REyF Revista de Economía y Finanzas

www.reveyf.es

2025 – Vol. 3 – n.º 7 - Artículo 4

The virtual panopticon and the banalization of social risks: Qualitative evidence about algorithmic decision-making in Belgian municipalities

Truman Venters[a], Sébastien Brunet[b] and Ernesto Rodríguez-Crespo[c]

[a] *University of St Andrews, St Andrews. UK.*

[b] *Department of Political Science, University of Liège, Liège. Belgium.*

[c] *Department of Economic Structure and Development Economics, Universidad Autónoma de Madrid, Madrid. Spain.*

JEL CODES:
Q33; R1

KEYWORDS:
Belgium; Subnational level; Banalization; Public reason; Algorithms

Abstract: The development of algorithms and data in Belgium has received some attention in recent years, but philosophical considerations have been left aside from the discussion. This work aims to fill this gap by investigating how public reason can interact with algorithms in Belgium. The approach is twofold. First, we develop a theoretical framework to construct the concept of public reason, which is expected to be aligned with the current stage and development of technology. Second, we test this framework using data from public administration at subnational level for three Belgian local authorities, Liège (Wallonia), Namur (Wallonia), and Antwerp (Flanders). By means of a qualitative approach based on interviews, we find how algorithms and data reduce men into simplified singularities and then provoke a "banalization" of public reason. This banalization of public reason leads to a banalization of local social risks.

CÓDIGOS JEL:
Q33; R1

PALABRAS CLAVE:
Bélgica; Nivel subnacional; Banalización; Razón pública; Algoritmos

Resumen: El desarrollo de algoritmos y datos en Bélgica ha recibido cierta atención en los últimos años, pero las consideraciones filosóficas se han dejado de lado en la discusión. Este trabajo tiene como objetivo llenar ese vacío investigando cómo la razón pública puede interactuar con los algoritmos en Bélgica. El enfoque es doble. Primero, desarrollamos un marco teórico para construir el concepto de razón pública, que se espera esté alineado con el estado actual y el desarrollo de la tecnología. Segundo, probamos este marco utilizando datos de la administración pública a nivel subnacional en tres autoridades locales belgas: Lieja (Valonia), Namur (Valonia) y Amberes (Flandes). A través de un enfoque cualitativo basado en entrevistas, encontramos que los algoritmos y los datos reducen a los seres humanos a singularidades simplificadas y, posteriormente, provocan una "banalización" de la razón pública. Esta banalización de la razón pública conduce a una banalización de los riesgos sociales locales.

E-mail: Tv36@st-andrews.ac.uk; Sebastien.brunet@uliege.be; ernesto.rodriguez@uam.es
https://doi.org/10.32826/reyf.v3i7.387
© 2025 Asociación Cuadernos de Economía. Todos los derechos reservados.

1. Introduction

There is no doubt about the fact that technology reshapes society, sometimes in unexpected ways. The adoption of technology by firms is maybe one of the most prominent effects of such a reshaping phenomenon, which has enabled them to be more productive and competitive, transforming their relations to both human and non-human actors. However, we can observe a substantial gap between the private and public sectors, since the latter has needed to take further decisions to implement technology, and usually subject to higher transaction costs than the private sector.

If technology cannot be understood as a single homogeneous entity, it can be proxied by using several elements. One of the most important ones is algorithms, given that they set rules to help decision-making. In fact, we can acknowledge that algorithms have been useful to construct a bridge between science and society, contributing to increasing our understanding about the Science, Technology and Society (STS) approach. However, we find two major caveats that deserve further attention. First, data availability in relation to most advanced technologies, among where we can include algorithms, seems to be absent from statistical sources, which impedes us from delivering a proper evaluation. Second, most of the evidence when studying the impacts of technology have relied on quantitative approaches (e.g., Vicente and Lopez, 2011; Kuziemski and Misuraca, 2020). Although this approach is useful to confirm an existing causal relationship, the discussion about potential implications has been very general. In fact, it has neglected a holistic approach that could be enhanced with a qualitative approach and a philosophical discussion. Third, existing studies focus on impacts at the country level and overlook the importance of within-country technology diffusion, as shown by recent studies (e.g., Crespo-Cuaresma and Lutz, 2021; Barbero and Rodríguez-Crespo, 2022).

When examining the impact of technology on the public sector, we find a recent growing interest to understand how artificial intelligence (Kuziemski and Misuraca, 2020; Wilson and Van Der Velden, 2022) has reshaped public sector. In relation to the impact of algorithms, König and Wenzelburger (2021) focus on algorithmic decision-making and follow an epistemic approach to identify the core challenges of the adoption of technology in the public sector. However, they restrict their analysis to stakeholder processes. At the same time, a proper analysis on the usage of algorithms by the public sector implies to address questions related to the embedded human–machine-interaction (Haeri et al., 2022).

Our research aims to complete these previous studies by conferring philosophy a key role in the discussion. This standpoint allows us to investigate the bridge between algorithms and public sector. To this end, we develop our own concept of public reason, which is derived from the concept of reason and enables us to further discuss the impact of algorithms on the public sector. More importantly, we introduce the subnational dimension in this study by assuming that the impact of algorithms may present a within-country variation.

We consider the case of three specific Belgian municipalities for our study, since the use of algorithms and data by local Belgian administrations remains limited in most Belgian administrations. Therefore, the example of Belgian municipalities can be considered as a proper one to examine whether the public sector can reap potential benefits from using technology. The three local authorities selected for the purpose of this research have demonstrated great ambition in developing the use of such technologies. Nonetheless, their respective use of data sets and algorithms in local policymaking remains unique and different from one another, which allows us to make proper comparisons between agents.

By means of a qualitative approach based on interviews to agents located in three Belgian local administrations, our results suggest that every actor involved in local policymaking using data sets and algorithmic treatment of the sets, has his/her ability to reason and produce collective knowledge impacted. More importantly, we find that our results can be enhanced by means of philosophical implications. In fact, the banalization of local social risks is a subsequent result of these impacts on the actor's ability to reason and produce a new form of knowledge collectively.

The remainder of this paper is stated as follows. Section 2 sketches the theoretical and conceptual framework. Section 3 describes the methodology, while section 4 is focused on results. Finally, section 5 presents the main conclusions and discussions derived from the study.

2. Depicting the concept of public reason and the role of algorithms

As no clear definition specific to the aim of this work exists, we chose to define *public reason* ourselves. Hence, public reason can be defined as a set of individuals in a society able to reason and produce collective knowledge[1]. But there is a previous historical framework behind the concepts of reason, knowledge, and power. Reason enabled men to develop knowledge and counteract (state) power or religious authorities. However, the advent of new technologies in the 20th century has impacted men's ability to reason.

In the 20th century, with mass production, and modern science more generally, industries ended up reasoning for mankind (Horkheimer & Adorno, 2020). We acknowledged how economic power, and the power of science and technology enhanced man's domination of nature (biological and ecological). More importantly, technology became an "end" for authorities and mankind: the power of science and technology was determined by its monetization (Châtelet, 1992). In this context, beginning in the 1940s, computers evolved dramatically. More and more, they became extensions of human abilities and knowledge (Lotka, 1945). This prevented society from functioning

[1] In this article, *collective knowledge* is understood in a broad sense and is not discussed further. It encompasses the creation of a socio-political movement, the production of a public opinion, or the development of a public policy for example.

autonomously, replacing autonomy with "computer-based" futures (Stiegler, 2020, p. 46).

Reason, especially public reason as we have defined it above, was greatly affected by the development and the implementation of modern computers. When used, the status of computers fluctuated between their *anthropy* or social prescriptions of technology, and *neguanthropy* or curative ability for society (Stiegler, 2020, pp. 75-76). It was only by implementation and use that we knew which one it was. Computers, and technologies as such, build a new social structure within "humans' bodies and minds" (Stiegler, 2020, p. 104). Another important element in our discussion is the importance of the subnational level. As a consequence of globalization, decreasing differences between countries have come together with a substantial increase of within-country differences (Piketty, 2015). This fact has shifted the attention to studying the drivers behind within-country differences, which requires creating a new framework based on the subnational level.

In the European Union, we find growing efforts to promote integration, although differences between regions have been persisting over time and some drivers could be contributing to such differences. To this end, in relation to technology, some authors have confirmed that the digital divide, which implies differences in relation to levels of digitalization, is also found at European regions (Schleife, 2010; Vicente and López, 2011; Szeles, 2018). Therefore, it is necessary to shed light on differences contingent on technology at subnational level for European regions. However, when studying recent technological developments, such as algorithms and artificial intelligence, data paucity is a problem that impedes us from evaluating the interactions between technology and society more precisely.

3. Methodology

3.1. Research design for the local authorities of Antwerp, Liège and Namur

With the aim of further developing our research objective, we conducted interviews. These interviews allow us to create and exploit a unique database to approach the impact of technology in society, shedding light to STS approach. In addition to that, the nature of data, which is mainly qualitative, can be helpful to study the interactions between technology and society in a deeper way than quantitative approaches do.

The interviews were conducted with different agents, such as IT engineers, a lawyer and members of three distinct local Belgian administrations. The administrations, namely Liège, Antwerp, and Namur (*see*. Appendix 1) were selected based on one criterion, which is that they use data and algorithms in the decision-making process. Moreover, having two cities from Wallonia and one from Flanders enabled us to consider multiple usages of data and algorithms across a larger area of Belgium.

3.2. Qualitative approach: Historiography, literature review, and interviews

3.2.1. Historiography and literature review

To define the concept of public reason within the framework of science and technology, we adopted a historical approach that enabled us to unite potential effects on reason and knowledge with the increasing use of technologies in our everyday lives.

To define an algorithm, data, and the legal and institutional frameworks, we chose to take a purely "constructivist" approach meaning that we build knowledge on knowledge available within society itself. We used interviews conducted with IT engineers, civil servants, and a lawyer to contextualize the use of data and algorithms in local policymaking.

3.2.2. Interviews and ethics

Between the 24th of September 2021 and the 28th of April 2022, eight interviews were conducted. Two of them were exploratory, and the other six were semi-directed interviews. The first exploratory interview was conducted with an IT engineer specialized in artificial intelligence (N°1) and focused on understanding what an algorithm is. We also needed to "open the black box" and explain, using our own words, how an algorithm works. The second exploratory interview was with a civil servant from the administration of Antwerp (N°4). They enabled us to schematize how the administration of Antwerp functions.

The semi-directed interviews were done with a member of the administration of Liège (N°2), an employee from a private corporation Antwerp, specialized in data and algorithmic management (N°3), another civil servant from the administration of Antwerp, expert in data (N°5), an expert in European Law (N°6), a member of the administration of Namur (N°7), and an expert in artificial intelligence (N°8). By means of these interviews, we were able to understand how the administrations of Antwerp, Liège, and Namur began using certain algorithms, how they interact with private companies, and how these administrations collect data and use algorithms in their policymaking processes. It also allowed us to fill in some gaps found in the legal literature review, given that we were able to complete and understand the interpretation of the "algorithmic governmentality" of each of the interviewees.

The data has been collected for the completion of a master's dissertation by the first author. At the time of collection, no formal ethical form needed to be completed by the first author. Participants gave their consent via email and/or verbally to take part in the study. For this article, and in order to avoid any form of potential academic misconduct, interviewees have been anonymized fully. This means that their name, role, and institution have been taken out and will remain unknown. We acknowledge the ethical limitations and have followed the best practices in anonymization and transparency for this publication.

Interviewees N°1, N°3, N°5, and N°8 fall within the category of experts in algorithms and data, whether they work in the administration or in a private capacity. Interviewees N°2, N°4, and N°7 fall within the category of politicians or civil servants, who are not part of the IT department of the local administration. The last interviewee, interviewee N°6, is an expert in laws pertaining to the use of algorithms and data in Belgium.

3.2.3. Discourse analysis

From empirical research, we gained much information that allowed us to understand how all three administrations use data and algorithms in their policymaking.

In order to determine the dynamic between public reason and algorithms, a thorough discourse analysis is required. Whether the cities of Liège, Namur, and Antwerp are heading toward an algorithmic governmentality or not, or whether the production of knowledge became automated, could only be determined by analyzing the language used by the civil servants and politicians working there. Accordingly, the framework used when coding was our concept of public reason. Within their respective interviews, our attention was therefore brought to notions [tags] related to the knowledge of citizens, experts, and politicians, the role of algorithms, politicians, experts, citizens, and the law, and the search for continuous progress, when local policies were developed.

4. What is an *algorithm*? Legal and institutional framework for Belgium

Since the use of data sets and algorithms in every Belgian municipality remains contextual and purpose-related, the definition of an algorithm, and both legal and institutional frameworks have been defined using fieldwork and focusing on the Belgian context of usage. The term *algorithm* will refer to the data programs used in the administrations of Antwerp, Liège, and Namur.

An algorithm is a mathematical and a statistical function that uses variables called "data". These data are collected, crunched and grouped according to their respective characteristics. Once this is done, the algorithm will use the data to answer a key question or solve a problem. To solve that problem, the algorithm will act like a recipe, giving a set of instructions in code that will enable the algorithm to function smoothly. An expert explained this process in an interview:

Once the recipe is completed, the algorithm could "learn" from the data incorporated and from the operations generated. In this sense, the data would nourish the algorithm and thus would allow it to become increasingly precise in the treatment of the data. These data can then be collected in three different ways depending upon the intended application of the data and on the type of algorithm used to work on it. In Antwerp, they either (1) have their own data registrations, or (2) they can sign up for data registrations from other administrations or private actors, such as the "MAGDA"[2] service distributing data to administrations when authorized by citizens for private use, or universities, or private companies. For purely operational purposes[3], (3) administrations can acquire "real-time" data. Real-time data also includes operational purposes. However, as the next chapter will show, the manipulation of data and the use of real-time data is guided by European laws. One example given by interviewees N°3 and N°5, both experts from Antwerp, was the "big bellies". It describes trashcans around the city equipped with sensors which send a signal to a central command when they are full and need to be emptied. This is a clear example of machine-learning-driven decision-making.

However, some algorithms used in public policymaking in Belgium are not fully autonomous. Street cameras in Antwerp and in Liège for example, are semi-autonomous. This means the algorithm and the variables must be reviewed by individuals who verify the data and the outcome of the algorithm. In this logic, a fine for driving over the speed-limit will be sent to the driver only if the individual verifying the result given by the algorithm agreed with it. The next chapter will explain in more detail how this review by an individual of the algorithm and the data works.

4.1. Legal framework in Antwerp, Liège, and Namur

To avoid potentially negative effects on humans from the use of algorithms and artificial intelligence, the simplest strategy was to keep the "human-in-the-loop" (Koulu, 2020). This oversight of technologies by humans has been implemented in public policymaking and ensures humans do not lose their ability to self-determine and may continue to remain autonomous from algorithmic systems.

In Belgium, at the local level throughout the country, this remains the only strategy used within administrations (*see* Appendix 2). Like many other European Union member states which use algorithms in decision-making, Belgian law evolved in accordance with the European Commission's General Data Protection Regulations (GDPR). This set of laws addresses multiple risks related to the use of algorithms. In the Belgian context, Article 22 (2) lett. B of the GDPR (*see* Appendix 4), implemented in Article 35 from the Law of July 30, 2018; relating to the protection of individuals when collecting private data. As Article 35 states:

> "Any decision based only on automated processing, including profiling, which produces adverse legal effects for the data subject or significantly affects him / her, is permitted if a national law, decree, ordinance, European Union law or an international agreement provides appropriate safeguards for the rights and freedoms of the data subject, and at least the right to obtain human intervention by the controller. Any profiling which discriminates against natural persons on the basis of the particular categories of personal data referred to in article 34 shall be prohibited"[4] (Law related to the protection of physical persons regarding the treatment of data related to privacy, 2018).

Thus, Article 22 assures a right for human intervention when a decision is taken using an algorithm (see Appendix 3). However, humans must be qualified to do so. He or she must understand the functionality of the algorithm and be capable of suggesting another solution (Malgieri, 2019). The intervention, in other words, must be made on reasonable grounds. In this context, attempts to modify the Belgian legislation occurred in recent years. In March 2021, federal deputy Vanessa Matz (Les Engagés[5]) suggested a

[2] "Maximum Data Sharing Between Agencies"

[3] Determining how many schools are in a neighborhood, for instance, is an operational context of use. To summarize, operational purposes are instant needs of use of data for public policymaking.

[4] Translated by Malgieri (2019, p. 12).

[5] Belgian political party.

modification to the Law of April 11, 1994, on the publicity of administrations. The aim was to modify its second article to assure greater transparency for citizens when administrations use algorithms (Matz, 2021). Yet, this modification was not approved by the Belgian government. The reason given was that this law was not the best method to provide a general framework for the use of algorithms in Belgian administrations. The absence of transparency thus remains a major risk for citizens and their rights. However, local administrations are unable to do anything about this.

4.2. Institutional framework in Antwerp, Liège, and Namur

Although algorithms are mainly used as decision-making support for Belgian politicians, its importance must not be underestimated. They have enabled cities in Belgium to "modernize" their decision-making processes. Moreover, the use of such technologies has extended into multiple sectors. Interviews with a member of the administration of Liège (Wallonia, Belgium), from the administration of Namur (Wallonia, Belgium), and from the administration of Antwerp (Flanders, Belgium) working with data, and an expert in artificial intelligence from a private company based in Namur, provided us with a clear representation of the role of algorithms and data in local public decision-making.

Liège, for example, remains cautious about the use of algorithms and data. As one of its civil servants explained, most cities in Wallonia do not have the budget nor the competencies to launch projects involving such technologies. Therefore, only larger cities such as Liège or Namur will have the sufficient financial resources to conduct such projects. Yet, they are willing to improve the city's services to the citizens and "make the region more effective" explained the civil servant from Liège.

This statement was reinforced by interviewee N°7. In an ambition to "wake up" a city described by him as "afraid of change", interviewee N°7 sought to transform the city into a competitive one able to adapt to change and become a "locomotive for socio-economic development" in Wallonia. Catalyzers such as private companies provide powerful incentives for companies and the public sector in their use of data and algorithms, to improve their competitiveness and create cohesion between cities in Wallonia. Thus, data and algorithms helped build what interviewee N°7 called a "digital ecosystem". This ecosystem, in which interactions between citizens and technology, and between private companies and technology, is meant to improve the general quality of life: social welfare, urban renewal, and climate change; to "appropriate more adequately the public space" and assure the "population's wellbeing".

In Antwerp, the use of algorithms and data in the decision-making process also remains a tool for politicians. Its mobilization is primarily for operational reasons, but the areas of interest continue to expand. Security, waste management (the "big bellies" mentioned earlier), unemployment, mobility and education, all now benefit from the use of algorithms and data.

As expected, we find substantial differences on the usage of technology between Belgian municipalities. This fact reinforces the importance of shedding light on the subnational level to obtain key policy implications that benefit STS approaches.

5. Results

5.1. Algorithmic governmentality: A virtual panopticon in Risk society

5.1.1. From governmentality to algorithmic governmentality

Foucault (2004) defined governmentality in three ways. First, as a set of procedures, analyses, reflections and calculations to use power on the population through political economy and by using security disposals. Second, as the main outcome of power professed by governments throughout history, which developed discipline, sovereignty and new knowledge. Last, governmentality was the process by which the state of justice established in the Middle Ages, became the administrative state in the 15th and 16th centuries thereby becoming more "governmentalized" (pp. 111-112).

Foucault (2004) also established how governmentality evolved. It proceeded from Christian *Pastoral power* [1] to the *diplomatic and military technologies* [2] and ended with the *police* [3]. However, with the evolution of science and technologies and the increase of its use by governments, the evolutionary trajectory, as this section will demonstrate, led to the *algorithmic governmentality* developed by Rouvroy and Berns (2010, 2013). With respect to the Belgian administrations studied, the crucial question becomes whether they are part of the algorithmic governmentality defined by Rouvroy and Berns (2013). Interviews with experts and civil servants we conducted provide strong evidence that they indeed are.

Three characteristics constitute algorithmic governmentality. First, the collection of data and the architecture of the data warehouse. Everything is reduced to its simplest component, and the collection of data is no more than a segmentation of individuals and an exclusion of the collective. Thus, as Rouvroy and Berns wrote, it is a "duplication of reality" (2013, p. 169). Second, the treatment of data and the production of knowledge. In this stage, connections between data are made and knowledge is produced, while remaining unexposed to human interaction. As interviewees N°4, N°5 and N°8 demonstrated, the knowledge produced is objective and it allows politicians to make "good decisions". However, this knowledge is generally produced by making correlations, and politics must go beyond simple correlations. Third, actions on attitudes. This consists of using probabilities to predict possible attitudes amongst the population studied (Rouvroy & Berns, 2013). The aim is to avoid the unpredictable.

According to experts, such as interviewee N°5, a "normalization process" of the use of data and algorithms was establishing itself in the administration of Antwerp, not algorithmic governmentality. Experts, politicians, and civil servants interviewed for this work described the use of algorithms and data in local administrations as described in sections one and two. Although interviewee N°8, an expert, did not understand the definition given by Rouvroy and Berns' (2013) article, as he considered it to be too "academic", interviewee N°7, member of the administration of Namur, thought the definition of algorithmic governmentality linked to the definition of surveys. As interviewee N°2 and N°5, both members of local administrations, have explained at length, data and algorithms are

used to support politicians in their decision-making and ensure their decisions are "better informed", as surveys do according to interviewee N°7 when questioned about algorithmic governmentality. When asked about trust in algorithmic governmentality, interviewee N°4, a civil servant from Antwerp, moved the question to trust in the government, highlighting the centrality of rules and procedures to follow in order to complete a task successfully. Thus, procedures and rules from a digital reality, developed with algorithms and controlled by data, were added into Belgian administrations. These new procedures were added to local procedures and rules long established for political decision-making.

In this new form of governmentality, the subject of study is reduced to multiple profiles that he is assigned to. It creates an essentialization of individuals. This is what Stiegler (2020) called *proletarisation*, where a loss of collective signification of things replaced language and symbols, the main elements related to culture. The social reality hence became a digital reality, where the algorithmic governmentality attempts to perfect the subject and control what could be done with the statistical reduction made on the subject.

5.1.2. The virtual panopticon in Risk society

Bentham's *Panopticon* (*see* Appendix 5.) consisted of a central tower and a peripherical ring. It just needed an individual inside the central tower to watch on, *surveil*, someone, enclosed in a cell. However, the visibility was axial and not lateral, guaranteeing order and discipline inside the peripherical ring. The individual inside a cell remained unable to have contact with the individual in the cell next to him; more generally, he had no contact whatsoever with the outside. The collective was replaced by a set of individualities to always remain controllable and observable. This disposition allowed the supervisor in the central tower to observe continuously and deprived the individual inside the cell of seeing anything (Foucault, 2020). As Foucault wrote, the individual inside the cell was an "object of information never a subject of a conversation" (2020, p. 234).

Equally, in the algorithmic governmentality, the individual replaced by data inside the algorithm is only an object of information and never a subject of conversation. Individuals are "crunched" into exploitable data by experts. Indeed, algorithms remain useless if they are not fed with data continuously. However, the data used within the algorithm must be comprehensible by the algorithm used. To make the data usable, experts must "pre-treat" the data. This process means the data is going to be somewhat deconstructed and made "simpler". This simplification of the data collected makes the data "clear" and "coherent" where no "superfluous comma" can be present. Yet not only is the data made clear for the algorithm, but data is also "cleaned" and stocked to support political decisions and make them more informed, like all interviews conducted have shown.

The interviews have also shown, the citizen is "crunched" by experts into readable data for computers, algorithms and decision-makers. He is deprived of building a collective, because he is unaware of the data characterizing other citizens. Although data open-source tables exist within the three localities chosen for this study, and despite citizens having access to it, it is anonymized due to the GDPR and national laws explained earlier. Therefore, this limits possibilities for citizens to associate the data to the corresponding individual. Yet, this logic helps the government to overcome the "wilderness of facts" as Rouvroy and Berns (2010, p. 93) wrote to structure individuals into singular and particular data. And in this sense, algorithmic governmentality can be seen, based on the study of the three administrations studied for this work, as a *virtual panopticon*[6].

Foucault wrote, "the Panopticon must be understood as a generalizable model of functioning, a way to define the balances of power with the everyday life of men" (2020, p. 239). Indeed, if citizens, like individuals in the cells of Bentham's Panopticon, are reduced to a decomplexified set of data, reachable and observable by an authority, administrations, experts within those administrations or even private companies contracting with administrations, they play the role of the observer. The "sub-politics" defined by Beck (1992), entities outside politics influencing political decisions, paradoxically become the "central tower" in Bentham's Panopticon, observing particularities which form part of a complex individual and encouraging the individualization of those particularities.

In this new form of governmentality, administrations no longer seek to govern physical bodies or entities but data and correlations which can be identified to support the decision-making process. Through data collection and analysis, physical reality, which is very complex, is strongly simplified to support the decision-making process. Thus, the physical reality melts into a kind of computerized reality. More importantly, they can anticipate possible futures for citizens. Manipulating, "treating" or "cleaning" the data, therefore, allows or deprives certain attitudes in the social reality. Thus, the knowledge produced is a "predictive knowledge in a digital reality" (Rouvroy and Berns, 2010, p. 98).

Yet, whether it is about avoiding dirty streets, overcrowded neighborhoods or choosing schools in Antwerp limiting the number of cars in the streets or controlling the red lights in Liège, or attempting to ameliorate general life conditions in Namur, problems and risks have taken multiple facets within the algorithmic governmentality established in the three administrations. Continuing the analogy of Bentham's Panopticon, the virtual panopticon not only allows for the observation of each individual, or more specifically, each particularity of an individual, it also allows the observer –experts from administrations or politicians– to control the future of each particularity. Based on the "disciplined" data, experts or politicians using it can thus predict habits and any possible movements made by individuals represented by the data collected within the digital reality constructed with that data. In this sense, no behavior, or future behavior, can occur without it being overviewed by individuals analyzing the data. As a result, in Antwerp, one

[6] Extensive literature exists on variations of this concept: digital panopticon and post-panoptic. For more on this, see. Lyon (2004); Boyne (2000); Mathiesen (1997); McMullan (2015); Gandy Jr. (2021).

could not necessarily sign up one's kid in the school of their choice, for instance. In Liège, cars are unable to ride on certain streets. And finally, in Namur, some companies do better because they use algorithms and data in their stock management.

Simply, individuals are disciplined by experts, from administrations or private companies, to be readable by the algorithm in the first place, and interpretable by politicians to complete the decision-making process. Moreover, it allows administrations to prevent risks within social reality by dominating the data and the correlations made between the data in the digital reality. Thus, algorithms and data paradoxically, become the central towers of the new form of governmentality.

5.2. Banalization of public reason in an algorithmic governmentality

One of the most important results pertaining to this study is the association between the concepts of banalization and public reason. The discipline of men for political decisions is controlled for predictive purposes by what may be called the virtual Panopticon. However, if it is in fact like Bentham's Panopticon in the way it "breaks" individuals into particularities enclosed in a single data and then observes those particularities, there remains a deep gap in knowledge and reasoning within the "central tower," Or what we refer to as a "banalization of public reason". The term "banalization" is not used coincidently, since blind trust, an unquestioning faith in an ideology or any belief, could lead to the most horrendous monstrosities committed in the name of that belief. It is what Arendt (2002) called the "banality of evil" (p. 440).

5.2.1. "I don't know"[7]

In Bentham's conception of the Panopticon, inside the central tower, an individual could see everything but could not be seen. Hence the tower was no longer a fortress; its materiality became exclusively centered on its application. Bentham's Panopticon was a system opened on itself. This meant an individual working inside the central tower, and even from outside the system, could understand within moments what was happening and how the whole system functioned. Thus, an extension of knowledge occurred in Bentham's Panopticon and social forces were strengthened as discipline became political technology (Foucault, 2020). Foucault called this the "state-ization of mechanisms of discipline" (2020, p. 248).

If algorithmic governmentality is a new mechanism of discipline used by the state, and more precisely, by the three administrations studied, the ability for anyone from inside or outside the central tower (local administrations) to understand the system and thus extend the knowledge and strengthen the social forces is no longer present. In fact, politicians (1), experts (2) (from administrations or from private companies) and citizens (3) do not understand each other because they don't *know* each other.

Table 1 illustrates the important points that amounted from the interviews we conducted with politicians, civils servants, and experts from Antwerp, Liège, and Namur. No citizens, per se, were interviewed. Yet, all interviewees were questioned upon the implication of citizens in local policymaking. Therefore, the role of citizens depicted in the following table is exclusively based on the knowledge of the civil servants, the politicians, and the experts interviewed.

[7] The answer given by an expert when questioned about what an algorithmic governmentality could be according to him.

Table 1: Summarize from interviews by type of agent and region

Agent	Region	Banalization of knowledge?
Politicians	Antwerp	There is an understanding that algorithms resemble procedures. Yet, there is a lack of knowledge about algorithms and tools the administration uses. The business question is the guiding force in the use of algorithms and data. The use of data and algorithms remains a secondary concern. In fact, politicians are not included whatsoever in the treatment of data or the analysis of the data. They are relegated to simple surveillance and approval of the data.
	Liège	Many refused the interviews as they were incompetent in the field of algorithm (according to them). Like in Antwerp, politicians are not included whatsoever in the treatment of data or the analysis of the data. They are relegated to simple surveillance and approval of the data.
	Namur	Clear definition of algorithms, however, there was no explanation of the definition itself. Rather, interviewee N°7 used common examples unrelated to the local use of algorithms to explain what the technology is.
Experts	Antwerp	All the work behind the data and the algorithmic treatment is done by experts. Experts that are either from the administration or from private companies. No clear understanding of the social implications of the use of data and algorithms in public policymaking. What is important for experts working in the administration is that politicians have the choice to use or not the data experts have treated. Whether politicians use the data is irrelevant to experts.
	Liège	All the work behind the data and the algorithmic treatment is done by experts. No clear understanding of the social implications of the use of data and algorithms in public policymaking.
	Namur	All the work behind the data and the algorithmic treatment is done by experts. No clear understanding of the social implications of the use of data and algorithms in public policymaking. Companies and private agencies serve as "catalysers" for the use of data and algorithms in Walloon administrations. They help administrations make their use of data and algorithms practical. Furthermore, it provides politicians with training in that subject matter and serve as official counsellors on questions related to decisions based on digital treatment of information.
Citizens (As viewed by politicians, civil servants, and experts)	Antwerp	Citizens can share their opinion on a political decision made (or to be made) via surveys done by the administration.
	Liège	Citizens can participate and share their opinion on a political decision made. Only on matters politicians agreed to present to citizens. As citizens delegate their trust to politicians, some matters should only be solved by politicians. Emergence of the "citizen-expert". As scenarios are presented to the citizens, they attempt to guide experts that have specific knowledge and tell them what to do. In reaction to this, the administration usually sticks to its decision.
	Namur	Citizens can participate and share their opinion on a political decision made or to be made. This allows citizens to understand the political measures taken by the administration. Yet, citizens are very difficult to reach out to. 55% of Walloons fear the use of data and algorithms in public policymaking. "Webinaries" are organized by private companies or organizations familiar with the use of algorithms and data. This is supposed to make the algorithm "explicable" to citizens.

Source: Authors 'own elaboration

As politicians, experts and citizens have a different state of knowledge when it comes to algorithms and data, the interviews we conducted demonstrated how all three layers do not communicate within the decision-making process. Politicians think they know what people want. Experts think they know what the politicians want. Citizens, according to other actors, know nothing and when they "think" they know, local administrations and experts silence them. Citizens remain the generators of data and yet have no control whatsoever over the outcome of the algorithm or over the treatment of the data done by experts. Thus, although most interviewees praised the development of collective knowledge, it is not really happening. The question then is, why use such technology if no one truly manages it or understands the complex environment it is used in?

5.2.2. To what extent even we are still pious[8]

From religion and faith or the concept of reason itself, to the state, science, and technology, all these elements have one thing in common: all pretend to deliver a certain truth about nature or society and offer guidance on where society must go.

According to Habermas (1988), our reason established itself on partial systems created by our modernity. The development of those partial systems allowed administrations, legal forces, and economic forces to gain power and control over the everyday lives of citizens and amounted to what we refer to as the virtual Panopticon in an algorithmic governmentality. Those systems constituted what Habermas called "intersubjectivities of superior order" (1988, p. 422). These intersubjectivities, like Beck's (1992) "sub-politics", would forge opinions and wills of the individual, the public, and the administrations. This paper exposed such intersubjectivities. Two main elements to which politicians, experts, and citizens from Antwerp, Namur, and Liège remain "pious" to today. These elements, [1] laws and [2] progress, not only lead to the banalization of reason, but they also bring on to a general banalization of local social risks.

[1] The laws, based on shared values, are according to Habermas (1988), the result of our modernity where everything is becoming confused. He wrote, "reason and manipulation, the conscious and the subconscious, production forces and forces of destruction, self-realisation and desublimation, effects guaranteeing freedom and those preventing us from it, truth and ideology" (1988, p. 400). Technologies thus guided modernity to be complacent of itself by developing values and new spheres of values, such as privacy, a notion developed extensively within GDPR for example.

[2] Yet, not only do legal guidelines frame the decision-making process, frame the configuration of algorithms and data and establish algorithms and data as ersatz citizens in a virtual reality, these guidelines are strengthened by the metaphysical notion of *progress*.

Hegel (2012) believed that changes throughout history occurred because we wanted things to be better. According to him, society was in constant search of perfectibility. In this representation, he believed progress was assimilated to an extension of quantitative knowledge. Foucault's (2004) work surely confirmed this extension of knowledge using statistics. Additionally, progress came because of a collective *Dialektik* building on a *Spirit*[9] able to determine what is essential for the state, for men and their conscience (Hegel, 2012). Hegel (2012) believed the state was the greatest manifestation of men's rationality, a rationality captured by a collective of men able to act rationally and contained within a Spirit enabling the collective of men to be guided. In this interpretation, each state, a *Volkgeist*, is a specific aspect of what Hegel (2012) called the *Weltgeist*, a global Spirit able to guide society. Paradoxically, as demonstrated via the medium of laws regulating the use of data and algorithms, politicians, experts, and citizens do not entertain a collective *Dialektik* whatsoever. On the contrary, as we show in [1], all actors base their individual reflections concerning the algorithms and data and their actions on the laws and the legal guidelines related to those technologies. This faith in law is completed by the faith in progress, where, by aid of events, it compels politicians, experts, and citizens to act in specific ways.

Based on interviews we conducted with a lawyer, civil servants from Antwerp, Liège, and Namur, and experts, Table 2 outlines how European laws and the notion of *progress* guide local policymaking.

[8] Nietzsche, F. *The Gay Science* (Book V, 344).

[9] Hegel (2012) defined the *Spirit* as "knowledge, with knowledge being the consciousness of a rational object" (p. 84).

Table 2: European laws and the notion of progress

	Banalization of reason?
Laws (European)	Laws regarding the use of data and algorithms are made at the European level, not at the local level. The Federal government of Belgium or a higher institution proclaim such laws. The Belgian regions adapt European regulations at their own scale and create special laws. Local administrations do not have the ambition nor the competencies to make laws regulating data collection and algorithmic treatment of those data. Consequently, no local regulation or guide of use exists. Experts programming the algorithms and treating the data hence follow European guidelines. Guidelines that are developed by individuals with no mastery of algorithms or data. Limiting experts and politicians in their abilities to decide, algorithms thus became a new actor in the decision-making process. The law attempts to build an equilibrium between citizens, experts, politicians, and the technology. Citizens are not included directly in the building of that equilibrium.
Progress	"We never stop progress" and "the digital is a tsunami that is imposed on us" stated interviewee N°7. Compels local administrations to stay on track with technological advancements, maintain their competitiveness with other administrations, and anticipate on future markets (6/10 children from primary school will have jobs that do not yet exist). Compels society, in general, to follow up with new technologies. Those who do not will be "illiterate" stated interviewee N°8. But citizens are difficult to attain, administrations do not do anything to change that situation, and companies providing the seminars about algorithms and data are not responsible in communicating the way administrations use these technologies. Citizens are thus dependent on the interpretation of progress made by politicians and must embrace it. The use of algorithms and data in policymaking becomes "normal". A normalization process occurred in the past 20 to 30 years.

Source: Authors 'own elaboration

Thus, whether it is for politicians, experts inside or outside of the administrations, or citizens, progress, in all its possible meanings, becomes obvious to all three actors. Moreover, the laws established in Belgium allowed for the regulation of the ends established by politicians and administrations in their use of data and algorithms and to frame the programming for experts. However, both notions tended toward a banalization of reason, as it became the norm for all actors. Nothing remains to be questioned inside the decision-making process anymore. As a result of the banalization of knowledge production and of reason, a general banalization of local social risks in the use of data and algorithms occurs, as the final section of this article will expose.

5.3. Toward a banalization of local social risks?

As the virtual panopticon generated a banalization of knowledge production, and as faith in the law and in progress resulted in a banalization of reasoning among politicians, experts, and citizens in the local administrations studied for this work, both banalizations have led to a third type of banalization, the one of local social risks.

Risks were defined as a "systematic way of dealing with hazards and insecurities induced and introduced by modernization itself" (Beck, 1992, p. 21). However, it is reasonable to ask who determines what constitutes a risk or not. Throughout history, elements as important as faith and science were outlined by thinkers such as Foucault (2004) and Nietzsche (1997) as the guide of governance for humanity. Outlined by Foucault (2004) to guide and govern individuals toward eternal salvation, faith extended into the prerogatives of science as both professed to lead to a truth of the world. These particularities remained for the uncertainties that were manifested in the model of governance. As Nietzsche wrote in *The Gay Science* (1997), science, like religion, soon became the police of uncertainties. It sought to be right and not fool others; however, these powerful attempts to reach out to the truth led to the development of faith into science, an analysis that Beck (1992) developed within the notion of risk determination. Faith in progress, he believed, drives society to disregard uncertainties and unknowns (Beck, 1992). Progress thus changed the face of democracy since it serves as a "new religion" for those who develop new technologies and those using it as this work has demonstrated.

However, many initiators of computer algorithms, such as Wiener (1960) or Weizenbaum (1972, 1976), have warned society of multiple risks related to the extensive and uninformed use of algorithms in our everyday lives. From the "slave dilemma" expressed by Wiener, highlighting human interference with the machine as a "feedback action" (1960, p. 1357), to the limitations of knowledge production

by the nature of the machines themselves as argued by Weizenbaum (1972), science and experts only nurtured what Weizenbaum called the "Orwellian triumph" of science (1976, p. 261). It was a triumph where experts representing the vague notion of progress to the untrained eye, such as citizens or politicians, imposed the slogan of technological inevitability.

Unsurprisingly, conclusions related to the risks themselves remain inadequate. Experts and politicians, whether they come from Namur, Liège, or Antwerp, rely in the end only on the risks they are aware of, and those which are regulated by law. This demonstrates the limits of knowledge established (unwittingly) by administrations and confirms the limitations of reason outlined in the previous section. As one expert from Namur underlined, "it is about the feeling".

Table 3, which is shown as follows, sums up the risks studies that are done in the administrations of Antwerp, Liège, and Namur. Furthermore, this table lists the adaptations to the risks identified.

Table 3: Adaptation of the risks identified for the selected Belgian regions

Municipalities	Risk studies conducted	Responses to the risk studies conducted
Antwerp	1. Companies configuring the data do "back-testing" for predictive models using historical data. This allows the programmer to gain access to a certain reality and compare the results of the evaluation. 2. Models face the possibility of confirmation biases. As politicians have certain ideologies, they focus on a specific type of data, disregarding other sets of data. E.g., to fight poverty, the administration would concentrate on poor people, while ignoring the number of rich people.	Running in parallel (manual evaluation of the data is compared to the model evaluation). The administration develops three different scenarios from which politicians can choose.
Liège	1. Before use, the technological system is tested by the administration.	If the evaluation is unsatisfactory, the administration adapts the social reality to the technological system in place. E.g., If street cameras count too many vehicles in a single street, the administration takes measures such as make it a one-way street or redirect it for instance.
Namur	None done by the administration itself as risks are "easy to theorize" according to interviewee N°7. Done by the University of Namur as it has access to the data collected. It focuses on the risks produced by the system itself.	Risks exclusively limited by European laws and regulations.

Source: Authors 'own elaboration

These limitations confirm the disadvantages inherent in the use of statistics. While statistics allowed a state in the 17th and 18th centuries to gain knowledge about its territory and population (Foucault, 2004), statistics failed to anticipate or prevent the American and French revolutions. Such failings point to the need to reconsider "reflexive modernity" and expand the notion to society outside technological considerations. If administrations continue to transfer the use of their technological tools to others, as they appear to do, then they perpetuate the inability to participate directly in the collective sharing of knowledge. This would not initiate what Rouvroy (2020) called the "death of politics" for local administrations, meaning the death of imagination and spontaneity. However, if administrations do not participate directly, it would allow a "death" of men's ability to reason and produce new collective knowledge; meaning, if responsibility for this remained with the experts and politicians alone, then for local administrations focused on social realities, such social realities would be left to guide themselves. This imbalance of knowledge concerning algorithms and data combined with the social risks such technology could produce leads to widespread incomprehension at the local level. How technology is used and the social impact of such technology, as well as the social embodiment of public reason, where the relevant actors exchange collective knowledge and reason, is poorly understood. Yet, these conditions become enshrined in laws and regulations and present a univocal, if incomplete, social, and technological interpretation of human progress.

6. Conclusions

In this study, we have questioned the ability for individuals to reason and produce collectively in the age of algorithms and data sets in public policymaking. Moreover, this inquiry meant to interrogate Beck's (1992) concept of *reflexive modernity* and the importance of risks in policymaking. Results show that in an age where risks were supposed to be politically reflexive in a reflexive modernity, actors within the three administrations studied (or those working with the administrations) based their ability to reason and produce new knowledge collectively on the knowledge of others and on risks emerging from the technology itself safeguarded by legal guidelines. More importantly, we find that the local use of data and algorithms for three Belgian municipalities depended on general considerations of risks that were made upon the data and the algorithms used. While knowledge is unequally present amongst the actors from the three localities studied here, progress and laws (made by individuals unaware of what algorithms and data are), guide the decisions and their use. This amounted to what may be called a "banalization of social risks". Accordingly, we confirm the importance of subnational level, as the adoption of algorithms in the public sector seems to depend on context and certain barriers that vary between municipalities. Combining a philosophical and qualitative approach can contribute to shedding light on this important research problem.

This study leads to important policy implications by assuming an STS framework. With administrations voluntarily changing the social realities into virtual realities and cede some of our abilities to machines (Rouvroy and Berns, 2010, 2013; Stiegler, 2020), perhaps they have allowed algorithms and data to define our own abilities and our own limits. Therefore, our reason and our knowledge production could be progressively defined by algorithms and the collected data. These results are particularly challenging for the public sector, since they need to face the adoption of algorithms to reduce transaction costs, along with not circumventing philosophical and ethical issues.

At the same time, this study faced certain limitations that may constitute interesting avenues to undertake further research. First, the study could be extended to other Belgian local authorities to confirm whether observed patterns are replicated. Second, it would also be interesting to explore whether a banalization of reason can also be found when studying other types of technologies different from algorithms. It would be particularly valuable to explore technologies such as Internet of Things or Big Data, among others. Finally, related to the first point, we need to recognize the existence of limitations portrayed by actors. Although the actors interviewed were able to answer our enquiries, many others remained silent about certain issues, such as citizens and layperson. Thus, expanding the fieldwork to more actors and extending the number of actors to question could allow us, perhaps, to access more complete data to enhance philosophical considerations on the interaction between political and technological issues.

References

Arendt, H. (2002). Eichmann à Jérusalem : Rapport sur la banalité du mal [Eichmann in Jerusalem : A report on the Banality of Evil]. Editions Gallimard. Coll. “Folio/Histoire”.

Barbero, J., & Rodríguez-Crespo, E. (2022). Technological, institutional, and geographical peripheries: regional development and risk of poverty in the European regions. The Annals of Regional Science, 69, 311-332. https://doi.org/10.1007/s00168-022-01127-9

Beck, U. (1992). Risk Society : Towards a New Modernity. SAGE Publications.

Châtelet, F. (1992). Une histoire de la Raison : Entretiens avec Emile Noël [A history of Reason : Interviews with Emile Noël]. Editions Seuil.

Boyne, R. (2000). Post-Panopticism. Economy, and Society, 29(2), 285-307

Crespo Cuaresma, J., & Lutz, S. U. (2021). Modelling and projecting digital trends in European regions: an econometric framework. Regional Studies, 55(10-11), 1696-1710.

European Commission. (2022). General Data Protection Regulation (GDPR). https://gdpr.eu/tag/gdpr/

Foucault, M. (1986). Omnes et singulatim : vers une critique de la Raison politique [Omnes et singulatim : towards a criticism of political Reason]. Le débat, (41), 5-36.

Foucault, M. (2004). Sécurité, Territoire, Population. Cours au Collège de France. 1977-1978 [Security, Territory, Population. Lectures at the Collège de France. 1977-1978]. Editions Gallimard Seuil.

Foucault, M. (2020). Surveiller et punir [Discipline and punish]. Editions Gallimard. Coll. “Tel”.

Gandy Jr., O. (2021). The Panoptic Sort. Oxford University Press.

Habermas, J. (1988). Le discours philosophique de la modernité : douze conférences [The philosophical discourse of modernity : twelve lectures]. Editions Gallimard.

Haeri, M. A., Hartmann, K., Sirsch, J., Wenzelburger, G., & Zweig, K. A. (2022). Promises and Pitfalls of Algorithm Use by State Authorities. Philosophy & Technology, 35(2), 1-31.

Hegel, G.W. (2012). La Raison dans l’Histoire [Reason in History]. Editions Pocket. Coll. “Agora”.

Horkheimer, M., & Adorno, T. (2020). La dialectique de la raison. Fragments philosophiques [Dialectic of Enlightenment]. Editions Gallimard. Coll. “Tel”.

König, P. D., & Wenzelburger, G. (2021). The legitimacy gap of algorithmic decision-making in the public sector: Why it arises and how to address it. Technology in Society, 67, 101688.

Koulu, R. (2020). Human control over automation: EU policy and AI ethics. European Journal of Legal Studies, 12 (1), 9-46. https://doi.org/10.2924/EJLS.2oi9.oi9

Kuziemski, M., & Misuraca, G. (2020). AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. Telecommunications policy, 44(6), 101976.

Loi relative à la protection des personnes physiques à l’égard des traitements de données à caractère personnel [Law related to the protection of physical persons regarding the treatment of data related to privacy], Titre 2. — De la protection des personnes physiques à l’égard du traitement des données à caractère personnel par les autorités compétentes à des fins de prévention et de détection des infractions pénales, d’enquêtes et de poursuites en la matière ou d’exécution de sanctions pénales, y compris la protection contre les menaces pour la sécurité publique et la prévention de telles menaces, chapitre II. — Principes de traitement, Art. 35 (2018). https://www.autoriteprotectiondonnees.be/publications/loi-cadre.pdf

Lotka, A. (1945). The law of evolution as a maximal principle. Human biology, 17 (3), 167-194.

Lyon, D. (2004). The Electronic Eye. The rise of surveillance society. Polity Press.

Malgieri, G. (2019). Automated decision-making in the EU member states: The right to explanation and other “suitable safeguards” in the national legislations. Computer Law & Security Review, 35 (5), 1-26. https://doi.org/10.1016/j.clsr.2019.05.002

Mathiesen, T. (1997). The viewer society: Michel Foucault’s ‘Panopticon’ revisited. Theoretical criminology, 1(2), 215-234.

Matz, V. (2021). Proposition de loi modifiant la loi relative à la publicité de l’administration du 11 avril 1994 afin d’introduire une plus grande transparence dans l’usage des algorithmes par les administrations [Proposition of law modifying the law related to the publicity of the administration of March 11, 1994, to introduce a greater transparency in the usage of algorithms by administrations]. La Chambre des Représentants. https://www.lachambre.be/FLWB/PDF/55/1904/55K1904001.pdf

McMullan, T. (2015). What does the Panopticon mean in the age of digital surveillance? The Guardian. https://www.theguardian.com/technology/2015/jul/23/panopticon-digital-surveillance-jeremy-bentham

Nietzsche, F. (1997). Le Gai Savoir [The Gay Science]. Editions Flammarion.

Rouvroy, A., & Berns, T. (2010). Le nouveau pouvoir statistique [The new statistical Power]. Multitudes, (1), 88-103. https://doi.org/10.3917/mult.040.0088

Rouvroy, A. (2011). Governmentality in an age of autonomic computing: Technology, virtuality and utopia. Law, Human Agency and Autonomic Computing, Routledge, 119-139.

Rouvroy, A., & Berns, T. (2013). Gouvernementalité algorithmique et perspectives d’émancipation [Algorithmic governmentality and emancipatory perspectives]. Réseaux, (1), 163-196. https://doi.org/10.3917/res.177.0163

Rouvroy, A. (2020). Algorithmic governmentality and the death of politics. Green European Journal, 27.

Schleife, K. (2010). What really matters: Regional versus individual determinants of the digital divide in Germany. Research Policy, 39(1), 173-185.

Stiegler, B. (2020). Bifurquer : « Il n'y a pas d'alternative » [To fork : « There is no alternative »]. Editions Les liens qui libèrent.

Szeles, M. R. (2018). New insights from a multilevel approach to the regional digital divide in the European Union. Telecommunications Policy, 42(6), 452-463.

Vicente, M. R., & López, A. J. (2011). Assessing the regional digital divide across the European Union-27. Telecommunications Policy, 35(3), 220-237.

Weizenbaum, J. (1972). On the Impact of the Computer on Society. Science, 176 (4035), 609-614.

Weizenbaum, J. (1976). Computer power and human reason: From judgement to calculation. W.H. Freeman and company.

Wiener, N. (1960). Moral and Technical consequences of Automation. Science, 131 (3410), 1355-1358.

Wilson, C., & Van Der Velden, M. (2022). Sustainable AI: An integrated model to guide public sector decision-making. Technology in Society, 68, 101926.

Appendix

Appendix 1: Map of Belgium highlighting the locations studied in this paper (Wikipedia, 2025).

Appendix 2: The safeguards used in Belgium (Malgieri, 2019, p. 24).

Legal Framework	Right to human intervention	Right to express his/her view	Right to challenge or contest the decision	Right to receive notification about automated decisions and related safeguards	Right to receive notification of the contestation outcome	Right to receive explanation on architecture or implementation of algorithms	DPIA on Automated Decision-making systems
Article 22(3) GDPR	✓	✓	✓				✓ (implicit)
Recitals of the GDPR	✓	✓	✓	✓	✓	✓	
Germany	✓	✓	✓				
The Netherlands	✓	✓	✓	✓			
United Kingdom	✓	✓	✓		✓		
Ireland	✓	✓	✓		✓		
Austria	✓	✓	✓				
Belgium	✓	✓	✓			✓	
France	✓	✓	✓				
Hungary	✓	✓	✓				
Slovenia	✓	✓	✓				✓

Appendix 3: Article 22 (2) lett. B of GDPR (European Commission, 2022).

2. Paragraph 1 shall not apply if the decision:

(a) is necessary for entering into, or performance of, a contract between the data subject and a data controller;

(b) is authorized by Union or Member State law to which the controller is subject and which also lays down suitable measures to safeguard the data subject's rights and freedoms and legitimate interests; or

(c) is based on the data subject's explicit consent.

Appendix 4: Belgium and the application of GDPR (Malgieri, 2019, p. 19).

Aspect	French Law	Hungarian Law	Austrian Law	Belgian Law
The scope of automated decision-making regulation in National Laws	a decision which has legal effects or significantly effects on a person	decisions based only on automated data management, in particular profiling, which are prejudicial to the person or legitimate interests of the person or which have a significant impact on the person concerned.	decisions based only on automated processing, including profiling, which have detrimental consequences for the data subject or that could significantly affect them.	any decision based exclusively on automated processing, including profiling, which produces adverse legal effects for the data subject or significantly affects him/her.
Difference from article 22(1) GDPR	Any significant effect is included, not only significant effects which are "similarly significant" as the legal effects.	Any "prejudicial effect" or "significant impact", no reference to legal or similarly significant effect.	Any "detrimental effect" or "significant effect", no reference to legal or similarly significant effect.	Any significant effect is included, not only significant effects which are "similarly significant" as the legal effects.

Appendix 5: Bentham's plan of the Panopticon (Foucault, 2020, p. 372).