

The Adoption of Artificial Intelligence in Bureaucratic Decision-making: A Weberian Perspective

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This work questions AI´s role in bureaucratic decision-making. The Weberian conception of bureaucracy, based around the concept of an ideal bureaucracy in which authority is distributed, delegated, clearly delimited and hierarchical and that enshrines the following of formal rules, task specialization through division of labor, legal certainty and a predilection for efficiency in recordable and accountable decisions can serve as a framework to orient how governments should approach the adoption of artificial intelligence (AI) given the many problems associated with its careless deployment. Using theoretical analysis, this work explains Weberian ideas of bureaucracy and contrasts them with real-life cases of implementation of AI in bureaucratic decision-making, often with detrimental results for society. After identifying and framing issues related to AI, e.g., lack of transparency, attempts to shift accountability from humans to technology, the exacerbation of bias and potential for systemic discrimination, the paper proposes Weberian prescriptions that should help public administration make careful decisions about the adoption of AI and the consequences of its implementation. The article also engages with Weber critically, rejecting the notion that public administrators do not engage in politics and asserting that AI decision-making is necessarily political as well, as it entails exercising power over citizens.

CCS Concepts: • **Social and professional topics → Governmental regulations**;

Additional Key Words and Phrases: Weberian bureaucracy, Digital Government, artificial intelligence, automated decision-making, Al bias

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How the Weberian ideals of Hierarchy, Legal Certainty, Accountability and Due Process in bureaucracy invite a careful consideration of the integration of artificial intelligence into bureaucratic decision-making.

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1 INTRODUCTION

Max Weber´s *Economy and Society* proposes a Theory of Public Administration in which bureaucracy is the most rational form of government possible, establishing bureaucratic government´s essential role in ensuring a legal order that allows the state to govern society through administration [1]. Weberian logic is one of control and legal certainty as exemplified in how relationships between administration and the governed are mediated through common administrative processes. After all, bureaucratic public administration, as proposed by Webber, is "ideal" (in the sense of "pure") when it operates independently of the actions and dynamics of politics and politicians and where authority is distributed, delegated, clearly delimited and hierarchical. For Weber, this is what positions bureaucracy as essential to sustain power and politics. Thus, Weberian bureaucracy establishes formal rules, task specialization through the division of labor, a hierarchical management structure with a predilection for efficiency and where decisions are carefully recorded to ensure accountability.

Within the context of this work, when we speak of bureaucratic decision-making, we refer specifically to the decisions made by those bureaucrats that act as "the intermediaries between the state and the people" [2] and that are tasked with balancing "policy and rules and exercise discretion while meeting the needs of the individual when making decisions that affect their lives" [3]. In other words, this work concerns itself with the decisions made by so-called "street-level bureaucrats" [4], those that exercise discretion acting with "considerable latitude implementing broad policy mandates of a legislative body" [5] and have a "range of choices within a set of parameters that circumscribe the behavior of the individual service provider" [6], the ones that often "determine eligibility for government programs" [7]. Thus, this work explores how **artificial intelligence (AI)** in public services "supports or replaces human autonomy, discretion, and decision-making capabilities" [8] for these street-level bureaucrats.

Bureaucracy has experienced a Copernican shift in terms of its approach to technology and its adoption. It went from caution and forbearance, slowly adopting technology over a long number of years to a drive to adopt new technologies more rapidly, and often more recklessly, as we entered the era of what we now call e-Government or Digital Government. This led to what we could call Automated Government or Automated Bureaucracy, which seeks to adopt and use artificial intelligence as a tool for decision-making.

AI's potential to increase the efficiency of bureaucratic decision-making, reduce costs and human error and its promise to eradicate bias and discrimination from decisions seems to have convinced those at the helm that the adoption of this technology is a must if they want to move forward with the constant quest for modernization and efficiency. They believe that this will assuage criticism that chastises public administration for being slow, inefficient and expensive while at the same time they seem attracted by the promise of more effective and objective decision-making achieved through the supplementation or even the substitution of human decision-making capabilities [9].

On the surface it may seem that the adoption of these technologies and the goals pursued may be compatible with Weber's conception of the ideal bureaucracy. Automated decision-making technologies are said to be adopted in the name of efficiency; and AI is often applied to very specific tasks. The nature of software means that AI yields its results by following a particular set of rules. It may not necessarily alter the hierarchical structure of an administration as it is likely that the decision to adopt the technology and where to implement it will be dictated by those at the top of the management chain inside public administration. The very complex nature of the technology and the necessary steps for its integration inside an automated bureaucracy, the fact that it mostly depends on proprietary technology and on collaboration from the private sector for its implementations guarantees that decisions on its use will only be top down. On the surface, it may seem that artificial intelligence does not alter existing hierarchies. On the contrary, it helps solidify them.

However, as we will see, artificial intelligence, at least as it exists today, instead contravenes the ideals of the Weberian bureaucracy. One particular reason among others is that artificial intelligence, despite its promises, does not work as intended and does not seem to be capable of doing what it says it does well enough, at least as it currently exists.

As we highlight in this work through the study of several cases of implementation of artificial intelligence by public administration, it is well-documented that this technology has a severe bias problem. Where it promises to aid in decision-making by eliminating human error and bias, the cases highlight how the technology often leads to error, reproduces the biases of its creators, contributes to perpetuate them, and to deepen inequalities and discrimination. The studied cases also highlight that sometimes artificial intelligence is used as a shield from accountability, with the administration hoping to shift the responsibility from individuals to automation. There also seems to be serious transparency deficiencies as public administrations do not always clearly inform citizens that they are being subject to decisions aided or enabled by artificial intelligence technologies. Sometimes, it is not clear to citizens if they are interacting with machines and not with individuals. Another transparency deficiency seems to be related to the difficulty of explaining how such complex technological systems work, both in terms of how obscure technological decision-making processes have become and how hard it is to explain to everyday citizens how the technology works.

To frame these case studies, we first look at how public administration has traditionally approached the adoption of technology and what may be some of the reasons why there is a shift. Then, using theoretical analysis, we analyze how a Weberian ideal bureaucracy would approach the adoption of technology and how it would receive technology such as artificial intelligence. Using theory as the language for generalization will allow to "move from one particular to another with confidence" [10]. Theoretical approaches to public administration are at their best when they "can combine an attention to theory and generalization with some understanding of how public administrators operate *in situ*" [11]. This work focuses on the former in order to put the focus on the "significance of the values that characterize public administration" to single out what "sets public bureaucracies apart from other organizations" [12] and thus, analyzes from the point of view of theory and Max Weber´s positions, why the approach to adopting artificial intelligence in decision-making by public administrations should abide by particular rules and be understood from a specific perspective.

The article also engages with Weber critically, rejecting the notion that public administrators do not engage in politics when making decisions. We highlight the fact that AI decision-making is necessarily political as well, as it entails exercising power over citizens and their rights. The work further seeks to explain why the current state of artificial intelligence and the way governments are implementing it are not compatible with Weberian expectations of a public administration that works for the benefit of all. The work also proposes that evaluating the use of these technologies and making decisions on their implementation based on a Weberian perspective can help public administration make more careful choices regarding adoption and use of AI in ways that adequately consider the consequences for citizenship and can help anticipate and mitigate possible harms. This work concludes that public administrators should openly engage with the politics of AI adoption and use, and in striving to exercise their power responsibly, they should resist any careless attempts to quickly adopt AI and question the role of these technologies in bureaucratic decision-making.

2 ARTIFICIAL INTELLIGENCE AND WEBERIAN PUBLIC ADMINISTRATION

Throughout history, particularly in relation to technological innovation, bureaucratic public administration has not managed to leverage advancements in a timely matter and has often failed to benefit fully from them. The use of innovative software, and communication technologies, particularly since the appearance of the internet (even if governments had a significant role it is development), seems to have moved at breakneck speed everywhere but inside public administrations. The distance between the line bureaucratic public administration threads and the one that the rest of contemporary societal actors follow seems to have broadened rapidly, making any hard turns much more difficult. Perhaps because of this historical lag, in recent times there has been an eagerness on the part of those in charge of public administration to try and be as innovative as possible and to develop the drive to adopt technology as fast as possible to bridge that historical gap. This seems to be particularly evident in relation to the use of large quantities of data by the government and the use of AI technology for various purposes, including decision, making that directly affects the lives—and rights— of the governed.

Beyond this urge of not being left behind, it is necessary to analyze if the adoption of artificial intelligence by public administrations, particularly in bureaucratic processes, is desirable and if it can lead to positive outcomes not only in terms of efficiency and speed related to how bureaucracy is run and decisions are made but in terms of outcomes, if on the whole these are positive for bureaucratic public administration specifically but more in general, for the whole of society, for citizens and their rights.

In Max Weber´s *Economy and Society* [13], the author presented his Theory of Public Administration. He proposes that bureaucracy is the most rational form of government possible, establishing bureaucratic government´s essential role in ensuring a legal order that allows for the government of society through administration. Weberian logic is one of control and legal certainty as exemplified by how relationships between administration and the governed are mediated through common administrative processes. After all, the ideal bureaucratic public administration, as proposed by Weber, operates independently of the actions and dynamics of politics and politicians and in it, authority is distributed, delegated, clearly delimited and hierarchical.

The drive to harness technology in a timely matter, combined with the unquestionable hype around artificial intelligence and statistical regression analysis software fuels an impulse to incorporate these technologies into public administration. On the one hand, if Weberian public administration is all about fairness, justice and the rule of law, then adopting artificial intelligence in bureaucratic processes is desirable insofar as this technology can "…support bureaucracies to achieve an even greater authority over information, through complex analysis and use of big data" enabling a mechanization of bureaucracy "through increased automation and formalization" [14] and put administrations in the path towards that holy grail of a bureaucracy free of the external pressures of politics, as, at least in theory, "more computing power, more intelligent programming, and more advanced automation could effectively enhance a bureaucratic organization's existing Weberian qualities by making them stronger and more efficient" [15]. Thus, it may seem that for the ideal Weberian bureaucracy, a deepening of its mechanistic qualities seems to advocate in favor of artificial intelligence as long as the values of rationality, neutrality and impersonality are maintained alongside a proven benefit in terms of improvement of bureaucratic efficiency in making decisions.

This is not so. Weber was wrong in separating politics from bureaucratic decision-making. Insofar as bureaucratic decision-making that adjudicates the rights of citizens is a form of exercising power, then these decisions are intrinsically political. To the extent that these decisions are left to a machine, then the decisions made by the machine are also political and will reflect the political values of those that designed them, and those that have decided to adopt and implement them inside public administration.

By no means is AI adoption in bureaucratic processes a manifest destiny. Just like with any other tool, technological innovations, their adoption and implementation are not the product of natural evolution or inevitable. They are the product of political decisions, and both their design and implementation are policy choices.

Weber also offers other compelling arguments to abstain from believing the hype and jumping right into the full integration of artificial intelligence in all areas of bureaucratic decision-making. Weberian logic serves itself as a counterpoint for the adoption of technological innovation without carefully considering its implications first.

Technology does aspire for greater efficiency through, among other things, innovation that allows for cost reduction, improvements in the production, handling and analysis of information and large quantities of data, the creation of digital networks that can improve cooperation (for example enabling remote collaboration), although this cannot be guaranteed just by the adoption and implementation of technological innovations.

Yochai Benkler proposes that technology-enabled networks allow individuals to pursue their own interests independently, and without a centralized authority, by leveraging the culture of sharing through digital media to generate a knowledge-economy of scale that is distributed in a socialized manner [16]. Precisely because peer-production based around decentralized individual production does not depend on a central authority, it would enter into conflict with a Weberian public administration in the terms already described. Peer-production demands a great degree of individual discretion and liberty for action based on personal interests. Weberian

bureaucracy, in contrast, is based around predetermined objectives and requires rigorous compliance with the functions bestowed upon every cog in the Weberian wheel.

Those that promote decentralized knowledge-production schemes and similar instances of digitally enabled communication innovation inside bureaucratic administration surely seek to improve upon the efficiency of the State [17]. They argue that they are fundamentally more democratic as they foster individual autonomy, which justifies their distancing from formal rules [18]. In contrast, the Weberian conception of bureaucratic public administration justifies maintaining a rigid hierarchization in the legal certainty it provides that can help achieve goals in an efficient manner. Weberian logic does not concern itself with horizontal decision-making in its search for efficiency, and may not afford the flexibility and velocity that trial and error [19] brings to these types of problem solving, a factor that clashes directly with *move fast and break things* types of innovation.

This is but an example of how technology can help achieve some Weberian ideals and at the same time experience rejection by Weberian ideals. The Weberian construction of bureaucratic public administration, when facing new technological realities, ends up exhibiting its own structural deficiencies that get in the way of the required training for public employees and emerge as barrier for the adoption of innovation, particularly when technology strays too far from its subjacent philosophy.

Bureaucracy can be itself a barrier for innovation. The bricks from which this barrier is constructed include externalities that come from the political environment or different stakeholders (Weberian logic staunchly demands that their influence be rejected) as well as from legal rules and the inefficiencies that have been identified in the managing structure of bureaucracy [20]. The ideology and values of those that work in public administration may also constitute another brick in that wall.

Weberian philosophy demands abiding by the rules and the strict following of a process, values that are at the core of a bureaucratic culture that may clash head on with innovation. While laws and procedural rules can be adapted to create spaces for innovation in bureaucratic processes, it is possible that either the expected returns or the risk of responsibility for any failures or squandering of resources may dissuade public employees from taking any risks [21]. At the same time, this aversion to risk may make artificial intelligence, and its promise of deputizing the machine to make decisions instead of humans, a seductive alternative.

The need to establish accountability in democratic governability systems also requires a certain amount of restriction in the level of autonomy that is possible within the public sector. It makes it necessary for hierarchical organizations to be aware of and authorize the actions of their subordinates to be able to surveil what happens within them and generate accountability, erecting another roadblock to innovation.

Free market and free competition are also absent from the public sector (at least in its most traditional conception) and this absence does not generate the need for unnecessary risk taking that may yield better financial results, as it would in a competitive market. The public sector tends to be more stable and free competition is seen as a destructive force because bureaucratic public administration, particularly in democratic societies, will always put social cohesion and the common good before economic efficiency. This is another hint of the incompatibility of artificial intelligence with Weberian bureaucracy as generally, those that develop this type of software, at least in recent years, have moved at breakneck speed to bring their products to market (even claiming that the technology can do things [22] that it really cannot do [23]) and public administration is not necessarily prepared to navigate steep learning curves [24].

Finally, the size of modern bureaucracy can be an obstacle to the adoption of innovation in and on itself. The size of the bureaucratic apparatus of modern states makes effective and efficient bureaucratic administration a challenge, so, while a Weberian ideal is desired, it remains an elusive goal. The inefficiency of public administration in the use of resources and even the existence of competing forces and interests within such large operations make innovation spaces within bureaucracy difficult to sustain because moving such a behemoth does not allow for the nimbleness and speed that can lead to finding innovative solutions to face new challenges, which in turn can lead to the demoralizing of those that must face such tasks [25].

Before concluding this section, we must also point out that the challenges to innovation within public administration are what they are, but administration may not always see innovation as desirable. Again, the quest for efficiency inside Weberian logic, as well as the mechanic qualities of Weber's ideal bureaucracy, can be used as an argument to support this. However, we should point out that the motivations for innovation vary greatly from those we would find in a private enterprise. While in the private sector the search for competitive advantage, increasing market share and profit are the drivers, in the public sector, improving efficiency and the quality of governmental services in administrations seem to motivate the drive to innovate [26].

The difference in motivations and goals from a Weberian point of view give weight to arguments in favor of carefully considering a technology adoption, and artificial intelligence should be no exception. On top of this, and as the case studies selected for the following section illustrate, we must take the following considerations into account:

Promoting technology, predicating on its benefits, and advocating for its adoption, does not mean its adoption is inevitable. While technology can aid in increasing the efficiency of bureaucratic decision-making, it is not itself synonymous with efficiency. Technology can be used as a tool to aid in decision-making, but we should not assume it can always lead to better, more impartial, and just decision-making. In other words, no technology is synonymous with better decision-making on its own. Technology can be integrated into bureaucratic decision-making inside a public administration, but it should never become a substitute for public administration itself, nor should it ever substitute those that make bureaucratic decisions or steer public administration.

Technology will not help separate politics from bureaucratic decisions, as Weber would have it. Instead, technology can substitute the political decisions of the humans that make bureaucratic administrations with the political decisions of those that have created the technology and of those that mandate their adoption by public administration. Thus, public administrators need to make the political decision of resisting blind calls for innovation and the adoption of technology that can substitute human decision-making within administrations.

A heightened level of scrutiny is necessary to determine if AI should be adopted and to what degree, and to decide in what instances a particular technology should be used and in what instances it should be banned or abandoned. This necessarily demands that public administrators carefully scrutinize if technology works properly and if it can actually help improve both efficiency and quality of governmental services. Most importantly, public administrations should assess if technology can in fact guarantee and protect the rights of citizens and help improve the lives of the governed.

3 ARTIFICIAL INTELLIGENCE IN BUREAUCRATIC DECISION-MAKING: EXAMPLES THAT INVITE CAUTION

Weberian public administration is not compatible with a rapid adoption of new technologies, including AI and Weberian ideals would only support the adoption and use of AI as long as legal certainty, control, rationality, neutrality and impersonality can be maintained and hierarchies are not significantly altered. At the same time, Weberian public administration would only welcome AI if the technology can improve on both the efficiency and quality of governmental interactions between citizens and administrations and yield outcomes that guarantee and protect the rights of citizens and improves their lives.

However, if the recent history of the use of AI in public administration is any indication, this seems difficult, at least at present. As this section shows, there are several examples around the world that invite caution when integrating AI in public administration. Both in terms of how the technology seems to work and what results from its application, it is hard to argue that there is an increase in efficiency. And, if there is, then it is hard to see how the outcomes improve the lives of citizens and the relationships between the administration and the subjects of the state. Certainly, the fact that AI enhances the machinistic qualities of the Weberian public administration are not reason enough to argue for its adoption if the benefits are not there.

First conceived in the 1950s [27] the term "artificial intelligence" was first used in 1956 [28] and it is used somewhat ambiguously and generically to describe a wide range of technologies. For the purposes of this paper,

we want to refer specifically to AI based on the dominant paradigm of pattern recognition resulting from statistical regressions that relies on the use of *big data*, as we agree with Acemoglu and Restrepo that this instance is the one that tends to generate the most socially adverse consequences, including negative effects for political discourse and democracy [29]. Cathy O'Neil warns that data science simply translates moral decisions into data language by simplifying them in order to allow predictive patterns that depend on available information and what programmers consider relevant [30]. Frank Pasquale also reminds us that, time and time again, research that is critical on AI has demonstrated how a binary conception of who and what people are always fails to represent individuals in an adequate, just and humane manner [31]. Others warn that particularly when AI is applied to generate 'predictions' around human behavior and social outcomes, it "increasingly involves asserting… *probable* outcomes as bases for *definitive* judgements -despite mounting evidence that much of what we call AI is "fundamentally dubious" for predicting phenomena…" [32].

Despite these concerns, it seems that public administration is more than willing to adopt AI technology: [33] "rapid advances in digital and computing technologies have changed the operation of public administration in many countries. In areas like tax collection, criminal justice, and public health, sophisticated computerized data processing systems are becoming essential elements in the implementation of public policy and the delivery of public services" [34]. This has happened even if, as the European Union has warned, the use of this technology can result in negative impacts, particularly when used for the adjudication of welfare and benefits [35].

One example of what can go wrong when AI is adopted by public administration comes from the Netherlands. In this northern European country, a self-learning algorithm was adopted in order to help identify instances of welfare and tax fraud [36]. The algorithm, in operation since at least 2012, started developing "patterns of bias, disproportionately labeling those from lower-income backgrounds, immigrants, and ethnic minorities as having committed fraud" [37] with the humans tasked with making the decisions within the tax authority wrongly accusing more than 20,000 families of fraud [38]. A report by the Dutch Data Protection authority uncovered that particularly, parents with dual citizenship were systematically identified as high-risk by the biased algorithm [39]. Some people received bills of up to €100,000 [40] with no means of redress [41] and over one thousand children were separated from their families and placed in foster care as a result. [42] In a report, the Dutch parliament called this an "unprecedented injustice" [43] and the scandal eventually led to the Dutch Prime Minister's government to resign [44].

In another case, a court in the Hague declared that an AI program called "**System Risk Indication**" or **SyRI** used by the Dutch Ministry of Social Services was illegal because its use, and the legislation regulating it [45], was found to constitute a disproportionate invasion of citizen privacy and that the opacity of the algorithm led citizens defenseless against such invasions [46], thus, violating Article 8 of the European Convention on Human Rights [47] as no reasonable balance was struck between the goal of fraud detection and the breach of privacy [48]. The court found that Dutch authorities failed to exercise their special responsibility towards the application of new technologies that can invade privacy [49]. Beyond that, it seems that the algorithm was "implemented deliberately only in the poorest neighborhoods of the Netherlands where underprivileged and immigrant populations tend to make up a large share of the demographic" [50].

As we can see from these Dutch experiences, the problem is not only that the government has implemented faulty and biased black box algorithms [51] which led to gross injustice and undue invasions of privacy. The problem is also one of implementation, often done without transparency [52] - and in a way that puts only the most vulnerable at risk [53]. According to Dutch public television, at least 54 different government agencies use predictive algorithms [54].

Another area where governments seem to be enthusiastic about the use of AI technology is in facial recognition, even if there is evidence that this technology does not perform as well as some would like to think. [55] Inside the European Union, and despite the existence of a directive that regulates the use of personal data for criminal law enforcement purposes [56], and even though guidelines for facial recognition exist [57], it is still

not clear how well this software actually works or if such legislation can guarantee enough protection for the rights of those that may be potentially impacted by its use.

Many research papers and journalistic investigations have warned about the dangers of facial recognition technology. It comes as no surprise that some of these studies have warned that the use of this technology heightens the risk of racial discrimination [58], particularly when the social context of its implementation is ignored, and especially when in such context, racism and racial prejudice are more salient [59]. Research also highlights that the use of faces to assess threats tends to increase the risk of discrimination against certain groups simply as a result of skin color [60]. Yet another work, while studying the use of facial recognition for commercial purposes, also found that in general, facial recognition software is not particularly effective for correctly identifying transgender people and that algorithms are often trained on outdated stereotypes [61].

Despite claims to the contrary, it is the lack of sophistication of facial recognition technology and the algorithms behind it combined with the aforementioned concerns that had led to the outright ban of their use by some governments. For example, the city government of Somerville, Massachusetts adopted a general ban on facial recognition technology for law enforcement purposes and also banned its use by its municipal agencies [62]. While Somerville was among the first, it was not the only government to adopt a ban, even if there are indications that the trend of prohibiting the use of facial recognition by local governments is starting to revert [63].

It is public knowledge that in the United States, among other countries, for example Spain, AI has been used by courts to make decisions regarding parole using software to assess the probability of recidivism or the perceived risk of alleged criminals [64]. In these cases, it is well documented that the use of AI only reinforces the bias and discrimination already present in these decisions before the use of technology [65]. Software has also been used for "predicting" future criminals or where a crime is more likely to occur, a practice known as "predictive policing" [66]. These are tools that utilize a series of data to make predictions about the possibility of criminal activity occurring in the future [67] and aid in the creation of crime prevention or early intervention strategies [68]. It is well documented that this can lead to the over-policing of certain communities [69], racism [70] and other forms of discrimination [71]. It amounts to a "self-fulfilling prophecy" in which police focus their efforts on any given neighborhood as directed by the algorithm and eventually, the data shows that the area is indeed riddled with criminal activity [72].

As these cases illustrate, AI has an inherent bias problem that is "a direct result of the way that human beings have consciously designed both software and hardware to function this way and no other" [73]. These biases are also present in AI used by public administrations alongside "automation bias" or the "undue deference to automated systems by human actors that disregard contradictory information from other sources or do not (thoroughly) search for additional information" [74], which has also taken hold of bureaucratic decision-making. There seem to be widespread issues related to lack of transparency, undue invasions of privacy and biased algorithms that do not work as intended. The problem is not only that the government could implement faulty software, is that it is choosing to do so despite the evidence that its use does not result in a better life for their citizens.

Transparency and accountability seem to be monumental challenges [75]. Work after work [76] and report after report [77] issue warnings: AI has inherent issues "relating to bias, unfairness, and discrimination in decisions." It has been repeatedly proven that AI leads to discrimination and unfair treatment [78] and "such discriminatory consequences of using data-oriented technologies may add to the already existing prejudices in the workplace and society" [79]; In many, if not all cases, "it will be virtually impossible to determine how or why a particular outcome was reached" [80]. Further use of technology will expose machines to be "misled in ways that are difficult for humans to identify, understand and control" [81]. Helga Nowotny argues that the explainability problem is even deeper, as the real problem is a fundamental incompatibility between the logic of the algorithms and politics. If traditional politics is based on political compromise and consent, she says, algorithms are mere speakers that simply amplify decisions that do not tolerate ambiguity, something inherently human [82].

It may be that that this is not just a matter of fine tuning the technology [83] or selecting better data to feed the statistical model [84] so that it does not produce biased outcomes [85]. It is not a problem that will be easily

solved with better algorithms as, at its core, this is an inherently human problem. It is also a matter of the nature of the technology that is being used. Technology that uses statistical regressions and data sets tends to have the biases of its creators embedded and it ends up reproducing those biases [86]. That is just the way it works.

The hope that the use of technology will lead to fairer decision-making seems to be unjustified, at least as of the time of publication of this work. Right now, it seems evident that technology simply enables the decision-maker to lay the blame of any potential erroneous -or biased- decision on the technology. In other words, in the policy choice of deciding to implement AI in public administration, there may also be a policy choice of transferring the blame to the computer, to shift the burden of accountability to the machine. If problems are so well-known, and the alarm has been raised, then why do governments seem to assume that the only way forward is the adoption of these technologies?

In predicting policing for example, there are narratives that attempt to frame the use of predictive analytics and artificial intelligence as tools for "police reform" as technology can counter arbitrary or biased decision making by humans. There is something incoherent about acknowledging that the tools are biased and proposing that these tools can eradicate bias in decision-making [87]. Believing that the tools can be fixed, and bias and arbitrariness mitigated before first discussing if predictive policing is a tactic compatible with democratic governments that seek to guarantee the rights of their citizens is like putting the cart before the horse.

Some of these tools are used to try and predict situations and places where there is more likelihood of criminal activity or where it is more likely that there will be a victim, there are others that try to predict which individuals are more likely to commit a crime. In the case of predictive policing, and particularly when it is known that risk mitigation strategies [88] are not known for being particularly effective [89], concerns about massive surveillance, personal data protection and discrimination [90] may arise alongside the very real effects the use of these technologies by the government can have for the presumption of innocence. Particularly in democratic regimes, it is hard to understand how a government can justify the use of technology that "accuses" someone of committing a crime before that person engages in actions specifically defined in criminal law statutes.

Regarding the use of algorithms to deliver public services [91], scholars have risen concerns about the rise of "digital welfare states" [92]. Governments claim that adopting AI makes their services more efficient and cost-effective [93], but as Amnesty International has warned, "xenophobic machines" [94] use racial profiling at the very core of their systems, disproportionately impacting the most vulnerable [95]. It is clear that the promise of cost saving, fraud reduction and greater efficiency as well as being labelled as the most technologically advance government is alluring for any government administration, but as the UN Special Rapporteur on Extreme Poverty and Human Rights eloquently expresses: public administrations around the world should be careful not to stumble "zombie-like into a digital welfare dystopia" [96].

Governments are currently in the process of drafting and adopting rules [97] that can better regulate AI in an effort to protect the fundamental human rights of those impacted by technology in the hopes that rules and governance will mitigate bias, discrimination, excessive surveillance and invasions of privacy as well as other harms resulting from the use of AI in both the public and private sectors. The European Union seems to be leading the way in this regard [98], despite the challenges of applying EU non-discrimination law to artificial intelligence [99] and the complicated task of adapting the concepts of algorithmic fairness to the laws that seek to preserve the rights of legally protected groups [100]. Among other countries [101], the United States [102] and China [103] also seem to be moving forward with their own initiatives. European leadership in this area seems positive, as the European Single Market and European Union values fully align with the rights that are most affected using these technologies, so we can expect at least a serious effort from European authorities. For example, the proposed European AI Act contemplates bans on facial recognition for law enforcement within certain contexts and prohibits governmental social-credit systems [104].

Regulating the use of AI by public administration and establishing rules to mitigate its harms implies that governments see AI adoption as inevitable. In this, the authors of this work wholeheartedly agree with the UN Special Rapporteur conclusions, the adoption of AI is not a manifest destiny resulting from scientific progress, it

just reflects political choices made by the humans in charge. Accepting AI as destiny and depositing the burden of decision-making on software means renouncing not only human rights principles and democratic decision-making, [105] it also means ignoring human agency and denying that public administrators should be held accountable by their policy choices. As for bureaucrats themselves, they must choose between assuming the supposed inevitability of this particular definition of progress or refusing the application of technology that will supplant their agency.

The adoption of AI in bureaucratic decision-making means institutionalizing a way of organizing common matters, says philosopher Eric Sadin [106]. However, he argues, giving power to the machine follows a technoeconomic logic derived from purely lucrative and utilitarian objectives, trapping human beings not as a means of preserving them from injustice, but in the name of more efficiency, in a system formalized through mechanisms justified by a supposedly common good. An algorithmic Leviathan where machines act "on their own" and without our consent [107]. Part of the danger, says Jordi Pigem, is to get used to the inertia that moves human organizations in directions that may not have been approved by the people that are part of them [108].

4 ARTIFICIAL INTELLIGENCE IMPLEMENTATION AS POLICY CHOICE: WHAT WOULD WEBERIAN BUREAUCRACY DO?

In Section 2 of this work, we reflected on the characteristics of Weberian public administration and bureaucracy, and we have identified the characteristics of the Weberian conception of management, including its preference for formal rules, task specialization through the division of labor, a hierarchical management structure and a predilection for efficiency in the tasks performed. In part three we presented an overview of instances in which automated decision-making can lead to individual and societal harms. When automated decision-making is erroneous (in the sense that the machine makes wrong decisions) it can lead to loss of opportunity for people, for example through employment or social benefit discrimination or by denying access to housing or education, impacting those that are already the most vulnerable. It can also lead to economic losses by wrongly denying access to credit and can worsen inequality in other areas, for example by leading to the loss of liberty by prolonging incarceration or disproportionately incarcerating individuals from some collectives in comparison to others, or lead to increased surveillance of certain groups [109]. It can also entrench segregation and racism [110], as it can reinforce stereotypes and perpetuate racial tropes validated by the veneer or respectability that quantification and supposed innovation gives these technologies in a society that seems equate technology with human progress. The current section explores how well the policy choice of adopting AI in public administration aligns with Weberian ideas.

As long as the justification for the adoption of AI is that it is done in the name of efficiency; insofar as it is applied to very specific tasks, AI adoption seems to be consistently Weberian. On the surface, the very nature of the software means that AI yields its results by following a particular set of rules, also consistent with Weber´s ideas of bureaucracy. AI adoption and use does not alter the hierarchical structure of an administration as it is likely that the decision to adopt the technology and where to implement it will be dictated by those that are already the decision-makers inside public administration. The very complex nature of the technology and the necessary steps for its integration in digital public administration, the fact that it mostly depends on proprietary technology and on collaboration from the private sector for its implementations pretty much guarantees that decisions on its use will only be top down. It would not alter any existing hierarchies inside the administration.

Bureaucratic decision-making from a Weberian perspective also demands that individual relationships are governed through authority and rules and that decisions are governed by rational, not personal inputs. Insofar as AI promises decision-making that eliminates bias and partiality and that offers tools for purely rational, impersonal decision-making (at least in some instances, the governed will only interact with the computer), it seems to conform with the Weberian ideal.

There are those that propose that a Neo-Weberian State can be enabled by technology [111], which can help make hierarchical bureaucracy more flexible, oriented towards outputs and centered on the citizen and that

technology serves to highlight that Weberian ideals are still at the center of public administration, [112] but we would argue that in fact, AI moves administrations away from these ideals.

Weber's description of his ideal bureaucracy does not propose any direct solutions to the problems that the use of AI inherently carries, nor does it propose how we may reduce its harms. It was not a preoccupation of his time. However, his prescriptions certainly can serve as a guideline in terms of helping identify the most salient problems with AI. To the already referenced problems with transparency, bias and accountability, Weberian observations also make it necessary to question AI's actual potential for efficiency as well as the incompatibilities AI has with Weberian bureaucracy's apprehension towards experimentation.

A closer look at the situation reveals how AI use for decision-making steers away from Weberian ideas. It is not a stretch to say that AI underdelivers on the promise of avoiding bias and partiality. Instead, it has consistently been shown to be a tool for discrimination, for bias confirmation, and reinforcement. To a degree, AI proponents can also try to avoid accountability by shielding their decisions on the supposed rationality of the machine, making some of the enthusiasts focus on the "intelligence" aspect of the name we have chosen to give this type of technology. As it has been pointed out, that name is an empty promise, some academics have even made the choice to denounce it [113]. The truth of the matter is that the question of if "calculating is equivalent to thinking" remains to be answered, in other words, it still needs to be determined if the artificial can be considered intelligent at all [114].

Moreover, Weberian bureaucracy expects the existence of a proper official record in which every decision is formally recorded and remains available in the future. The use of any software, including artificial intelligence, can produce such a record. Surely, public administrators that make decisions aided by AI technology will keep records of those decisions and the machine will produce logs with its results. The same will be true when decisions are fully automated, there will be logs and ledgers but as explained before, AI has a big transparency problem. How machines arrive at insights and decisions is notoriously opaque and often, public administration fails to properly disclose those means when it is implementing AI technologies [115]. This is a deviation from Weberian ideals.

Regarding the requirements of transparent and accountable bureaucracy, since Weberian bureaucracy demands careful record-keeping of all decisions and fosters accountability, then for AI to be compatible with the Weberian public administration it must first solve its transparency problems. These problems range from transparency in the adoption of technology, to meeting standards of reproductivity and validation, to being able to understand how AI systems function [116]. While it can be argued that the embedding of technology into public administration decision-making has led to increases in oversight and accountability by enabling the guidance of task by case-management software and performance tracking [117], it can also be argued that AI and its black-box approach to analysis and decision-making can negate those gains in oversight and accountability.

Beyond that, governments also need to be transparent about the instances in which they use artificial intelligence for decision-making and properly let citizens know this is the case. Not knowing when citizens interact with humans or with machines may alienate them and leave them "detached from the state" [118]. Lack of transparency in this regard can lead to a reduction in the quality of democratic governance and trust [119].

In public decision-making, explanations are key in generating legitimacy and trust [120]. Transparency in AI is multimodal and entails "…a balancing of interests and a governance challenge demanding multidisciplinary development to be adequately addressed" [121]. Adding to the complexity is the fact that while explainable and transparent AI is desirable, the truth is that such explanations may be too complex for the average citizen because explanations are mostly intended for technical users. The justification for decisions regarding the design of these technological systems and in terms of the decisions taken by them, it is key to "ensure more legitimacy in the eyes of the public, even more so in terms of transparency about how the system works or its source code" [122]. Others argue that is better to focus on contextual importance and contextual utility in order to be able to provide at least a degree of explainability to citizens [123].

An argument in favor of bureaucracy is that it is both necessary to organize the complexities of government [124] and to prevent abuses of power in democracy [125]. This means that bureaucracies should not be integrating AI technologies into their fundamental workings if they cannot be sure that technology will work as intended and if it cannot guarantee that it will not result in more harm than good for citizens. Some propose that AI can help engineer public administration for simplicity, using technology to arrive at a radically less complex institutional and political landscape [126], but it is hard to argue that public administration will be less complex if it embeds into itself complex computational systems that are equally complex to explain. It is similarly hard to argue that governing through AI will be more efficient if it cannot deliver on its promises. Adopting technology with the hope of making governments less bureaucratic may in fact negate the safeguards that preserve citizens from abuse of power and keep those in power from being held accountable. In other words, if AI is used more and more by public administrations, then administrations better make sure they stay bureaucratic.

One of the inherent problems of hierarchically controlled organizations [127], and particularly of bureaucracy is precisely administrative evil or "administrative behavior depriving innocent people of their humanity (i.e., dignity, justice, rights, safety, health, etc.)" [128]. If bureaucracies can lead to "structural violence, by which I mean forms of pervasive social inequality that are ultimately backed up by the threat of physical harm – invariably tend to create the kinds of willful blindness we normally associate with bureaucratic procedures" [129], blind trust in AI, and a shift of the responsibility for making decisions to a machine that renders them obscure and unexplainable, could also lead to such structural violence, negating access to rights to citizens (e.g., welfare) when they in fact, are deserving of them. And insofar as AI often does not work as intended or delivers wrong outcomes, it is a technology that can help entrench administrative evil as there is "…the potential for technology to reinforce, and be reinforced by, a prevailing ideology, as, and through the tangible manifestations of instrumental rationality" [130]. There is no reason to act as if technology works just because it exists, and no reason to think that AI will perform as claimed or intended. AI is after all, just a tool. As a tool, it is not exempt from poor design or unintended consequences, thus public administrators should consider acting "in a way that minimizes its potential for administrative evil, or unnecessary harm and suffering inflicted upon a population" [131].

If technology does not work as intended, it cannot be considered efficient and if it does more harm than good and if AI cannot solve its problems with bias and discrimination a Weberian approach to bureaucracy would make it necessary to reject its implementation. If the quality of administration can be measured, in part, by how effectively public administrators use their discretion to achieve policy goals [132], then shifting this discretion towards automated systems, which may not work as intended, then the resulting quality of the administration could be next to zero. It will be both unfair and inefficient.

The use of AI boosts the mechanistic qualities of a bureaucracy but fails on its promise of efficiency, fairness, and accountability. Thus, any positive effects resulting from the adoption of technology may be diluted. Technology needs to do better. Without significant intervention and clear oversight before, during and after its implementation, the use of AI by governments will never conform with any of the Weberian requirements we have outlined before because "the use of AI by governments provides for decreases in transparency in decision making (technical inscrutability), increased reliance on quantitative data to the crowding out of other sources of information (quantitative bias), overreliance on AI as a tools even when it is dangerous or inappropriate (AI exuberance), misalignment of decision making values and organizational values (organizational value misalignment), and decisions that are centralized as to takeaway decision making authority from professionalized bureaucrats (control centralization)" [133]. In other words, under the current state of the art, AI can serve to propagate administrative evil [134].

Weberian apprehension towards experimentation can be beneficial in terms of a cautious and incremental approach to AI technologies as experimentation would need to be carefully controlled and supervised. This could help identify and contain the damages that reckless deployment of these technological tools can cause. Perhaps cases like the one experienced by a sector of the Dutch population could have been avoided if the SyRI program

would have been first implemented in a limited context to be able to learn about how well the technology works and what results it could actually deliver.

According to Weber, in the ideal bureaucracy, power is vested in the office, not in the individual. Governments should be careful of vesting that power on technological tools and as a result, take it away from the office. Public administrators should tread very carefully when deploying these technologies, particularly if their critical evaluation is left on the side of the road in favor of the gilded technological promise of a bureaucracy that is better simply by virtue of how tech-savvy it presents itself and how quickly it adopts supposed innovations. As expressed by Campolo and Crawford, blind trust in technology takes form as "enchanted determinism" or a "discourse that presents deep learning techniques as magical, outside the scope of present scientific knowledge, yet also deterministic, in that deep learning systems can nonetheless detect patterns that give unprecedented access to people´s identities, emotions and social character, these systems become deterministic when they are deployed unilaterally in critical social areas… creating even more granular distinctions, relations and hierarchies that are outside of political or civic processes, with consequences that even their designers may not fully understand or control" [135].

On the surface, the high-level policy decision of implementing artificial intelligence technology seems compatible with Weberian ideals, save for the fact that, if it is a policy choice, then it is necessarily political and, save for the fact that letting machines make decisions, does not exempt these decisions from politics. This is because AI decisions that affect citizens' rights will necessarily reflect the politics of those that created the technology. As a policy choice, it either reflects the political leanings of those in charge of high-level policy decisions or signals that they are oblivious to the fact that technology has politics.

As expressed by Langdon Winner, artifacts—and technologyalready contain social relationships and the dilemma is in deciding what technology we ought to develop to steer society towards one path or the other [136]. Hong points out that data-driven predictions reflect the repetition of a long historical pattern "of how *new methods of producing knowledge generate a redistribution of epistemic power:* who declares what kind of truth about me, to count for what kinds of decisions" [137]? The *probable* outcomes generated by the machine result in judgements that are accepted as a way of deflecting transferring discretionary power for decision-making to the machine.

Existing concerns about artificial intelligence, and the perhaps even more fantastic notion that their decisions are more impartial and fairer than human decision-making should invite caution on the part of public administration officials. Weber thought that bureaucrats needed to be separated from political power to prevent them from usurping it [138] but it is hard to sustain such argument as bureaucratic administration is an exercise of governmental power, and the exercise of any form of power is always political [139]. Relying too much on machines devoid of any social and historical context does not separate political power from the adjudication of rights that bureaucrats do, it does the opposite. It just reproduces the political decisions of those that designed the machine. It lets their politics creep into the administration and supplants the politics of the human decision-maker.

There are major concerns related to AI tools that need to be addressed from technical, legal, ethical, and political points of view. These problems are complex and multimodal and there is no one single solution that will fix it all. Solutions can only come from the combined work of the multiple stakeholders involved: public institutions, private companies, bureaucrats, citizens, and all kinds of experts in technology, computer science, ethics, law, sociology, and many others. Only honest assessment and evaluation and a critical discussion about the advantages and drawbacks can yield the required results. Public administrators should be careful not to just look at the data, and they should avoid thinking that any factor or part of a problem that cannot be quantified and solved through statistics should not be taken into account [140]. In any case, unlike what seems to happen on some sectors of the private world [141], AI proponents within public administration would do well to listen carefully to experts that expose the inherent problems of AI, and see if together they can work toward finding solutions.

Techno-solutionism is nothing but the erroneous belief that technology can efficiently resolve any social problem by simply applying supposedly innovative tools to the problem [142]. As such, it is intrinsically linked to techno-determinism, or the vision that proposes that it is the adoption of new technologies what determines the development of culture and structure of a society [143]. Those with a techno-determinist outlook must remember that AI adoption and implementation are political choices because "when understood as a transfer and entrenchment of discretionary power, data-driven prediction appears more clearly as a literally conservative extension of longstanding strategies for social control, rather than any radically novel means for reducing human bias and irrationality" [144].

We believe that the healthier approach is to reject techno-solutionist and techno-determinist ideas and this makes it imperative that public administrators will need to take a political stance. The ones that are in charge of deciding when and where AI should be adopted as an integral part of bureaucracy and public administration would do well to consider concepts such as "*unnovation*" which refers to supposed innovations that fail to create any authentic, meaningful value [145].

5 CONCLUSIONS

Public administration has historically been slow to adopt technology and in defining the particulars of its implementation. However, in the last few decades public administration has embraced digital and communication technologies and today we often talk about e-Government or Digital Government. In recent years, governments seem to have begun the process of moving from that to Automated Government, and Automated Public Administration or the automation of bureaucracy by means of adoption of so-called artificial intelligence technologies.

AI's potential to increase the efficiency of bureaucratic decision-making, reduce costs and human error and its promise to eradicate bias and discrimination from decisions seems to have convinced many in government administration that the adoption of this technology is a must if they do not want to be left behind and if they want to move forward with the constant quest of modernization and efficiency in public administration.

Public administration seems to be moving faster than ever to adopt these kinds of technologies, but this is problematic for several reasons. Chief among them is that AI, particularly the kind that relies on data collection, analysis, and statistical regression to identify patterns that in turn are used to orient decisions, has an inherent bias problem. Far from helping end bias and discrimination, it seems to simply translate the biases of its designers and reproduce them in their decisions. It some cases, it contributes to make matters worse, reinforcing those biases and deepening systemic discrimination.

In other words, contrary to what history would tell us, public administration bureaucracy does not seem to be moving cautiously and incrementally towards the adoption of innovations. Instead, those at the top seem to prefer moving quickly towards adoption and seem comfortable with implementing technology without properly accounting for its consequences. They assume it works properly, when in fact, there is a growing body of evidence that shows it does not work as intended, or as marketed. There seems to have been a shift in mentality and those at the top of the hierarchy of bureaucracy, the ones with power to decide, are willing to adopt and deploy technology first and learn about the consequences later. This makes citizens that interact with the administration unwitting participants on a sort of living laboratory where consequences are discovered *ex post* rather than carefully considered before implementation.

As we have seen in this work, Weberian public administration has several expectations in terms of what the ideal bureaucracy should be. Weberian bureaucracy prefers formal rules, hierarchical management, division of labor and efficiency. While on the surface, adopting AI may seem as an attempt to honor these qualities, closer examination shows that blind adoption and careless use of these technologies goes against the principles of Weberian bureaucracy.

It can be argued that Weber's intention was mostly descriptive and that he did not prescribe a recipe for a perfect bureaucracy, but it is at least clear that the goal of Weber's proposal is to improve public administration and the lives of the governed. Based on the cases we have analyzed in this work; it is hard to argue that AI

can improve public administration. Concurrently, it is not hard to argue that at least some implementations of AI in bureaucratic decision-making harm the lives of the governed and their rights. As a result, this leads to a reduction in trust in the government and hurts its legitimacy, generating disaffected citizens suspicious of their administration. If citizens do not perceive that the administration has their best interest in mind in implementing AI, institutions will be weaker, and democracy will suffer.

It is our conclusion that Weber would prefer that bureaucracy carefully considers embedding artificial intelligence into its hierarchy, processes, and decision-making, particularly in areas where citizen rights may be affected and where there can be a loss of opportunity, and that outcomes can result in economic harm and negative impact to rights such as privacy or personal liberty. Given the current state of the technology, we believe that Weberian expectations can serve as guidance in relation to how governments should approach artificial intelligence: suspiciously, cautiously and with careful consideration of how it should be implemented and what the consequences of this implementation could be.

If AI as it is designed, its adoption and subsequent implementation cannot meet Weberian standards, then public administration should tread very carefully when deploying these technologies, particularly if any critical evaluation of these technologies is left on the side and if the administration is not fully capable of identifying, understanding and mitigating the potential negative effects of these technologies before deploying them. The risk is doing irreversible harm to individuals, society and democracy.

While Weberian ideas can help influence a careful and nuanced approach to the adoption of technology that results in a net benefit for society, we think that one of the most crucial ideas is that for Weber, power and authority should be vested in the office and never in the individual. In accordance with this, governments should stray away from techno-solutionist and techno-optimist temptations and from desires to transfer accountability to someone or something other than the administration and those that make the decisions should not opt for transferring the power from the office to technology. As a policy choice, AI adoption reflects the political leanings of those in charge of high-level policy decisions or signals that they are oblivious to the fact that technology has politics. Any form of power is always political, and in this we disagree with Weber as bureaucratic decisions always carry politics. We thus believe that it is necessary for the public bureaucrat to make a political choice and to make a stand against blind and acritical adoption of technology.

REFERENCES

[1] Max Weber. 1921. *Economy and Society. A New Translation (2019).* Edited and translated by Keith Tribe. Harvard University Press, Cambridge, Massachusetts.

[2] Asbjørn Ammitzbøll Flügge, Thomas Hildebrandt, and Naja Holten Møller. 2021. Street-level algorithms and AI in bureaucratic decision-making: A caseworker perspective. *Proc. ACM Hum-Comput. Interact. 5, CSCW1, Article* 40 (2021), 2.

[3] Asbjørn Ammitzbøll Flügge, Thomas Hildebrandt, and Naja Holten Møller. 2021. Street-level algorithms and AI in bureaucratic decision-making: A caseworker perspective. *Proc. ACM Hum-Comput. Interact. 5, CSCW1, Article* 40 (2021), 2.

[4] Michael Lipsky. 1980. *Street-Level Bureaucrats: Dilemmas of the Individual in Public Services.* New York: Russell Sage Foundation.

[5] Patrick G. Scott. 1997. Assessing determinants of bureaucratic discretion: An experiment in street-level decision making. *Journal of Public Administration Research and Theory: J-PART* 7, 1 (1997), 35–57, p. 37.

[6] Patrick G. Scott. 1997. Assessing determinants of bureaucratic discretion: An experiment in street-level decision making. *Journal of Public Administration Research and Theory: J-PART* 7, 1 (1997), 35–57, p. 37.

[7] Lael R. Keiser. 2010. Understanding street-level bureaucrats' decision making: Determining eligibility in the social security disability program. *Public Administration Review* 70, 247-257, (2010), 247.

[8] Asbjørn Ammitzbøll Flügge, Thomas Hildebrandt, and Naja Holten Møller. 2021. Street-level algorithms and AI in bureaucratic decision-making: A caseworker perspective. *Proc. ACM Hum-Comput.* Interact. 5, CSCW1, Article 40 (2021), p. 1.

[9] Sarah Brayne and Angeè Christin. 2020. Technologies of crime prediction: The reception of algorithms in policing and criminal courts. *Social Problems* 0, 1–17 (2020), p. 2.

[10] Alan Dix. 2008. Theoretical analysis and theory creation. In *Research Methods for Human-Computer Interaction.* P. Cairns & A. Cox (Eds.). Cambridge: Cambridge University Press (pp. 175-195), p. 1

[11] B. Guy Peters and Jon Pierre. 2017. Two roads to nowhere: Appraising 30 years of public administration research. *Governance* 30 (2017), 11–16, p. 15.

[12] B. Guy Peters and Jon Pierre. 2017. Two roads to nowhere: Appraising 30 years of public administration research. *Governance* 30 (2017), 11–16, p. 15.
[13] Max Weber. 1921. *Economy and Society. A New Translation (2019).* Edited and translated by Keith Tribe. Harvard University Press, Cambridge, Massachusetts.
[14] Joshua Newman, Michael Mintrom, and Deidre O'Neill. 2020. Digital technologies, artificial intelligence, and bureaucratic transformation. *Futures* 136 (2020), 102886.
[15] Joshua Newman, Michael Mintrom, and Deidre O'Neill. 2020. Digital technologies, artificial intelligence, and bureaucratic transformation. *Futures* 136 (2020), 102886.
[16] Yochai Benkler. 2006. *The Wealth of Networks: How Social Production Networks Transform Markets and Freedom.* Yale University Press, New Haven, CT.
[17] Michael Bauwens. 2008. The political implications of the peer review revolution. *Knowledge Politics Quarterly* 1, 2 (2008), 1–24.
[18] Daniel Kreiss, Megan Finn, and Fred Turner. 2011. The limits of peer production. Some reminders from Max Weber for the network society. *New Media & Society* 13, 2 (2011), 243–259.
[19] David Weinberger. 2007. *Everything is Miscellaneous.* New York: Henry Holt and Company.
[20] Kate Chatfield, Konstantinos Iatridis, Bernd C. Stahl, and Nearchos Paspallis. 2017. Innovating responsibly in ICT for ageing: Drivers, obstacles and implementation. *Sustainability* 9, 6 (2017), p. 971.
[21] OECD. 2017. *Fostering Innovation in the Public Sector.* OECD Publishing, Paris.
[22] Janelle Shane. 2020. AI weirdness: The strange side of machine learning.
[23] Isobel Hamilton. 2022. No, la IA capaz de sentir de una manera humana no está cerca, pero las máquinas capaces de encontrar nuevas maneras de discriminarte ya están aquí y afectan a tu vida diaria. *Business Insider.* (2022).
[24] Jamie Berryhill, Kévin Kok Heang, Rob Clogher, and Keegan McBride. 2019. *Hello world: Artificial Intelligence and its use in the Public Sector.* OECD Working Papers on Public Governance, No. 36, Paris. https://doi.org/10.1787/726fd39d-en
[25] UNECE. 2021. Machine learning paves the way for modern efficient statistical production. *UNECE.*
[26] Warit Wipulanusat, Kriengsak Panuwatwanich, Rodney A. Stewart, and Jirapon Sunkpho. 2019. Drivers and barriers to innovation in the Australian public service: A qualitative thematic analysis. In *Engineering Management in Production and Services* 11, 1 (2019), 7–22.
[27] Alan Turing. 1950. Computing machinery and intelligence. *Mind* 49 (1950), 433–460.
[28] See https://250.dartmouth.edu/highlights/artificial-intelligence-ai-coinded-dartmouth
[29] Daron Acemoglu and Pascual Restrepo. 2020. The wrong kind of AI? Artificial intelligence and the future of labour demand. *Cambridge Journal of Regions, Economy and Society* 13, 1 (2020), 25–35.
[30] Cathy O'Neil. 2016. *Weapons of Math Destruction.* Penguin Books, New York.
[31] Frank Pasquale and Gianclaudio Malgieri. 2021. If you don't trust A.I. yet, you're not wrong. *The New York Times*, (2021).
[32] Sun-Ha Hong. 2022. Prediction as extraction of discretion. *FAccT'22.* June 21-24-2022, Seoul, Republic of Korea.
[33] European Union Agency for Fundamental Rights. 2020. Getting the future right: Artificial intelligence and fundamental rights. *Publication Office of the European Union.* Luxembourg, p. 30.
[34] Joshua Newman, Michael Mintrom, and Deidre O'Neill. 2020. Digital technologies, artificial intelligence, and bureaucratic transformation. *Futures* 136, 102886.
[35] European Union Agency for Fundamental Rights. 2020. Getting the future right: Artificial intelligence and fundamental rights. *Publication Office of the European Union.* Luxembourg, p. 30.
[36] Naomi Appelman, Ronan Ó Fathaigh, and Joris van Hoboken. 2021. Social welfare, risk profiling and fundamental rights: The case of SyRI in the Netherlands, 12, 257.
[37] James Felton. 2022. The AI that led to children being re-homed and the fall of an elected government. *IFL Science.* May 11, 2022.
[38] John Henley. 2021. Dutch government resigns over child benefits scandal. *The Guardian.* (2021).
[39] Autoriteit persoonsgegevens. 2021. Belastingdienst/toeslagen de verwerking van de nationaliteit van aanvragers van kinderopvangtoeslag.
[40] James Felton. 2022. The AI that led to children being re-homed and the fall of an elected government. *IFL Science.* (2022).
[41] Eline Schaart. 2021. Mark Rutte pulls plug on Dutch government, plans immediate return. (2021).
[42] James Felton. 2022. The AI that led to children being re-homed and the fall of an elected government. *IFL Science.* (2022).
[43] NL Times. 2020. Parents faced 'unprecedented injustice' for years in childcare subsidy scandal. (2020).
[44] EU Law Enforcement. 2021. The Dutch benefits scandal: A cautionary tale for algorithmic enforcement.
[45] Rechtspraak. 2020. SyRI legislation in breach of European convention on human rights. (2020).
[46] Library of Congress. 2020. Netherlands: Court prohibits government´s use of AI software to detect welfare fraud. *The Library of Congress.* (2020).
[47] European Convention on Human Rights. https://www.echr.coe.int/documents/convention_eng.pdf
[48] Marvin van Bekkum and Frederik Z. Borgesius. 2021. Digital welfare fraud detection and the Dutch SyRI judgment. *European Journal of Social Security.*

[49] Rechtspraak. 2020. SyRI legislation in breach of European convention on human rights. (2020).
[50] Doaa Abu Elyounes. 2021. Why the resignation of the Dutch government is a good reminder of how important it is to monitor and regulate algorithms. *Berkman Klein Center*. (2021).
[51] Koen Vervloesm. 2020. How Dutch activists got an invasive fraud detection algorithm banned. *Algorithm Watch*. (2020).
[52] Koen Vervloesm. 2020. How Dutch activists got an invasive fraud detection algorithm banned. *Algorithm Watch*. (2020).
[53] Virginia Eubanks. 2018. *Automating Inequality: How High-tech Tools Profile, Police and Punish the Poor*. First Edition. St. Martin's Press.
[54] Joost Schellevis and Winny de Jong. 2019. Overheid gebruikt op grote schaal voorspellende algoritmes, 'risico op discriminatie'. *NOS Nieuws*. (2019).
[55] European Union Agency for Fundamental Rights. 2020. Getting the future right: Artificial intelligence and fundamental rights. *Publications Office of the European Union, Luxembourg*, p. 30.
[56] Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA.
[57] Guidelines 05/2022 on the use of facial recognition technology in the area of law enforcement. https://edpb.europa.eu/our-work-tools/documents/public-consultations/2022/guidelines-052022-use-facial-recognition_en
[58] Fabio Bacchini and Ludovica Lorusso. 2019. Race, again: How face recognition technology reinforces racial discrimination. *Journal of Information, Communication & Ethics in Society* 17, 3 (2019), 321–335.
[59] Rashida Richardson. 2021. Racial segregation and the data-driven society: How our failure to reckon with root causes perpetuates separate and unequal realities. *Berkeley Technology Law Journal* 36, 3 (2022).
[60] Shannon Glasgow, Gabriella Imbriano, Jingwen Jin, and Aprajita Mohanty. 2020. Is threat detection black and white? Race effects in threat-related perceptual decision/making. *Emotion* 22, 4 (2020), 616–626.
[61] Morgan Klaus Scheuerman, Jacob M. Paul, and Jed R. Brubaker. 2019. How computers see gender: An evaluation of gender classification in commercial facial analysis and image labeling services. *Proceedings of the ACM Human-Computer Interaction*, 3, CSCW, Article 144.
[62] Katie Lannan. 2019. Somerville bans government use of facial recognition tech. *WBUR*. 2019.
[63] Paresh Dave. 2022. U.S. cities are backing off banning facial recognition as crime rises. *Reuters*. May 12, 2022.
[64] Naiara Belio Lopez-Molina. 2021. In Catalonia, the RisCanvi algorithm helps decide whether inmates are paroled. *Algorithm Watch*. https://algorithmwatch.org/en/riscanvi/
[65] Md. Abdul Malek. 2022. Criminal courts´ artificial intelligence: The way it reinforces bias and discrimination. *AI and Ethics* 2, 1 (2022), 233–245.
[66] Julia Angwin, Jeff Larson, Surya Mattu, and Lauren Kirchner. 2016. Machine bias: There´s software used across the country to predict future criminals. *Propublica*.
[67] Walter L. Perry, Brian McInnis, Carter C. Price, Susan C. Smith, and John S. Hollywood. 2013. Predictive policing: The role of crime forecasting in law enforcement operations. *RAND*.
[68] Ajay Sandhu and Peter Fussey. 2021. The 'uberization of policing'? How police negotiate and operationalize predictive policing technology. *Policing & Society* 31, 1 (2021), 66-81.
[69] Aaron Shapiro. 2019. Predictive policing for reform? Indeterminacy and intervention in big data policing. *Surveillance & Society* 17 (3/4), 456–72. https://doi.org/10.24908/ss.v17i3/4.10410
[70] Will Douglas Heaven. 2020. Predictive policing algorithms are racist. They need to be dismantled. *MIT Technology Review*. (2020).
[71] Tim Lau. 2020. Predictive policing explained. *Brenna Center for Justice*. (2020).
[72] Matthew Guariglia. 2020. Technology can't predict crime, it can only weaponize proximity to policing. *Electronic Frontier Foundation*. (2020).
[73] Safiya Umoja Noble. 2018. *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York University Press, New York, p. 179.
[74] Saar Alon-Barkat and Madalina Busuio. 2022. Human–AI interactions in public sector decision making: "Automation bias" and "selective adherence" to algorithmic advice. *Journal of Public Administration Research and Theory*, 2022, p. 155, muac007, https://doi.org/10.1093/jopart/muac007
[75] Jennifer Cobbe. 2019. Administrative law and the machines of government: Judicial review of automated public-sector decision-making. *Legal Studies* 39, 4 (2019), 636–655, p. 4.
[76] Janneke Gerards and Raphaele Xenidis. 2020. Algorithmic discrimination in Europe: Challenges and opportunities for gender equality and non-discrimination law. *European Commission*.
[77] Council of Europe. 2020. Strategic action plan on human rights and technologies in biomedicine. *Council of Europe*.
[78] Anja Lambrecht and Catherine Tucker. 2019. Algorithmic bias? An empirical study of apparent gender-based discrimination in the display of STEM career ads. *Management Science* 65, 7 (2019), 2966–81. https://doi.org/10.1287/mnsc.2018.3093

[79] Nima Kordzadeh and Maryam Ghasemaghaei. 2022. Algorithmic bias: Review, synthesis, and future research directions. *European Journal of Information Systems* 31, 3 (2022), 17. https://doi.org/10.1080/0960085X.2021.1927212
[80] Alexander Campolo and Kate Crawford. 2020. Enchanted determinism: Power without responsibility in artificial intelligence. *Engaging Science, Technology and Society* 6, p. 10.
[81] Alexander Campolo and Kate Crawford. 2020. Enchanted determinism: Power without responsibility in artificial intelligence. *Engaging Science, Technology and Society* 6, p. 10.
[82] Helga Nowotny. 2021. *In AI We Trust: Power, Illusion and Control of Predictive Algorithms*. Polity Press, Boston.
[83] Tobias Baer. 2019. *Understand, Manage, and Prevent Algorithmic Bias: A Guide for Business Users and Data Scientists. Imprint*, Berkeley, CA. Apress.
[84] Kristian Lum. 2017. Limitations of mitigating judicial bias with machine learning. *Nature Human Behaviour* 1, 0141.
[85] Rachel K. E. Bellamy, Kuntal Dey, Michael Hind, Samuel C. Hoffman, Stephanie Houde, Kalapriya Kannan, Pranay Lohia, Jacquelyn Martino, Sameep Mehta, Aleksandra Mojsilovic, Seema Nagar, Karthikeyan Natesan Ramamurthy, John Richards, Diptikalyan Saha, Prasanna Sattigeri, Moninder Singh, Kush R. Varshney, and Yunfeng Zhang. 2019. AI Fairness 360: An extensible toolkit for detecting and mitigating algorithmic bias. *IBM Journal of Research and Development* 63, 4-5 (2019), 4–4:15. https://doi.org/10.1147/JRD.2019.2942287
[86] Gabbrielle Johnson. 2020. Algorithmic bias: On the implicit biases of social technology. *Synthese (Dordrecht)* 198, 10 (2020), 9941–61. https://doi.org/10.1007/s11229-020-02696-y
[87] Aaron Shapiro. 2019. Predictive policing for reform? Indeterminacy and intervention in big data policing. *Surveillance & Society* 17 (2019), 456–472. 10.24908/ss.v17i3/4.10410
[88] Simon Egbert and Martin Lesee. 2021. *Criminal Futures: Predictive Policing and Everyday Police Work*. Routledge, London.
[89] Nick Lally. 2021. It makes almost no difference which algorithm you use: On the modularity of predictive policing. *Urban Geography*, 1–19.
[90] Matthew Browning and Bruce Arrigo. 2020. Stop and risk: Policing, data and the digital age of discrimination. *American Journal of Criminal Justice* 46, 2 (2020), 298–316.
[91] Lorena Hernandez. 2020. AI watch - artificial intelligence in public services | overview of the use and impact of AI in public services in the EU. *European Commission*.
[92] See https://documents-dds-ny.un.org/doc/UNDOC/GEN/N19/312/13/PDF/N1931213.pdf?OpenElement
[93] Sonja Bekker. 2020. Fundamental rights in digital welfare states: The case of SyRI in the Netherlands. *Netherlands Yearbook of International Law*, 289–307.
[94] Amnesty International. 2021. Xenophobic machines. Discrimination through unregulated use of algorithms in the Dutch childcare benefits scandal. *Amnesty International*.
[95] Amnesty International. 2021. Dutch childcare benefit scandal an urgent wake-up call to ban racist algorithms. *Amnesty International*.
[96] Philip Alston. 2019. Report of the Special Rapporteur on extreme poverty and human rights. *United Nations General Assembly*. 21.
[97] Regulation of the European Parliament and of the Council laying down Harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, COM/2021/206 final.
[98] Fabian Lutz. 2021. How the 'Brussels effect' could shape the future regulation of algorithmic discrimination. *Duodecim Astra* 1 (2021), 142–163.
[99] Raphaele Xenidis and Linda Senden. 2019. EU non-discrimination law in the era of artificial intelligence: Mapping the challenges of algorithmic discrimination discrimination. *General Principles of EU law and the EU Digital Order (Kluwer Law International, 2020)*, 151–182. Available at SSRN: https://ssrn.com/abstract=3529524
[100] Philipp Hacker. 2018. Teaching fairness to artificial intelligence: Existing and novel strategies against algorithmic discrimination under EU law. *55 Common Market Law Review* 1143–1186 (2018), Available at SSRN: https://ssrn.com/abstract=3164973
[101] See https://oecd.ai/en/dashboards
[102] Uche Ewelukwa Ofodile. 2021. Will Washington ever get around to regulating artificial intelligence? *Jurist*. January 10, 2022.
[103] Jennifer Conrad. 2022. China is about to regulate AI—and the world is watching. *Wired*. 2022.
[104] See https://artificialintelligenceact.eu/
[105] Philip Alston. 2019. Report of the Special Rapporteur on extreme poverty and human rights. *United Nations General Assembly*. 21. p. 22.
[106] Eric Sadin. 2020. La inteligencia artificial o el desafío del siglo. *Anatomía de un Antihumanismo Radical*. Buenos Aires: Caja Negra Editora, 321, p. 162.
[107] Eric Sadin. 2020. *La inteligencia artificial o el desafío del siglo. Anatomía de un Antihumanismo Radical*. Buenos Aires: Caja Negra Editora, 321, p. 163.
[108] Jordi Pigem. 2022. *Ècnica i totalitarisme: Digitalització, deshumanització i els anells del poder global*, Fragmenta editorial, Barcelona.
[109] Future of Privacy Forum. 2017. Unfairness by algorithm: Distilling the harms of automated decision-making. Available at: https://fpf.org/blog/unfairness-by-algorithm-distilling-the-harms-of-automated-decision-making/

[110] Future of Privacy Forum. 2017. Unfairness by algorithm: Distilling the harms of automated decision-making. Available at: https://fpf.org/blog/unfairness-by-algorithm-distilling-the-harms-of-automated-decision-making/
[111] H. Byrkjeflot, P. du Gay, and C. Greve. 2018. What is the 'neo-Weberian state' as a regime of public administration? In *The Palgrave Handbook of Public Administration and Management in Europe* (991–1009). E. Ongaro, & S. Van Thiel (Eds.), Palgrave Macmillan. https://doi.org/10.1057/978-1-137-55269-3_50
[112] W. Dreschler. 2020. Good bureaucracy: Max Weber and public administration today. *Max Weber Studies* 2020.
[113] Emily Tucker. 2022. Artifice and intelligence. *Center on Privacy and Technology*. (2022).
[114] Agustin Berti. 2022. *Nanofundios. Crítica de la Cultura Algorítimica, editorial de la UNC*, Córdoba, p. 207.
[115] Frank Pasquale. 2015. *The Black Box Society: The Secret Algorithms That Control Money and Information*. Cambridge, MA: Harvard University Press.
[116] Benjamin Haibe-Kains, George Alexandru Adam, Ahmed Hosny, Farnoosh Khodakarami, Massive Analysis Quality Control (MAQC) Society Board of Directors, Levi Waldron, Bo Wang, Chris McIntosh, Anna Goldenberg, Anshul Kundaje, Casey S. Greene, Tamara Broderick, Michael M. Hoffman, Jeffrey T. Leek, Keegan Korthauer, Wolfgang Huber, Alvis Brazma, Joelle Pineau, Robert Tibshirani, Trevor Hastie, John P. A. Ioannidis, John Quackenbush, and Hugo J. W. L. Aerts. 2020. Transparency and reproducibility in artificial intelligence. *Nature* 586, (7829) E14–E16. https://doi.org/10.1038/s41586-020-2766-y
[117] Mark Bovens and Stavros Zouridis. 2002. From street-level to system-level bureaucracies: How information and communication technology is transforming administrative discretion and constitutional control. *Public Administration Review* 62, 2 (2002), 174–184.
[118] Haldor Byrkjeflot, Paul du Gay, and Carsten Greve. 2017. What is the 'neo-Weberian state' as a regime of public administration? *The Palgrave Handbook of Public Administration and Management in Europe*. 991–1009.
[119] Matthew M. Young, Johannes R. Himmelreich, Justin B. Bullock, and Kyoung-Cheol Kim. 2021. Artificial intelligence and administrative evil. *Perspectives on Public Management and Governance* 4, 3 (2021), 244–258, p. 312. https://doi.org/10.1093/ppmgov/gvab006.
[120] C. Hood. 2006. Transparency in historical perspective. In *Transparency: the Key to Better Governance?*. Hood C., Heald D. (Eds.). Oxford University Press, Oxford, 3–23.
[121] Stefan Larsson and Fredrik Heintz. 2020. Transparency in artificial intelligence. *Internet Policy Review* 9, 2 (2020) 1. https://doi.org/10.14763/2020.2.1469
[122] Karl de Fine Licht and Jenny de Fine Licht. 2020. Artificial intelligence, transparency, and public decision-making. *AI & Society* 35, 4 (2020), 917–26. https://doi.org/10.1007/s00146-020-00960-w
[123] Sule Anjomshoae, Kary Främling, and Amro Najjar. 2019. Explanations of black-box model predictions by contextual importance and utility. In *Explainable, Transparent Autonomous Agents and Multi-Agent Systems*. EXTRAAMAS 2019. Lecture Notes in Computer Science. D. Calvaresi, A. Najjar, M. Schumacher, K. Främling, (Eds.). vol 11763. Springer, Cham. https://doi-org.ezp-prod1.hul.harvard.edu/10.1007/978-3-030-30391-4_6
[124] Donald F. Kettl and James W. Fesler. 2008. *The Politics of the Administrative Process*. Sage Publications, Thousand Oaks, p. 7.
[125] Barry Bozeman. 1993. A theory of government red tape. *Journal of Public Administration Research and Theory: J-PART* 3, 3 (1993), 273–303, p. 293.
[126] Patrick Dunleavy et al. 2006. New public management is dead - long live digital-era governance. *Journal of Public Administration Research and Theory* 16, 3 (2006), 467–494, 489. https://doi.org/10.1093/jopart/mui057
[127] Guy B. Adams and Danny Balfour. 1998. *Unmasking Administrative Evil*. Sage Publications, Thousand Oaks.
[128] Jesse F. Dillard, Linda Ruchala, and Kristi Yuthas. 2005. Enterprise resource planning systems: A physical manifestation of administrative evil. *International Journal of Accounting Information Systems* 6 (2005), 107–127. p. 109.
[129] David Graeber. 2015. *The Utopia of Rules. On Technology, Stupidity and the Secret Joys of Bureaucracy*. Melville House Publishing, Brooklyn.
[130] Jesse F. Dillard, Linda Ruchala, and Kristi Yuthas. 2005. Enterprise resource planning systems: A physical manifestation of administrative evil. *International Journal of Accounting Information Systems* 6 (2005), 107–127. p. 109.
[131] Guy B. Adams. 2011. The problem of administrative evil in a culture of technical rationality. *Public Integrity* 13, 3 (2011), 275–286. DOI: 10.2753/PIN1099-9922130307
[132] Justin B. Bullock. 2019. Artificial intelligence, discretion, and bureaucracy. *American Review of Public Administration* 49, 7 (2019), 751–761.
[133] Matthew M. Young, Johannes R. Himmelreich, Justin B. Bullock, and Kyoung-Cheol Kim. 2021. Artificial intelligence and administrative evil. *Perspectives on Public Management and Governance* 4, 3 (2021), 244–258, https://doi.org/10.1093/ppmgov/gvab006
[134] Matthew M. Young, Johannes R. Himmelreich, Justin B. Bullock, and Kyoung-Cheol Kim. 2021. Artificial intelligence and administrative evil. *Perspectives on Public Management and Governance* 4, 3 (2021), 244–258.
[135] Alexander Campolo and Kate Crawford. 2020. Enchanted determinism: Power without responsibility in artificial intelligence. *Engaging Science, Technology and Society* 6, 3 (2020), 5.
[136] Langdon Winner. 1980. Do artifacts have politics? *Daedalus* 109, 1 (1980), 121–136.
[137] Sun-Ha Hong. 2022. *Prediction as Extraction of Discretion. FAccT'22*. June 21-24-2022, Seoul, Republic of Korea, p. 925.

[138] Brian R. Fry and Lloyd G. Nigro. 1996. Max Weber and US public administration: The administrator as neutral servant. *Journal of Management History* 2, 1 (1996), 37–46.
[139] Paul Appleby. 1949. *Policy and Administration*. University of Alabama Press, Alabama.
[140] Ian Tucker. 2020. Cory Doctorow: 'Technologists have failed to listen to non-technologists'. *The Guardian*. 10, (2020).
[141] Tom Simonite. 2020. A prominent AI ethics researcher says Google fired her. *Wired*. 2020.
[142] Evgeny Morozov. 2011. The net delusion. *Public Affairs*.
[143] Ronald R. Kline. 2001. Technological determinism. In *International Encyclopedia of the Social and Behavioral Sciences*, N. J. Smelser and B. Baltes (Eds.). 15495–15498.
[144] Sun-Ha Hong. 2022. Prediction as extraction of discretion. *FAccT'22*. June 21-24-2022, Seoul, Republic of Korea, p. 932.
[145] Umair Haque. 2009. Is your innovation really unnovation? *Harvard Business Review*. 27 (2009).

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