rules, and softer norms: What comes to mind?

4. Administrative law and good administration: Advantages	
Preliminary	<p>Broad understanding of administrative law and good administration, i.e., legal rules and softer norms: What comes to mind?</p> <ul style="list-style-type: none"> • Non-erroneous decisions • Respecting individual integrity [incl. citizens vs farmers] • Professional administration • Responsive • Trustworthy • Empowering
Advantages	<p>Is it possible to talk about positive effects for good administration [specific issues or broader themes]?</p> <p>Have there been any internal considerations of those? Dilemmas or trade-offs?</p> <p>How has the considerations of issues and themes “taken place”?</p> <p>Involvement of top management of agency? Ministry? Minister? Parliamentary committee? Others?</p> <p>Have the considerations been formalised?</p> <p>Have the considerations resulted in changes to the set-up?</p> <p>Do you have your own thoughts about issues or themes that have not been dealt with?</p> <p>[Improved accuracy/fewer errors]</p> <p>[Presentation of data to farmers and consultants]</p> <p>[Improved insights for farmers and consultants through “preliminary decisions”]</p> <p>What values are behind the assumptions of those advantages (e.g., empowering)?</p> <p>Other relevant issues or themes?</p>
[Own observations]	
Values	
Other	

4. Administrative law and good administration: Advantages	
	Dilemmas or trade-offs?

5. Administrative law and “good administration”: Disadvantages	
	Is it possible to talk about negative effects for good administration [specific issues or broader themes]?
Disadvantages	Have there been any internal considerations of those? Dilemmas or trade-offs?
	How has the considerations of issues and themes “taken place”?
Internal considerations	Involvement of top management of agency? Ministry? Minister? Parliamentary committee? Others?
	Have the considerations been formalised?
	Have the considerations resulted in changes to the set-up?
	Do you have your own thoughts about issues or themes that have not been dealt with?
	[Lack of transparency and uncertainty regarding the quality of the image recognition algorithm?]
	[Ongoing quality assurance?]
	[Extent of monitoring (vs. societal purpose)?]
	[Unintended consequences such as increase in level of sanctioning of farmers?]
[Own observations]	[Equal access (digital divide) regarding requirements for smartphone usage and/or assistance from agricultural consultants?]
Values	What values are behind the assumptions of those disadvantages [e.g., proportionality]?

5. Administrative law and “good administration”: Disadvantages	
Other	Other relevant issues or themes?
	Dilemmas or trade-offs?

6. Expectations for the future	
Changes	What do you see as likely developments over time? Expectations for the future and new technology.
External expectations	Changes in expectations from, e.g., ministry, minister, parliamentary committee?
Technology	Changes in expectations from farmers and their interest groups? Is the technology considered as “supportive” for good administration or “undermining?”
Other	Other relevant themes regarding the future? Dilemmas or trade-offs?

7. Closing	
Reflections	What should I have asked? Did something come up during the interview?
Regulations	[Has any relevant regulations, rules, etc., been mentioned?]
Internal guidelines	[Has any relevant internal guidelines, etc., been mentioned?]
Reports, etc.,	[Has any relevant reports, etc., been mentioned?]
Other	If you come to think about other issues, documents, etc., please let me know.
Upcoming events	[Has any relevant events, etc., been mentioned?]
Relevant colleagues	Who else will it be interesting for me to speak with?

Immediate reflections and follow-up	
Own reflections	To be described immediately after the interview

Example 3: Interview guide used in relation to property value assessment (case 4)

Master information	
Name(s)	
Position(s)	
Contact Information	
Organisation	
Place	
Date	
Interview situation	
To be described after the interview	
Recorded	
To be described after the interview	
Case	

1. Introduction to the research project	
Formalities	Request to record for subsequent use – use of any direct quotes agreed on after recording.
Confidentiality	Overall results of research will be published. Possible to label some topics as “confidential” resulting in use of this information as “background information”. Possible personal data treated confidentially and will not be published in any way.

1. Introduction to the research project	
The research project	Focus on how and to what extent fundamental values of “good administration” should be adapted to use of new technology. Focus on semi-/fully automated, administrative decision-making vis-à-vis good administration with a particular focus on organisational and managerial facets.
The case-study	Elucidate relations between semi-/fully automated decisions, management and good administration in an actual organisational context – concrete, detailed experiences – e.g., the advisory obligation and ongoing quality assessment. Option of research-based feedback to participating organisations.
Focus of study in [name of administrative body]	The automated assessment of property value for owner-occupied homes as the basis of property tax and land debt. Have talked to [name of agency head] about how interesting the probability element in property valuation is. This is kind of a new type of administrative decision.
Today’s focus	<ul style="list-style-type: none"> • Introduction to case processing and its “main paths” • Case processing steps and final, administrative decisions • Management • Themes associated with good administration

2. Interviewee(s)	
Position	Tell me about your position. Tell me about your responsibilities including the number of caseworkers you are in charge of. What will be the main responsibility and tasks of your unit when the automated decision system has been implemented?
Background	Tell me a bit about your background and seniority
Status	How far along are you in terms of having the automated decision-making up and running [officially the first assessments will be sent out mid-2021]

3. Overall design of the decision-making process (case processing)	
Overall	<p>How would you describe the decision-making process (case processing) for owner-occupied housing in general?</p> <p>Is the automated decision system fully in place [partly covered by previous questions]?</p> <p>When would you say case processing is a success [correctness, trust, few complaints, other]?</p> <p>[If the interviewee is aware of decision model's details] What is the accuracy of the decision model? How is this calculated? Are there any differences in terms of geographical or property type?</p> <p>Based on a wholly "property value assessment perspective", what is your impression regarding whether the quality of the decision model is satisfactory [another interviewee mentioned an accuracy of 70%]?</p> <p>Is your team fully in place?</p>
Caseworkers	<p>How many are they?</p> <p>What are their key competencies, background, seniority, etc.</p> <p>Is the team divided into smaller groups with regard to particular specialisation or responsibility?</p>
Organisation	<p>[There are three centres of operation. Each has a quality unit and 7-9 assessment teams of which the interviewee is responsible for one of the latter]</p> <p>How have you and your colleagues been trained?</p>
Training	<p>How have the caseworkers been trained?</p> <p>What has been the focus in the training of caseworkers?</p>
Cooperation	<p>Has there been collaboration with other parts of the agency [other agencies within the ministry, the ministry itself, external partners]?</p>
Particular considerations	<p>Trade-offs and dilemmas?</p>

3. Overall design of the decision-making process (case processing)	
	Are there any significant choices or “tipping points” as part of the process?
Examples	Illustrative examples?
Other	Other relevant topics?

4. Case processing steps and final, administrative decisions	
	What will the case processing look like from your point of view?
Overall	<p>What will case processing look like from the caseworker’s point of view?</p> <p>[Does the caseworker have a role relating to the addressees’ correction of their own data?]</p> <p>Will all caseworkers do the same or will there be different teams with particular tasks? Will caseworkers become experts in specific areas [at individual level]?</p>
Complaints	Do caseworkers have a role regarding complaints [which are processed in the National Board of Tax Appeals]? Is this done as part of a possible remonstration process?
Quality assurance	<p>Will there be any particular procedures, etc., in relation to quality assurance of cases that are manually processed?</p> <p>How large of a share of these are planned to be assessed?</p> <p>What determines which cases are selected for manual case processing?</p>
Selection for manual case processing	<p>Does this equal a precautionary approach or the opposite? What is “precautionary” based upon [is it in relation to manual or automated case processing]?</p> <p>[Previous interviewees have told the selection is rule-based] Do you know why a more statistical sample based on expectations of the quality of the individual, automated assessment has been opted-out of?</p>

4. Case processing steps and final, administrative decisions	
	Can one expect that the level of automation will increase in the future [e.g., because parameters are configured differently]?
Ratio	Expectations for the share of fully automated decisions? Has manual case processing started in a more limited scale? Can one talk about different types of tasks in relation to manual case processing?
Tasks (1)	[Previous interviewees have mentioned: i) "puzzle criteria" (e.g., infrequent market activity); ii) Lack of data; iii) Values outside of norms (e.g., very old houses); iv) Complicated basis of rules (e.g., overlapping local development plans or similar; v) Objections from addressees] What about information from addressees?
Tasks (2)	Do the tasks additionally suggest decisions or are they simply suggestions of relevant decision steps? How is it avoided caseworkers routinely follow the suggestions of the automated decision system? How does the automated decision system handle plots and dwellings that do not "fit" the system?
"Outliers"	[Some will probably come out as automatically generated tasks while there will be others that are completely incomprehensible for the system?] Should the caseworkers be able to understand and conceivably communicate information regarding the assessment model and hence the automatic assessment?
Comprehensibility and skills	Challenges in terms of the equipping the caseworkers to communicate information regarding the assessment model? How will caseworkers' cooperation and dialogue with the addressee be?
Dialogue with addressee	In which cases? Focusing on what? [E.g., the addressee's opportunity to correct data.]

4. Case processing steps and final, administrative decisions	
	How will the collaboration with the call centre in [city where call centre is placed] be? What will be the most difficult regarding the coherence between manual and automatic case processing?
Challenges	[transparency, equal treatment, communication with addressees, addressees' confidence in correctness, etc.]
The future	If we imagine we are in 2023, what lessons have been the most important regarding the use of the model after 24 months? What are your expectations for future changes? Trade-offs and dilemmas?
Particular considerations	[e.g., standardisation vs flexibility in the case processing; uniformity vs. understanding of local elements]
Examples	Are there any significant choices or "tipping points" as part of the process? Illustrative examples?
Other	Other relevant topics?

5. Management and control	
	What is the most important management task in relation to the case processing?
Management tasks	What do you hope caseworkers tell each other about the spirit of the work? What do you expect caseworkers to say about the automated part of the case processing?
Colleagues	Who are your management colleagues?

5. Management and control	
	Which competencies and skills are important [property assessment skills, management skills, operational skills]?
Control parameters	According to what parameters do you expect to control the “production”?
	How is the “production” structured?
	Are there any special annual cycles or something similar that is related to each “property assessment cycle”?
Case load	How many cases and tasks do you expect an average case worker to be responsible for?
	When is the case management a success [only quantity or also quality?]
Parameters of success	Does this correspond to what your superior expects from you [any discrepancy]?
	How will those parameters be operationalised during ordinary work?
	What kind of information are you going to base your management on?
Management information	Direct observations?
	Automated information? At individual level? At team level? Other levels?
Performance targets	Which key performance indicators apply to the different elements of case processing?
	Have there been set any performance targets for the “production”?
Advantages and disadvantages	What are the benefits of the large-scale automation for management and control?
	What are the disadvantages of the large-scale automation for management and control?
Particular considerations	Trade-offs and dilemmas?
	Are there any significant choices or “tipping points”?
Examples	Illustrative examples?

5. Management and control	
Other	Other relevant topics?

6. Good administration	
Introduction	<p>Broad understanding of administrative law and good administration, i.e., legislation, rules, and softer norms: What comes to mind?</p> <p>Can some of the themes be related to the work of the agency [purpose is to "open up" new themes and not to categorise what has already been said]?</p> <ul style="list-style-type: none"> • Non-erroneous decisions <ul style="list-style-type: none"> • More accurate assessment with new system? • Precision (vs. transparency)? <p>Respecting individual integrity</p> <ul style="list-style-type: none"> • [Relevant topics?] <p>Themes</p> <ul style="list-style-type: none"> • Professional administration <ul style="list-style-type: none"> • Property assessment professionalism or ICT professionalism among staff? • Trustworthy <ul style="list-style-type: none"> • Transparency (vs. precision) • Access to [comprehensive] information vis the "assessment portal" (citizen portal)? • [Lack of] link to property tax calculation itself? • Responsive: <ul style="list-style-type: none"> • How is feedback from citizens collected and used?

6. Good administration	
	<ul style="list-style-type: none"> • Empowering: <ul style="list-style-type: none"> • Opportunities for citizens to "act" on the basis of insights from the "assessment portal", etc.? • The citizens ability to correct data, including other's data?
Supports	Strengths of automated decision-making in relation to good administration
Challenges	Disadvantages of automated decision-making in relation to good administration
Other	Other relevant themes? Dilemmas or trade-offs?

7. Closing	
Reflections	What should I have asked? Did something come up during the interview?
Regulations	[Has any relevant regulations, rules, etc., been mentioned?]
Internal guidelines	[Has any relevant internal guidelines, etc., been mentioned?]
Reports, etc.,	[Has any relevant reports, etc., been mentioned?]
Other	If you come to think about other issues, documents, etc., please let me know.
Upcoming events	[Has any relevant events, etc., been mentioned?]
Relevant colleagues	Who else will it be interesting for me to speak with?

Immediate reflections and follow-up	
Own reflections	To be described immediately after the interview

APPENDIX III. EXAMPLE OF LETTER OF UNDERSTANDING

This appendix contains an anonymised example of a letter of understanding given to one of the administrative bodies participating in the case-study presented in article 5. All letters are identical in content but have minor differences due to preferences from the participating administrative bodies.

*** **

Letter of understanding regarding participation in case-study

This letter of understanding contains a description of [name of administrative body] participation in a case-study in relation to the PhD project “Management, Organisation, and the Age of Digital Government” (preliminary title).

1. Background

- 1.1. The purpose of the case-study is to shed light on connections between semi/fully automated, administrative decision-making, management, and good administration in a real-life organisational context among Danish administrative bodies.
- 1.2. 3-4 qualitative case studies are carried out. Each includes existing or planned application of semi-/fully automated, administrative decision-making in a given policy area in an administrative body.
- 1.3. The case investigations are expected to include administrative bodies in two policy areas at the municipal level and in two policy areas at the national level.
- 1.4. The overall case-study is a central part of the project’s elucidation of how and to what extent fundamental values of good administration must be adapted to use of advanced technology.

2. Purpose and data sources

- 2.1 The ambition of this project is to shed light on the topics and issues that administrative bodies encounter while using semi-/fully automated decision-making in relation to the [name of automated decision system] and good administration. This includes how the bodies handle these aspects organisationally and managerially.

2.2 The case-study is planned to be conducted via:

- Interviews with select key persons in and around the administrative body
- Access to relevant documents etc. (system documentation, contracts, minutes, etc.)
- Observations of experience meetings, case processing, etc.

3. *Confidentiality and publication*

- 3.1 The basis for scientific work is open as a starting point, but transcripts of interviews will be anonymised as needed. Similarly, selected documents can be shared for ‘confidential background’ as agreed between the parties in this letter of understanding.
- 3.2 The overall results will be published in the final PhD thesis, via scientific articles and via conventional dissemination activities.
- 3.3 Prior to interviews the interviewee is always informed about the framework for the project as well as procedures of data processing.
- 3.4 Collected data (interviews, documents, etc.,) are kept confidential. They are kept for a period of up to 5 years after the end of the study for publication purposes.
- 3.5 Personal data and/or confidential data about citizens and firms who are addressees of the administrative body and are obtained through, for example, observational studies are treated confidentially and are not included in the case-study.
- 3.6 The case-study is only expected to include the collection of personal data to a very limited extent. If this is the case, this data is always stored and handled in accordance with current rules regarding appropriate technical and organisational security.

4. *Knowledge sharing*

- 4.1 The research is based on the idea of ‘engaged scholarship’ and aims to provide both research-based feedback to participating organisations and operational results to the administrative body (scope to be agreed on)
- 4.2 After the project is completed, [name of administrative body] has rights to the results of its contribution to the project regardless of if the information has been published or not. Published results etc., will be shared with [name of administrative body] for knowledge sharing usage.

5. *Other*

- 5.1 It is proposed that the authority appoints a contact person so that specific activities, etc., can be planned with this person.
- 5.2 The overall PhD project is a partnership between Aalborg University and KOMBIT. KOMBIT has no special access to the data collected.
- 5.3 The PhD project is supervised by Professor Morten Balle Hansen, Department of Politics and Society, Aalborg University and Professor Sten Bøsing, Department of Law, Aalborg University.
- 5.4 The research is carried out within the framework of 'Danish Code of Conduct for Research Integrity' and 'Guidelines for Promoting of Responsible Research Practice' at the Faculty of Social Sciences at Aalborg University.

APPENDIX IV. REGULATIONS AND NORMS OF GOOD ADMINISTRATION (EXAMPLES)

This appendix contains three examples of available lists of regulations and norms of good administration. The examples have been chosen based on their approximate comprehensiveness in order to describe the breadth in broadly accepted understandings of regulations and norms of good administration across administrative traditions and jurisdictions in the so-called Western World.

Council of Europe

The following list of regulations and norms stems from Recommendation CM/Rec(2007)7 of the Committee of Ministers to member states on good administration adopted by the Council of Europe (2007)²⁷.

Efficiency, effectiveness and value for money

- [Public authorities shall] ensure that objectives are set and performance indicators are devised in order to monitor and measure, on a regular basis, the achievement of these objectives [...].
- [They shall] [...] regularly check, within the remit of the law, whether their services are provided at an appropriate cost and whether they shall be replaced or withdrawn.
- [They shall] [...] seek the best means to obtain the best results.
- [They shall] conduct appropriate internal and external monitoring of the administration and the action of its public officials.

Principle of lawfulness (art. 2)

- Public authorities shall act in accordance with the law. They shall

not take arbitrary measures, even when exercising their discretion.

- They shall comply with domestic law, international law and the general principles of law governing their organisation, functioning and activities.
- They shall act in accordance with rules defining their powers and procedures laid down in their governing rules.
- They shall exercise their powers only if the established facts and the applicable law entitle them to do so and solely for the purpose for which they have been conferred.

Principle of equality (art. 3)

- Public authorities shall act in accordance with the principle of equality.
- They shall treat private persons who are in the same situation in the same

²⁷ Only elements of the recommendation reflecting the concepts of regulations and norms as defined in chapter 3 of this thesis have been included. Introductory text, definitions etc. have been excluded, with the exception of the principle of “efficiency, effectiveness and value for money” which is included.

way. They shall not discriminate between private persons on grounds such as sex, ethnic origin, religious belief or other conviction. Any difference in treatment shall be objectively justified.

Principle of impartiality (art. 4)

- Public authorities shall act in accordance with the principle of impartiality.
- They shall act objectively, having regard to relevant matters only.
- They shall not act in a biased manner.
- They shall ensure that their public officials carry out their duties in an impartial manner, irrespective of their personal beliefs and interests.

Principle of proportionality (art. 5)

- Public authorities shall act in accordance with the principle of proportionality.
- They shall impose measures affecting the rights or interests of private persons only where necessary and to the extent required to achieve the aim pursued.
- When exercising their discretion, they shall maintain a proper balance between any adverse effects which their decision has on the rights or interests of private persons and the purpose they pursue. Any measures taken by them shall not be excessive.

Principle of legal certainty (art. 6)

- Public authorities shall act in accordance with the principle of legal certainty.
- They may not take any retroactive measures except in legally justified circumstances.
- They shall not interfere with vested rights and final legal situations except where it is imperatively necessary in the public interest.
- It may be necessary in certain cases, in particular where new obligations are imposed, to provide for

transitional provisions or to allow a reasonable time for the entry into force of these obligations.

Principle of taking action within a reasonable time limit (art. 7)

- Public authorities shall act and perform their duties within a reasonable time.

Principle of participation (art. 8)

- Unless action needs to be taken urgently, public authorities shall provide private persons with the opportunity through appropriate means to participate in the preparation and implementation of administrative decisions which affect their rights or interests.

Principle of respect for privacy (art. 9)

- Public authorities shall have respect for privacy, particularly when processing personal data.
- When public authorities are authorised to process personal data or files, particularly by electronic means, they shall take all necessary measures to guarantee privacy.
- The rules relating to personal data protection, notably as regards the right to have access to personal data and secure the rectification or removal of any data that is inaccurate or shall not have been recorded, shall apply to personal data processed by public authorities.

Principle of transparency (art. 10)

- Public authorities shall act in accordance with the principle of transparency.
- They shall ensure that private persons are informed, by appropriate means, of their actions and decisions which may include the publication of official documents.
- They shall respect the rights of access to official documents according to the

rules relating to personal data protection.

- The principle of transparency does not prejudice secrets protected by law.

Initiation of administrative decisions (art. 12)

- Administrative decisions can be taken by public authorities either on their own initiative or upon request from private persons.

Requests from private persons (art. 13)

- Private persons have the right to request public authorities to take individual decisions which lie within their competence.
- Decisions in response to requests to public authorities shall be taken within a reasonable time which can be defined by law. Remedies for cases where no such decision has been taken should be foreseen.
- When such a request is made to an authority lacking the relevant competence, the recipient shall forward it to the competent authority where possible and advise the applicant that it has done so.
- All requests for individual decisions made to public authorities shall be acknowledged with an indication of the expected time within which the decision will be taken, and of the legal remedies that exist if the decision is not taken. An acknowledgement in writing may be dispensed with where public authorities respond promptly with a decision.

Right of private persons to be heard with regard to individual decisions (art. 14)

- If a public authority intends to take an individual decision that will directly and adversely affect the rights of private persons, and provided that an opportunity to express their views has

not been given, such persons shall, unless this is manifestly unnecessary, have an opportunity to express their views within a reasonable time and in the manner provided for by national law, and if necessary with the assistance of a person of their choice.

Right of private persons to be involved in certain non-regulatory decisions (art. 15)

- If a public authority proposes to take a non-regulatory decision that may affect an indeterminate number of people, it shall set out procedures allowing for their participation in the decision-making process, such as written observations, hearings, representation in an advisory body of the competent authority, consultations and public enquiries.
- Those concerned in these procedures shall be clearly informed of the proposals in question and given the opportunity to express their views fully. The proceedings shall take place within a reasonable time.

Contribution of private persons to costs for administrative decisions (art. 16)

- Costs, if payable by private persons to public authorities in respect of administrative decisions, shall be fair and reasonable.

Form of administrative decisions (art. 17)

- Administrative decisions shall be phrased in a simple, clear and understandable manner.
- Appropriate reasons shall be given for any individual decision taken, stating the legal and factual grounds on which the decision was taken, at least in cases where they affect individual rights.

Publication of administrative decisions (art. 18)

- Administrative decisions shall be published in order to allow those concerned by these decisions to have an exact and personal notification or it may be general in nature.
- Those concerned by individual decisions shall be personally notified except in exceptional circumstances where only general publication methods are possible. In all cases, appeal procedures including time limits shall be indicated.

Entry into force of administrative decisions (art. 19)

- Administrative decisions shall not take effect retroactively with regard to a date prior to their adoption or publication, except in legally justified circumstances.
- Except in urgent cases, administrative decisions shall not be operative until they have been appropriately published.

Execution of administrative decisions (art. 20)

- Public authorities shall be responsible for the execution of administrative decisions falling within their competence.
- An appropriate system of administrative or criminal penalties shall, in principle, be established to ensure that private persons comply with the decisions of the public authorities.
- Public authorities shall allow private persons a reasonable time to perform the obligations imposed on them, except in urgent cases where they shall duly state the reasons for this.
- Enforced execution by public authorities shall be expressly prescribed by law. Private persons subject to the execution of a decision are informed of the procedure and of the reasons for it.
- Enforced execution measures shall be proportionate.

Changes to individual administrative decisions (art. 21)

- Public authorities can amend or withdraw individual administrative decisions in the public interest if necessary, but, in doing so, they should have regard to the rights and interests of private persons.

Appeals against administrative decisions (art. 22)

- Private persons shall be entitled to seek, directly or by way of exception, a judicial review of an administrative decision which directly affects their rights and interests.
- Administrative appeals, prior to a judicial review, shall, in principle, be possible. They may, in certain cases, be compulsory. They may concern an appeal on merits or an appeal on the legality of an administrative decision.
- Private persons shall not suffer any prejudice from public authorities for appealing against an administrative decision.

Compensation (art. 23)

- Public authorities shall provide a remedy to private persons who suffer damages through unlawful administrative decisions or negligence on the part of the administration or its officials.
- Before bringing actions for compensation against public authorities in the courts, private persons may first be required to submit their case to the authorities concerned.
- Court orders against public authorities to provide compensation for damages suffered shall be executed within a reasonable time.
- It shall be possible, where appropriate, for public authorities or private persons adversely affected to issue legal proceedings against public officials in their personal capacity.

Swedish Agency for Public Management

The following list of regulations and norms stems from a report prepared by the National Swedish Agency for Public Management in 2005 to support the ambition of the Swedish government at the time to promote a law on good administration for the European Union. The list is based on a synthesis of relevant regulations and norms in the Charter of Fundamental Rights of the European Union and the Code of Good Administrative Behaviour of the European Union. The report stresses that the list should be seen as a "reasonable minimum selection [of regulations and norms of good administration] based on practical rather than principled concerns" that is "embraced by a majority of member states" of the European Union (Swedish Agency for Public Management, 2005, pp. 16).²⁸

Charter of Fundamental Rights

- The obligation to handle affairs of citizens impartially and fairly (art. 41.1)
- The obligation to handle affairs of citizens within a reasonable time (art. 41.1)
- The obligation to hear citizens before any individual measure is taken that would affect the citizen adversely (art. 41.2)
- The obligation to give access to citizens' files regarding any individual measure that would affect him or her (art. 41.2)
- The obligation to state reasons in writing for all decisions (art. 41.2)
- The obligation to provide access for natural or legal persons to documents of official institutions, bodies, offices and agencies (art. 42).
- The obligation to be serviceminded (Article 12)
- The obligation to give an indication of remedies available to all persons concerned (Article 19)
- The obligation to notify all persons concerned of a decision (Article 20)
- The obligation to keep registers (Article 24)
- The obligation to document administrative processes (Article 24).

Code of Good Administrative Behaviour

- The obligation to act in accordance with law (lawfulness) (Article 4)
- The obligation not to discriminate among citizens (non-discrimination) (Article 5)
- The obligation to act proportionally in accordance with the objectives of activities (proportionality) (Article 6).

²⁸ The regulations and norms are described in heterogenous forms in the original report. They have here been phrased as obligations for administrative bodies.

English Local Government and Social Care Ombudsman

The following list of regulations and norms stem from the publication “Principles of good administrative practice” by the Local Government and Social Care Ombudsman in England most recently published in 2018. Similar obligations have been applied across other ombudsman institutions in Great Britain (Local Government and Social Care Ombudsman, 2018).

1. Getting it right

- Following the law and taking the rights of those concerned into account
- Following the organisation’s policy and guidance
- Taking proper account of established good practice
- Providing effective services, using appropriately trained and competent staff
- Taking reasonable, timely decisions, based on all relevant considerations

2. Being service-user focused

- Ensuring people can access services easily, including those needing reasonable adjustments
- Informing service users what they can expect and what the organisation expects of them
- Keeping to commitments, including any published service standards
- Dealing with people helpfully, promptly and sensitively, taking account of their individual circumstances
- Responding to service users’ needs flexibly and, where appropriate, coordinating a response with other service providers
- Recognising and respecting the diversity of service users and adopting an inclusive approach

3. Being open and accountable

- Being open and clear about policies and procedures and ensuring information, and any advice provided, is clear, accurate and complete

- Stating the criteria for decision making and giving reasons for decisions
- Handling information properly and appropriately
- Keeping proper and appropriate records
- Taking responsibility for actions

4. Acting fairly and proportionately

- Being impartial and treating people with respect and courtesy
- Treating people without unlawful discrimination or prejudice, and ensuring no conflict of interests
- Dealing with people and issues objectively and consistently
- Ensuring decisions and actions are proportionate, appropriate and fair

5. Putting things right

- Acknowledging mistakes and apologising where appropriate
- Putting mistakes right quickly and effectively
- Providing clear and timely information on how and when to appeal or complain
- Operating an effective complaints procedure, which includes offering a fair and appropriate remedy when a complaint is upheld

6. Seeking continuous improvement

- Reviewing policies and procedures regularly to ensure they are effective
- Asking for feedback and using it to improve services and performance
- Ensuring the organisation learns lessons from complaints and uses

them to improve services and performance

ARTICLES

Article 1.....173

“Understanding Automated Decision-making in the Public Sector: A Classification of Automated, Administrative Decision-Making”

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Article 2.....207

“Automated, Administrative Decision-Making and Good Governance: Synergies, Trade-offs and Limits”

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Article 3.....257

“Automated Decision-Making and Good Administration: Views from Inside the Government Machinery”

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Article 4.....301

“Public Authorities, Digitalization and Good Administration: Is the Law Adequate? Does it Prevail?”

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Article 5.....335

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ARTICLE 1

UNDERSTANDING AUTOMATED DECISION-MAKING IN THE PUBLIC SECTOR: A CLASSIFICATION OF AUTOMATED, ADMINISTRATIVE DECISION-MAKING

Ulrik B. U. Roehl

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UNDERSTANDING AUTOMATED DECISION-MAKING IN THE PUBLIC SECTOR: A CLASSIFICATION OF AUTOMATED, ADMINISTRATIVE DECISION-MAKING

ABSTRACT

Service automation in the public sector is applied to a range of different activities that include policy development, administrative decision-making and public service delivery. This chapter focusses on the use of automated, administrative decision-making and conceptualises a classification of six ideal types ranging from Minimal automation to Autonomous decisions. Each type describes a configuration of decision authority between civil servants and algorithmic systems which illustrates how the use of advanced technology does not exist independent of its users and contextual factors. The classification allows new empirical sensitivities to be applied to applications of automated administrative decision-making that go beyond basic differentiations of semi- and fully automated decisions. It emphasises the need to understand empirical instances of automated decisions-making usage as ambiguous and often consisting of several ideal types of use. The chapter provides a basis for the understanding of consequences of automated administrative decision-making in the public sector. The classification furthermore supports informed choices among practitioners of appropriate IT-system design and test as well as choices of appropriate professional and management practices in relation to automated administrative decision-making.

1 INTRODUCTION

Service automation in the public sector is applied to a range of different activities such as policy development, public service delivery, internal management and administrative decision-making. Each activity shares common traits and is characterised by particularities of use and technology. This chapter focusses on semi- and fully automated administrative decision-making (AADM¹) utilised by public administrative bodies. AADM is here defined as administrative decision-making

¹ “ADM” is a common abbreviation for automated decision-making; “AADM” is used in this chapter to emphasise the focus on automated administrative decision-making as a particular type of automated decision-making.

being partly or fully based on automated outputs generated by algorithmic systems that incorporate relevant regulation of a given policy area.

Administrative decision-making is the unilateral determination by public administrative bodies regarding what is or what shall be lawful in specific cases. This determination is based on both attributes and relevant legislation and made in relation to an individual citizen or firm. Globally, millions of such decisions are taken every day in policy areas such as administration of traffic offences, allocation of grocery market stalls, taxation, social security benefits and child abuse prevention. Empirically, it is widely assumed that the use of AADM has increased in the public sector due to technological advances and will continue to do so.

Automated decision-making including AADM has been discussed by multiple authors in terms of, for example, efficiency (e.g., Vogl et al., 2020), quality (e.g., Kuziemski & Misuraca, 2020), accountability (e.g., Smith et al., 2010), transparency and judicial review (e.g., Cobbe, 2019), professional discretion (e.g., Buffat, 2015), norms of civil servants (e.g., Wihlborg et al., 2016) and role of system designers (e.g., Zouridis et al., 2020). Most of those studies refer to intuitive but simplified categories of automated decision-making based on a 3-fold differentiation between no automation, semi-automated decision-support and fully auto- mated decision-making.

While the contributions offer important understanding regarding consequences of automation, the understanding of AADM tends to be simple, and studies are often derived from formal understandings of technology instead of its actual use in organisational settings (Peeters, 2020). This jeopardises comparisons of AADM usage due to a lack of common and precise definitional base. These contributions do not cast much light on “areas in between” the three simplified categories although those areas have been pointed out as important for future research (Busch & Henriksen, 2018; Lange et al., 2019). This tendency further risks leading to methodological inconsistencies as constructivist approaches to technological use are often accompanied by more deterministic approaches to technology itself.

Asking how to best conceptualise AADM usage in order to understand its wider consequences for the public sector and society, a fine-grained classification of six ideal types of use of AADM is suggested. Drawing on key references within the academic disciplines of Public Administration, Decision-support Systems and Science & Technology Studies, each type describes a configuration of decision authority between civil servants and algorithmic systems.

The chapter is based on an understanding of empirical applications of AADM as examples of wider algorithmic systems being grouped together by combinations of multiple systems, government databases, citizen portals and network components (Nevo et al., 2009; Stoudt-Hansen et al., 2020). Such systems include, but are not limited to, techniques such as robotic process automation, rule-based (expert) models,

regression, big data, predictive analytics, machine learning and neural networks which are accessed by civil servants through the operation of smart phones, tablets, websites, office applications and case management systems (see Busch & Henriksen, 2018, for use of some of the latter applications).

Primarily due to technological progress, some authors have argued that the role of individual civil servants in administrative decision-making is “doomed” in the long run (Zouridis et al., 2020). Nonetheless, this chapter is based on a belief that different configurations of shared decision authority between civil servant and algorithmic systems will be with us for a long time due to technological, organisational, political and ethical issues.

The chapter builds on broad sociotechnical understandings of humans and technology and stresses how technology frames human possibilities for action but does not determine the action (Lips, 2020; Plesner & Husted, 2020). Each configuration of decision authority thus illustrates how technology usage does not exist independent of its users and cultural context around it and thereby further explore this volume’s underlying combination of social and technical perspectives. Rather than implying an inevitable development towards fully automated administrative decision-making, the classification allows for understandings of multiple co-existing empirical types of AADM usage and stresses the importance of civil servants’ sensemaking and interpretations as well as cultural context.

Contributing to emerging literature on automated decision-making and public service automation, the chapter provides for new sensitivities to empirical applications beyond the basic differentiations of no automation, semi-automated decision-support and fully automated decision-making. The suggested classification has practical relevance by helping to identify and understand similarities and differences in the use of AADM across organisational settings and policy areas thereby supporting informed choices of appropriate system design and test as well as choices of appropriate professional and management practices in relation to AADM usage. The chapter proceeds as follows. Firstly, the concept of administrative decision-making is explored in detail including current literature on the automation of such decisions. This is followed by a discussion of the methodological basis of the suggested classification and a review of relevant, existing definitions, classifications and typologies. The main part of the chapter is the development and discussion of the proposed classification. Before concluding, the usefulness of the classification for practice and future research is discussed.

2 AUTOMATED ADMINISTRATIVE DECISION-MAKING

Administrative decision-making is the everyday activity of public sector bureaucracies and involves a large number of civil servants and case workers within

the executive branch at all levels of government worldwide.² It is here understood as the unilateral determination by a public administrative body - through a formal decision, administrative act or adjudication³ - of what is or what shall be lawful in specific cases based on its attributes and relevant statutory regulation (including possible underlying legislative guidance) and in relation to an individual citizen, a firm or a group of those (Mashaw, 2007; Stelkens, 2020).

A distinctive characteristic of administrative decision-making compared to other types of service automation in the public sector is the surrounding legal framework. Specifically, while the decisions themselves are based on specific statutory regulation such as a clean air act (and subjacent government orders, etc.), administrative decision-making takes place within a procedural, legal framework in terms of administrative legislation and standards of good administration which emphasises elements such as due process, contradictory procedures, accountability, obligation of reason giving, equality of treatment and the principle of proportionality (Bell, 2006; Widlak et al., 2021). It follows that administrative decision-making is often based on specific and rather strict procedural requirements with the administrative decision being “the end point” (Eberle, 1984) of the decision-making process.

What particularly signifies administrative decisions is their individual, “definite” legal character (with the possibility for later modification via formal complaint, review and appeal procedures). Following case-handling steps, the decision settles a case by determining what is or what shall be lawful for the involved parties based on relevant statutory regulation.

Administrative decision-making covers an extensive spectrum of activities: some beneficial to the individual (e.g., decisions to grant unemployment benefit or children benefits) and some restrictive (e.g., denial of permission to build a house or denial of parole). While some administrative decisions are not particularly important, many have serious consequences concerning, for example, eligibility for social security benefits or limits on firms’ environmental emissions.

The complexity of administrative decision-making differs from simple decisions on speeding fines primarily based on a single attribute (speed of the driving vehicle) and one legal aspect (speeding limits) to more complex decisions such as the assessment of permitted emissions of hazardous pollutants from an industrial polluter based on

² “Civil servant” is used as a term for case workers, case managers, adjudicators and other officials who are responsible for administrative decisions. In addition and for sake of ease, the singular “civil servant” is used although often it is empirically more correct to speak of civil servants in plural.

³ Although frameworks of administrative law vary across legal traditions, the concept of administrative decisions is generic and known under headings such as “acte administratif individuel” (Francophone tradition); “Verwaltungsakte” (German tradition); and “förvaltningsbeslut”/”-afgørelse”/”-vedtak” (Scandinavian tradition).

clean air legislation. These decisions are based on multiple attributes of the case as well as several legal aspects.

Herbert A. Simon's (1960) classic categories of decisions illustrate this. He argues that decisions range from highly structured to semi-structured and highly unstructured decisions. Structured decisions refer to routine and repetitive problems for which solutions are well known, while unstructured decisions are unclear and characterised by no obvious solutions. Semi-structured decisions occur when some (but not all) elements are structured (Averweg, 2010).

In his work, Simon (1960) establishes three generic phases of decision-making which can be approximately applied to administrative decision-making. In the first phase (intelligence), data relevant to the decision is compiled and assessed. In the second phase (design), possible courses of action are developed, and in the third phase (choice), a particular course of action is chosen. Simon (1960) points out the phases are not necessarily linear just as they might be more or less formalised. Most administrative decision-making will build on rather formalised phases: An initial assessment of the attributes of the case in question; secondly, a series of procedural steps to develop possible decisions; and lastly the application of statutory regulation to the individual case in order to reach the actual administrative decision.

Combining Simon's concepts, it is possible to imagine administrative decisions which differentiate in terms of complexity across the three phases. In general, most administrative decisions are structured or semi-structured as their statutory basis to some extent stipulates the attributes to be taken into account, the necessary procedural steps to be taken and the range of possible decisions to be considered. Related to the complexity of administrative decisions is the scope of administrative discretion of the civil servant (Rosenbloom et al., 2010). All other things being equal, the more complex the decision is, the more likely the need for administrative discretion.

Empirically, it is widely assumed that the automated administrative decision-making usage has increased in the public sector due to technological advances. A report released by the Swedish National Audit Office in 2020 counted 112 automated decision processes within 13 Swedish central government agencies. In total, an estimated 137 million annual automated administrative decisions were made, of which 121 million were fully automated (Riksrevisionen, 2020). Generally though, few quantitative assessments of the extent of AADM usage exist.

Researchers have instead used case studies to explore the AADM usage. Appendix details 10 exemplary studies of AADM usage which show variation across policy areas and national settings. These studies include both semi- and fully automated administrative decision-making within areas such as minor traffic offences, correctional services, child protection, driving license permits and social security benefits in Australia, Europe, and the USA.

Despite their increasing number and empirical variation, such studies seldomly carry information on technological usage beyond the above-mentioned, simplified 3-fold differentiation. These studies seldomly describe the distribution of decision authority between civil servants and technology or the mutual influence between the latter two. Although most authors are careful to state the scope of their claims, a reader can be led to the conclusion that fully automated decision-making based on big data and artificial intelligence is the new normal, serving as an inevitable reference point for AADM usage. Read carefully, however, the studies reveal different patterns of AADM usage as well as algorithmic systems including different combinations of specific techniques.

3 METHODOLOGICAL BASIS

This chapter is conceptual and proposes new links across disciplines and associations that refine how to consider technology usage in administrative decision-making among administrative bodies in the public sector. AADM usage is what Jaakkola (2020) calls the focal phenomenon of the suggested classification. Instead of an empirical-based study or test of the new links, this chapter focusses on developing logical and comprehensive arguments (Gilson & Goldberg, 2015) and organising existing research into common distinct types (Jaakkola, 2020) via a classification. Classifications are the result of a process of "...ordering entities into groups or classes on the basis of similarity" (Bailey, 1994). They serve as a tool for the advancement of research including the development of theories (Nickerson et al., 2013, building upon Iivari, 2007).

The classification developed here was inspired by the abductive method suggested by Nickerson et al. (2013). Based on knowledge of relevant literature as well as empirical instances of AADM usage, the process started with the identification of the configuration of decision authority between civil servants and algorithmic systems as the key differentiator of AADM usage which served as the "meta-characteristic" of the classification (Nickerson et al., 2013).

A structured literature search was then performed to identify possible existing classifications, typologies and taxonomies of automated decision-making, algorithmic decision-making, data-driven decision-making, decision-support systems and similar concepts (search terms consisted of variations of "classification" and "automated decision-making", respectively). Mirroring a deductive process - termed a conceptual-to-empirical approach by Nickerson et al. (2013) - this resulted in the initial, preliminary description of six ideal types. The search was performed through "Scopus" and "Web of Science" across English language sources in the categories of computer science, business, management & accounting and social sciences. No existing classification, typology or taxonomy of AADM or of AADM usage were identified. Instead, several generic classifications as well as classifications within

particular contexts were identified and used as inspiration for the suggested classification.

Existing empirical and theoretical studies were scanned for explicit (e.g., Bovens & Zouridis, 2002) or implicit (e.g., Sun & Medaglia, 2019) descriptions of different types of AADM or different types of AADM usage. Through this inductive, empirical-to-conceptual approach (Nickerson et al., 2013), the six ideal types of the classification were further elaborated just as the understanding of the configuration of decision authority as the key differentiator was refined.

Clear principles on how to assess the validity of conceptual work within the social sciences are scarce. Even so, the proposed classification can be assessed based on what researchers have pointed to as qualities and advantages of conceptual work. Condensing the suggestions of Bailey (1994) and Nickerson et al. (2013) into four such criteria, the validity and usefulness of the classification will be discussed in section 6 of the chapter.

A final methodological note: the classification consists of ideal types and build on the tradition of Max Weber (1904/2012). Ideal types are constructs and not empirical entities (Bailey, 1994). While the six ideal types are “empirically plausible” and constructed to be the clearest illustrations of empirical instances of AADM usage, they are by principle unlikely to match any specific, empirical example of AADM usage in detail.

4 INSIGHTS FROM EXISTING DEFINITIONS, CLASSIFICATIONS AND TYPOLOGIES

In 1977, Steven Alter suggested seven generic categories of so-called decision-support systems which have been particularly influential in the academic field of Decision-support Systems (Power, 2007). Alter’s category of systems, based on suggestions models, is a good starting point for understanding AADM and highlights the centrality of decisions. Systems as discussed by Alter “perform mechanical work leading to a specific suggested decision for a fairly structured task” (Alter, 1977, p. 42) and are based on “specialized problem-solving expertise” within a particular domain (Power, 2004, p. 162).

Only a handful authors have attempted to define or describe AADM (including similar concepts such as administrative algorithmic decisions) more precisely. Some of those definitions have focused on technology and particularly stress the use of machine learning techniques (Cobbe, 2019; Oswald, 2018). Conversely, functional definitions stress how AADM includes the automated compilation, processing and application of information as the basis of administrative decisions. Of the latter, some suggestions are broad and hardly include particular characteristics of administrative decision-making (Schuilenburg & Peeters, 2021), while others stress the importance of

administrative decisions being based on statutory regulation and agency guidance and procedures (Hogan-Doran, 2017; Widlak et al., 2021; Wihlborg et al., 2016).

A few authors point to roles of civil servants and algorithmic systems exemplifying different configurations of responsibility (Widlak et al., 2021; Wihlborg et al., 2016) which mirrors Alter's (1977) more general emphasis on the "degree of action implication of system outputs (i.e., the degree to which the system's output could directly determine the decision)" as a key variable.

There seems to be growing consensus in academia that instances of AADM can be placed on a continuum of automation from automation which provides different types of guidance to the civil servant to fully automated decision-making which leaves no role for the civil servant. The two basic end points of this continuum are somehow mirrored by the popular phrases of the human operator being either "in" or "out" of the decision-loop⁴ which points to the basic concepts of semi and fully automated decisions described early in the chapter.

To develop the proposed classification, the following subsections will discuss five existing classifications and typologies of automation in public administrative settings and beyond as presented in Table 1. The table maps the classifications according to the simplified 3-fold differentiation as shown in the left column. Taken together, it is possible to shed valuable light on the aforementioned automation continuum. It is important to note that the classifications are not - despite the seemingly orderly appearance of the table - fully comparable due to differences in definitions, focal phenomena, ontology and epistemology.

⁴ Originating in relation to autonomous weapon systems, industrial production, etc., and occasionally mentioned as a theoretical possibility in discussions of automated decision-making in the public sector, it is also possible for the human operator to be 'on' the loop. This implies the operator is supervising the fully automated decision-making with the ability to stop it within a given timeframe (Hauptman, 2013). Empirical instances of the "on"-type in relation to administrative decision-making seem to be very few or non-existent.

Simplified type	Bovens & Zouridis (2002)	ORAD Committee (2021)	Parasuraman et al. (2000)	Bader & Kaiser (2019)	Lange et al. (2019)
<i>Approach</i>	<i>Technology-centred</i>			<i>Sociotechnical</i>	
Focal phenomenon	Administrative decision-making in large executive agencies	Driving automation of motor vehicles	Human interaction with automation (generic)	AI-based decision-making in call-centre	AI-based high-frequency trading.
No automation	Street-level bureaucracy	No driving automation	Not covered	Not covered	Not covered
Semi automated decision-support ("in-the-loop")	Screen-level bureaucracy	Driver assistance	Information acquisition	High user involvement; attachment to decision Low user involvement; detachment from decision	Algorithms as objects
		Partial driving automation	Information analysis		Algorithms as quasi-objects
			Action and decision selection		Algorithms as quasi-subjects
Fully automated decision-making ("out-of-the-loop")	System-level bureaucracy	Conditional driving automation	Action implementation	Not covered	Algorithms as subjects
		High driving automation			
		Full driving automation			

Table 1: Overview of existing classifications and typologies (explicit or implicit) of automation. Types are not fully comparable across sources. "AI-based" denotes automated decision-making particularly based on artificial intelligence techniques.

4.1 TECHNOLOGY-CENTRED UNDERSTANDINGS

In 2002, Bovens and Zouridis introduced a differentiation between "street-level", "screen-level" and "system-level" bureaucracies in what the authors called large, public "decision-making factories". This mirrors the basic 3-fold differentiation between no automation, semi-automated decision-support and fully automated decision-making and is the explicit or implicit departing point for many studies regarding automated decision-making in the public sector including specific studies of AADM (Bannister & Connolly, 2020, for example, use the terms "passive" and "active" algorithms mirroring the latter two categories).

Looking beyond analyses of decision-making in the public sector, work on self-driving vehicles can serve as further inspiration. The global engineering association,

SAE International, has developed a standard of such vehicles (On-Road Automated Driving (ORAD) Committee, 2021) and maps six types of automation. What is interesting here is the fine-grained nature of the standard. Besides an initial type of no automation, the classification's "Driver assistance", "Partial driving automation" and "Conditional driving automation" are detailed examples of the driver gradually entrusting more responsibility to the vehicle (On-Road Automated Driving (ORAD) Committee, 2021).

Thomas B. Sheridan has worked with human–automation interaction for several decades and originally suggested a detailed classification of automation based on

10 "degrees" of automation independent of any particular type of technology (Sheridan, 1992). The classification has since been simplified to five levels (none, low, medium, high and full automation) and combined with a functional dimension of automation.⁵ In functional terms, Sheridan and his associates differentiate between (i) information acquisition; (ii) information analysis; (iii) action and decision selection and (iv) action implementation (Parasuraman et al., 2000).

"Information acquisition" describes the automated compilation and registration of data that supplement the human operator's information search and selection of a course of action. "Information analysis" describes the automated configuration and presentation of data for the human operator and supports the human interpretation of data. An example of this could be that a key parameter is above a certain threshold (e.g., the threshold being a speed limit for cars or a risk indicator for child abuse). A defining characteristic is that "information analysis" does not include any recommended courses of action.

"Action and decision selection" describes the automated selection among decision alternatives. This could, for example, be an automated system designed to perform a specific decision choice if particular conditions exist. Based on Sheridan's original classification, this selection could take several forms from automated narrowing down of multiple decision choices to a few options to automated execution of a decision after a certain timeframe if the human operator has not chosen otherwise. "Action implementation" describes situations where decisions are taken in an automated manner mirroring "fully automated" as used in this chapter (Parasuraman et al., 2000).

⁵ Parasuraman et al. (2000) suggest a two-dimensional model of function and level of automation. For sake of clarity and adaptability to administrative decision-making this has been combined to one dimension in Table 1.

4.2 SOCIOTECHNICAL UNDERSTANDINGS

The classifications discussed so far have primarily focussed on technology itself whether described as three, five or 10 “degrees” of automation. It is, therefore, meaningful to briefly consider previous work which strengthens the understanding of automated administrative decision-making usage based on broad sociotechnical understandings.

The actual use of technology is seldomly identical to the intended use. Contextual factors such as situational constellations, practical contexts, organisational structures (Lange et al., 2019), surrounding legal framework and individual traits of possible human operators affect technology usage including AADM. Peeters (2020) points out how “...bounded rationality, satisficing behaviour, automation bias and frontline coping mechanisms play a crucial role in the way humans make use of the oversight and override options built into algorithms”. Fully understanding the use of technology (including AADM) thus requires a focus on the sensemaking and interpretations surrounding the technology (Liu & Graham, 2021) and cultural context (Plesner & Husted, 2020).

Rather than fixed configurations of responsibility between civil servants and algorithmic systems according to a priori (system) design, inspiration from sociotechnical approaches gives reason to expect a mixed picture of configurations as much based on the technology as on users and contextual factors surrounding usage. It furthermore gives reason to reconsider the meaning of “use” as this concept should be understood as multiple *practices* of civil servants and others in relation to AADM rather than solely tangible commands, instructions and messages between civil servants and algorithmic systems. While these practices evolve around technology, they are not limited to it (Bailey & Barley, 2020).

In their study of the use of an automated decision-tool based on artificial intelligence techniques in a commercial call centre supporting sales activities, Bader and Kaiser (2019) emphasise how the tool gave rise to differing and dynamic forms of joint problem-solving between human operators and technology. As shown in Table 1, the authors describe a continuum between attachment to decisions based on different elements of user involvement and detachment based on “spatial and temporal separation, rational distancing, and cognitive displacement” in relation to the operations of the technology. It is important to note that use of the same technology in the same empirical setting can give rise to instances of both low and high involvement due to human operators and organisational conditions (Bader & Kaiser, 2019).

Lange et al. (2019) in their examination of high-frequency trading in financial markets provide an interesting example of classification based on different perceptions of “subject-object relations” between individual traders and what the authors call

“trading algorithms”. Via an ethnographic approach, they trace four types of practices ranging from perceiving algorithms as objects (i.e., the trader controls the algorithms) to the trader seeing her/himself as a tool for partly independent algorithms. What is interesting here is how the traders perceive themselves, and - most likely - act in relation to the technology. Rather than being able to clearly detach the role of human operators (be it trader or civil servant) from the technology, Lange et al. (2019, p. 611) suggest to “...shift the attention away from the extremes (“warm intentions” or “cold codes”) to the areas in between where both extremes merge, sometimes becoming seemingly indistinguishable”.

Based on these insights, a classification of AADM usage must allow for a thorough understanding of medium forms of automation - “the areas in between” - and perhaps even accept that practices of each individual civil servant vis-à-vis an algorithmic system can potentially be characterised by a dynamic and unique configuration of decision authority (Veale et al., 2018). In other words, the distribution of decision authority across civil servant and algorithmic system might - even when speaking of the same algorithmic system - change depending on the individual and time.

5 A CLASSIFICATION OF USE OF AUTOMATED, ADMINISTRATIVE DECISION-MAKING

Building on the previous sections, this section introduces the suggested classification of AADM usage. The classification defines six ideal types of AADM usage ranging from Minimal automation (Type A) to Automated decisions (Type E) and Autonomous Decisions (Type F) and describes an increasing reliance on automated output in the decision-making process. It is illustrated in Fig. 1 and detailed in Table 2.

It is important to stress the methodological openness of the suggested classification: the intention is to provide a tool to describe and analyse AADM usage. The classification is not a normative statement on desired levels of automation in the public sector, nor is it based on any assumption that all administrative decision-making will eventually evolve into autonomous decisions based on advanced artificial intelligence techniques.⁶

The classification is functional as it describes technology usage rather than technology itself. It follows that advanced techniques such as predictive analytics, machine

⁶ A short caveat is appropriate in relation to the illustration of the classification (Figure 1): the illustration is downward sloping towards Autonomous decisions (Type F) thereby risking indicating a negative understanding of this type of automated decision-making (i.e., towards a “digital nightmare”). Bearing the descriptive nature of the classification in mind, this is not the intention, but the sloping character has been chosen—as a matter of the lesser of two evils—to avoid the risk of indicating a positive understanding of a “digital nirvana” through an upward slope.

learning or data mining could well be enshrined in algorithmic systems of the semi-automated types of B, C and D as they are in the fully automated types of E and F.

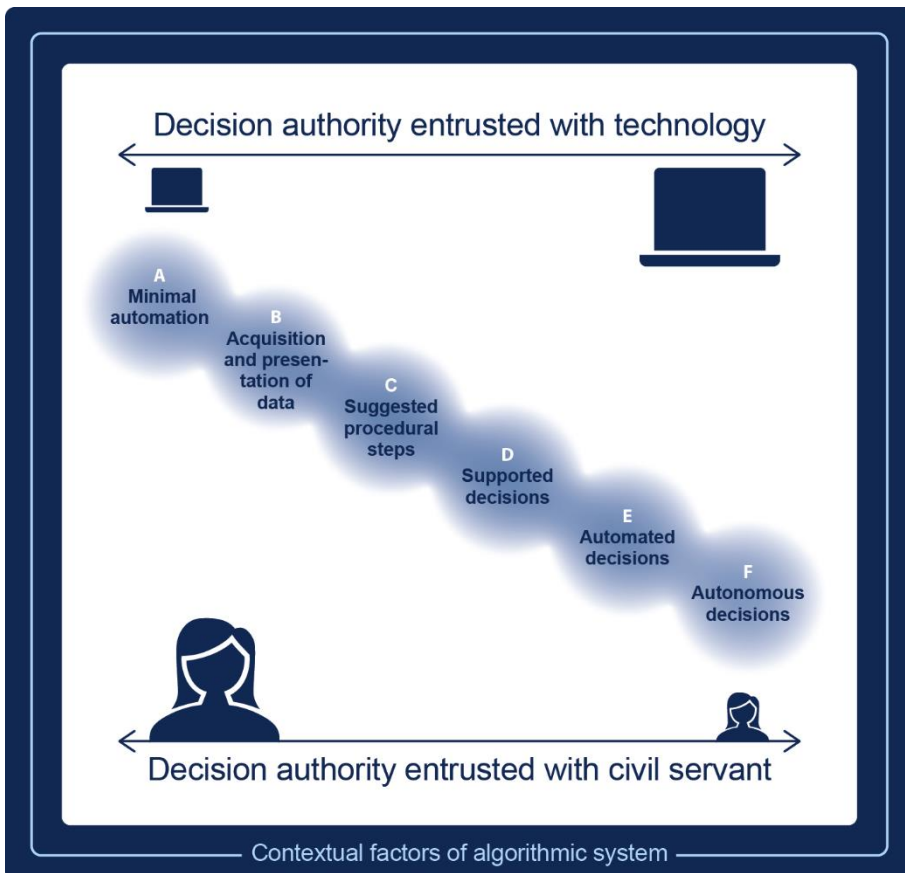


Figure 1: Illustration of classification of use of automated administrative decision-making (AADM)

The classification is a descriptive tool intended to be applied to automated, administrative decisions of *differing complexity*. Departing from the ideas of Simon (1960) outlined earlier, one can, however, predict that Automated decisions (Type E) and Autonomous decisions (Type F) are more likely to involve highly structured, administrative decisions. Moreover, Simon’s two initial decision-making phases of intelligence and design are - other things being equal - probably easier to automate than the third, choice, phase. This implies that in instances where semi-structured or unstructured administrative decisions are actually subject to automation, technology most likely has the role of compiling, registering and presenting data for the civil servant (mirroring Type B) and possibly suggesting appropriate procedural steps (mirroring Type C).

Before scrutinising the six types in greater detail, the conceptual background must briefly be considered. The classification defines ideal types each representing a configuration of decision authority between civil servants and algorithmic systems. Authority can be understood in several ways (Bourgoin et al., 2020) and is here related to the idea of authority as acceptance: authority covers the explicit or implicit “... right to decide on specified matters to a member or group of members of the organization” (Aghion & Tirole, 1997). Applied to administrative decision-making, different configurations of decision authority can be classified by the degree to which AADM usage entails the determination of the administrative decision by automated output of the algorithmic system. This mirrors the idea of different “grades” of shared responsibility between human operators and technology as discussed in the previous section.

The classification furthermore focusses on *organisational practices* in relation to AADM within a given administrative body and in a particular policy area (i.e., traffic offences or air pollution control). Instead of describing the intended or specified use of a given IT-system, the classification allows for mapping of the decision-making practices surrounding algorithmic systems. If civil servants exhibit an over-reliance on automated suggestions for decisions and are not exercising individual assessment as understood in the concept of automation bias (Cummings, 2006), organisational practices can be classified as Automated decisions (Type E) rather than Supported decision (Type D).

It is appropriate to understand AADM usage as unfolding within what some authors have referred to as *algorithmic systems* (e.g., Kellogg et al., 2020). While Seaver (2019) perceives such systems as “arrangements of people and code”, they are seen as more or less complex combinations of technologies (and not people) here. Instead of perceiving AADM usage as based on one particular IT-system and one particular technology (e.g., machine learning), civil servants operate several interfaces connected to multiple systems, databases, citizen portals and network components constituting “bureaucratic information architectures” (Peeters & Widlak, 2018) as part of the automated decision-making process. While the interfaces operated by civil servants might be stable over periods of time, the connectedness of algorithmic systems mean they are open-ended in principle and changing as tiny parts are constantly tweaked, tuned and swapped (Seaver, 2019).

5.1 SIX IDEAL TYPES OF USE OF AUTOMATED, ADMINISTRATIVE DECISION-MAKING

Table 2 further details the six types of the suggested classification. The broad 3-fold differentiation found in much of the literature is roughly mirrored in the table: no or very limited automation corresponds to Minimal automation (Type A); semi-automated decision-support corresponds to the three types B, C and D, while fully

automated decision-making corresponds to Automated decisions (Type E) and Autonomous decisions (Type F).

Simplified type	Ideal type	Description
No automation	A. Minimal automation	Civil servant has primary decision authority within the wider algorithmic system. Nearly all aspects of administrative decision-making are entrusted to civil servant and are solely supported by simple technologies such as word processing. Decision-making may be supported by written standards etc.
Semi automated	B. Acquisition and presentation of data	Civil servant and technology share decision authority within wider algorithmic system. Technology automatically compiles, registers and presents some or all data relevant to the case supplementing information acquired by civil servant. Remaining aspects are entrusted to civil servant. Decision-making may be further supported by written standards etc.
	C. Suggested procedural steps	Civil servant and technology share decision authority within wider algorithmic system. Technology automatically compiles, registers and presents some or all data relevant to the case and suggests appropriate further procedural step(s). Remaining aspects are entrusted to civil servant. Decision-making may be further supported by written standards etc.
	D. Supported decisions	Civil servant and technology share decision authority within wider algorithmic system. Technology automatically compiles, registers and presents some or all data relevant to the case and suggests a narrow range of decisions or a specific decision. Remaining aspects are entrusted to civil servant. Decision-making may be further supported by written standards etc.
Fully automated	E. Automated decisions	Technology has primary decision authority within the wider algorithmic system. All aspects are entrusted to technology and performed automatically within static, explicit input-output relations and without support of civil servant.
	F. Autonomous decisions	Technology has primary decision authority within wider algorithmic system. All aspects of administrative decision-making are entrusted to technology and performed automatically within dynamic, implicit input-output relations (based on unsupervised learning techniques) and without support of civil servant.

Table 2: Ideal types of use of automated, administrative decision-making (AADM)

Building on Table 2, it is possible to elaborate on the characteristics of the six types.

Including Minimal automation (Type A) in a classification of *automated* administrative decision-making might initially appear contradictory; however, in public administrative contexts where the classification is empirically relevant, it is unlikely to encounter administrative decision-making not supported by simple technologies such as word processing at some point. Although limited in depth and scope, simple technologies in principle also support and shape collective practices. Additionally - and this is a characteristic shared with the semi-automated types B, C and D - it is highly likely that these practices are mutually supported and shaped by written check-lists, decision-rules and regulation (referred to as “written standards” in Table 2) reminding us that technology is not the sole factor formalising behaviour and limiting discretion within administrative bodies (Schartum, 2018).

Although inspired by the work of Sheridan, it should be noted that the classification strictly differentiates between Suggested procedural steps (Type C) and Supported decisions (Type D). While the former implies the civil servant taking guidance on the appropriate processual step(s) from the technology, the latter implies the civil servant is provided with recommendations of one or more possible decisions from a group of possible decisions.

Drawing on the empirical examples in Appendix, Fahnøe (2015) discusses the use of the DUBU system in the area of child protection in Denmark. Use of this system entails that civil servants are presented with selected data and led through procedural steps in order to manually assess the needs of protected children and decide on relevant interventions (the latter representing an administrative decision). The steps are meant to ensure compliance with statutory and budgetary requirements as well as professional standards of social work. While civil servants are presented with procedural requirements and options, the system does not suggest either a range of possible decisions or specific decisions (Fahnøe, 2015) and thus approximately mirrors Suggested procedural steps (Type C).

In contrast, Engstrom and Ho (2020) discuss the use of the QDD and Insight systems for the administration of disability benefits in the USA. Among other features, the systems compile, register and present relevant data of each case and automatically assess whether the case is what the authors term an “easy grant” to be approved without further assessment. In the event of such grants, civil servants are presented with the suggestion and are then meant to review and possibly approve the decision (Engstrom & Ho, 2020) thus approximately mirroring Supported decisions (Type D).

A key differentiator of type C and D is based on the importance given to the final decision of what is or what shall be lawful in procedural, legal frameworks. Many duties of the administrative body as well as rights of the citizen or firm ultimately come into being in relation to the actual decision (e.g., obligation of reason giving) thereby clearly demarcating Suggested procedural steps (Type C) from Supported decisions (Type D).

In a similar vein, there is a fundamental difference between Supported decisions (Type D) and the two fully automated decision-making types of Automated decisions (Type E) and Autonomous decisions (Type F). The latter two describe organisational practices where the technology is relied upon to make and implement administrative decisions without any prior assessment by civil servants. As we know from other empirical settings, such practices might evolve due to routinisation and automation bias even though the technology itself needs a command from the human operator to finalise the decision-making process (Cummings, 2006, traces the history of several, high profile examples of over-reliance and automation bias). Civil servants might thus have the ability to review and override the decision at a later stage; however, the common, defining characteristic of those two types is the absence of continual, prior, human assessment meaning that the primary decision authority is entrusted with technology.

The defining difference between Automated decisions (Type E) and Autonomous decisions (Type F) is the nature of the input–output relations in the underlying decision models. Taken to the extreme, the difference has received considerable interest across disciplines, as Autonomous decisions potentially reflect fears of runaway algorithms based on advanced artificial intelligence techniques such as unsupervised learning (often contrasted to “old-fashioned” expert systems based on explicit if-then rules).

The understanding proposed here is a bit different. It is beyond doubt that machine learning and other artificial intelligence techniques which learn on the basis of patterns in data, necessitate a thorough discussion in terms of rule-of-law (Zalnieriute et al., 2019). Nonetheless it is also necessary to differentiate the degree of “intelligence” of the underlying decision models. It is entirely feasible to imagine semi-advanced decision models being inferred from historic patterns in the data by machine learning techniques but subsequently assessed and made explicit by humans before being put into operation.⁷ This would effectively lead to the sharing of many of the same characteristics as seen in advanced expert systems. It is also feasible to imagine decision models based on historic patterns so advanced that they cannot be fully assessed by humans, just as decision models might continually to develop based on emerging patterns while in operation. The defining characteristic is thus the difference between static, explicit input–output relations represented in Automated decisions (Type E) and dynamic, implicit input–output relations (often termed “features” and “categories”) represented in Autonomous decisions (Type F). Finally, a reservation related to Automated decisions (Type F) is important to note as the implicit input–output relations – the algorithmic opacity in other words (Burrell, 2016) – do not conform well with the obligation of reason given in relation to administrative

⁷ This basically describes a continuous process of “training” decision models based on previous patterns of use and/or data: it is thus also possible to envision a situation where an increased number of decisions are processed automatically (Type E) over time rather than processed manually (Type C or D) based on an explicit assessment of previous patterns of use by civil servants.

decisions which is widespread in administrative law in the Western World (Mashaw, 2007). The future will tell if empirical examples of this ideal type will increase or be limited due to this reservation.

6 ASSESSING THE CLASSIFICATION'S USEFULNESS

Following the description of the classification of the AADM usage, this section discusses its validity and usefulness as well as its practical use and a few cautions for further research.

6.1 USEFULNESS

Inspired by Bailey (1994) and Nickerson et al. (2013), Table 3 lists four criteria for assessing the validity and usefulness of classifications.

The first criterion - that a classification is concise, robust and exhaustive - hinges on the reasoning that configurations of decision authority between civil servants and algorithmic systems are valid for understanding AADM usage both now and in the foreseeable future. The classification conceptualises AADM usage as six different ideal typical configurations of administrative decision authority. While this is deemed appropriate in terms of both granularity and scope, new ideal types may emerge in the future due to changes in human-computer interaction, design principles and technology. For example, progress in terms of human-centred artificial intelligence (see Shneiderman, 2020) might lead to the need to expand the classification with one or more new types within its existent scope.

Criteria	Description
Concise, robust and exhaustive	Classification must describe the phenomenon in question and do this by reducing complexity while satisfactorily grasping different variants of it.
Explanatory	Classification must "...provide explanations of the nature of the objects under study or of future objects to help us understand the objects."
Identification of similarities, differences and relationships	Classification must help identify and compare its types in relation to each other and support uncovering relationships between types.
Criteria for measurement and practical use	Ideal types of classification serve as criteria for observation and measurement thereby provide versatile and meaningful points of reference for practitioners.

Table 3: Overview of criteria of validity and usefulness of classifications (building on Bailey, 1994; Nickerson et al., 2013).

The second criterion concerns the explanatory capability of classifications. At a basic level, the mapping of 10 empirical studies of AADM usage to approximate ideal

type(s) in Appendix supports the validity and usefulness of the classification. A more specific aspect of the classification's strength in terms of explanation is its combinatorial power. As mentioned earlier, it is unlikely that empirical instances will exhibit the characteristics of exactly one and only one of the six types. Instead, empirical instances will exhibit combinations of the types due to the aggregated disorderliness of actual technology usage, organisational practices, agency guidance and procedures. This helps to underscore two important understandings: (i) patterns of AADM usage are ambiguous and typically involve two or more types and (ii) although five out of ten empirical examples exhibit elements of fully automated decision-making, the predominance of use seems to be the three types corresponding to semi-automated decision-support. Organisational practices entailing both Suggested procedural steps (Type C) and Automated decisions (Type E) seem particularly empirically prevalent.

Illustrative of this ambiguous pattern of use, Andersson et al. (2018) in their study of administration of driving license permits in Sweden, report that 5% of relevant cases are handled "manually" (most likely mirroring Acquisition and presentation of data (Type B)), 41% are handled semi-automatedly (mirroring either Suggested procedural steps (Type C) or Supported decisions (Type D)) and 54% are handled fully automatedly (mirroring Automated decisions (Type E)).

The third criterion describes the ability of a classification to identify and compare its types to each other, furthering the understanding of the phenomenon of AADM usage and laying the foundation for theory building. Lindgren et al. (2019) discuss the changing nature of "the public encounter" between citizens and authorities due to the digitalisation of public services. Here the classification can support a discussion of the different types and their related consequences for public encounters. Burrell (2016) and Cobbe (2019) discuss issues of transparency and opacity in relation to machine learning techniques. The classification can support discussions regarding whether problems of opacity solely "kicks in" in relation to Autonomous decisions (Type F) or relate to other types of AADM usage as well. Authors like Koulu (2020) and Peeters and Widlak (2018) have started to discuss what can be termed "algorithmic system dependency": The interlinkage of multiple systems, databases, citizen portals and network components. Here the classification can help trace how those dependencies and accompanying vulnerabilities of algorithmic systems develop in relation to the different types.

In terms of theory building, the classification can help explore patterns between types of AADM usage and wider consequences of technology use, as cases of AADM can be compared across empirical settings: are positive consequences of automation such as efficiency, increased quality and better citizen service related to specific types across empirical cases, while negative elements such as data bias, lack of transparency and "fettering" of discretion are related to other specific types? Bannister and Connolly (2020), for example, argue that the greatest risks associated with automated

decision-making in the public sector are what they call “subjective/active algorithms” which roughly corresponds to techniques employed in relation to the type of Autonomous decisions (Type F).

6.2 PRACTICAL USE

The suggested classification carries two points of reference for practical use (mirroring the assessment of the fourth criteria in Table 3). Firstly, the classification makes it possible to identify and assess ambitions of automated decision-making usage on a more informed basis. Given the complexity and criticality of a given policy area, the particular statutory regulation of the administrative decision-making and the availability and quality of data, which type of AADM usage should policymakers and top-level managers aim for? Given such aim in terms of a type, how should the technology be tested both before deployment and during operation in order to assure satisfactory quality and use, and avoid systemic vulnerabilities across the algorithmic system?

Secondly, the classification supports more informed discussions and designs of meaningful oversight and override mechanisms (Peeters, 2020) when taking the actual use of AADM into account rather than the intended technological usage. A banal contextual factor like large case-loads of civil servants might, for example, in effect lead to organisational practices showing strong similarities to automated decisions (Type E) even though the intention might have been to support the decisions of civil servants (Type D). Based on the classification, it will be easier to assess what this and other similar discrepancies necessitate in terms of, e.g., procedures of managerial supervision and training of civil servants.

6.3 CAUTIONS FOR USE

The classification also entails a few cautions for future research. Firstly, due to the primacy given to organisational practices and the function of technology, the classification is not suitable for a specific focus on predictive analytics in the public sector. Notwithstanding the particular issues related to such techniques (among others, see Gillingham, 2019; Zalnieriute et al., 2019), the classification makes us ask what the function of predictive analytics is in relation to administrative decision-making. Is alleged prediction of future behaviour of citizens or firms used as an element for the suggestion of procedural steps (Type C), in decision support (Type D) or in automated or autonomous decisions (Type E and F)? In terms of the former two types, how much emphasis (including possible over- or under-reliance) do civil servants put on suggestions?

A further caution is the exclusion of an important insight from existing classifications and typologies reviewed earlier in the chapter. The classification does not incorporate the so-called human-on-the-loop degree of automation where the human operator (the

civil servant) has the ability to veto an automated decision within a certain timeframe (Parasuraman et al., 2000). This type has been left out as it has not been possible to identify any empirical instances in relation to administrative decision-making in the literature.

7 CONCLUSIONS

This chapter has focused on one general type of automation in the public sector: automated administrative decision-making (AADM). Empirically, it is widely assumed that use of AADM has increased in public administrative bodies worldwide due to technological advances. Although a number of studies have discussed the consequences of AADM both theoretically and empirically, they often only offer a simplified understanding of different uses of AADM.

Based on key references within the academic disciplines of Public Administration, Decision-support Systems and Science & Technology Studies, this chapter has conceptualised a classification of six ideal types of AADM usage. The classification maps AADM usage range from Minimal automation (Type A) to Autonomous decisions (Type F). Each type describes a configuration of decision authority between civil servants, on the one hand, and algorithmic systems on the other. While the classification of six types might be relevant to broader forms of automated decision-making at operational level (e.g., decision-making in relation to public service delivery), it should be stressed that it specifically describes instances of use of automated, *administrative* decision-making.

The suggested classification furthers the understanding of empirical AADM usage by combining focus on civil servants' technological usage with a more technical perspective allowing us to understand automated decision-making as more than a question of either being semi- or fully automated. The classification invites differentiation of broad notions of semi-automated decision-making common in much of the literature as either Acquisition and presentation of data (Type B), Suggested procedural steps (Type C) or Supported decisions (Type D) and notions of fully automated decision-making as either Automated decisions (Type E) or Autonomous decisions (Type F).

The classification gives primacy to *civils servants'* AADM usage through focus on organisational practices relating to technology rather than on technology itself. Instead of describing the intended use and "objective technology" (Fountain, 2001), the classification is a tool to map actual decision-making practices surrounding algorithmic systems. Attention must thus be paid to combinations of technology, users and cultural context. To understand AADM usage, it might be just as important to understand managerial and budgetary practices shaping the caseload of each civil servant as whether the technology is intended to facilitate Supported decisions (Type D) or Automated decisions (Type E).

In a nutshell, the classification contributes to emerging literature on automated decision-making and public service automation in three ways. Firstly, it provides a more nuanced and conceptually precise understanding of different types of AADM usage as a tool for future research. Secondly, it emphasises the importance of users' sensemaking and interpretations as well as the cultural context in order to understand the functioning and consequences of AADM. Thirdly, the classification cautions towards technologically deterministic understandings of an inevitable development towards advanced, "mature" forms of automated administrative decision-making as implied in the literature on digital government maturity and stage models (e.g., Scholta et al., 2019). Instead, the classification underlines the need to understand empirical instances of use of AADM as ambiguous, often consisting of several ideal types.

For practitioners, the classification supports increased awareness of actual work-practices vis-à-vis intentions of system design in terms of AADM. The detailing of differences of types of AADM usage furthermore supports informed choices among practitioners of appropriate IT-system design and tests as well as choices of appropriate professional and management practices in relation to AADM.

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APPENDIX: EMPIRICAL EXAMPLES OF IDEAL TYPES OF USE OF AADM

Table 4 Selected, approximate empirical examples of ideal types of AADM usage. “X” indicates that the example bears resemblance to the type; and “(X)” indicates the example might bear resemblance to the type. Please note empirical examples are not based on thorough review and are simplified in descriptions. “*” indicates technology appears to no longer be in use as described.

Approximate empirical example		A. Minimal automation	B. Acquisition and presentation of data	C. Suggested procedural steps	D. Supported decisions	E. Automated decisions	F. Autonomous decisions
Example	Source						
Automated administration of student grants <i>Education and student support, Netherlands</i> Technology assesses applications from students in combination with data from government databases and decides on size of grant. Civil servant has no direct role in technology operation.	Bovens & Zouridis (2002)		(X)			X	
Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) <i>Prisons and corrections, US</i> Technology assesses offenders’ risk of recidivism and suggests a case-management plan. Civil servant decides on placement, supervision and case management of offenders in community settings prior to parole.	Skeem & Louden (2007)		X	X	(X)		

Approximate empirical example		A. Minimal automation	B. Acquisition and presentation of data	C. Suggested procedural steps	D. Supported decisions	E. Automated decisions	F. Autonomous decisions
Example	Source			X			
<p>Digital administration of needs of vulnerable children (DUBU) <i>Child welfare and protection, Denmark</i> Technology collects and presents selected data on cases and suggests procedural steps. Civil servant registers remaining data, assesses needs of children and decides on relevant interventions.</p>	Fahnøe (2015)			X			
<p>Automated re-payment of student loans <i>Education and student support, Sweden</i> Technology assesses information provided by students and decides on amount to be repaid. Casework tasks are automatically generated for civil servants in complex cases which, upon manual completion, "feeds" the technology for final decision.</p>	Wihlborg et al. (2016)		X	X		X	
<p>Online compliance initiative debt recovery system (OCI)* <i>Social security, Australia</i> Technology automatically identifies and notifies citizens who possibly owe money for overpayment of social security benefits. If not disproved by the citizen</p>	Carney (2018)					X	(X)

Approximate empirical example	Source	A. Minimal automation	B. Acquisition and presentation of data	C. Suggested procedural steps	D. Supported decisions	E. Automated decisions	F. Autonomous decisions
<p>Example within a certain time frame, decision technology initiates debt recovery.</p>							
<p>Automated administration of driver's licenses (Staffan) <i>Transport and public safety, Sweden</i> Technology assesses application for driving license based upon completed driving test and decides on approval or rejection. Initial rejections are automatically prepared for civil servant to assess manually.</p>	Andersson et al (2018)		X	X		X	
<p>Automated administration of social security benefits <i>Social security, Sweden</i> Technology assesses applications for different social security benefit types. Simple cases are processed automatically, while complex cases or initial rejections are assessed manually by civil servant.</p>	Ranerup & Henriksen (2019, 2020)		X			X	
<p>Automated administration of disability benefits (QDD and Insight) <i>Social security, US</i></p>	Engstrom & Ho (2020)			X	X		

Approximate empirical example		Source					
		A. Minimal automation	B. Acquisition and presentation of data	C. Suggested procedural steps	D. Supported decisions	E. Automated decisions	F. Autonomous decisions
<p>Example</p> <p>Technology assesses applications for disability benefits, and simple cases are automatically recommended for manual decision by civil servant. Complex cases are assessed manually by civil servant. Technology flags potential errors and inconsistencies in draft decisions for manual assessment by civil servant.</p>							
<p>Automated profiling of unemployed citizens*</p> <p><i>Public employment services, Poland</i></p> <p>Technology assesses citizen's risk of unemployment based on information from an interview. Civil servant decides on relevant employment support within three predictive risk categories.</p>	Kuziemski & Misuraca (2020)	X	X	X			
<p>Automated administration of child benefits</p> <p><i>Social security, Norway</i></p> <p>Technology is fed by data on newborns and decides on approval or rejection of resulting application for child benefit. Applications for complex cases must be made online and are assessed manually by civil servant in combination with data from government databases.</p>	Larsson (2021)	X			X		

ARTICLE 4

PUBLIC AUTHORITIES, DIGITALIZATION AND GOOD ADMINISTRATION: IS THE LAW ADEQUATE? DOES IT PREVAIL?

A study of the boundary between authoritative sources of law and the living law

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PUBLIC AUTHORITIES, DIGITALIZATION AND GOOD ADMINISTRATION: IS THE LAW ADEQUATE? DOES IT PREVAIL?

A study of the boundary between authoritative sources of law and the living law²

ABSTRACT

Continued technological development creates new opportunities for public authorities to use digital technology (ICT) to support their tasks. This happens without the usage necessarily being exhaustively regulated in administrative law sources such as the Danish General Administrative Law Act, ombudsman case law, etc. In this article, we combine a jurisprudential analysis with a qualitative study of public authorities' practice by examining how legal rules, values, and extra-legal norms affect authorities' use of automated, administrative decision-making within the Danish public administration. The article focuses on two themes of good administration: 1) authorities' wording and communication of reasons for automated administrative decisions and 2) authorities' continuous quality assurance of underlying ICT systems. While one theme (reason-giving) is directly addressed in Danish legislation, case law of the courts and ombudsman case law, the other (continuous quality assurance) is largely characterized by the absence of authoritative sources of law. Our study shows that whether or not themes are clearly addressed in legal sources, deeper, more immanent values of administrative law may have difficulties manifesting themselves in government practice. We conclude that in situations without clear, authoritative sources of law, extra-legal norms may have significant impact on authorities' practice.

KEYWORDS

Digitalization; Automated decision-making; Administrative decisions; Administrative law; Critical legal positivism; "Living law"; Extra-legal norms; Reason-giving; Quality assurance

² The article was originally published in Danish as "Offentlige Myndigheder, Digitalisering Og God Forvaltning: Holder de Loven? Holder Loven?" in *Nordisk Administrativ Tidsskrift*, 98 (1): 1–37. It has been translated into English by Tamara R. McGee of TRM English.

PROLOGUE: A FICTIONAL BUT NOT UNREALISTIC NARRATIVE³

It is 2:30 pm at a fictitious governmental agency in the Danish central government. A meeting is taking place about a new ambitious ICT project where machine learning enabled recognition of aerial and satellite imagery is planned. The technology will automatically assess whether protection legislation is being complied with around the country and has the potential to significantly increase the effectiveness of assuring compliance with protection legislation while lowering administrative costs for the central and local government (the latter will also be given access to the ICT system). The meeting has four participants: Ajda, an executive assistant; Pernille from the ICT Unit; Bent, who sits on the conservation office board; and Kurt from the agency's legal department. The first three participants have been involved in previous meetings regarding the planned system while Kurt has only been occasionally briefed at previous meetings.

It appears from the meeting's agenda that the agency's management has not decided the extent to which the system is to be used in the administrative decision-making of the agency. The objectives of the meeting are to discuss whether there are considerations of administrative law in relation to the development of the system and to discuss whether the system can form the basis of automated, administrative decisions on possible non-compliance with protection legislation. Among other issues, the agency head has mentioned that Ajda, is concerned about how the system will be received by land and property owners.

Pernille from the ICT unit starts the meeting by explaining how the system will be trained on the basis of a substantial number of historical aerial photos of protected areas and buildings. Based on previous human assessment, the photos have all been marked as being either in compliance or non-compliance of protection legislation. It is estimated that the fully developed ICT system will achieve an accuracy rate of 90-95%.

The executive assistant, Ajda, asks Kurt what legal administrative considerations the system potentially creates. Kurt's immediate concerns are whether the 90% rate is adequate and if the actual accuracy rate is also the real error rate. Pernille speaks of both "false positives" and "false negatives" as the basis of the accuracy rate which confuses Kurt who wonders if land and property owners will accept such a system. Specifically, will the system's assessments be transparent to them? How can the obligation of reason-giving in the Danish General Administrative Law Act be

³ The prologue is a so-called "composite narrative" ("a composite story") and as such is inspired by i.e., Miles & Huberman (1994) and Willis (2019). It is a fictional story based on interview data and the authors' reflections on their own experiences in order to convey a coherent story or sequence. Thus, despite the fact that the story is fictional, it is not unrealistic. It permits an anonymized presentation of the interviewees' statements while at the same time maintaining the richness and complexity of specific situations and personal stories to the reader (Willis, 2019, pp. 476-478).

complied with in this context? What about the local government? Will municipalities have sufficient opportunity and skills to assess and challenge the assessments of the system?

While Kurt sits and ponders, the mood of the meeting seems to change. At first, the meeting seemed to be a formality that had to be overcome for Pernille and Ajda. Now they both look slightly annoyed and impatient. Kurt has no idea what to think. The agency must of course comply with the rules and principles of administrative law. However, he is reluctant to be the one to impede an important, innovative project.

1 INTRODUCTION

As the prologue of the fictitious government agency suggests, it is not always easy for public authorities to identify the limits of administrative law when deploying advanced technology to solve administrative tasks. The challenges are largely due to the significant technological development of recent decades. In particular, the Danish and other Nordic public authorities' use of technology is quite extensive (see United Nations, 2020, p. 6). As a result, new opportunities for technology usage by public authorities constantly are emerging; however, such use is often not extensively regulated in authoritative sources of administrative law: Administrative procedure legislation, ombudsman case law, etc. Similar to other areas of society which are characterized by significant change, this might entail the absence of a clear legal basis for authorities' technology usage (Motzfeldt et al., 2020, p. 27).

The Danish Ombudsman has regularly expanded his practice in his field (e.g., Folketingets Ombudsmand, 2020). Just as there are now a number of relevant general contributions (e.g., Fenger, 2014; Motzfeldt, 2015; Motzfeldt & Abkenar, 2019) and specific contributions regarding e.g., administrative discretion (Vonger, 2017), transparency and reason-giving (Olsen et al., 2019) and the use of machine learning and artificial intelligence (Loiborg, 2020; Motzfeldt, 2020), there are still a number of underdeveloped sub-areas, including how authorities apply administrative law in practice in the field of digitalization in Danish legal literature.

This article examines how public authorities approach the use of ICT systems in relation to two selected themes of good administration⁴: 1) authorities' wording and communication of reasons in relation to automated decision-making, and 2) authorities' continuous quality assurance of underlying ICT systems. On the basis of a jurisprudential analysis, requirements and considerations of Danish administrative law are described. These are subsequently compared with the Danish authorities' actual practice based on a number of qualitative interviews. As far as the authors

⁴ The term "good administration" in this article encompasses a wider range of rules and norms of legal and non-legal nature for government practice and thus deviates from "good administrative behaviour" which in a Danish legal tradition is mainly derived from case law by the Parliamentary Ombudsman.

know, this is the first analysis of its kind in which a jurisprudential description of the normative basis is compared directly to Danish authorities' use of ICT.⁵

This is an multidisciplinary study based on a methodological combination of a jurisprudential analysis of authoritative sources of law and a qualitative analysis that, based on a large number of interviews with practitioners and decision-makers in Danish public authorities, identifies the values and principles – “the living law” if you will – important for authorities' use of automated, administrative decision-making.

Through the confluence of these two approaches, the article contributes with a more precise and comprehensive description of Danish administrative law practices in connection with the digitalization of public administration than is possible using only one approach. Furthermore, the comparison of “the living law” with a legal dogmatic description of the law can be used to identify areas where there are significant discrepancies between the two. Such deviations indicate a special need for clarification, e.g., in connection with future regulatory measures and future ombudsman case law. In this article, we thus ask whether the law prevail in relation to public authorities and digitalization, as well as whether it is adequate.

This is an issue that appears to be present in Nordic countries and beyond. Despite differences between them, Nordic countries are characterized by relatively and historically uniform administrative traditions (Mäenpää & Fenger, 2019). Although this article focuses primarily on Danish administrative law and experience from Danish public authorities, it can therefore be assumed that the results also contribute an increased understanding of the interplay between law and practice in connection with authorities' use of advanced technology in both other Nordic countries and worldwide.

The article proceeds as follows. The next section contains an elaboration of the theoretical basis of this article. This is followed by a description of the underlying methods in section 3. After this description, the multidisciplinary analysis of the two examples of the legal basis and government practice follows. Section 4 focuses on authorities' wording and communication of reasons while section 5 contains the analysis in relation to continuous quality assurance. In section 6 the findings are discussed; and section 7 contains the conclusion and a brief discussion of the legal application of the article's method. The article ends with an epilogue – based on the

⁵ On behalf of the Danish Ministry of Taxation, the legal advisor to the Danish government (Kammeradvokaten, 2015) carried out a so-called “legality analysis” of a limited part of ICT systems that supported the tax administration's automatic recovery of citizens' debt at the time. This analysis focused on the ICT systems themselves and not the tax authorities' practice in relation to these systems. Additionally, through cases concerning citizen inquiries and qualitative interviews with municipal citizen advisors in Denmark, Motzfeldt (2020) investigated whether authorities' practice was in accordance with the General Administrative Procedure Act, etc. In contrast, the present study is based on interviews with government representatives who work with implementation and usage of automated decision-making across multiple functions.

article's conclusions – where the ICT project of the fictitious governmental agency is analysed further.

2 THEORETICAL BASIS

It is a known phenomenon that a traditional jurisprudential analysis of authoritative sources of law does not necessarily provide sufficient basis for a comprehensive description of the legislative framework for a particular area of law. This knowledge has been integral to the pessimistic branch of legal sociology (Dalberg-Larsen, 1990:85ff) while traditional jurisprudential analysis is often confined to authoritative legal sources without necessarily addressing the limitations of those sources.

Traditional jurisprudence is particularly challenged by the lack of written and authoritative sources of law in areas of society characterized by non-formalized, possibly local, law and norm formation.⁶ This also applies to areas of society that – as is the case with the digitalization of government activity – undergo significant and rapid change which means sources of law cannot necessarily keep pace with developments. In these areas, there may therefore be a need to include not only available written sources of law but also what Eugen Ehrlich, the early Austro-Hungarian legal sociologist, called “the living law” (1913/1989: 409-426). Ehrlich was interested in the rules and norms that de facto govern the interaction between citizens (as well as between other legal entities) and whether these rules and norms could exclusively be derived from authoritative sources of law. His point was that, in many cases, it is necessary to supplement traditional jurisprudential analysis with observations of behavior in order to derive the governing rules and norms in a particular jurisdiction.

Authorities using automated, administrative decision-making are of course bound by the basic principle of legality and must ensure what can be termed “administrative law compliance” (Motzfeldt & Naesborg-Andersen, 2018:139). Both Danish administrative law and administrative law in other Scandinavian countries are generally characterized by a relatively low degree of codification. More general principles of administrative law are thus – as the importance of “good administrative behaviour” (“god forvaltningsskik”) in Denmark indicates – of great importance. As already observed, authorities' use of automated, administrative decision-making is only addressed to a limited extent by authoritative sources of administrative law.

This article analyzes this issue based on the critical legal positivism of the Finnish legal scholar Kaarlo Tuori. Here modern law is seen as a phenomenon consisting of three different levels which correspond to different “layers of consciousness”. Tuori's theory allows for an analysis of the basis of authorities' practice, including whether the practice is based on legislation and other traditional sources of law, deeper and

⁶ See, for example, Santos' (2002:155-158) description of the local ‘Pasarda law’ in a Brazilian favela.

more immanent legal values and principles, or more informal “extra-legal” norms. Tuori’s approach shares certain overall features with 3-layered understandings of e.g., culture (Schein, 1985) and institutions (Scott, 2014) and supports this article’s multidisciplinary approach.

In Tuori’s analytical differentiation, the surface level consists of legal norms expressed through legislation, case law etc., and legal literature (Tuori, 2002: 154ff). Within Danish administrative law, these may be, for example, the General Administrative Procedure Act, the Freedom of Information Act, the General Data Protection Regulation, relevant case law as well as ombudsman case law and public authorities’ administrative practice. To the extent that administrative law principles, basic legal principles, etc., are more explicitly expressed in these sources or the legal literature, they can also be regarded as part of the surface level.

According to Tuori, an intermediate level of law exists beneath the surface level. This level is characterized by the legal culture in question and is represented by what Tuori calls “meta-norms”: principles, values, and thought patterns not immediately observable. These are largely decisive for the understanding of concrete legal sources and are, for example, important for the resolution of contradictions between rules and in the interpretation of ambiguous formulations at the surface level (Tuori, 2002: 192).

The meta-norms of the intermediate level have a discursive character which sets the framework for how we think and understand the law. They are not to be regarded as ordinary jurisprudential assertions about applicable law but are more the abstract foundation for the legal phenomena of the surface level. It is thus also on the basis of observable phenomena at the surface level that the content of the intermediate level must be analytically deduced or reconstructed (Tuori, 2002: 163).

The distinction between the levels of law constitutes a useful analytical tool that can be used for describing how behavior is affected by different types of legal phenomena. It should be noted that it is not always possible to draw a clear boundary between the surface and intermediate levels in practice. This applies, for instance, to the principle of proportionality where a concrete, legal source-based interpretation can be ascribed to the surface level while a more general, “subconscious” balance of the relationship between authorities’ intervention and the objective of the intervention is more applicable to the intermediate level.

A distinctive element of Tuori’s critical legal positivism is what he considers the deep, normative level. Here, fundamental legal structures dominate, reminding us of the Freudian subconscious (Tuori, 2002: 184). The content of this kind of legal “black box” is by nature even more difficult to identify than is the case with the intermediate level. Among other things, Tuori points to the importance basic conceptualizations of law has for the way human beings understand and discuss law. Abstract ideas such as rule-of-law, equality before the law and law-based administration can likely be rooted

at the deep level although they are also expressed at both the intermediate and surface levels, e.g., in administrative decisions or in the legal literature. Here too, an exact differentiation between the respective levels can be difficult.

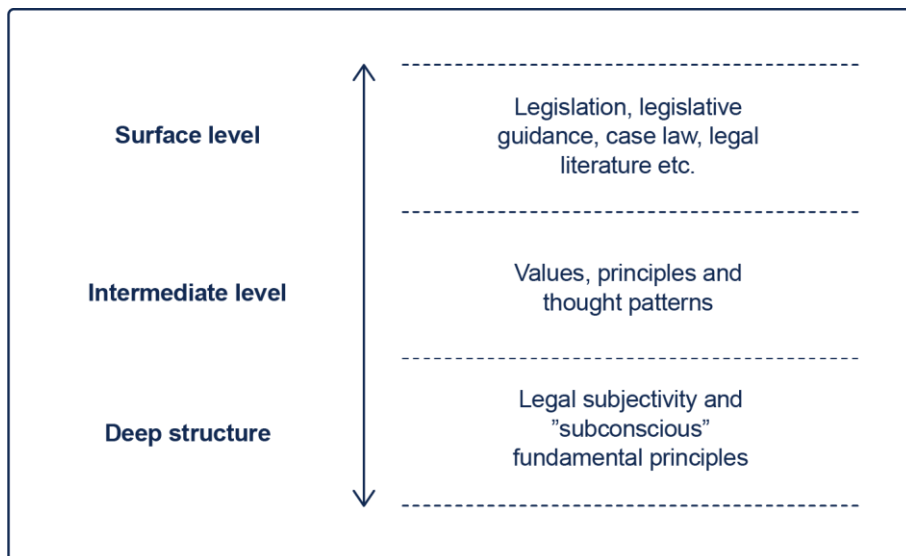


Figure 1: Illustration of Tuori's understanding of the law (2002) (own production based on Tuori's concepts)

A traditional jurisprudential analysis of a given jurisdiction will typically focus on the surface level and its more tangible representation of sources of law. However, in both concrete law application and in judicial studies, the two deeper levels can play a significant role. For example, Tuori points to the legal understanding that legal actors draw on when they justify decisions in difficult cases (“hard cases”) (2002: 163)⁷.

In the jurisprudential analysis of applicable law, it may be similarly necessary to search for principles, thought structures, etc., at the two deeper levels independent of whether they are concretely perceived as sources of law or not. The need to explore the two deeper levels arises in relatively new areas of law which e.g., the article's introduction, must be expected to contain legal issues that cannot be answered immediately from the sources of law at the surface level. As will be seen, this is particularly the case in connection with requirements for continuous quality assurance of authorities' usage of underlying ICT systems (see section 5 below).

⁷ Similarly, the American legal philosopher, Ronald Dworkin, argues that judges in such "hard cases", which are typically characterized by vague and unclear legislation and precedent as well as possible conflicts, must investigate the reasons for the rules and precedent for underlying, more abstract principles, etc. (1977/2013: 108).

According to Tuori, the three levels are characterized by different dynamics (2002: 192-193). While the surface level is described as relatively turbulent due to frequent changes in the form of new legislation, new case law, etc., it takes longer for changes to take effect in the legal culture of the intermediate level. In relation to authorities' use of technology, there is a risk that the underlying values and principles of the intermediate level will lag behind rapid technological development. They will thus have difficulties filling in or supplementing the rules at the surface level when these rules do not address newly emerged administrative law issues.

Not least for this reason, it is relevant to consider whether other extra-legal norms have an impact on authorities' use of technology in relation to issues that are not clearly addressed by legal sources at the surface level or are only affected by deeper, more immanent values and principles. In other words, the question is whether the absence of clear authoritative sources of law implies that more informal norms become more important. Tuori himself was aware of the relevance of such extra-legal norms even though they do not have a prominent role in his description of the law (2002: 157). Inspiration can be found in Eugen Ehrlich's understanding of the living law, which – without Ehrlich himself applying this concept – can also be said to include extra-legal norms with significance for the legal field in question and which should therefore be considered part of the legal subject matter. (Ehrlich, 1913/1989).⁸ In the present context, such norms may, for example, be thought to spring from ICT standards.

Following these theoretical considerations, we can now clarify the article's research question. Based on a comparison of applicable law (based on authoritative sources of law) and authorities' practice, we examine the extent to which authorities are influenced by deeper principles of administrative law, thought structures, etc., in the use of automated, administrative decision-making, as well as the extent to which other, extra-legal norms have significance for the same application.

3 METHODS

This article is based on a comparative study of two specific themes that exemplify authorities' use of ICT to support administrative decision-making: authorities' design and communication of reasons (section 4) and authorities' continuous quality assurance of underlying ICT systems (section 5). Within each theme, the authorities'

⁸ It is a traditional legal philosophical challenge to assess whether a given norm that cannot be attributed to an authoritative source of law must be considered to be of a legal or extra-legal nature. The Austrian philosopher of law, Hans Kelsen, tried in the first half of the 20th century to achieve a clear demarcation of the legal norm structure by means of a formal validity criterion (Kelsen, 1934) which is in contrast to thinking that has been particularly prevalent after World War II. The latter thinking has recognized the difficulty in such a unique demarcation (Dworkin, 1977/2013; Finnis, 1980). Tuori's differentiation is, however, a suitable analytical tool for assessing whether a specific norm – here expressed in descriptions of the interviewed respondents – can be attributed to either authoritative sources at the surface level – immanent principles, thought structures, etc. at the two deeper legal levels – or to extra-legal norms.

perceptions, considerations and practices, as expressed in interviews with a number of government officials, are compared with requirements and considerations of administrative law. Subsequently, an overall analysis is made on the basis of two sub-studies in order to answer the question of the significance of the different legal levels and extra-legal norms, respectively, when gaps and ambiguities in the legal situation can be expected (as is the case with authorities' use of technology). While, with regard to the first theme (authorities' wording and communication of reasons), a relatively large scope of authoritative sources of law is expected, a significantly smaller scope of such sources is expected in relation to the second theme (continuous quality assurance).

Methodologically, the article builds on a deductive, jurisprudential analysis which is combined with an inductive, qualitative analysis of authorities' practice and underlying considerations based on interviews. The jurisprudential analysis is based on a traditional dogmatic approach and the associated theory of legal sources jurisprudential analysis (e.g., Zahle, 1999). The starting point is thus existing legislation, including the Danish General Administrative Law Act and the Danish Freedom of Information Act interpreted in the light of case law as well as ombudsman case law and priorly established administrative practice. Furthermore, relevant legal literature containing interpretations as well as further analysis and description of legal principles, etc., is included. Although these sources of law do not necessarily explicitly relate to the issues due to ICT usage and administrative decision-making, it is relevant to rely on underlying values and principles expressed in such sources. One can thus speak of an extrapolation from paper-based administrative decisions to automated, administrative decisions. Moreover – and particular to the extent that there are no relevant explicit sources of law – deeper, more immanent principles of administrative law, etc., which are located at the intermediate level of the law or in the boundary area between this and the surface level can be of significant importance.

Tuori's layered understanding of law is not to be understood as an alternative to a jurisprudential method. Rather, it is one of several theoretical approaches to understanding and describing what this method consists of. The layered understanding is particularly appropriate in the present context where the legal basis is held up against the considerations and practice that underlie authorities' use of technology. The central distinction is thus not whether one or another explicit source of law is most relevant. Instead, the focus is the interplay between such explicit sources of law, on one hand, and deeper (pre-) understandings of administrative law (typically rooted in paper-based administrative decision-making) on the other.

The qualitative analysis is based on qualitative interviews with 43 respondents in two broad groups all having experience with automated, administrative decision-making in the Danish public sector. These two groups were i) administratively appointed policymakers influencing policies and regulations in relation to the digitalization of the public sector including automation (e.g., the Danish Ministry of Justice) and ii)

decision-making practitioners with responsibility for actual use of automated, administrative decision-making within an administrative body (government agency, municipality etc.) or consultants working in close relation to such decision-making.

The respondents were selected via a so-called “snowball” sampling where a few respondents, known to the authors, were initially interviewed and these respondents asked to name other relevant respondents (Bernard et al., 2017: 53). This type of sampling does not provide assurance of a fully representative sample of relevant respondents but provides an opportunity to identify individuals who would otherwise be difficult to contact. In conjunction with the high number of respondents, a satisfactory understanding (“saturation”) of the empirical field is reached (Guest et al., 2006: 74-76). Respondents were selected with emphasis on their function rather than professional background and therefore consist of lawyers and other professional groups across a number of policy areas (children & young people, tax, employment, pension, business administration and police)⁹.

Based on open interviews, a total of 143 topics were registered (coded) in relation to specific matters concerning authorities' use of automated, administrative decision-making and good administration. Through a thematic analysis (Boyatzis, 1998) of the interviews, these topics were condensed into 29 empirical themes understood as *subjects* which according to the respondents were relevant in relation to automated, administrative decision-making and good administration. It is two such themes that represent this article's two sub-studies.

It should be emphasized that the analysis is based on respondents' descriptions and not actual observations of authorities' practice. Also, and according to the theoretical foundation described above, the description of the significance of the two deeper levels of law regarding government practice is based on an analysis of respondents' descriptions of practice. It is furthermore emphasized that the analysis is not based on a study of ICT systems used by Danish authorities but rather of the authorities' *use* of these.

Finally, it is necessary to be aware of the limitations of an analysis of two selected themes exemplifying Danish authorities' use of ICT in relation to good administration. Specifically, the conclusions cannot necessarily be extended to *all* relevant

⁹ All interviews were conducted by one of the authors from July 2018-April 2019. Prior to the interviews, respondents received an email with a standardized description of the topic which was initially repeated orally. It was emphasized that the focus of the interview was the authorities' specific practice and experience with good administration. Most respondents then described relevant requirements and considerations by themselves. In cases where the conversation stalled or became irrelevant, the interviewer directed the conversation via short probes (body language, oral acknowledgments, questions about examples etc.). For a further description of the interviews conducted and a full overview of the empirical topics, please refer to Roehl (forthcoming).

themes in relation to *all* authorities' use of automated, administrative decision-making and good administration.

4 WORDING AND COMMUNICATION OF REASONS

The Danish General Administrative Law Act contains explicit requirements for reason-giving when public authorities dismiss citizens or companies' cases, and both the Danish courts and the Danish Ombudsman have repeatedly emphasized the importance of this. Use of automated, administrative decision-making thus does not raise questions about *whether* but *how* the reason-giving requirement must be satisfied. It is relevant to consider how underlying objectives of the requirement are best taken into account i.e., support confidence in the correctness of the decision, secure comprehensibility for the addressee, support the possibility of fair subsequent appeal processing and provide guidance for subordinate authorities.¹⁰

A particular challenge is that the standardization and categorization on which all ICT systems are fundamentally based invites – so to speak – the application of standard reason-giving which can be difficult to reconcile with considerations behind the reason-giving requirement.¹¹ This is particularly true when administrative discretion is exercised as part of the decision-making or if there is a need to highlight facts concerning the specific case in the reason giving. This applies, for example, to decisions regarding financial benefits under the Danish Social Service Act which are usually extremely specific and based on the facts. Even within administrative areas that are characterized by clear statutory criteria, difficult questions may arise in relation to the requirement for reason-giving including a suitable level of detail.

Furthermore, the use of advanced technology may give rise to doubts as to what constitutes a decision within the meaning of administrative law which must therefore be justified to the addressees. Even relatively simple technical configurations of an ICT system can give rise to such considerations. For example, it may give rise to doubts as to whether reason-giving is required when a self-service portal rejects an application because mandatory text fields are not completed. Similarly, a portal might be configured to not accept certain file formats a citizen or firm wishes to attach as documentation. Often, it will be ICT professionals without special expertise of administrative law who are faced with such issues which further increases the risk of not only incorrect choices in relation to good administration but also relevant issues being overlooked.

Conversely, the use of advanced technology also represents an opportunity for authorities to better communicate and justify not only decisions but also other case

¹⁰ See more about this in the Ministry of Justice (1972: 33f) and Revsbech et al. (2014: 303).

¹¹ See Motzfeldt, Ullits and Kjellerup (2020: 138) who, among other elements, mentions the National Board of Appeal's reprimand for deficient reasons in administrative decisions made by the Public Benefits Administration (“Udbetaling Danmark”) via the use of automated, administrative decision-making.

steps without the need for a clear distinction between whether, within the meaning of the General Administrative Procedure Act, such steps are to be considered decisions or not. Technology usage thus has the potential to strengthen good administration beyond the minimum requirements of administrative law but also in line with underlying intentions.

In relation to the wording of reasons, technology also opens up new possibilities, including greater use of illustrations, animations, etc., which can increase comprehensibility. While such instruments may often have been regarded as resource-intensive and time-consuming in the past – leading to limited use in public administration – it seems rather obvious that automated, administrative decision-making can potentially change this. One can imagine situations where "layered" reason-giving can be given so that the technology is used to design the explanatory memorandum can be immediately used to meet the reason-giving need for the average addressee while allowing for easy access to e.g., elaboration of legal rules in a new "layer".

We will now seek to shed light on the issues that the use of new technology raises in relation to authorities' wording and communication of reasons. This is first done on the basis of a jurisprudential analysis based on relevant sources of administrative law, and then on the basis of the results of the interviews.

4.1 JURISPRUDENTIAL ANALYSIS: ADMINISTRATIVE LAW REQUIREMENTS FOR WORDING AND COMMUNICATION OF REASONS

The reason-giving requirement for administrative law is clearly rooted at what Tuori calls the surface level of the law. This primarily concerns the provisions of Chapter 6 of the Danish General Administrative Law Act and comprises of art. 22 which states that written decisions must be accompanied by reason-giving unless the decision fully upholds the addressee in question.¹² The detailed interpretation of the provisions of the Danish General Administrative Law Act has been the subject of a number of Danish court decisions as well as ombudsman opinions that have supplemented the statutory requirement with some additional requirements that can be attributed to good administration. Similarly, the reason-giving requirement is thoroughly addressed in the legal literature which can also be attributed to the surface level.

As a starting point, the requirement to state reasons only applies to administrative decisions. In addition to substantive decisions, where a decision is made in relation to the subject matter of the case (whether a permit must be granted, how large a benefit

¹² Art. 25 of the Norwegian General Administrative Law Act is very similar to the Danish one. The provisions of art. 32 of the Swedish General Administrative Law Act and art. 45 of the Finnish General Administrative Law Act are worded somewhat differently, but the present analysis is most likely also relevant in relation to those.

must be, etc.), it can also be about formal decisions including decisions about rejection due to lack of formality. While it often goes without saying in paper-based administrative decision-making whether such case steps should be considered decisions or not, it can be more unclear in connection with automated decision-making, e.g., if a decision process is terminated because an applicant does not enter the information required by the self-service portal or because the portal is otherwise not used properly.¹³ If such a situation is specifically found to be a decision within the meaning of the General Administrative Procedure Act, it must be substantiated in accordance with the requirements of the General Administrative Procedure Act.

It furthermore follows from good administration that addressees should receive an update on significant steps of the administrative decision process including accompanying reason-giving (Fenger, 2013: 621; Motzfeldt & Abkenar, 2019: 199). In connection with application of automated, administrative decision-making, there may therefore be a need to decide whether, during the course of the decision-making process, updates must be provided on the reasons for various decision steps regardless of whether the steps are decisions within the meaning of the General Administrative Procedure Act or not. If they are, it must of course also be assessed how such reason-giving must be worded in order to comply with good administration.

Overall, reason-giving must – according to the legislative guidance for the General Administrative Procedure Act – provide an explanation for the content of the decision in question (Ministry of Justice, 1986: 132). Art. 24 of the General Administrative Procedure Act stipulates that the reason-giving must contain a reference to the legal rules on which the decision is based. If the decision includes the exercise of administrative discretion, there must also be an indication of the underlying main considerations. In addition, the explanatory memorandum must, if necessary, contain a brief account of the information concerning the facts of the case which are of significant importance to the decision. According to legislative guidance, it is not possible to make a precise description of how detailed the reason-giving must be. It can among other things have an impact on how actively the addressee in question has

¹³ The connection between automated decision-making, decisions steps and decisions is the subject of an analysis carried out by a Danish governmental working group that focused on legal issues relating to digitalization of the public sector established under the auspices of the Danish Ministry of Justice. In a draft report from April 2020, it was concluded, among other things, that situations where failure or incorrect completion of mandatory fields in self-service portals leads to rejection of applications and must be considered a decision within the meaning of the General Administrative Procedure Act. Conversely, this is not the case if a portal – in connection with filling in mandatory fields – automatically requests additional information or if a portal is not available to certain citizens. In the mentioned draft, the working group also points out that there are a number of “intermediate cases” where the assessment of the formality of decisions is difficult (Ministry of Justice, 2020). The Danish Parliamentary Ombudsman has previously dealt with a case where an authority’s self-service portal was apparently incorrectly configured so that it automatically and without reason-giving rejected applications lacking particular attached documentation (Parliamentary Ombudsman, 2010).

participated in the prior administrative decision-process and the nature of the case in general (Ministry of Justice, 1986: item 132).

Regarding requirements for reference to relevant legal rules, a precise indication of articles and, to the extent necessary, paragraph, letter or number is presupposed (Fenger, 2013: 623). Thus, it is not sufficient – as standard reasons may otherwise first suggest – to refer to a number of provisions (some of which singularly have had a bearing on the decision). Correspondingly, the requirement of reason-giving in relation to decisions based on administrative discretion implies that the indication of the underlying main considerations must, as a starting point, have a certain degree of precision and substance. Thus, it is not sufficient to state that the decision in question was taken "on the basis of an overall assessment of the circumstances of the case" or the like alone. (Folketingets Ombudsmand, 1983: FOB 57).

Whether the authority's perception of the facts of the case should be explained in a specific manner depends on whether the facts are disputed and, moreover, whether the addressee in question must be presumed to be aware of the factual basis of the case in advance (Ministry of Justice, 1986: p. 134). In the case of self-service portals where the addressee has entered the relevant information, this part of the reason-giving requirement will probably not give rise to major difficulties. If, on the other hand, it is a discretionary decision, it will often be a challenge, e.g., if it is not possible a priori to identify (and code) exactly which circumstances will have a significant impact on specific decisions.

There is nothing in Danish administrative law to prevent the use of standard reasons. These reasons must, however, meet the usual requirements for content and design (Parliamentary Ombudsman, 2020b: item 8; Fenger, 2014: 96). In addition to the above-mentioned requirements for content, the reason-giving must be comprehensive precisely in relation to the individual addressee and sufficiently relate to possible views expressed by the addressees during the decision-making process (Fenger, 2013: 633). This is one of the reasons why it can be difficult to meet the reason-giving requirement by using standard reasons especially if it cannot be ruled out that a party to the case will provide non-standardized information or views as part of the decision-making process. This will be the case, for example, if a self-service portal uses both predefined text fields and "open" fields where supplementary information and views can be stated.

The use of standardized reasons can generally be facilitated by the fact that the reason-giving does not necessarily have to be included in the decision itself from the authority but can appear elsewhere if the decision contains a precise reference to the explanatory memorandum (Fenger, 2013: 635). Of course, this is also an option in relation to automated decisions. Nonetheless, it will often be an affordable systemic task to ensure that the reason-giving is automatically incorporated into the explanatory memorandum instead.

Additionally, the use of standard reason-giving or automatically generated individual reason-giving can be facilitated by the fact that the authorities can (and in some cases must) apply so-called "already because" reason-giving if a necessary condition for obtaining a favorable decision is not met.¹⁴ This may, for example, be the award of benefits where the applicant must meet some objective criteria (e.g. in relation to salary income, age, marital status, etc.), and where, if the criteria in question are met, administrative discretion must be exercised to reach the final decision. If an objective criterion in such a situation is not met, it will most likely be sufficient to refer to this in the explanatory memorandum and thus not further detail what the outcome of a discretionary assessment would potentially be.

Due to the challenges of ensuring that automated, administrative decision-making meets the requirements described here, it is relevant to consider whether – in particular cases – a certain tolerance can be traced regarding the use of standard reason-giving or automatically generated, individual reasons even if it can be questioned whether the reason complies fully with the requirements of the General Administrative Procedure Act and good administration. For example, in the ombudsman's case law, it is assumed that in connection with rejections of job applications, authorities can generally confine themselves in a standardized way to describing the main considerations that have been given weight and, if necessary, the facts, without describing the individual assessment made in each case (Parliamentary Ombudsman, 2005b: FOB 499).¹⁵

The fact that the ombudsman thus seems to have accepted a certain proportionality in relation to the scope of the (full) reason-giving requirement can possibly be transferred to areas where automated, administrative decision-making is used. The more detailed assessment of when standardized reason-giving can be used must, however, depend to a certain extent on a balance of administrative law considerations against the authorities' reasonable need to ensure fast and efficient administrative decision-making – an assessment which is largely based on "a legal sense" of deeper values and principles of administrative law at the intermediate level.

¹⁴ See also Parliamentary Ombudsman (2005a: FOB 215) in which a government office was criticized for obtaining financial information regarding an applicant for a free trial even though priorly established practice of the office would be to reject the application due to its small significance. It must thus be assumed that in situations where refusal can be given on the basis of a mandatory criterion, whether this follows from the legislation or from a priori established practice, the authority is not obligated to assess other criteria whether or not these criteria are objective or of a discretionary nature.

¹⁵ Similarly, the Parliamentary Ombudsman (1984: FOB 174) has accepted the use of standard explanatory memoranda in relation to rejection of complaints to the former National Board of Social Appeals. The memoranda described the criteria for acceptance of significant cases by the board as well as noting that cases did not carry significance solely because of their importance to the complainant. In his acceptance, the Ombudsman emphasized that it would entail a very large workload to individually justify exactly why the complaint in question had no principal significance just like the Social Appeals Board was prepared to produce an individual reason if the complainant requested it.

4.2 QUALITATIVE ANALYSIS: EXPERIENCES WITH WORDING AND COMMUNICATION OF REASONS

The interviews conducted with decision-makers and practitioners confirm that in practice great attention is paid to the Danish General Administrative Law Act's explicit requirements for reason-giving in connection with authorities' use of advanced technology. More than half of the respondents mention authorities' wording and communication of reasons as a relevant theme in connection with the authorities' use of ICT. Without necessarily being expressed in the same words, a great deal of attention is paid to the risk that automatically generated standard reason-giving might be meaningless, too general, etc.

Representatives of several authorities indicate that there are a small number of key employees who are responsible for maintaining a large number of standardized sub-reasons (each authority may have several hundred sub-reasons which are administered in a spreadsheet or database) that are automatically combined ("merged") to produce final reasons for decisions. The partial reasons are used because it makes it possible to combine reasons which, on a detailed basis, refer to relevant legal rules and express the main considerations which have been relevant to the decision. The partial reasons are combined on the basis of the facts of the case and choices made by applicants and caseworkers during the decision-process.

Several respondents were aware of the difficulties in ensuring the comprehensibility of decisions:

“[Producing understandable] reasons is a challenge even when it comes to [decisions based on] complicated rule/decision trees and will be even more so when one begins to use artificial intelligence”

(administrative decision-maker, respondent # 20).

A small number specifically point out that it can be difficult to ensure the comprehensibility of the overall reason-giving despite the fact that each sub-reason is in a narrow sense correct. In addition, there is a hint of uncertainty regarding management and quality assurance of the automatic combination of sub-reasons which over time can be difficult to manage even for key employees. In practice, this means that over time, errors can occur in cross-references between the various sub-reasons as they are continuously updated and further specified. Consequently, there is a risk that the addressee will receive a reason that is incorrect or incomplete.

Finally, several of the interviewed practitioners mention that authorities they represent have opted out of experimenting with more advanced machine learning techniques as these techniques complicate the unambiguous and factually based link between cause and decision (effect) (Contissa, 2017: 107-108) which is a prerequisite for being able to generate sufficiently precise and correctly based reasons.

“The most dominant technique we [the administrative body of the interviewee] use in relation to data is decision trees rather than neural networks and such. Decision trees make it possible to document and communicate the most significant elements of the decision models.”

(practitioner, respondent # 28).

The great attention paid to the reason-giving requirement seems to result in a somewhat inflexible approach to the use of reason-giving. First, several respondents express a narrow view of how reason-giving should be phrased. For example, some respondents are of the opinion that reason-giving should be complete and must not contain references to further, more detailed information elsewhere. A few respondents even state that the reasons must appear in the explanatory memorandum itself and not in an appendix to this document or the like. Secondly, the authorities largely refrain from using alternative designs of reason-giving including greater use of illustrations, animations, etc.

4.3 ADMINISTRATIVE LAW REQUIREMENTS AND LIVING LAW IN RELATION TO REASON-GIVING

If the jurisprudential and qualitative analysis are compared, an overall picture emerges of decision-makers and practitioners being fully aware of the requirement of reason-giving in connection with the development and use of automated, administrative decision-making. At the same time, it can be stated that the approach of decision-makers and practitioners does not always reflect the underlying considerations and the true content of the obligation of reason-giving. In other words, the respondents' statements give the impression that the two deeper levels of law play a very limited role in authorities' practice regarding the wording and communication of reasons.

First, the delimitation of the concept of decision gives rise to problems. According to the respondents, doubts may arise as to whether, for example, a technologically conditioned step in connection with incorrectly filled in fields or rejected file formats should be regarded as a decision. This can be problematic if the concept of decision is both understood too narrowly resulting in decisions being both made without providing reasons and too broadly with unnecessary restrictions on the use of ICT as a result.

Second, our analysis shows a lack of knowledge or understanding of the flexibility that is related to the requirements for the content of reason-giving. As a result of such an inflexible understanding of the reason-giving requirement (which there is no basis for in relevant legislation or ombudsman case law) there is a risk that authorities will overlook the possibilities that conceivably exist e.g., to make use of standard reasons and instead choose unnecessarily rigid technological solutions. Worst case scenario, there is a risk that authorities will opt out of use of ICT on an erroneous basis. In short,

there seems to be a tendency for legal rules and literature at the surface level to overshadow the flexibility that can be traced to the intermediate level.

Finally, our study suggests that authorities make only very limited use of technological possibilities that actually support the underlying considerations behind the reason-giving requirement. An increased use of "layered" reason-giving (with reference to in-depth information), communicative tools such as illustrations and animations as well as a more consistent approach to briefing addressees important steps in the decision-process (whether considered decisions or not) that could help strengthen confidence in administrative decision-making and address the correctness and comprehensibility of decisions.

5 CONTINUOUS QUALITY ASSURANCE

Traditionally, there has probably been a tendency among both authorities and scholars to regard authorities' use of technology as fairly static. If an ICT system was, so to speak, correctly *programmed*, the assumption has largely been that it would also be *used* and *work* correctly. Both empirically and theoretically, however, questions can be raised about this. In Denmark, the National Police's inadequate quality assurance of data on mobile phone traffic, which is used as evidence in criminal cases, has made clear that errors can occur and worsen over time.¹⁶ Theoretically, it is argued within Science and technology studies (STS) that the use of technology takes place in an interplay between technology, users and the context of use (e.g., Orlikowski, 2007) and thus changes over time.

With automated, administrative decision-making, the basic requirement for correct decisions naturally applies in the same way as with paper-based decision-making. Nonetheless, the type of necessary quality assurance assumes new forms and depends on the specific task that the technology supports as well as the type of technology in question. This may be, for example, the monitoring of operational aspects such as uptime of self-service portals used for benefits, public services, etc. It can also be about continuously ensuring that automated decision-making processes and resulting decisions are in accordance with relevant regulation. It goes without saying that changes in regulation which an ICT system is based on, necessitates updates of the system. Beyond those issues, usage of underlying ICT systems may give rise to doubts regarding to which extent authorities must carry out continuous quality assurance. The latter is the primary theme of this sub-study.

For ICT systems supporting automated, administrative decision-making, the correctness of the data serving as the basis of decisions must be secured. It must therefore be considered that the way in which data is originally registered may change over time just as biases (skewed data, etc.) or deficiencies may risk affecting the

¹⁶ See coverage in Danish media on this issue from June to Dec. 2019 as well as press release from the Danish Ministry of Justice (2019).

decisions. As a concrete example, in the fictional prologue of this article, there is a need to continuously monitor the accuracy of the image recognition algorithm the agency plans to use. Another example of continuous quality assurance is the need to regularly assess minimization of use of sensitive, personal data as a result of emerging opportunities for alternative datasets.

Additionally, as part of continuous quality assurance, it may be relevant to focus on employees' use of the technology. For example, so-called “automation bias” can arise (Cummings, 2006), where employees after prolonged use of ICT systems instinctively begin to trust them and thus override their own independent assessment of e.g., data quality or proposals for decisions.

5.1 JURISPRUDENTIAL ANALYSIS: ADMINISTRATIVE LAW REQUIREMENTS FOR CONTINUOUS QUALITY ASSURANCE

Overall, there are very limited legislation or other authoritative sources stipulating requirements for continuous quality assurance of Danish authorities' administrative decision-making. This correspondingly applies to requirements for the continuous quality assurance of automated, administrative decision-making. A jurisprudential analysis must therefore, to a much greater extent than is the case regarding the requirement of reason-giving, be based on an analysis of deeper values and principles at the intermediate level of the law in particular which can be said to have an indirect effect on the requirements for continuous quality assurance.

The detailed analysis can be somewhat simplified into two parts: an analysis of quality assurance in relation to *administrative decision-making* which is largely characterized by statutory requirements and an analysis of requirements and consideration of the *substantive quality* of authorities' decisions. Specifically, the latter requirements and considerations are only minimally addressed by sources of law at the surface level and must therefore be derived from the two deeper levels of law.

With regard to requirements for continuous quality assurance in relation to *administrative decision-making*, public authorities must, as a consequence of the principle of constitutionalism, ensure that requirements that follow from framework rules such as the General Administrative Procedure Act, the Freedom of Information Act and the General Data Protection Regulation are complied with at all times (Motzfeldt, Ullits & Kjellerup, 2020: 89ff). This means, among other things, that in connection with relevant legislative changes, it must be ensured that underlying ICT systems reflect the changes. In the same way, it must be ensured that requirements for administrative decision-making are met when ICT systems are changed (Parliamentary Ombudsman, 2020a). A further need for adjustments can additionally arise as a result of clarifications of administrative law requirements in connection with, for example, opinions of the ombudsman or changes in practice at the National

Board of Appeal, which may make it necessary to legally reassess design and configuration of underlying ICT systems.

In certain situations, it will be obvious that an authority due to specific incidents – e.g., in the form of an ombudsman case law or new legislative guidance – is obliged to carry out quality assurance of decision-making processes and underlying ICT systems based on jurisprudence. It is difficult to set guidelines for when and how quality assurance should take place. The guidelines must instead be based on a concrete evaluation of relevant circumstances in the form of, for example, patterns of technical and procedural errors and considerations of proportionality.¹⁷

Turning towards the *substantive quality* of administrative decisions rather than administrative decision-making, it seems even more difficult to say something decisive regarding requirements for continuous quality assurance. The requirements for ensuring that underlying ICT systems generate substantively correct results must thus be based on an assessment of the context of the administrative decisions under the influence of the basic principle of legality and other principles of administrative law such as objectivity, consistency and equal treatment. The significance of these principles can only be deduced to a small extent from sources of law at the upper level and therefore depend to a greater extent on principles, thought structures, etc., at the two deeper levels.

A key factor in this regard is the nature and scope of the automated decisions. In the case of intrusive decisions, either on the basis of an absolute consideration or relative to the addressee in question, this will in principle strengthen requirements for quality assurance. Similarly, the principle of proportionality will probably maintain that, all other things being equal, greater demands must be put on quality assurance of systems that process high number of administrative decisions than on systems or subsystems that are only used for a limited number. Particularly in this context, however, the principle of proportionality will assume a more abstract nature and thus depend on a deeper understanding – or “legal sense” – of the principle.

Some inspiration can be drawn from the recommendations of the former Article 29 Working Party (replaced by the EU Data Protection Council) which states in its guidelines regarding the protection of data subjects' rights in automatic decisions that public authorities have an obligation to “[...] introduce appropriate procedures and measures to prevent errors, inaccuracies or discrimination...” In the same guidelines, several, more specific proposals for good practice such as regular quality assurance checks and independent third-party audits of ICT systems are mentioned (Article 29 Working Party regarding data protection, 2018: 28 and 32). The guidelines relate to

¹⁷ See Andersen on the principle of proportionality in general (2017: 157-158) and in relation to the principle of legality (2017: 131). For all the Nordic countries, no general principle of proportionality is mentioned in the administrative acts although the Swedish and Finnish acts, in § 5 and § 6 respectively, legislate the principle of proportionality in relation to specific administrative decisions.

fully automated decisions in general, but it also seems obvious to take them into account in relation to semi automated, administrative decision-making especially if this includes processing of sensitive, personal data.

Documentation of the continuous quality assurance is an issue that is not strictly regulated. It is, nonetheless, an expression of good administration to strive for openness in public administration and ensure trustworthiness, cf. the purpose of the Freedom of Information Act (§ 1) as the more precise documentation requirements will also, to a large extent, be influenced by the context. In this connection, it is important to ensure that the documentation enables audit authorities and – with certain exceptions – the public to gain insight into when and how the continuous quality assurance has been carried out.

5.2 QUALITATIVE ANALYSIS: EXPERIENCE WITH CONTINUOUS QUALITY ASSURANCE

While it was appropriate to distinguish between the requirements for quality assurance in relation to the decision-making vis-à-vis the substantive quality of decisions in the jurisprudential analysis above, the results of the interviews do not provide a basis for the same analytical differentiation.

For the respondents, it seemed obvious that underlying ICT systems used by authorities must be continuously adapted to changes in relevant legislation. Even so, only a few of the interviewed decision-makers and practitioners paid attention to issues of continuous quality assurance of ICT beyond this. An obvious explanation is that it is not very common to perceive continuous quality assurance as part of good administration. Limited operational insight might also contribute to respondents only reluctantly bringing up the topic.

Among the respondents who noted the issue, the strongest common feature was the monitoring of operational issues such as uptime on websites, services, etc., which several regarded as "natural" and "necessary" to assess whether the authority lives up to its obligations to citizens and businesses. It must be assumed that these comments were based on the fact that the authorities (and their suppliers) have operational procedures that enable sufficient corrective actions when problems arise with websites, services, etc. In a similar vein, one respondent expressed an increasing need for testing as part of quality assurance:

“[The] more we automate, the more professional we must be – and have become – around testing new initiatives, e.g., when we automatically send out new types of letters [to citizens]”

(practitioner, respondent # 48).

Respondents additionally mentioned various types of measures authorities have either taken or intended to take in connection with quality assurance of the ICT systems which are not unequivocally related to either the decision-making process or the substantive quality of decisions. One respondent emphasized the authority's responsibility to continuously make experience-based quality improvements and minimize errors in the advanced data and decision-making models that support the authority's partially automated administrative decisions. The same respondent mentioned that the advanced statistical models are based on so-called regression analyses which makes it possible to justify the decisions made, as the models are based on cause/effect which means the individual decision can always be traced back to the applicable rules and specific data. In addition to this – and in order to set a quality measure for the models actually used – the authority uses an advanced machine learning model internally which is based on general patterns of decisions and a larger amount of data. In this way, the authority achieves an ambitious measure of the models' accuracy rate but can still unambiguously link decisions to legal rules and data as referred to in the General Administrative Procedure Act's reason-giving requirements.

In general, respondents representing authorities using more advanced technology (e.g., fully automated decisions or machine learning-based decision support) tended to be more aware of the need for continuous quality assurance. This applied to both the technical quality assurance as referred to above, and the management's attention to employees' use of the technology. One respondent stated that the authority has worked to prevent the automatic reliance on the ICT system's decision proposals which may arise after prolonged use (see the above description of "automation bias"). Another respondent stated:

“We continuously plan to improve the regression model [which forms the basis for automatic decisions] at least every two years”

(practitioner, respondent # 43).

Finally, several respondents expressed that they expect the authority's audit functions to perform a form of quality assurance of usage of underlying ICT systems. This can be, for example, municipal authorities, where the respondents expect that the internal audit function carries out control of employees' operation of, e.g., automated decision systems. However, this particular aspect was seldom discussed and clarified in more detail by the respondents which is why an idealized and partly unrealistic expectation of other actors' activities cannot be ruled out.

No respondents reported that authorities systematically document their own quality assurance activities or publish information about this with the aim of, e.g., strengthening the trust of their wider constituency. Perhaps the reason for this is that such documentation and its publication is not perceived as being part of good administration or simply too far from more traditional ideas of good administration

historically linked to paper-based decision-making. A more likely explanation, however, is that only few authorities actually systematically employ quality assurance.

In summary, the interviews indicate that continuous quality assurance of usage of underlying ICT systems is generally handled rather unsystematically and is characterized by a non-uniform practice across the authorities. Furthermore, several of the mentioned quality assurance activities are only under consideration and are not yet employed in practice by authorities.

5.3 ADMINISTRATIVE LAW REQUIREMENTS AND LIVING LAW IN RELATION TO CONTINUOUS QUALITY ASSURANCE

When the results of the legal and qualitative analysis are compared, the overall picture indicates that decision-makers and practitioners are not fully aware of the various requirements of administrative law for continuous quality assurance of ICT systems used by authorities for automated, administrative decision-making. Requirements, which are only described to a very limited extent in authoritative sources of law, and therefore must be derived from broader, more immanent values and principles at the intermediate level. The respondents paid more attention to operational factors such as ensuring ICT systems' response and uptime¹⁸ – factors which are primarily perceived as related to efficient operations of authorities rather than requirements of administrative law.

There is a tendency for respondents representing authorities who use particularly advanced technology to be more aware of the need for continuous quality assurance. To the extent that respondents report continuous quality assurance activities, however, they seem to perceive the activities as unregulated tasks that relates more to general norms of professionalism, efficiency and ICT skills than to administrative law and underlying values and principles of good administration. In that sense and drawing on Tuori's theory, it seems fair to regard these latter norms as extra-legal.

6 DISCUSSION: LIMITED IMPACT OF DEEPER VALUES AND PRINCIPLES?

If we compare the two sub-studies, there seems to be similarities in relation to the impact of the intermediate level's values and principles despite their significant

¹⁸ This seems to coincide with the conclusions in a recent report from the Swedish National Audit Office which sheds light on the use of automated, administrative decision-making in three central governments. The Audit Office thus concludes that underlying ICT systems are tested and monitored to ensure that "information flows through the systems in a correct way" but that there are shortcomings in the way Swedish authorities' ensure and regulate automated decisions being in fact correct. It is the National Audit Office's assessment that the shortcomings are more due to unsatisfactory management of internal processes than to specific technical conditions (Riksrevisionen, 2020: 61).

differences. As far as reason-giving is concerned, this is a fairly precise and unavoidable requirement in § 22 of the General Administrative Procedure Act, which was widely known among the interviewed decision-makers and practitioners. This sub-study, however, also shows limited attention being paid to the underlying principles of the reason-giving requirement which we primarily placed at the intermediate level by applying Kaarlo Tuori's concepts. Increased emphasis on the principles could presumably help authorities make a sharper delimitation of decision situations where the reason-giving requirement applies and gives a more differentiated approach to the substantive requirements of giving reasons and communicating these. As a result of responding solely to the surface level – the provisions of the General Administrative Procedure Act – there is thus a risk that authorities unnecessarily set legal barriers for the use of advanced technology and at the same time are reluctant to employ technology to increase the comprehensibility of 'the explanatory memorandum' discussed in section 4.

With regard to authorities' continuous quality assurance, the scope of regulation at the surface level is limited. Instead, the requirements follow from deeper and more imprecise values and principles of administrative law. The respondents described it as a matter of course that underlying ICT systems must be continuously adapted to changes in relevant legislation, changes in administrative practice, etc., but also indicated that actual implementation of such changes can be a challenge. Via the respondents, we got the impression that quality assurance in practice is rather unsystematic in nature and characterized across the authorities by non-uniform practices not rooted in legally based considerations and obligations. It is likely that this is due to the absence of clear regulation combined with the fact that the underlying values and principles of administrative law do not appear necessary for the respondents. Instead, the qualitative analysis has uncovered an extra-legal, normative level in the form of considerations that relate to professionalism, efficiency and ICT skills which are all norms that can be understood as part of Eugen Ehrlich's living law.

In Figure 2, the two sub-studies are placed in relation to Tuori's 3-layered understanding of the law. The dark markings indicate the extent to which the reason-giving requirement and requirements for continuous quality assurance from a jurisprudential point of view are rooted at the respective legal levels while the approximate location of the respondents' statements of relevant requirements and considerations is marked with a lighter marking.

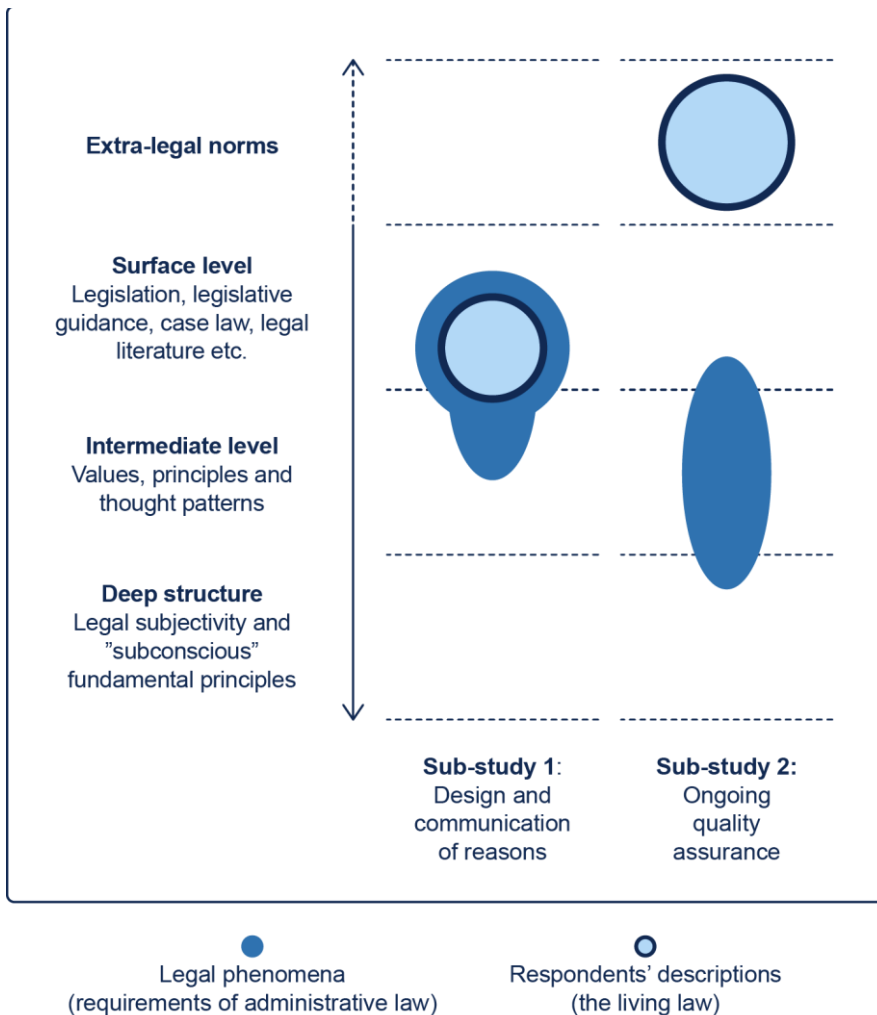


Figure 2: Illustration of the two sub-studies according to the three layers of law

As far as the jurisprudential dimension is concerned, the requirements for the wording and communication of reasons are primarily placed at the surface level (the General Administrative Procedure Act, ombudsman case law, etc.) while requirements for continuous quality assurance are rooted in deeper, abstract values and principles such as legality and proportionality which are not immediately observable in legal sources and are primarily analytically rooted at the intermediate level. The varying significance of the different types of legal phenomena is marked via differences in the extent of markings. In addition to the three legal levels, an additional, level consisting of the mentioned extra-legal requirements and considerations is also illustrated.

As can be seen from the figure, there is a marked overlap between the legal requirements and the respondents' description of practice when the legal requirements appear directly in the more explicit legal sources at the surface level as is the case with the wording and communication of reasons. The respondents' statements, nonetheless, do not reflect the relevant values and principles at the intermediate level. In situations where the legal requirements in the absence of explicit rules depend to a greater extent on values and principles at the intermediate level, as is the case in relation to continuous quality assurance, extra-legal norms appear instead to have greater significance for authorities' practice. To put it another way, this suggests that respondents almost exclusively comprehend and perceive continuous quality assurance as a technical matter rather than a legal one.

Taken together, the two sub-studies suggest that the intermediate level's more immanent values and principles have limited impact regardless of whether they are included in combination with precise and unavoidable requirements of administrative law at the surface level or in combination with limited regulation at this level. Further, the values and principles of the intermediate level have limited impact regarding whether they relate to authorities' understanding of how administrative decisions are made (in this case authorities' wording and communication of reasons) or to authorities' understanding of the need for specific procedures (in this case continuous quality assurance of usage of underlying ICT systems).

7 CONCLUSIONS

Public authorities' ever-increasing use of advanced technology is an example of an area of society characterized by the possible absence of a clear legal basis. In order to gain a greater understanding of what this means for authorities' practice, the preceding sections have combined a dogmatic, jurisprudential and qualitative analysis in relation to the article's two sub-studies: authorities wording and communication of reasons and continuous quality assurance. This has illustrated the interplay between authoritative sources of law and the "living" administrative law (represented by the statements of the interviewed respondents) in relation to Danish authorities' use of technology.

The two sub-studies suggest that deeper, more immanent values and principles of administrative law may have difficulty impacting authorities' practice: the "living" administrative law. This applies regardless of whether this is done in combination with precise and unavoidable requirements at the surface level or in combination with limited regulation. Across authorities and professional groups, there is no sign that practice is significantly affected by the values and principles of the intermediate level if these are not simultaneously expressed at the surface level in the form of legislation, ombudsman case law or other authoritative legal sources. In the case of limited regulation at the surface level, the analysis suggests that the authorities' understanding of requirements and considerations in connection with continuous quality assurance

stems at least as much from extra-legal norms in the form of e.g., professionalism, efficiency and ICT skills as from deeper legal values and principles.

Without the absence of clear regulation in itself necessarily being a problem, it is worrying that the lack of impact of relevant, deeper principles of administrative law means that – at best – extra-legal norms influence the practice of authorities. This points to a need for either a clarification of administrative law (administrative law, ombudsman case law, etc.) that explicitly address the specific issues raised by the authorities' use of advanced technology or for a broader strengthening of the understanding of deeper, more abstract values and principles of administrative law relevant for the use of such technology.

Clearer sources of law will presumably contribute to greater uniformity and compliance across authorities but may conversely risk underlying values and principles being overlooked (e.g., the sub-study on the authorities wording and communication of reasons). A broader strengthening of the understanding of values and principles of administrative law will be more flexible and to a greater extent enable a continuous adaptation of authorities' practice to new technological possibilities over time. On the other hand, the latter approach risks leading to a more unsystematic and non-uniform practice across authorities which is particularly seen in the sub-study regarding continuous quality assurance.

From a methodological perspective, the study and its results have demonstrated the potential of combining a dogmatic, jurisprudential analysis and a qualitative analysis to gain nuanced insight into the interplay between rules and practices of administrative law relevant to government use of technology, including the extent to which legal or extra-legal norms influence the practice of the authorities. Theoretically, the study has demonstrated how the inclusion of Kaarlo Tuori's critical legal positivism can contribute to analyses based on distinctions between immediately available legal sources and deeper legal levels as well as between legally based norms and extra-legal norms. At the same time, the study has indirectly challenged the importance that Tuori attaches to the two deeper levels in his theory. Both sub-studies indicate that the intermediate level's deeper, more immanent values and principles have a modest impact on Danish authorities practice regardless of whether lawyers or other professional groups address the issues. Whether this is also the case in areas other than the focus of this article should ideally be elucidated by other studies with a similar methodological approach.

A specific perspective on the results is a re-actualization of a classic jurisprudential question: What is an appropriate jurisprudential approach in areas characterized by limited or complete absence of regulation? The results of this article give a basis to consider the extent to which jurisprudence in such cases should draw on what we, in the words of Eugen Ehrlich, call the living law. A possible research focus is thus the legal status of authorities' practice and the possible extra-legal norms on which this is

based without those being considered authoritative law in a traditional legal sense. Specifically, to what extent such factors can and should be given importance when, e.g., the Ombudsman, or, not least, the courts assess authorities' use of ICT, including their responsibilities in relation to such, should be considered.¹⁹

EPILOGUE: A LIKELY SCENARIO IN THE GOVERNMENTAL AGENCY

It is now time to turn our eyes to the situation in the fictitious, governmental agency that initiated this article. Here, the lawyer, Kurt, from the agency's legal department was tasked with assessing a new ICT project where machine learning enabled recognition of aerial and satellite imagery would make it possible to continuously determine whether protection legislation is complied with. If we transfer the result of the article's analysis to the fictitious agency without further nuance,²⁰ it can be predicted that while some of the elements Kurt was initially in doubt about – e.g., the requirement for reason-giving and the possibility of redress – are addressed by existing legislation and case law at the surface level, there are also a number of matters which are either not or are only to a limited extent addressed in authoritative sources of law. This can either be due to the fact that there are simply no legal rules in the area in question or that the legal rules in question are not aimed at the specific issues that arise in connection with the use of automated, administrative decision-making.

It will therefore be necessary for Kurt to search for underlying values and principles of administrative law. It can further be expected to be difficult for Kurt to assess the project solely on a legal basis. Kurt will therefore probably have to – in collaboration with, for example, Bent, who sits on the conservation office board and Pernille, from the ICT unit – include relevant extra-legal norms so that these can complement more abstract, deeper requirements and considerations of administrative law. Obvious foci for Kurt, Bent and Pernille, could be, designing an easy-to-understand the explanatory memorandum for landowners and property owners, continuous quality assurance of the underlying ICT system's ability to generate accurate results, and ensuring municipalities' insight into the quality of these results – all of which are topics that Kurt was only partially aware of during the introductory meeting.

¹⁹ The Danish Supreme Court recently assessed whether it was incumbent on the Danish Court Administration that property owners – in connection with the Court Administration's implementation of a fully automated registration process in 2009 – experienced significant delays in said process (Ugeskrift for Retsvæsen, 2020: 2851H). In such situations, where it is difficult to set a clear legal standard for authorities' practice, it seems reasonable that a clarification of government practice, including the importance of relevant extra-legal norms, could provide courts with an improved basis for assessing the issue of liability. In the specific case, the Supreme Court concluded that the National Board of Justice did not incur liability.

²⁰ In contrast to the article's prologue, this is not a "composite narrative" based on data but rather a transfer of the article's analysis and conclusions to the situation described in the prologue.

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SUMMARY

In his thesis, PhD Fellow, Ulrik B. U. Røhl, explores the relations between increasing use of automated, administrative decision-making by public authorities and internationally accepted regulations, norms and values of good administration.

Drawing on the disciplines of Public Administration, Law, Information Systems, and Science and Technology Studies, as well as empirical data from Denmark, he sets out to explore if automated, administrative decision-making and good administration are friends, foes or complete strangers. The thesis serves as a microcosm of ongoing social and ethical debates regarding use, potentials and regulation of increasingly advanced technologies in modern society.

The thesis concludes that relations between usage of automated, administrative decision-making and good administration are widespread and tend to be particularly complex regarding the underlying values of responsiveness, accountability and fairness. Use of automated, administrative decision-making is further found to both support and undermine good administration indicating that such use is rarely a “silver bullet” that supports all values of good administration at the same time.