

# Artificial Intelligence: Perception and adoption in Belgian Public Administrations

*Exploratory survey, results and recommendations*

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## Introduction

The adoption of AI in the public sector could bring benefits such as personalised services for citizens, fewer repetitive tasks for civil servants (liberating time for more tasks that have more value as listening, creating, improving services, ...), detect harmful content on the internet, support decision-making processes where a high number of data and variables are involved, which is more and more frequent when societal challenges are involved.

However there has been very limited initiatives aiming at measuring and understanding the level of AI adoption by the public administration in Belgium. In 2020, the KU Leuven, under the impulsion of AI4Belgium (the Belgian coalition for AI), FOD BOSA (Federal public service), contributing to addressing the questions by building and launching a survey aiming at exploring the use of AI within public administrations.

The survey brings, namely, some insights about the following questions:

*Is artificial intelligence present in many public administrations in Belgium?*

*Is it perceived by the civil servants as a mean to improve their daily work?*

*What do they know about AI in their own institutions?*

*Which technology is the most widespread in public administrations, such as machine learning, natural processing language?*

*Is AI sometimes felt as a threat, and to which extent?*

*Is public service willing to use more AI?*

*What are the main barriers to do so?*

*Does administrations have the capacity (resources, innovative culture, infrastructure) to build AI?*

*Is the innovation culture, colleagues' attitude and management support considered as supportive? ?*

*Is the level of expertise perceived as sufficient to implement AI in public services?*

Although this is a first attempt draw the landscape of the use of AI in Belgium, the survey provides a first and unique overview of the current use of AI in Belgian public administration – insights which are extremely lacking at this stage and some recommendations to support AI adoption in order to improve public services.

## Context and rationale

The **potential of AI** for enhancing social benefits and economic growth has been stressed in many research papers and policy documents, with governments across the world aiming to best prepare their country for the introduction of AI, and to some extent, be the leading country in AI. In this respect, governments have been placing forward various proposals to stimulate and facilitate the research on Artificial Intelligence, development of new solutions and the adoption of these technologies within their economy and society (Misuraca & van Noordt, 2020).

Despite this enthusiasm, however, the adoption and deployment of AI technologies within public administrations face many **difficulties and barriers**, limiting administrations to make maximum use of the benefits of the technology. Recent academic literature has highlighted the various barriers public administrations face in developing and using AI technologies, ranging from the lack of quality data, ethical concerns, unawareness of what AI could mean, lack of expertise, legal limitations, the need for interorganisational collaboration and many more. While many private sector organisations, and especially SME's, face similar challenges in using AI technologies within their business processes, governments are actively introducing policy initiatives and measures to make it easier for businesses to develop and use AI technologies, as many of the AI strategies describe (van Roy, 2020). The public sector, in this respect, is unfortunately only mostly regarded as a facilitator or a regulator of AI technologies in the private sector. Far fewer attention is given **the role of the government as an user** of AI themselves and how governments are aiming to overcome the various barriers public organisations face in using AI for societal benefit (Kuziemski & Misuraca, 2020).

There are still many **open questions** with regards to how Artificial Intelligence (AI) is used in public administrations. While technological improvements to AI take place daily, it appears that there is a significant gap between the technological possibilities, the latest state of the art in academic papers and the current uptake of AI technologies in society; both in businesses as well as in public administrations. Overcoming this gap is crucial to ensure value from AI, as technology itself has little impact, but it requires to be used by organisations and individuals to enhance existing processes or to develop new products or services. However, the adoption of new innovative technologies is not always straightforward, with various barriers limiting the adoption of AI in organisations, leading to already considerable differences in diffusion among businesses, with SMEs being far more likely to not use AI compared to larger companies (European Commission, 2020). In this respect, surveys have been conducted to understand the level of uptake of AI among businesses, as to measure the current level of AI use, for which purposes AI is used by businesses and which barriers they face in using these technologies.

**Regarding AI in public administrations**, research has been scarce to understand the **current level of AI adoption and use** (Sousa et al., 2019). Governments are often disregarded as an active user of AI technologies, but often are researched from either a regulatory perspective (which laws and regulation are they planning to introduce) or as a facilitating perspective (which actions do governments take to facilitate the uptake of AI in society?). Hence, apart from some case studies

highlighting controversial uses of AI among government institutions – or private companies contracted by the government -, very little is known about which AI gets used, for which purpose it is used, which barriers public administrations face in using AI and what effects AI led to following its introduction. Unfortunately, many public administrations lack awareness about what could be understood with AI or simply are not aware of the various AI (or existing ICT recently updated with AI-elements) already used in their organisation. Available landscaping studies currently conducted by research tend not to only try to find what AI is being used in government, but also to **gain an understanding regarding their purposes, their types, expected effects, their level of autonomy, kinds of data used, who was the main developer and more**. These few available studies assessing the overall use of AI in government show a high diversity the purpose of AI, the type of AI, expected effects, their level of autonomy, kinds of data used, who was the main developer and more (Engstrom et al., 2020; Misuraca et al., 2020; van Veenstra et al., 2020).

In general, it is expected that **public administrations face many obstacles in using AI** technologies within their operations, as public organisations often have limited funding available for AI, operate in a risk-adverse environment, lack the expertise in AI, face regulatory barriers or simply lack the awareness of what AI is and could mean for their them. **The research aims to contribute to this research gap by studying the current use of AI among Belgium public administration, and to provide potential answers why public administrations in other countries may or may not be using AI within their operations**. In this respect, a survey will be held among Belgium public administrations to address a variety of pressing research topics. Through this survey, an overview to which extent AI is currently being deployed within the public administrations and to which extent respondents view the level of development of AI in their organisation ought to be provided. In addition, the study aims to identify which factors play an (important) role in adopting AI in government organisations. Recent research has pointed out that the use of AI technologies is mediated by many different factors, such as the availability of funding, knowledge and expertise (Bérubé & Giannelia, 2021; Sun & Medaglia, 2019; van Noordt & Misuraca, 2020). The study helps to assess which of these factors are influencing the use of AI in Belgium public administrations and which initiatives organisations are taking to stimulate AI deployment, but also which barriers these organisations face in using AI. Similarly, for organisations who are not using AI yet and are not planning to do so on the short-term, the study helps to explore the factors which influence the non-adoption of AI.

In doing so, it is expected that the answers from the survey generate insights to the following 5 topics:

Firstly, it aims to gain a better insight of **what Belgium civil servants mean with the term “Artificial Intelligence”**. While many definitions have been brought forward, the term remains very challenging to define and different stakeholders, depending on their background and technical expertise, derive different meanings to what AI is (Krafft et al., 2019; Samolili et al., 2020). It is therefore fundamental for a study which researchers AI adoption to clarify what policymakers themselves view as AI.

Secondly, the survey aims to **assess the general level of use of AI** within Belgian public administrations. In this respect, we aim to understand to which extent AI is currently being deployed within the public administrations and to which extent respondents view the level of development of AI in their organisation.

Thirdly, the survey aims to gain a better understanding of **what types of AI are currently being used in Belgian administrations**. AI applications come in many different forms which are not always alike (Wirtz et al., 2019) and it may well be possible that certain AI applications, such as Chatbots are much more widely used than other, perhaps more complex AI applications (Misuraca & van Noordt, 2020).

Fourthly, the survey aims to identify **which factors play an (important) role in adopting AI in governmental organisations**. Recent research has pointed out that the use of AI technologies is mediated by many different factors, such as the availability of funding, knowledge and expertise (Bérubé & Giannelia, 2021; Sun & Medaglia, 2019; van Noordt & Misuraca, 2020). The survey helps to assess which of these factors are influencing the use of AI in Belgium public administrations and which initiatives organisations are taking to stimulate AI deployment, but also which barriers these organisations face in using AI. Similarly, for organisations who are not using AI yet and are not planning to do so on the short-term, the survey helps to **explore the factors which influence the non-adoption of AI**.

Lastly, the survey aims to better grasp **why public administrations want to use AI**, for which purposes **AI is currently being used** and which effects, both positive and negative, they have experienced or expected from using this technology.

## Theoretical background

Artificial Intelligence (AI) technologies are gaining **extraordinary momentum**. After a period of relative neglect, commonly referred to as the 'AI winter', in the past few year's technologies such as machine learning, intelligent chatbots, and image and speech recognition have reached a new peak in mainstream visibility, user expectations, and global investments. Such renewed focus is shared by governments across the world, who are swiftly buying into a new discourse on the potentials of AI to achieve public sector goals. AI, in fact, represents "an ideal technology to be applied to the public-sector context, where environmental settings are constantly changing, and pre-programming cannot account for all possible cases" (Sun & Medaglia, 2019). AI applications have the potential to increase the efficiency and effectiveness of service delivery, but also to support government decision-making with the simulation of different policy options (Mehr, 2017; Pencheva et al., 2020).

While the term Artificial Intelligence still holds many different interpretations and is commonly used as an umbrella term to describe software and hardware which are capable of conducting tasks which previously were thought to require human intelligence. At the moment, a variety of different applications – often based on machine learning – capable of analysing large volumes of data and consequently suggest or undertake actions. It remains troublesome to determine whether something can be regarded as Artificial Intelligence solely since it is using machine learning or traditional AI approaches. Most applications that we consider Artificial Intelligence now are in fact often the result of a combination of both approaches or they use a multitude of different machine learning algorithms, where different capabilities are provided through each of the learning techniques (Jiang et al., 2017).

However, a straightforward determination whether something can be considered "AI" remains challenging, as also seen in recent discussions surrounding the European Commission's proposal to

regulate Artificial Intelligence. In the annex of the regulation, a rather broad definition of all types of “AI” is included which ought to fall under the scope of regulation – mostly due to the impossibility of defining one approach as AI. However, others warn that the proposal’s understanding of AI is too broad; and consequently, will include almost all ICT applications, even those who are based on rather simple statistics. A clear scope, thus, has not been determined yet, which remains the same for studying the application of AI within public administrations.

Nevertheless, most of the applications we currently describe to be AI can do (one of) the following activities:

- Perceiving and detecting, for example the recognition of faces, objects, persons, handwriting, fake images, and videos or emotions through developments in Computer Vision
- Detection of auditory information, such as the detection of speech, persons, sounds, emotions
- Understanding textual information, enabling translations, sentiment analysis or the identification of persons through text.
- Generating new content, such as the creation of videos, songs, or text after learning from enough examples
- Identification of anomalies or other irregularities in large datasets such as fraudulent transactions
- Planning and scheduling activities or routes
- Searching and finding relevant information to the given query
- Predicting events through detecting patterns or by making comprehensive scenarios

In this respect, a number of common ‘types’ of AI in the public sector have been found in exploratory research in which these capabilities embed themselves (Wirtz et al., 2019):

- **AI-based knowledge management:** AI which generate, systematize, gather, sort, record and share knowledge. These include the use of neural networks to analyse, distribute and share knowledge with others.
- **AI Process Automation Systems:** Automation of standard tasks, the support of people through automation systems, the use of software robots to mimic human interaction with user interfaces or other software systems.
- **Virtual Agents:** Computer-based systems which interacts with users through speech analytics, computer vision, written data input, real-time universal translation to communicate and/or performs tasks for people. Often these agents are chatbots or other virtual avatars.
- **Predictive analytics:** Processing of large volumes of quantitative data, which could include machine learning, for reporting, prescriptive and predictive analysis.
- **Identity analytics:** Software combining big data, advanced analytics, and identity management to conduct risk-based identity checks.
- **Cognitive robotics & autonomous systems:** Robotic systems that are able to learn and respond to their environment in real time.
- **Recommendation systems:** Information filtering systems that personalize information to the preference of the users
- **Intelligent Digital Assistants (IDA):** Software based on speech analytics that provides an interface between a user and a system to search information or complete simple tasks.

- **Speech analytics:** Software used for the recognition and processing of language, used for understanding or responding to language input or translate language.
- **Cognitive security analytics:** Application using AI-technologies to analyse security information to detect threats

**AI applications could play a significant role** in various governmental tasks by enhancing policy making, public service delivery and internal governmental processes, making them more effective, efficient, and legitimate. In general, the use of Artificial Intelligence in the government will either be used to automate processes or to augment the human decision makers (Veale & Brass, 2019), which as a result can automate redundant activities and serve as decision-making tools for experts (Mikalef et al., 2019). Nevertheless, most of the ascribed benefits of AI for the public sector are not always based on empirical data, but often on assumptions. Validation of these beneficial effects are so far limited due to the lack of adoption of AI in public administrations and lack of thorough impact assessments which indeed highlight the effects of AI after their deployment. A clear impact framework as well as studies exploring the (long) term effects of the use of AI in government are still lacking (Kuziemski & Misuraca, 2020; Medaglia et al., 2021). In fact, most of these mentioned benefits are overshadowed by various challenges which will limit or counteract their results. This could be the case due to data issues, the AI system itself, unintended consequences with human interactions or simply that structural social issues remain which AI cannot solve, such as highlighted by e.g. (Misuraca, 2021).

Whilst the **possible negatives effects** - or even dangers of irresponsible use of AI – should not be ignored in the academic debate on the use of AI in government, this report aims to dive deeper into the various challenges governmental organisations face with adopting these technologies rather than the consequences following the deployment of AI. In fact, as the existing eGovernment literature has researched extensively is that public organisations often face many hurdles in using innovative technologies (De Vries et al., 2016; Kamal, 2006; Savoldelli et al., 2012; Tangi et al., 2021). The (innovative) technology may be available on the market, already used extensively in the private sector and created expectations on how public services and governments ought to facilitate services, but government organisations may still face difficulties in adopting the technology in their organisation, even more so in a way that it changes organisational work practices.

Similar **barriers** exist for the use of AI technologies within the public sector, as early research has shown. Following a review of existing studies on AI in the public sector, Wirtz et al. (2019) found four main streams of challenges that hinder the implementation and use of AI applications in the public sector: technological implementation challenges, legal challenges, ethical challenges, and societal challenges. These streams have been found in other academic research on the barriers faced by public organisations such as by (Bérubé & Giannelia, 2021) and (van Noordt & Misuraca, 2020).

In earlier exploratory research on the antecedents of Artificial Intelligence adoption in governmental organisations, it showed that cases highlighted that ‘traditional’ antecedents (De Vries et al., 2016) to public sector innovation play an important role in AI-enabled innovation in the public sector, as seen in the Figure below (van Noordt & Misuraca, 2020). These, include:

- **Environmental antecedents**, such as experiencing pressure to use a new innovation, the availability and contribution of networks, private vendors, isomorphism and regulation facilitating new innovation or hindering previous practices.



- **Organisational antecedents**, such as the availability of various organisational resources, (dedicated) funding for innovation, adequate IT resources, end-user participation, trainings, management support, a supportive organisational culture, and other organisational incentives to adopt the new innovation.
- **Innovation-related antecedents**, such as perceiving a certain value of the innovation, compatibility with existing organisational values, the level of the ease of use of the innovation and how security and privacy concerns are perceived.
- **Individual antecedents**, such as the availability of an innovation leader, who is capable of overcoming any other hurdles faced in the adoption process.
- **AI-specific antecedents**, such as the availability of enough high-quality data to develop AI models, maintenance of this data, facilitation of data sharing and the development of a data-driven services ecosystem.

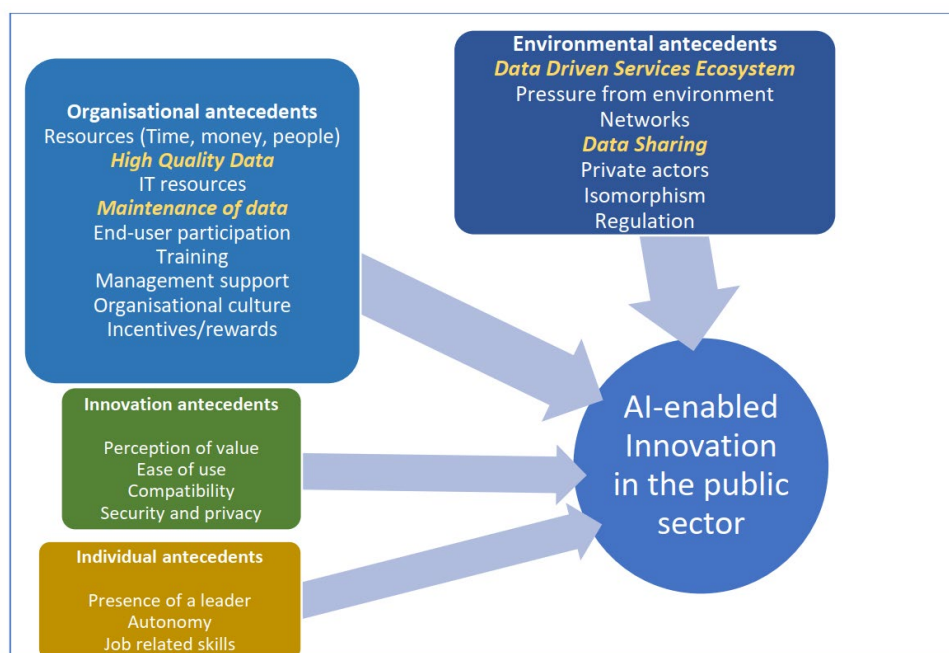


FIGURE 1 ANTECEDENTS TO AI-ENABLED PUBLIC SECTOR INNOVATION, VAN NOORDT, C., & MISURACA, G. (2020). EXPLORATORY INSIGHTS ON ARTIFICIAL INTELLIGENCE FOR GOVERNMENT IN EUROPE.

Naturally, the assumption is that the more positive antecedents are present or perceived in the organisation with regards to the use of AI in their organisation, the more likely it is that the organisation uses AI (often). The reverse is also true – the more these antecedents are lacking or the more barriers are present in limiting the development and use of AI in the public administration, the less likely it is that AI will be used in that organisation, or in the near future. While the intention to use AI may be present, barriers to innovation could really make the initiation of following through of them challenging, often leading to their termination.

However, despite these barriers to AI, there is still little known to which extent these antecedents are present within public administrations, to which extent they influence the use of AI in public organisations and how public authorities aim to overcome them. The role of government in AI is often only regarded as a regulator in their society or a facilitator of AI for the private sector, and many of the policy as proposed in the strategies are linked to these two roles (Zuiderwijk et al., 2021). The government as an active user of AI receives far less attention from researchers and policymakers and

thus, consequently, not much is known about how governments aim to improve the uptake of AI in governments. Some public administrations may have conducted successful trials with AI, but face difficulties in scaling up the results across the organisation or across organisational boundaries (Alexopoulos et al., 2019).

## Methodology

To further understand the current use of Artificial Intelligence in governmental organisations, the availability of various antecedents and the influence of these antecedents on the adoption and non-adoption of AI technologies, **a web-based survey has been launched among Belgium civil servants**. In the survey, the current use of AI in their administration is assessed, which drivers and barriers they perceive in their organisation which either facilitate or hinder the development and use of AI in their organisation and how they perceive the impact of AI on public administration in general. A survey has been regarded as suited to gain answers from a wider number of participants and to standardize results. While difficulties in comparability<sup>1</sup> can be expected in surveying the use of AI in organisations due to the different meanings attached to “AI” and “adoption”, it provides a first and unique overview of the current use of AI in public administration – insights which are extremely lacking at this stage.

The survey has been designed with **various research aims** in mind, such as understanding what Belgium public civil servants understand by the term “Artificial Intelligence”, given the different interpretations that academics, policymakers and citizens hold over the term (Krafft et al., 2019). In addition, the survey also includes questions regarding the expected benefits of AI for public administrations and for which purposes AI is currently being deployed. Therefore, in the following paragraphs, only the questions related to these research goals will be described further in depth. However, a survey is a great research method to understand what people perceive is the current state of AI in their organisation and what factors contribute to the current level of AI (Gail, 2002).

One of the core research points of the survey is the **assessment regarding the current level** of use of AI in the respondent’s public administration organisation. Respondents were asked to indicate whether they organisation is currently using AI, if it is planning to do so within the next two years or not. Following this, respondents were given different questions appropriate to their situation. For example, only respondents which mentioned that they are using AI received questions what kind of AI they were using, whereas organisation not using AI yet were asked which (perceived) barriers were regarded as hindering the successful use of AI in their organisation. The starting assumption of the survey was that, whilst the use of AI is in an early stage in Belgium public administration, all three groups would be evenly distributed, with organisations acting as frontrunners in the use of AI, while others have not considered the use of AI yet.

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<sup>1</sup> See for example the OECD’s analysis of surveys assessing the uptake of AI within businesses, conducted by governments across the world: <https://www.oecd-ilibrary.org/docserver/72cce754-en.pdf?expires=1621182898&id=id&accname=guest&checksum=7A28860FC04F63AE55C0D61EF6B730CD>

These statements, among others, include:

- My organisation is active in networks, such as AI4Belgium/ AI4GOV which assist in the development and adoption of AI in my organisation
- My organisation is aware of the latest AI applications available on the commercial market
- My organisation has a budget for AI prototypes and pilots
- My organisation has enough staff with expertise in AI
- My organisation has conducted programmes to increase awareness of AI among staff
- My organisation has introduced AI training programmes for staff
- My organisation has high quality datasets to base on AI
- My organisation has put forward initiatives to improve data governance
- My organisation has put forward initiatives to increase data sharing across different teams
- My organisation allows the experimentation of AI technologies
- My organisation has used innovative public procurement methods to procure AI applications
- There is management support for using AI in my organisation
- In general, colleagues in my organisation are positive about the use of AI

Most of the questions to the respondents were based on a Likert Scale (1-5 scale). These are often used measurement tools to measure the opinion or perception of various subjects of studies (van Thiel, 2014). Respondents were always given the option to reply "I don't know", although the questions were designed in such a way that the perception of the respondent were valuable as a reply as well, not requiring expert knowledge in all the topics by the respondent.

The survey is part of a broader activity from the Belgium Federal Government, and consequently has been distributed and promoted by the Belgium government to gather enough responses. So far, all participants of the **AI4Belgium community** have received an invitation to participate in the survey, through an online weblink. The AI4Belgium community is an ecosystem of researchers, policymakers, civil servants, and citizens interested in advancing AI within Belgium. A web survey was chosen to gain respondents via the survey, as the aim was to gain as many civil servants participating as possible, in a relatively short period. Furthermore, the survey has been distributed within the internal networks of the Belgium government, in order to also target the various public organisations which may not be active members of the AI4Belgium network. Lastly, the survey has been shared on social media and the newsletter of the Belgium Digital Government Administration (BOSA) and AI4Belgium.

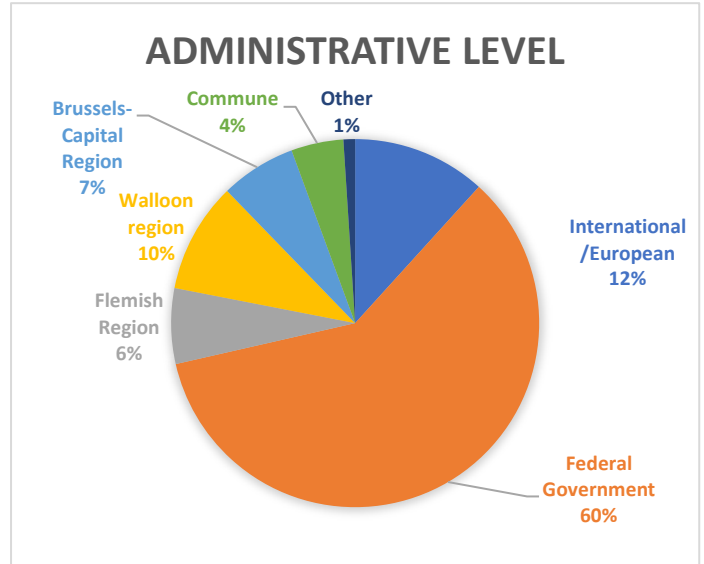
Since the Belgium public administrations have different working languages (mostly Dutch and French), the survey has been translated from English to Dutch and French, giving respondents the option to answer in English, Dutch or French, depending on the respondent's preference, in order to obtain a higher response rate. The survey was proof tested and reiterated various times to make the questions relatively easy and quick (within 15 minutes) to answer, common characteristics of mail-based surveys (Gail, 2002).

An overview of the survey and the questions can be found in the annex.

# Findings

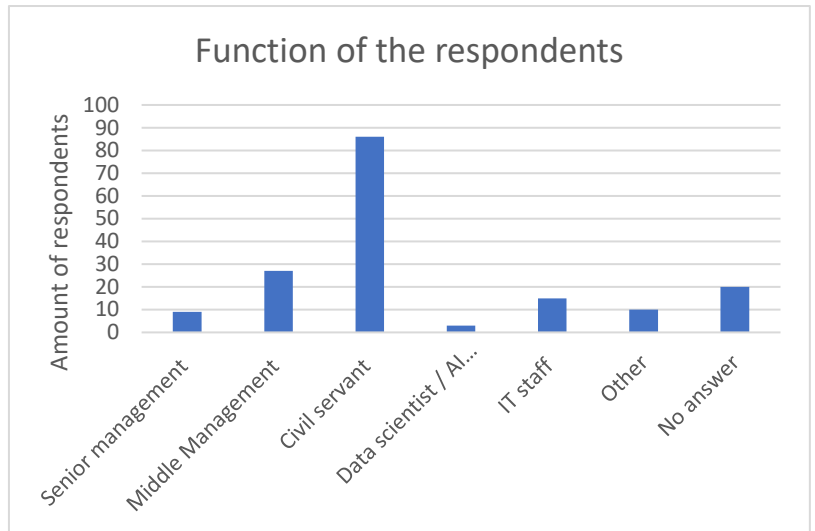
## Respondents

The survey was answered by ~170 respondents, but not everyone answered all the questions. Most of the respondents indicate to be working at the Federal Government, with 60% of the respondents indicating they work on this organisational level. Unfortunately, only a minor share of the respondents works on the Municipal level (4%), the regional levels (6%, 7% and 10%). Surprisingly, 12% of the respondents indicate to be working at the European or International level, but examples from the open questions show no international organisation represented. It is unclear who the 12% of the respondents thus are, and in which organisation they are working in.



Most of the respondents indicate to be civil servants in a non-management related role (86, 51%). There are 9 respondents from senior management and 27 respondents from the middle management level. The survey has also been answered by a limited number of IT related personnel (3 data scientists/ AI developers and 15 IT-staff).

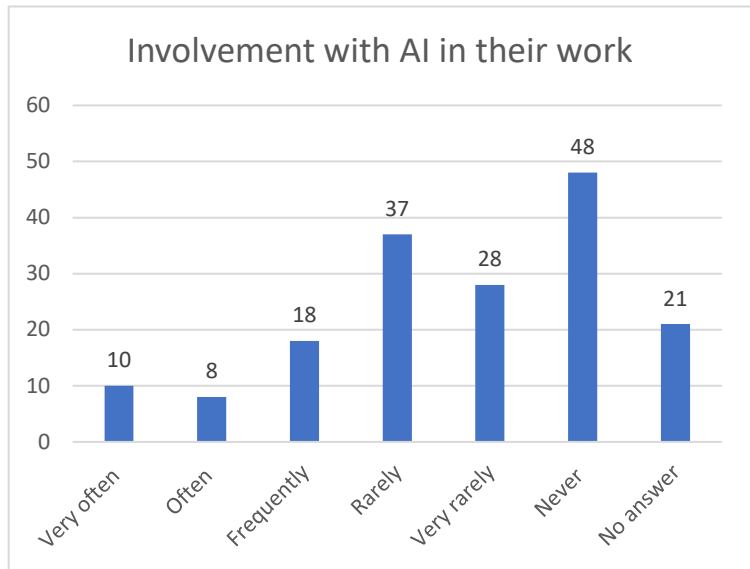
The respondents indicate that they are, mostly not often involved with AI in their work. More than 2/3 of the respondents indicate that they rarely (37), very rarely (28) or never (48) work with AI. Only 18 respondents (11%) shared that they either work often (8) or very often (10) with AI.



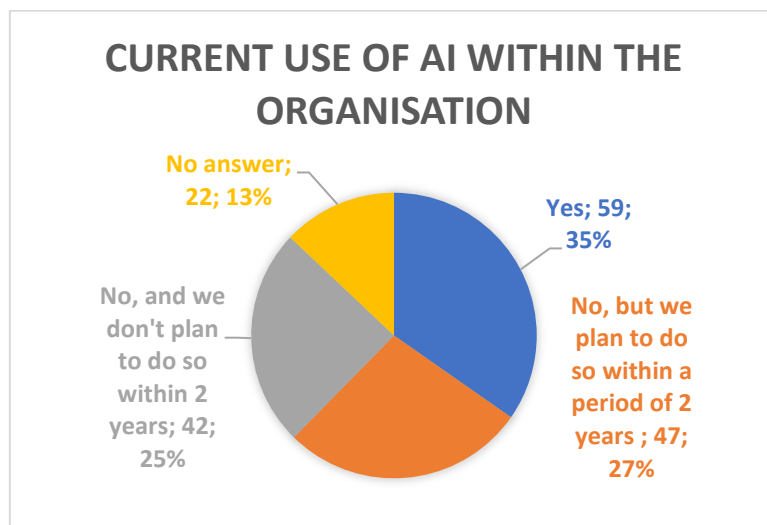
## Use of AI in Belgium public administrations

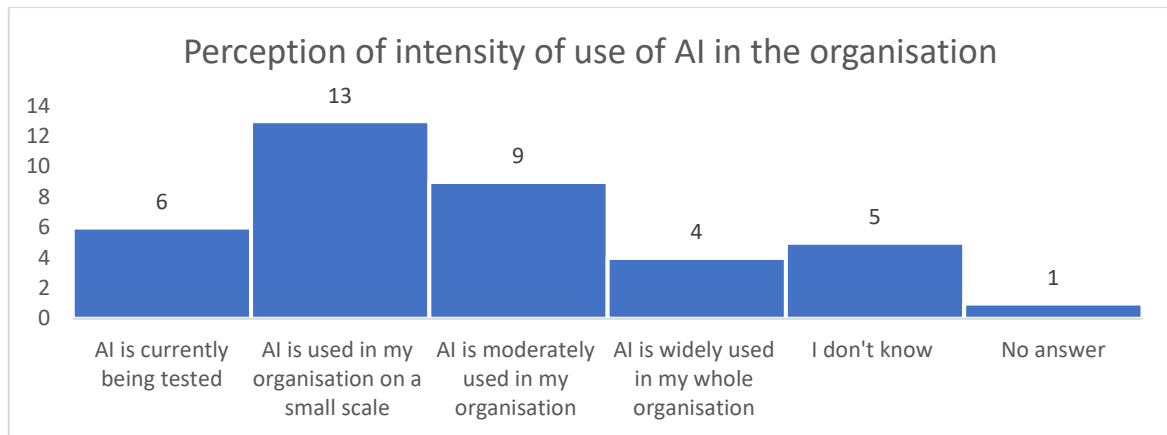
**The current use of AI within Belgium public administration seems not as widespread as originally assumed.**

When asked whether their organisation is currently using software or hardware with AI, only 59 (34,7%) indicate to do so. For these respondents, the use of AI seems in an exploratory stage, with most indicating testing (6), small scale use (13) or average use (9) within their organisation. Only 4 respondents indicate that AI is being used in a large scale within their organisation.



Of those responding that their organisation is currently not using AI, 47 indicate that they are planning to do so within the next 2 years. This shows that there is a large portion of public organisations interested in deploying AI but may be assisted further to turn the ambition into action. However, an almost as big group of respondents (42) indicate that their organisation is not planning to use AI within the next 2 years.





### Definition

The respondents were asked to formulate a definition of AI resulting into a high number of different (132) definitions. The given definitions include references related to the technologies, components, usage and aimed objectives/purposes of AI. This all indicates that the **definition (and the associated concepts) is still underdeveloped and so not standardised**. It also indicates that there is still no compromise about the meaning of AI. The most given definitions referred to the human imitation/replacement in terms of thinking and reasoning. Other frequently mentioned definitions made – in descending order of frequency - references to algorithms, self-learning, automatization, autonomous decision-maker, solution support system, group of specific technologies (based on machine/deep learning), stand-alone operator, and cognitive power aspects of AI. Finally, definitions less mentioned referred to predictive, complex data management, and communication aspects of AI.

### Benefits

The respondents gave numerous different (potential) AI-benefits that can be grouped into 34 benefits classes. Respondents gave often more than 1 benefit. **Enhanced service delivery was mentioned the most frequently as an AI-benefit**. In descending order, other frequently mentioned benefits are: efficiency, automation of tasks, data management/mining, speed of service delivery, administrative support/simplification, decision making tool, routine jobs reduction, and documents processing. The next benefits were also mentioned more than once by the respondents (in descending order): fraud detection, time savings, pattern recognition, predictive analyses, better user-centric services, data exchange, helpdesk bots/chatbots/call centre, correct data provision, tailored response, citizen participation, fiscal control less personnel, tackling personnel deficit, and work offload. Finally, there were also several interesting benefits, such as standardisation of decision making, alert systems, public innovation, etc. A significant number of respondents mentioned that the potential benefits are so great that it is beyond their imagination. This contrasts with the several respondents who do not see any benefit of AI.

### Risks

The respondents were also able to give numerous risks that can be grouped in 30 risks classes. Respondents gave often more than 1 risks. **Lack of data protection/privacy as well as de-humanisation were the most frequently mentioned risks**. Other frequently mentioned risks (in descending order of frequency) were: algorithms biasness, wrong decisions, loss of control,

security/hacking, loss of government trust, discrimination, black box/no transparency, loss of jobs, and cold/insensitive decisions. Other risks mentioned more than once referred to fear for continuous algorithm surveillance, data misuse, lack of personal/citizen contact/involvement, ethics, digital divide, lack of software validity, limited knowledge, limited resources, weak technical infrastructure and too much AI-trust.

### Examples and experiences of AI use

Respondents were asked to evaluate from a 1-5 score whether their organisation is currently using the following types of AI applications. This ranged from 1 (never used) to 5 (used at large scale). The aim of this question was to dive a bit deeper which types of AI are currently more present in Belgium public administrations, as often, **chatbots are highlighted as one of the most frequently used AI applications**. Thus, by providing a list of options, some more popular or beneficial AI applications could be identified. However, based on the answers, there is not one AI application which is used at a large scale in the administrations. Most of the average scores given by the respondents (1-5) range between a 1,5 (used not at all) and 2.4 (used occasionally). Surprisingly is that virtual agents (which includes chatbots) have one of the lowest scores, as the expectation was that chatbots are more commonly used in public administrations. This is in fact also the case, as some of the examples provided by the respondents in a follow-up question, in fact, mentioned Chatbots a couple of times.

AI Type	Average score	Average level of use
<b>AI-based knowledge management:</b> AI which generate, systematise, gather, sort, record and share knowledge. These include the use of neural networks to analyse, distribute and share knowledge with others.	2,3	Used occasionally
<b>AI Process Automation Systems:</b> Automation of standard tasks, the support of people through automation systems, the use of software robots to mimic human interaction with user interfaces or other software systems.	1,9	Used occasionally
<b>Virtual Agents:</b> Computer-based systems which interacts with users through speech analytics, computer vision, written data input, real-time universal translation to communicate and/or performs tasks for people. Often these agents are chatbots or other virtual avatars.	1,5	Used occasionally
<b>Predictive analytics:</b> Processing of large volumes of quantitative data, which could include machine learning, for reporting, prescriptive and predictive analysis.	2,4	Used occasionally
<b>Identity analytics:</b> Software combining big data, advanced analytics and identity management to conduct risk-based identity checks.	1,8	Used occasionally

<b>Cognitive robotics &amp; autonomous systems:</b> Robotic systems that are able to learn and respond to their environment in real time.	1,4	Not used at all
<b>Recommendation systems:</b> Information filtering systems that personalize information to the preference of the users	1,9	Used occasionally
<b>Intelligent Digital Assistants (IDA):</b> Software based on speech analytics that provides an interface between a user and a system to search information or complete simple tasks.	1,5	Used occasionally
<b>Speech analytics:</b> Software used for the recognition and processing of language, used for understanding or responding to language input or translate language.	1,4	Not used at all
<b>Cognitive security analytics:</b> Application using AI-technologies to analyse security information to detect threats	1,4	Not used at all

In a way, a similar paradox as present in other surveys<sup>2</sup> on AI adoption appears, showing that AI is being used in their organisations, but when asked for specific examples or types, the adoption rate is (or seems to be) much lower. What may be the cause of this is yet unknown, but it is likely there may be different understandings of what Artificial Intelligence is and or its subtypes are. Nevertheless, it shows that while one may expect higher rates of AI adoption if the question refers to Artificial Intelligence in general – but when one takes a closer look at specific technologies used in a public organisation, it may not be regarded as AI technology (by everyone) or not based on learning techniques considered to be AI. Alternatively, these specific types of AI may not be identified easily by respondents – especially if they are not working with these systems on a regular basis.

### Examples of AI

Respondents were also asked to provide several examples of some Artificial Intelligence applications already in use within their organisation. While a more detailed description of each of them is lacking, they do provide an illustrative overview of some of the existing use of AI within the Belgium public administration.

- An accounting program for document recognition management by manual human import
- A software used in project management which allows afterwards to collate, distribute, analyse information
- Classification of remote management images, air quality models, analysis of environmental geodata
- A Chatbot for the land registry administration
- A Chatbot for e-services is being tested
- Predictive analysis, identity, and recommendation system
- Deduction system and proposal of a result based on data encoded during recruitment interviews.

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<sup>2</sup> EU survey on enterprise use of AI



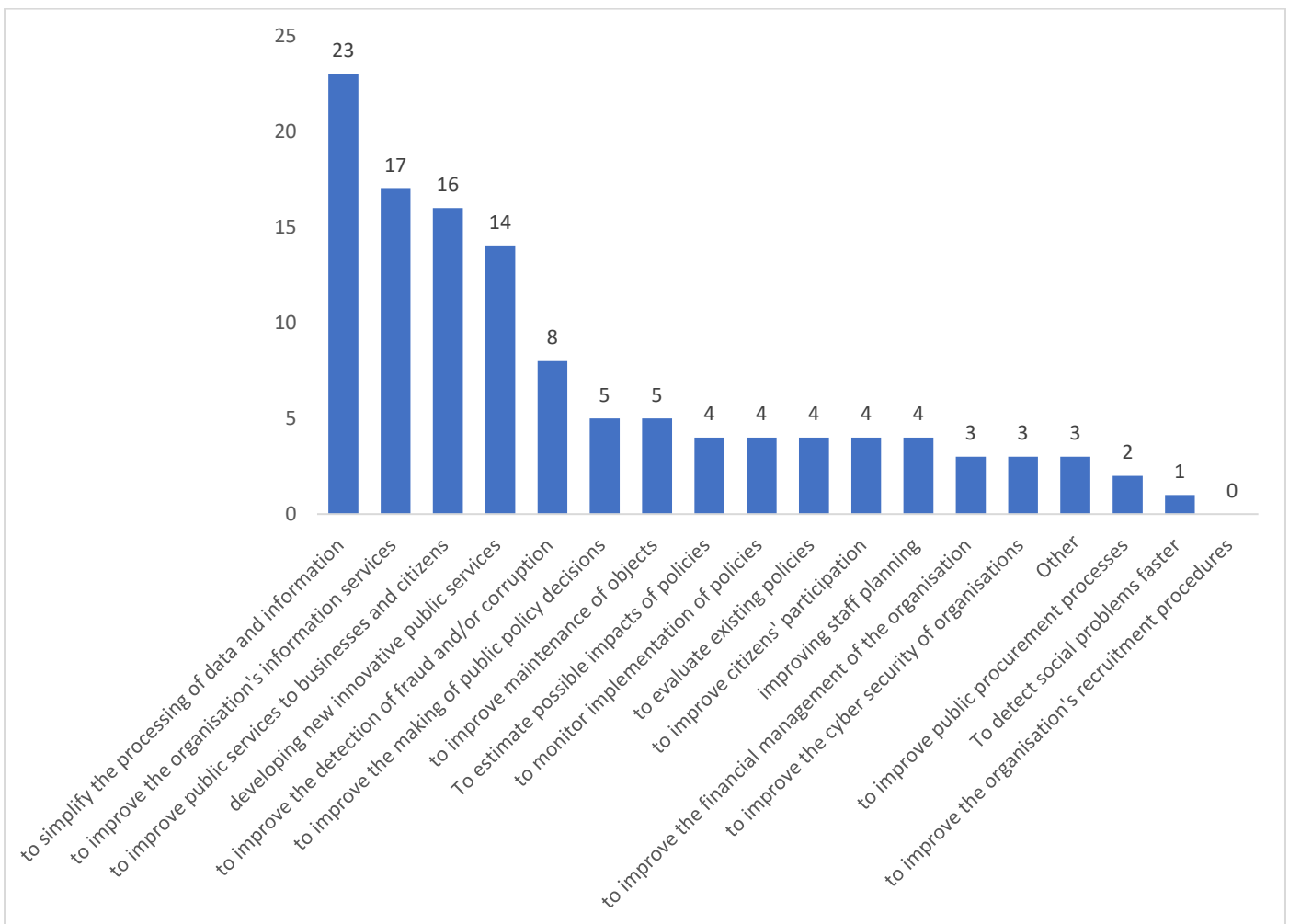
- Scanning and character recognition
- Estimation of complex media workflows and their duration by a Tensorflow implementation.
- AI is applied in the context of image processing analysis (aerial images, satellite images, ...) to optimise the process of monitoring, derived products, .... to optimise
- Fraud detection of service cheques
- System for reporting, both internal and external. Certain standard answers will be sent more and more after a while for recurring questions.
- NLP, fraud detection, RPA, multiscore (financial health)
- Connection with the Crossroads Bank, National Register and other databases.
- A bot.
- Commenting on web forms when validating forms
- Showing graphical models through user filtering
- SAS-software
- Automatic Number Plate Recognition (ANPR)
- Virtual Agent
- Fedcom, Persopoint, BICC
- Chatbot.
- Data mining.

### Effects and experiences

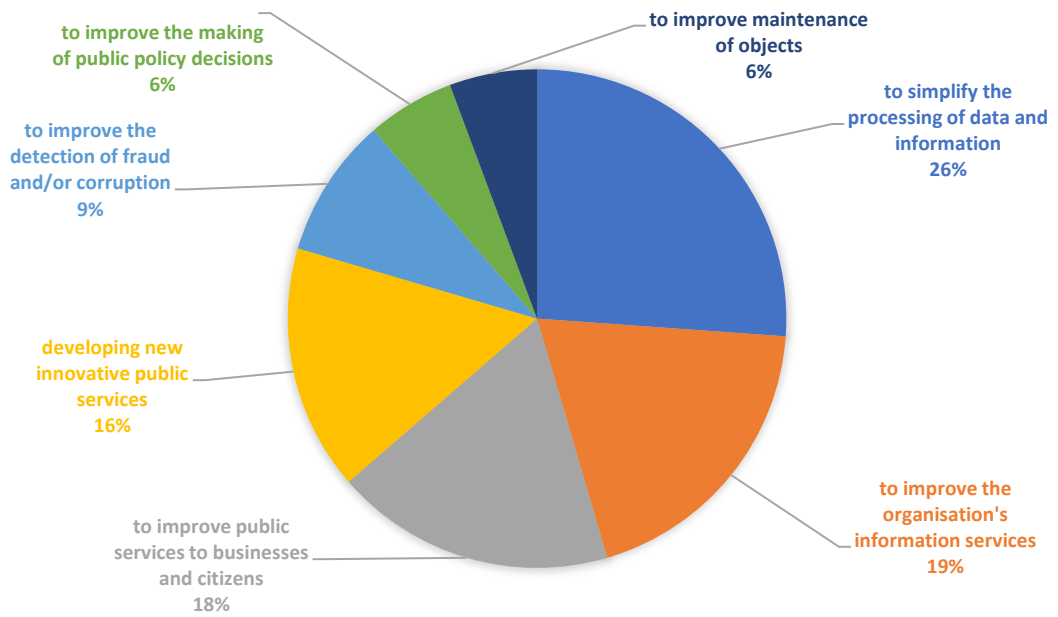
While AI technologies can include a wide array of technologies, the purposes for which AI technologies are used in public administrations also say a lot regarding how these technologies can be integrated within the daily practices of governments. To this extent, respondents were asked to indicate for which purposes AI is being used in their organisation, given a variety of options. **The most frequently mentioned purpose of AI is to simplify the processing of data and information in the organisation**, followed by improving the organisation's information services and public services to citizens, as well as developing new public services. Improving detection to fraud and/or corruption is also a relatively common use of AI in government – at least compared to the other options which were selectable. Interestingly enough, the use of AI is not used to improve the recruitment procedures of the organisation according to all the respondents.

<b>2. For which of the following purposes is AI used in your organisation? (multiple options possible)</b>	<b>Count</b>	<b>Percentage</b>
<b>to simplify the processing of data and information</b>	23	60,53%
<b>to improve the organisation's information services</b>	17	44,74%
<b>to improve public services to businesses and citizens</b>	16	42,11%
<b>developing new innovative public services</b>	14	36,84%
<b>to improve the detection of fraud and/or corruption</b>	8	21,05%
<b>to improve the making of public policy decisions</b>	5	13,16%
<b>to improve maintenance of objects</b>	5	13,16%
<b>to estimate possible impacts of policies</b>	4	10,53%

<b>to monitor implementation of policies</b>	4	10,53%
<b>to evaluate existing policies</b>	4	10,53%
<b>to improve citizens' participation</b>	4	10,53%
<b>improving staff planning</b>	4	10,53%
<b>to improve the financial management of the organisation</b>	3	7,89%
<b>to improve the cyber security of organisations</b>	3	7,89%
<b>other</b>	3	7,89%
<b>to improve public procurement processes</b>	2	5,26%
<b>to detect social problems faster</b>	1	2,63%
<b>to improve the organisation's recruitment procedures</b>	0	0,00%



## MOST COMMON USE OF AI CURRENTLY (>10%)



### Experienced (negative) side effects:

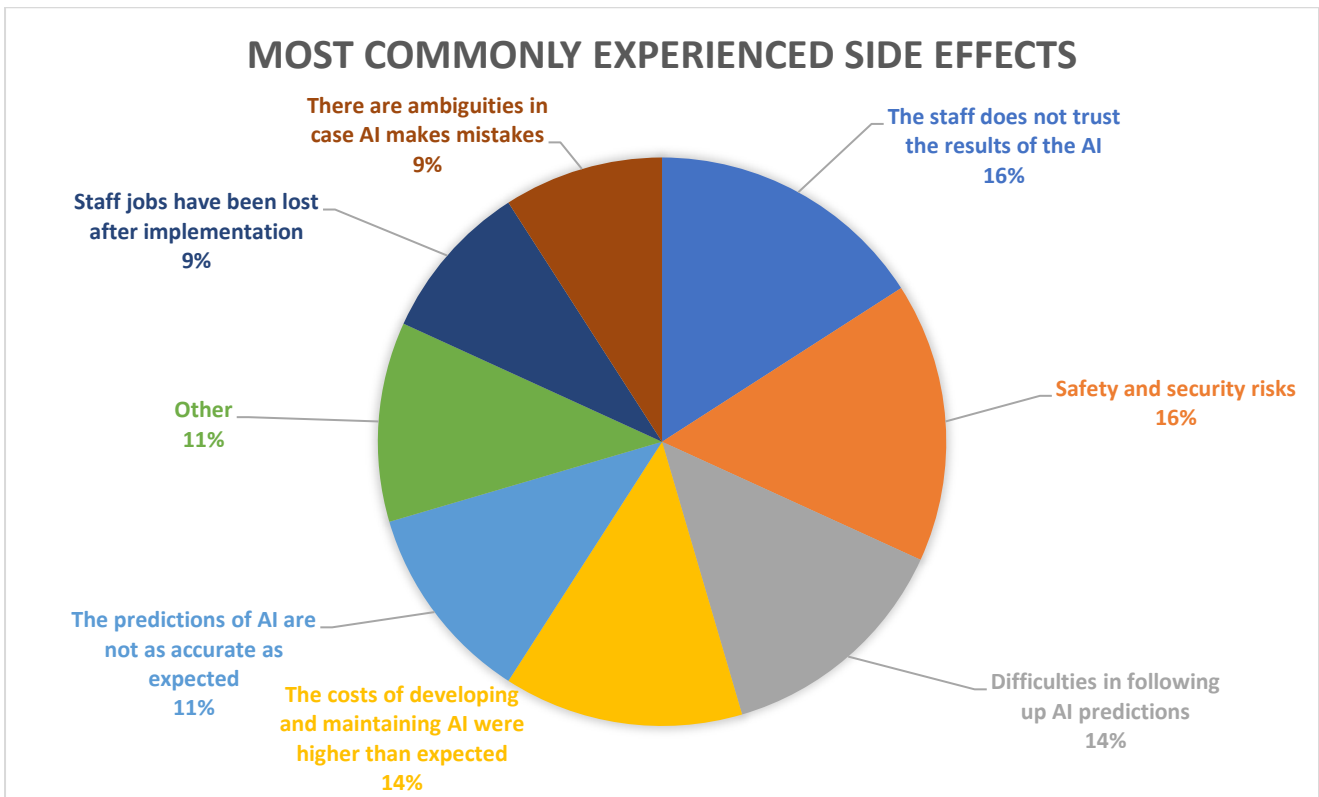
Despite the innovative potential of AI technologies, there are **serious concerns** about potential negative side effects following the use of this technology. In this respect, respondents which have experience with the use of AI in their organisation were asked if one of the following side-effects (often negative effects) occurred following the use of AI.

Only a few side effects were reported by the respondents. However, several of them stand out, in particular, the **lack of trust** among staff using AI systems is one of the two most frequently mentioned risks. This is why it is crucial that the users of AI systems – which do not only refer to citizens – but also internal users trust AI, understand its limitations and generally use it to augment their own capacity. Without this, they may simply ignore the results of AI’s recommendation – leaving one to wonder what the use of the system is without any follow-up, as also indicated by the frequently mentioned side-effect that it is challenging to follow up on the recommendations. Similarly, safety and security risks are a frequent side effect as well, which confirms the requirement to make sure any (cyber)security threats to the system are considered and managed. One should also take note of the fact that the costs of development and maintaining of AI were higher than expected, crucial to consider the costs-benefit ratio of introducing such systems.

Only 1 case legal actions have been started by external parties related to the use of AI systems. It was expected that this would be higher, due to a variety of AI systems used in other European public administrations being brought to court, such as the Dutch SyRi system, the Austrian AWS Algorithm and a Polish system for classifying unemployment benefits.

Have you experienced one or more of the following side effects? (multiple options possible)	Count	Percentage
<b>The staff does not trust the results of the AI</b>	7	18,42%
<b>Safety and security risks</b>	7	18,42%
<b>Difficulties in following up AI predictions</b>	6	15,79%
<b>The costs of developing and maintaining AI were higher than expected</b>	6	15,79%
<b>The predictions of AI are not as accurate as expected</b>	5	13,16%
<b>Other</b>	5	13,16%
<b>Staff jobs have been lost after implementation</b>	4	10,53%
<b>There are ambiguities in case AI makes mistakes</b>	4	10,53%
<b>Insights about AI are overused and not critically evaluated by the staff</b>	3	7,89%
<b>There is more competition among staff</b>	3	7,89%
<b>The staff has more feelings of becoming redundant to the organisation</b>	3	7,89%
<b>Crucial issues were not picked up by AI</b>	3	7,89%
<b>Citizens do not accept the use of AI</b>	3	7,89%
<b>There is pressure to stop using AI</b>	2	5,26%
<b>AI made biased recommendations/decisions</b>	1	2,63%

<b>Legal actions have been started by external parties related to our use of AI</b>	1	2,63%
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## Future use of AI in Belgium public administrations

### Antecedents to AI-enabled public sector innovation

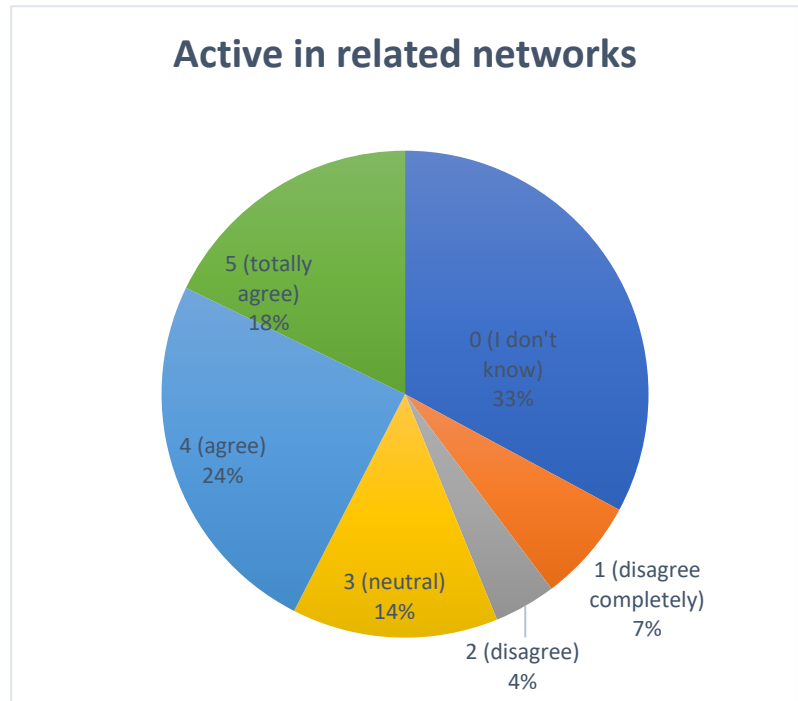
The development and use of AI in public administrations are influenced by various **drivers and barriers** (van Noordt & Misuraca, 2020). Some of the factors already highlighted in the literature have been operationalised to assess the availability of these issues in the public administration. , . The respondents were asked whether they fully agree or disagree with certain statements. In this research, it is assumed that the more antecedents are present in the organisation, the higher the level of use of AI in the organisation. Unfortunately, due to the rather small number of organisations reported to be actively using AI, comparisons between the users and non-users have not been possible, and thus, it is still not clear whether organisations using AI have more antecedents present than those without. Despite this limitation, the answers do highlight a number of antecedents which are more or less present, and may thus require additional input from the Belgium government to reinforce them. The results below both include the answers given by organisations indicating that they are already using AI, or plan to do so within 2 years (n= 80).

### Networks

A key factor in supporting innovations, including innovations based on AI, is **involvement of public administrations in networks**. These networks can make organisations aware about innovative

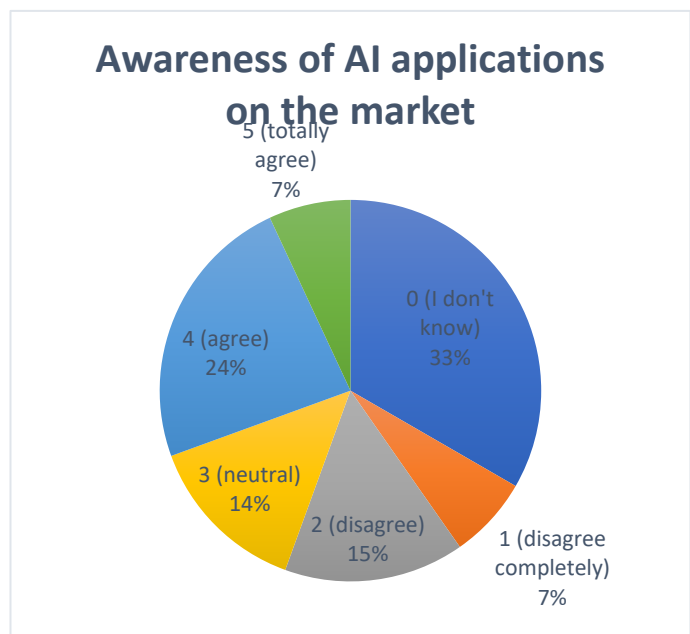
technologies, find partnerships and resources to kickstart and work on projects. In this respect, respondents were asked whether they perceived their organisation to be active in networks, such as the Belgium AI4Belgium and AI4GOV network, which help development and adoption of AI in their organisation.

A generally high amount of the respondents indicates that their organisations are in fact part of the networks. As seen in the figure, 42% of the respondents agree or fully agree with the statement that their organisation is active in the networks. Only a few (11%) replied that their organisation is not or totally not part of networks. Given the Likert Scale (1-5), the average given to involvement in networks is 3.6. This is the highest average score given of all the antecedents, showing that related AI4GOV networks are already well regarded amongst the respondents.



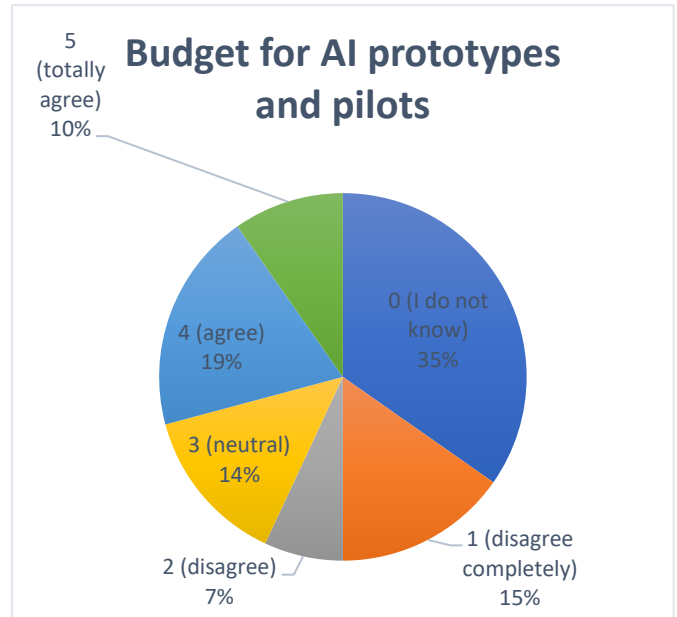
*Awareness of AI solutions present on the market*

Linked to the presence of relevant networks, another factor which contributes to the use of AI within public administrations is **awareness of which AI solutions are present on the market** by private vendors and could potentially be procured by the public administration. In this respect, 31% of the respondents agree or fully agree with the statement that their organisation is aware of AI solutions present on the market. A slightly smaller portion (22%) disagrees or fully disagrees with this. The average score of the Likert scale (1-5) is a 3,1, which shows that this is an antecedent, which is almost exactly the middle. This shows that awareness of AI solutions is nor very present nor very neglected within Belgium public administrations – although clearly differences exist between administrations.



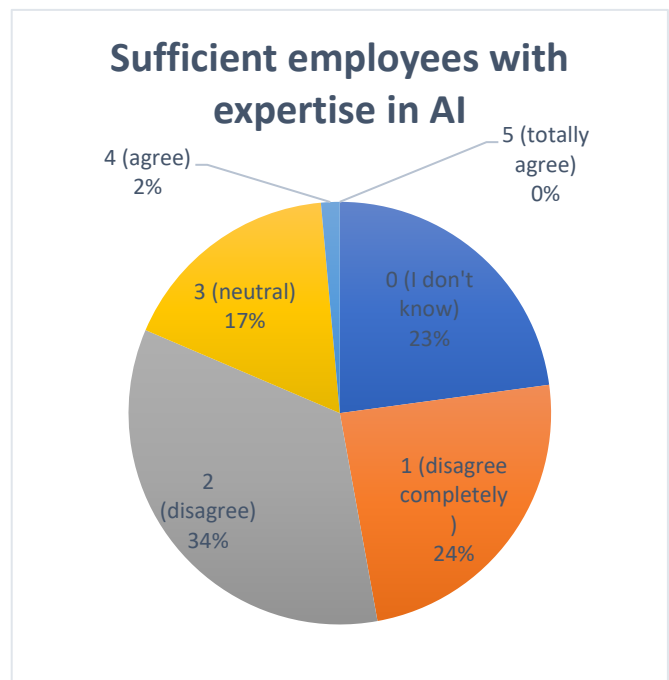
### Budget for AI-prototypes and pilots

Another important factor leading to the development and use of AI technologies within public administrations, is the **availability of funding**. Organisations sometimes have a specific budget available for the development and trialling of innovations, including AI. Hence, the respondents were asked whether their organisation has a budget for AI-prototypes and pilots. On average, a budget is neither available nor unavailable for the testing of AI solutions, as the average Likert Scale is 3. However, the answers show some differences between the respondents. Whereas 29% of the respondents agree or fully agree, 7% disagree and even 15% fully disagree with the statement. Potentially, those who indicated that their organisation does not at all have a budget for AI pilots really seem in need for additional resources to pursue with their AI projects. This shows that there may be a need to increase funding and give higher priority to achieving a specific budget for AI in all public organisations. Attention should also be paid to the high number of respondents indicating that they don't know if there is a budget for AI-prototypes and pilots, highlighting the need not to only make funding available but that administrations are aware that it exists.



### Sufficient expertise in AI

Similarly, the **development, use, and procurement of AI technologies within the public sector often requires enough expertise to be successful**. However, expertise in AI is scarce in general, and public organisations often find themselves lacking the required knowledge to work with AI technologies. Based on the respondents, this seems to be the case within the Belgium public administration as well. Only 2% of the respondents agreed with the statement that their organisation has enough employees with expertise in AI. No respondent, in fact, agreed completely with the statement. However, 51% responded that they disagree or fully disagree.

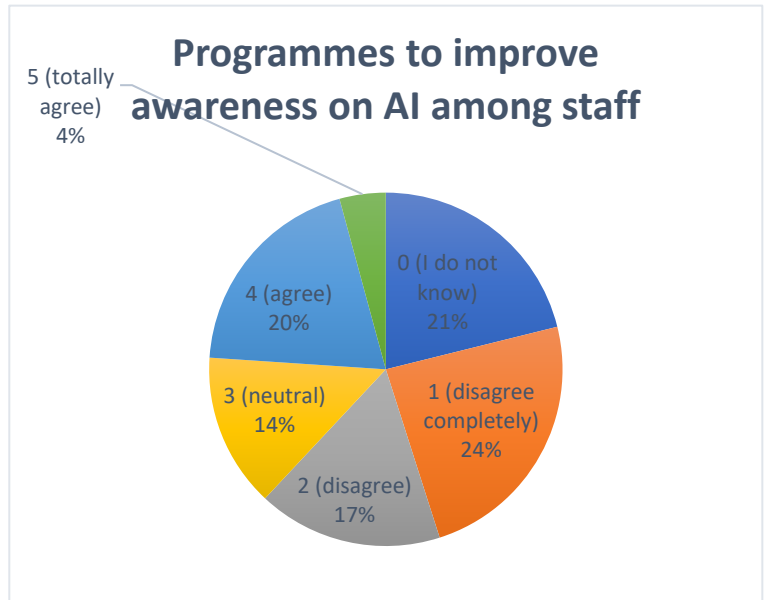


The average score based on the Likert Scale is a 1,9, which is the lowest of all the statements in this category. These results highlight that the apparent lack of expertise and know-how on AI within the Belgium public administration should be prioritized in the future, possibly through training programmes for civil servants, availability of courses and

making it more attractive for those with AI-expertise to work for the Belgium government, despite potentially lower salaries than the private sector.

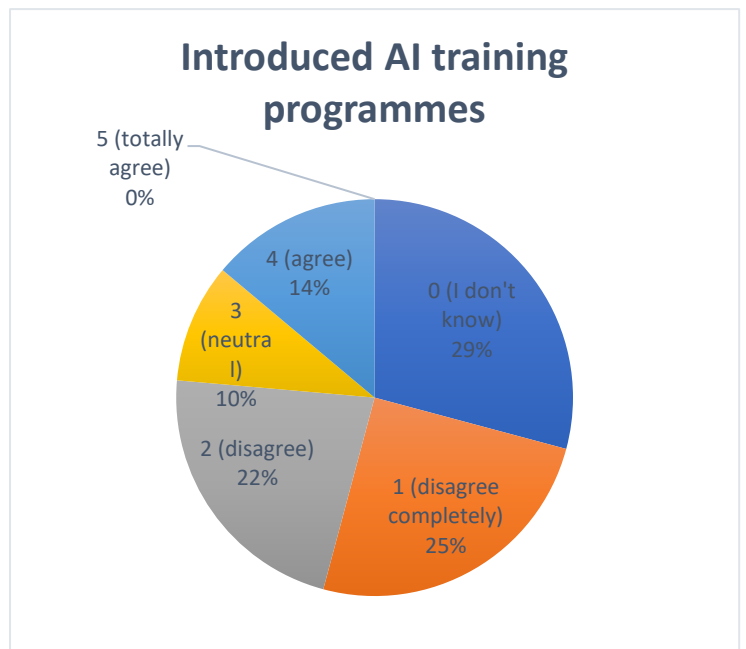
*Awareness programmes about AI among staff*

Related to having sufficient awareness of what AI could be purchased from the market, having adequate **awareness about what AI is, can do and cannot do** is an important factor in AI-enabled public sector innovation. Hence, public organisations may conduct awareness campaigns to increase the know-how and general awareness about AI among their staff. This is generally a lighter activity than dedicated training programmes, which aim to teach staff skills on AI, whereas awareness just aims to provide some general information. Respondents show a mixed, although slightly negative, picture whether their organisation has placed these awareness campaigns. 24% of the respondents indicate that their organisation has done so, whereas 41% (completely) disagreed with the statement. With an average Likert scale score of 2,5, it shows that awareness campaigns on AI could be more spread out across the Belgium administrations, and make them more aware about the possibilities AI could mean for their organisation.



*Introduced AI training programmes*

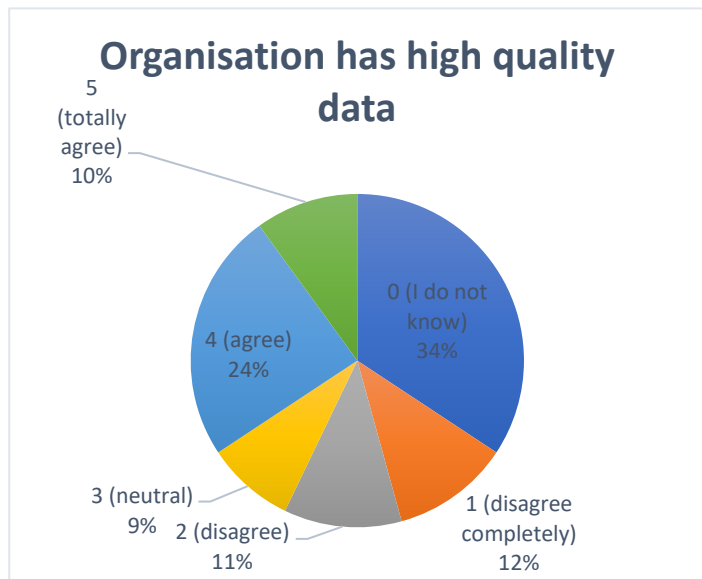
To tackle the lack of expertise on AI in public administrations, **training programmes may be launched to assist the staff** in achieving the relevant skill sets to develop and/or use AI technologies. In this respect, the respondents were asked whether their organisation has introduced any AI training programmes for their staff. However, only 14% of the respondents answered positively to this statement. There were no respondents who totally agreed with the statement and 42% of the respondents indicating that no training programmes have been introduced in their organisation. With an average Likert score of 2,2, it can be mentioned that in general there is room for introducing such AI training programmes within the organisation, in line with the recommendations described in section on sufficient AI expertise.





### High quality data sets for AI

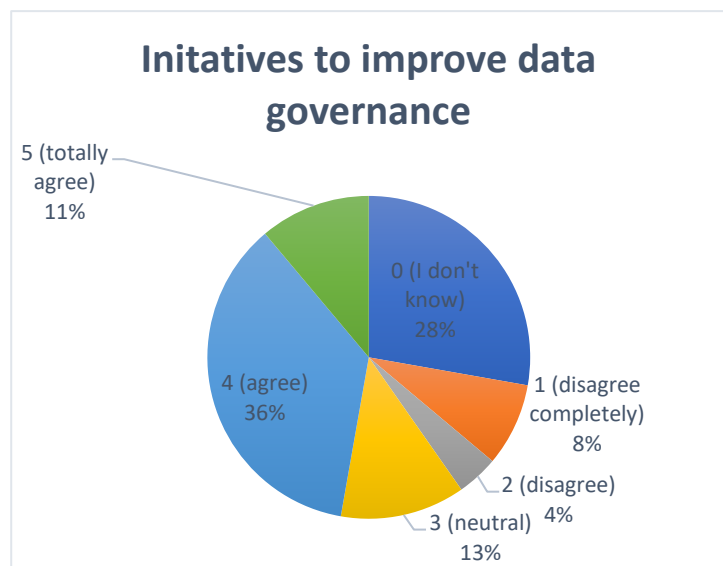
The development of AI requires high quality datasets to be effective. Thus, **having adequate volume and quality of data** suitable for the development for AI is of high importance. Not having data often results in a lack of AI initiation within the public administration. Thus, respondents were asked if they agreed with the statement that their organisation has high quality data for AI. The results again, seem slightly mixed. A large portion of respondents agreed (24%) or even totally agreed (10%) with the statement. On the other hand, 11% disagreed and 12% completely disagreed with the statement. The average Likert score is 3,2, which shows the relative neutral average reply to the statement.



This leads to assume that **some organisations seem more ready for AI with quality data than others** – although at the same time, a significant size of the respondents did not know if their organisation has high quality data (34%). This could be the case as they may not know which data the organisation has, or how to evaluate whether it is high quality or not.

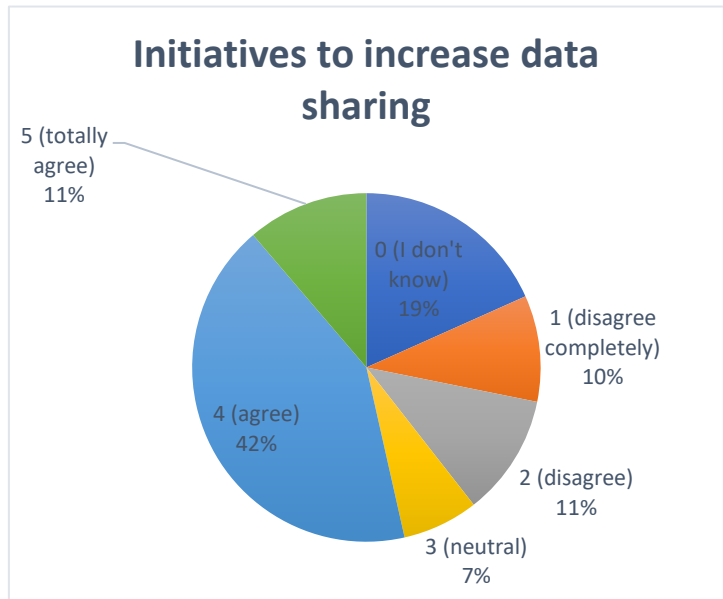
### Initiatives to increase data governance

In the same respect, organisations may introduce initiatives or programmes within the organisation to improve the data governance, possibly resulting in **higher quality data as well as availability of the data**. Respondents were therefore asked if their organisation has introduced such initiatives. Indeed, a great share of the respondents indicated that their organisation has done so. A great 36% of the respondents agreed with the statement, and 11% totally agreed. Only a minor portion of the respondents disagreed (4%) or completely disagreed (4%). With an average Likert score of 3,5, this antecedent is most common antecedent of AI-enabled public sector innovation in Belgium administrations.



### Initiatives to increase data sharing across teams

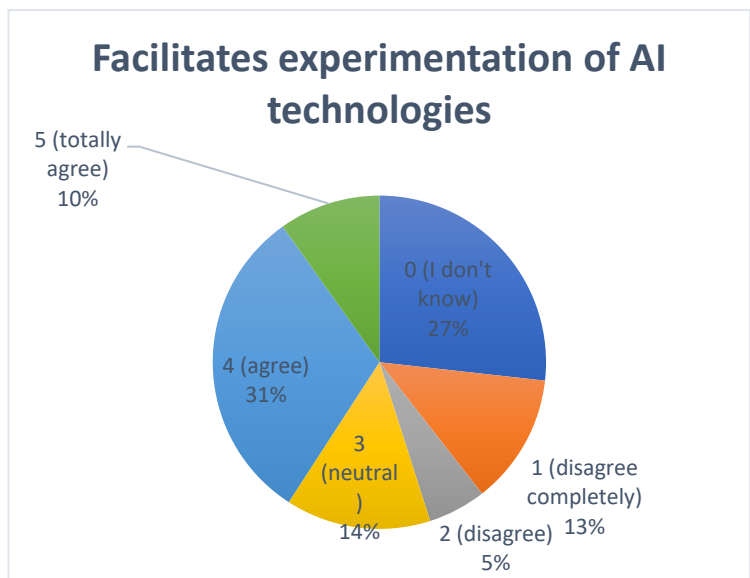
Likewise, a similar factor that facilitates the development and implementation of AI is the possibility to share data. Hence, administrations could put forward initiatives that facilitate data sharing, so those who need the data for AI can have access to it. In this perspective, respondents were asked whether their organisation has introduced initiatives to increase data sharing across teams. Like the previous data-related factor, a large portion (even a majority) of the respondents replied positively to this statement. 42% of the respondents agreed, and 11% totally agreed. This is an average score of 3,4, which is one of the highest scores of the antecedents.



However, while there is a great share of respondents replying positively to the statement, a rather sizable amount of respondents (21%) either completely (10%) or disagreed (11%) with the statement. This shows that perhaps there is a discrepancy between organisations to the extent they aim to improve data sharing.

### Facilitates the experimentation of AI technologies

Due to the preliminary stage of AI technologies, often there is a need for experimentation, pilots and general exploration of what AI could bring to the organisation. However, public administrations may be weary to the risky nature of experimentation, and thus not encourage and/or facilitate the experimentation of (risky) AI technologies in their organisation. Despite this, experimentation is often needed to see early results of AI, and to further train and have the system learn. Hence, respondents were asked whether their organisation facilitates the experimentation of AI technologies. In general, this seems to be the case, with 31% of the respondents agreeing, and 10% totally agreeing with this statement. At the same time, 5% of the respondents disagreed and 13% of the respondents disagreed completely. With an average Likert score of 3,3, however, in general, it is one of the more prevalent enablers of AI in government.

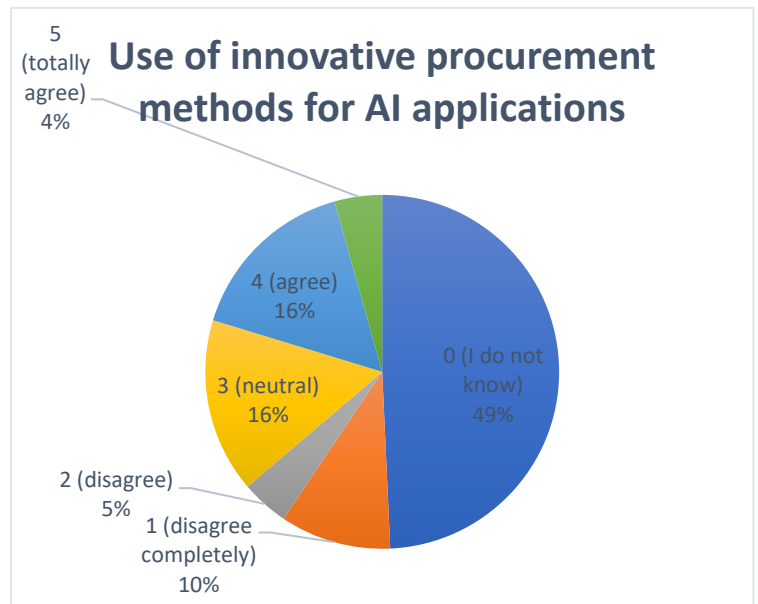


### Use of innovative procurement methods

**The collaboration between private vendors and public administrations** are often mentioned moving forward with AI in government. Public procurement thus plays as an important mechanism to enable administrations to purchase innovative AI solutions from private vendors.

However, often, existing procurement is seen as ineffective in purchasing AI technologies, which is why **innovative procurement methods are increasingly being explored** to purchase AI technology for governmental use. In this respect, respondents were asked whether their organisation has or is planning to use

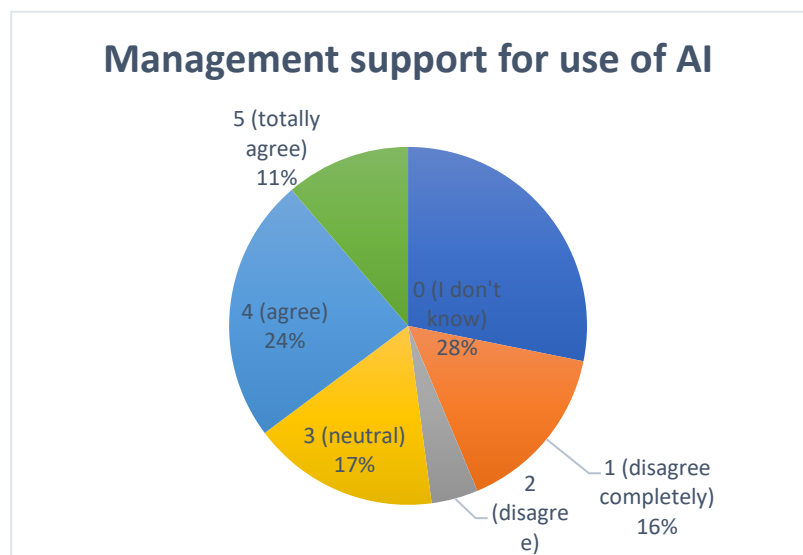
innovative procurement methods for AI. Many respondents did not know any answer to this question, as almost half (49%) the respondents indicated they did not know. 20% of the respondents, however, indicated that innovative procurement methods were or planning to be used, with 15% disagreeing or completely disagreeing. This shows that the practice of innovative public procurement is not completely understood nor widely used in public administration to facilitate the procurement of AI. The average Likert score is exactly 3, although due to high amount of I don't know answers, relatively challenging to interpret.



### Management support

Public sector innovation is often the result of having a **supportive organisational** culture for innovation present. Senior and middle management have to support the use of innovative technologies in the organisation, facilitate its development and encourage staff to move forward with their innovative ideas and proposals. Hence, management support is thus crucial for adoption AI technologies in the public administration as well. Respondents were therefore asked

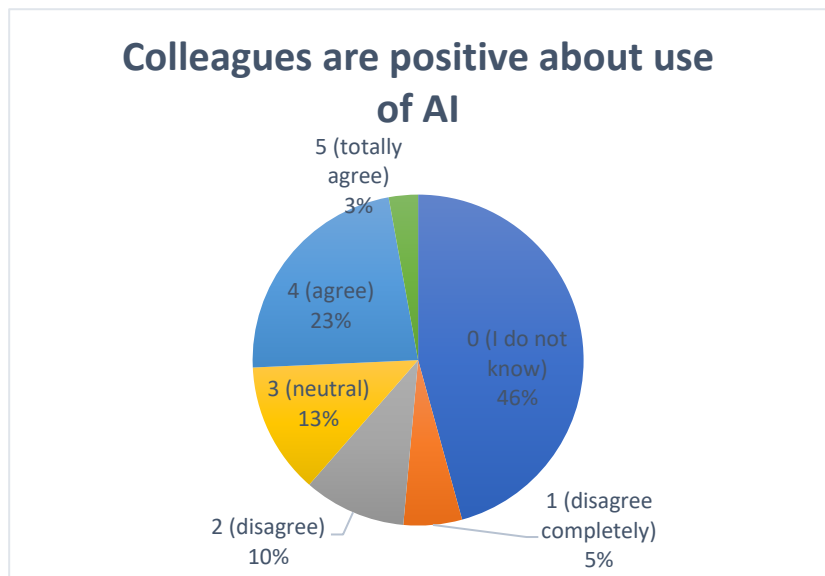
whether they agreed with the statement of there is management support for the use of AI in their organisation. The results are rather positive, with 24% of the respondents agreeing and 11% totally agreeing with the statement. However, 4% disagreed, and a sizable number of respondents disagreed completely (16%). This may mean that in some organisations, there is a perception that management



may be (excessively) hindering the use of AI in the organisation, whereas in others, they may be (very) facilitating. The average score of the antecedent is 3,2.

### Colleague sentiment about use of AI

Similar to management support, there should also be a **general supportive atmosphere** from other colleagues on the use of AI. If fellow co-workers are very apprehensive to AI, due to fears of job replacement, for instance, it is challenging for public sector innovations to occur or to be sustainable in the organisation. Hence, respondents had to state whether they agreed or not with the statement that in general, colleagues are positive about the use of AI in their organisation.



Many respondents (46), however, did not know the sentiment of their colleagues. It is not clear why such a sizable number of respondents do not know this. However, just more than a quarter of the respondents (26%) agreed or totally agreed with the statement. At the same time, 10% disagreed or completely disagreed (5%) with the statement. This shows that, in general, sentiment is rather mixed, or it is not yet clear to which extent AI is supported by staff in the public administrations. The average Likert Scale score is 3.1.

### Additional activities to support use of AI:

In addition to the above antecedents, respondents were also asked if there were any other activities planned or ongoing which aim to stimulate the development and use of AI within their organisations. These include:

- Starting of pilot projects, having roadmaps with a future vision with AI.
- Organisation of a 'week of AI'
- Participation in hackathons
- Starting of research projects on AI in the respective domain
- E-Learning programme to help awareness of AI among staff

### Difference between organisations using and not using AI

One of the main expectations of the research is that the more driving factors are present in a public organisation, the more likely it is for AI to be used in the public organisation. While the above sections described the general availability of antecedents in all the organisations, the following table groups the respondents indicating that they are already using AI and those that still want to do so. It is expected that those who are using AI, will have a higher average score in the antecedents, as they will reply more often with 'agree or agree fully', giving it a score of 4 or 5. However, as the results show in

the table, there are few differences between these groups of organisations, and in fact, there are unexpected results, as some of the average scores are much higher in the organisations not using AI yet.

<b>ANTECEDENTS</b>	<b>TOTAL AVERAGE SCORE</b>	<b>AVERAGE SCORE OF ORGANISATIONS USING AI</b>	<b>AVERAGE SCORE OF ORGANISATIONS NOT USING AI YET</b>	<b>Differences</b>
<b>MY ORGANISATION IS ACTIVE IN THE NETWORKS, SUCH AS AI4BELGIUM/AI4GOV THAT HELP WITH THE DEVELOPMENT AND ADOPTION OF AI IN MY ORGANISATION</b>	3,6	3,6	3,7	-0,1
<b>MY ORGANISATION IS AWARE OF THE NEWEST AI APPLICATIONS AVAILABLE ON THE COMMERCIAL MARKET</b>	3,1	3,2	3,1	+0,1
<b>MY ORGANISATION HAS A BUDGET FOR AI PROTOTYPES AND PILOTS</b>	3	3,3	2,9	+0,4
<b>MY ORGANISATION HAS ENOUGH EMPLOYEES WITH EXPERTISE IN AI</b>	1,9	2,1	1,8	+0,3
<b>MY ORGANISATION HAS IMPLEMENTED PROGRAMMES TO INCREASE AI AWARENESS AMONG EMPLOYEES</b>	2,5	2,6	2,5	+0,1
<b>MY ORGANISATION HAS INTRODUCED AI TRAINING PROGRAMMES FOR EMPLOYEES</b>	2,2	2,3	2	+0,3
<b>MY ORGANISATION HAS HIGH-QUALITY DATASETS ON WHICH TO BASE AI</b>	3,2	3	3,3	-0,3
<b>MY ORGANISATION HAS PROPOSED</b>	3,5	3,3	3,7	-0,4

INITIATIVES TO IMPROVE DATA GOVERNANCE				
MY ORGANISATION HAS PROPOSED INITIATIVES TO INCREASE DATA SHARING BETWEEN DIFFERENT TEAMS	3,4	3,4	3,4	0
MY ORGANISATION ENABLES EXPERIMENTATION WITH AI TECHNOLOGIES	3,3	3,4	3,2	+0,2
MY ORGANISATION HAS USED/IS PLANNING TO USE INNOVATIVE PUBLIC PROCUREMENT METHODS TO PROCURE AI APPLICATIONS	3	2,5	3,4	-0,9
THERE IS MANAGEMENT SUPPORT FOR USING AI IN MY ORGANISATION	3,2	3	3,2	-0,2
IN GENERAL, COLLEAGUES IN MY ORGANISATION ARE POSITIVE ABOUT USING AI IN MY ORGANISATION	3,1	3,3	3	+0,3

### Expected use of AI

For the respondents who indicated their organisation was not using AI yet, but planning to, a question was added to help understand for which purposes the organisation was planning to use this technology. In most cases, however, the respondents do not know for which purpose AI is planned to be used. However, for those who did provide an answer, it seems that **most of the AI planned is to improve the delivery of public services to business and citizens and to facilitate data processing**. These align strongly with the purposes of the organisations already using AI, as described earlier in this document. What is, however, interesting, is that the planned use of AI to improve citizen participation is frequently mentioned – much more than the existing use. None of the organisations, however, aim to use AI to improve public procurement processes, which shows **that innovation within the public procurement process is indeed challenging or not considered often**.

<b>4. For which purposes does your organisation plan to use AI?</b>	<b>Count</b>	<b>Percentage</b>
<b>I don't know</b>	15	35,71%
<b>My organisation plans to use AI to improve the delivery of public services to businesses and citizens</b>	14	33,33%
<b>My organisation plans to use AI to facilitate data processing</b>	13	30,95%
<b>My organisation plans to use AI to improve citizen participation in policy making</b>	12	28,57%
<b>My organisation plans to use AI to develop new innovative public services</b>	12	28,57%
<b>My organisation plans to use AI to improve the organisation's information services</b>	9	21,43%
<b>My organisation plans to use AI to detect fraud and/or corruption</b>	8	19,05%
<b>My organisation plans to use AI to improve government policy decisions</b>	6	14,29%
<b>My organisation plans to use AI to monitor policy implementation</b>	6	14,29%
<b>My organisation plans to use AI to improve public organisation recruiting service</b>	5	11,90%
<b>My organisation plans to use AI to evaluate existing policies</b>	4	9,52%
<b>My organisation plans to use AI to improve cybersecurity in organisations</b>	4	9,52%
<b>My organisation plans to use AI to estimate possible policy effects</b>	4	9,52%
<b>My organisation plans to use AI to improve human resource allocation</b>	4	9,52%
<b>My organisation plans to use AI to improve organisational financial management</b>	3	7,14%
<b>My organisation plans to use AI to detect social problems faster</b>	3	7,14%
<b>My organisation plans to use AI to improve asset maintenance</b>	2	4,76%
<b>Other</b>	1	2,38%
<b>My organisation plans to use AI to improve procurement processes</b>	0	0,00%

### Non-adoption of AI in Belgium Public Administrations

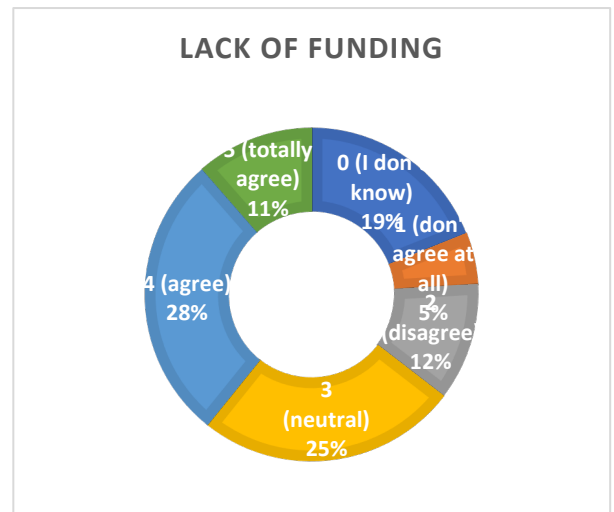
A significant number of respondents (25%) indicated that their organisation is **not using AI, nor planning to do so** in the next two years. It is very likely that some barriers to AI-enabled public sector innovation are present in these organisations, leading to non-adoption of AI in their organisation. However, even organisations which are planning to use AI, but are not using it yet may face various barriers and obstacles to using AI in their organisation. To this end, respondents who indicated that their organisation is not or not yet using AI in their organisations were asked to which extent various factors are perceived to be a barrier to the use of AI in their organisations (n = 79). These factors are

known barriers to AI innovation already and overlap strongly with the antecedents described earlier in the report. Respondents were also given the possibility to provide additional reasons limiting the use of AI in their organisation, according to them.

### Experienced barriers and obstacles to using AI

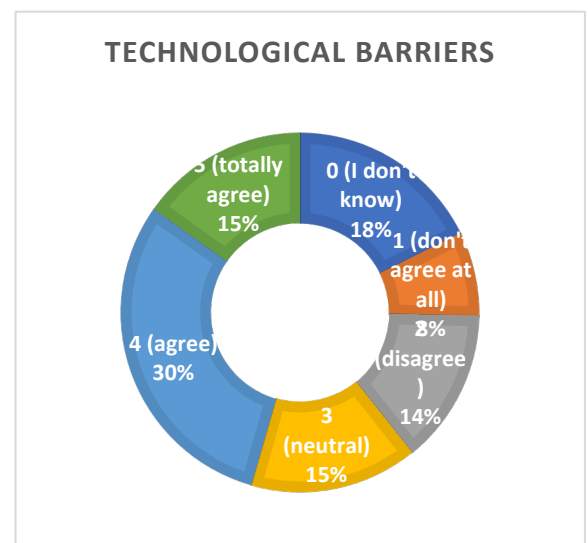
#### Lack of funding

Among these factors, are, for instance, the lack of financial resources in the organisation for AI development and use. Respondents were asked whether they perceive the lack of funding as a barrier for using AI in their organisations. A rather large number of respondents agreed (28%) or totally agreed (11%) with this. Only 5% did not agree at all, and 12% disagreed with the statement. This confirms earlier findings regarding the availability of enough resources asked in the other section of the questionnaire. Not having enough funding available (or knowing where to find it) can limit future use of AI within the Belgium public administration.



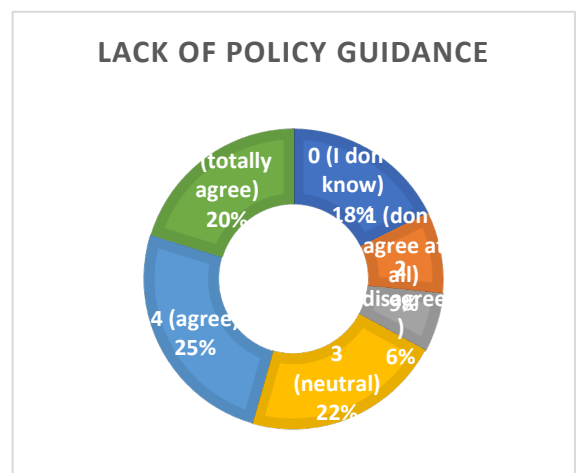
#### Technological barriers

Respondents were asked whether they face technological barriers (e.g. data, infrastructural, interoperability, legacy systems, amongst others). Most of the respondents indeed agreed (30%) or totally agreed (15%) that some technological factors act as a barrier for their use of AI in the organisation. While the specific technological barriers are not identified through this survey, follow-up research could help target which technological barriers public administrations face, and how to consequently suggest actions to overcome them.



#### Lack of policy guidance

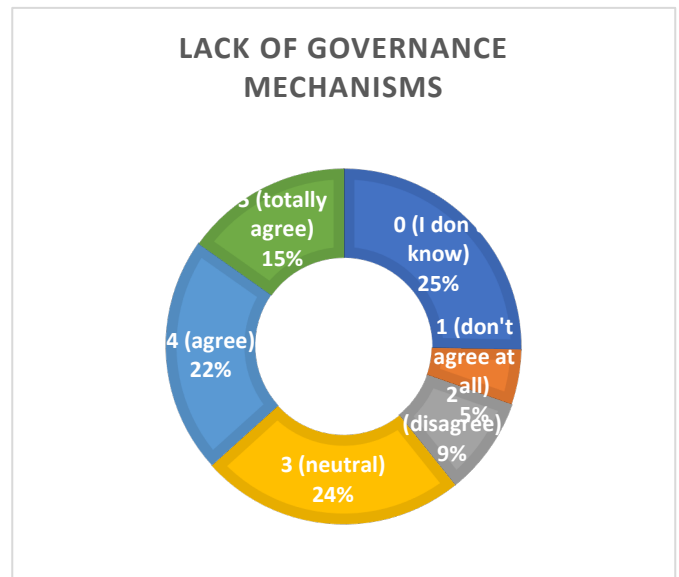
Public administrations may also feel unsure where to start with AI, or require additional guidance, such as ethical, legal, or other, from general policy directives to responsibly develop and use AI technologies. A significant portion of the respondents (25%) agreed or fully agreed (20%) that **the lack of policy guidance limit their use of AI in their organisation**. It is therefore recommended to provide more policy guidance or other kind of guiding documents public administrations in Belgium could use as reference material to use AI.





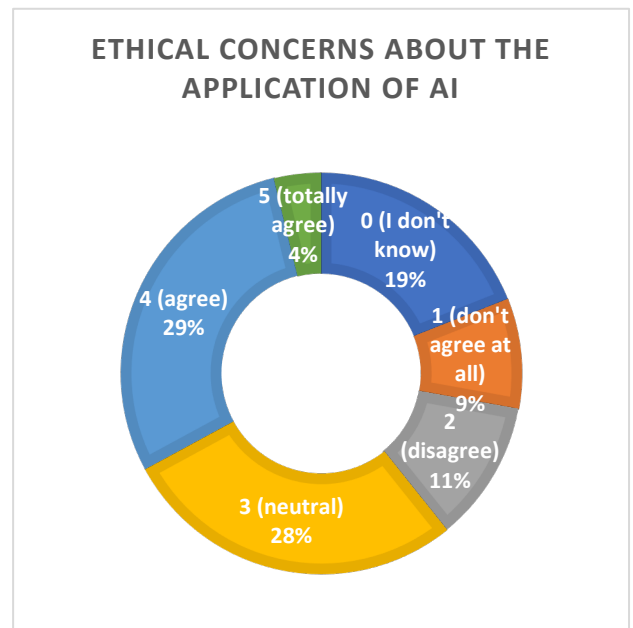
### Lack of governance mechanisms

The use of AI could lead to accountability issues, which requires significant governance mechanisms in place within the organisation to **avoid unmanageable AI systems**. A lack of governance mechanisms to control AI in the organisation may thus limit the use of AI as well. Indeed, 22% of the respondents agreed or totally agreed (15%) that the lack of governance mechanisms limits the uptake of AI in their organisation. In line with the lack of policy guidance, ensuring an adequate governance framework and/or recommendations for AI may need to be more shared as to stimulate public administrations to use more AI in their operations.



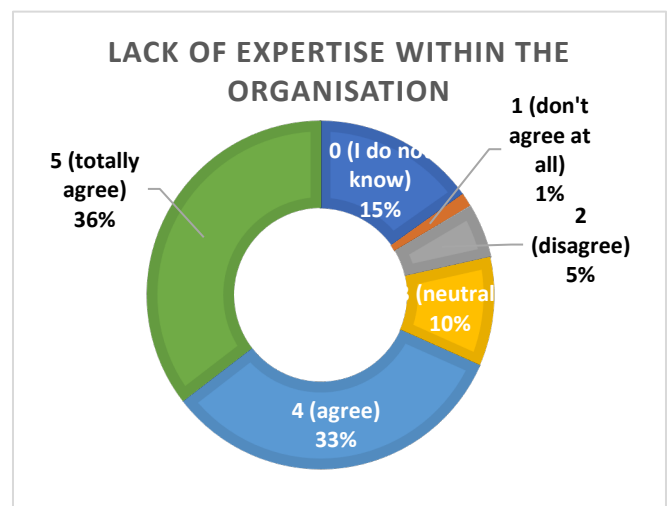
### Ethical concerns about the application of AI

In line with this, there are various other ethical concerns surrounding the use of AI within public administrations. As a result, public administrations may be hesitant to use AI, as they do not want ethical or societal harm to occur following the (irresponsible use of AI). This does not strongly seem to be the case in the Belgium public administration, as the respondents answered rather mixed if this is a perceived barrier. While 29% and 4% of the respondents agreed or totally agreed ethical concerns were a perceived barrier, 11% disagreed or did not agree at all 9% with the statement. Ethical concerns alone may thus not be one of the leading barriers limiting the use of AI in the Belgium public administrations.



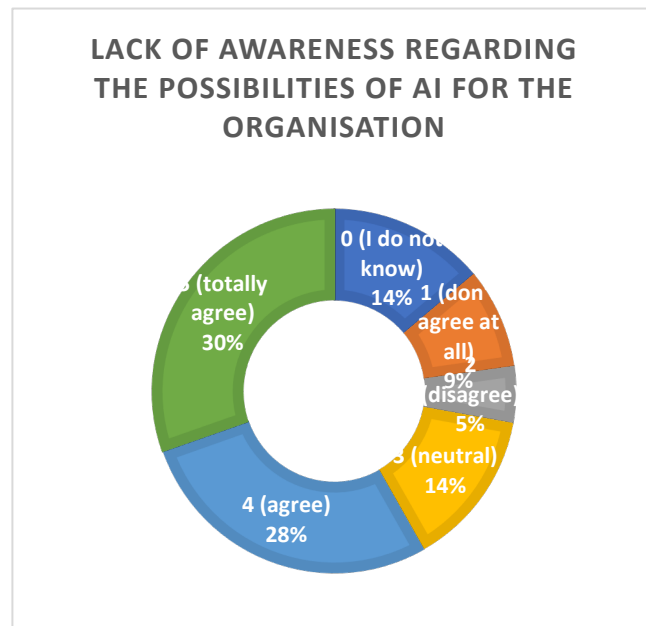
### Lack of expertise in the organisation

In fact, what is **the most perceived barrier to using AI in their organisations is the lack to expertise within the organisation**. This was already identified earlier in the section on the antecedents, which even includes organisations already using AI. The organisations not using AI at all truly seem to be hindered in the use of AI as they cannot find the correct expertise in their organisation. Respondents overwhelmingly agree with this statement, with 33% agreeing and 36% totally agreeing. To overcome this barrier, a significant focus should be put on training and capacity training on AI within public administrations.



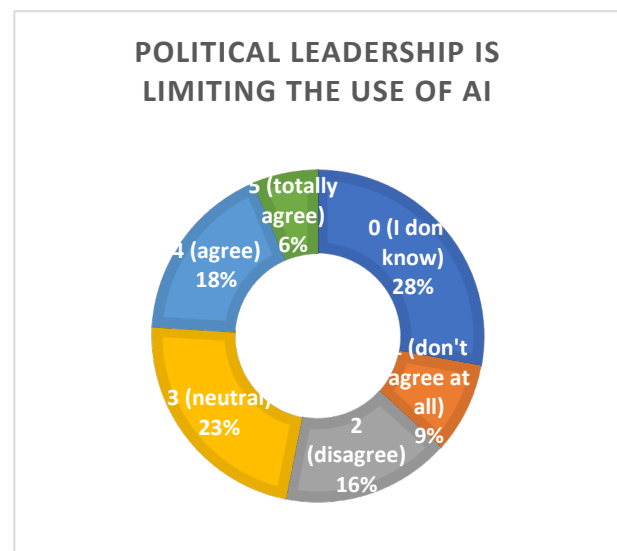
### Lack of awareness regarding the possibilities of AI for the organisation

A similar related barrier to AI use in public administration is simply the **unawareness of what AI could potentially mean for the organisation**, and why it could be valuable. Without a clear understanding of what AI could mean, it is challenging to find potential use cases and to convince other colleagues that AI could be implemented. Based on the respondents, this is indeed a common perceived barrier, as 28% of the respondents agreed and 30% totally agreed. This finding shows that more public administration should know about the possibilities AI could mean – not in general, but specifically for their organisation. The sharing of illustrative and successful examples of AI already deployed in the Belgium public administration may thus be a great start to overcome this barrier.



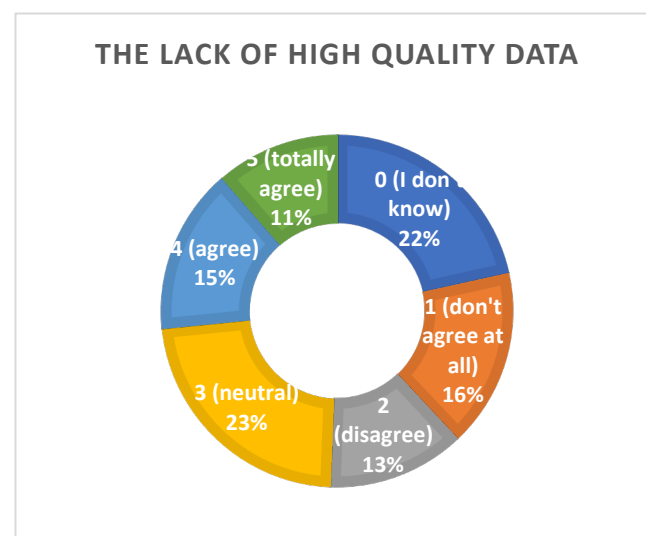
### Political leadership is limiting the use of AI

As described earlier in the report, **political leadership may facilitate or discourage the use of AI in public administration**. To this end, respondents were asked whether they perceive that political leadership is limiting the use of AI in their organisation. This does not really seem to be the case in the Belgium context – although the results are mixed. In this respect, 25% of the respondents did not see political leadership as a barrier to the use of AI, but 24% of the respondents did.



### The lack of high-quality data

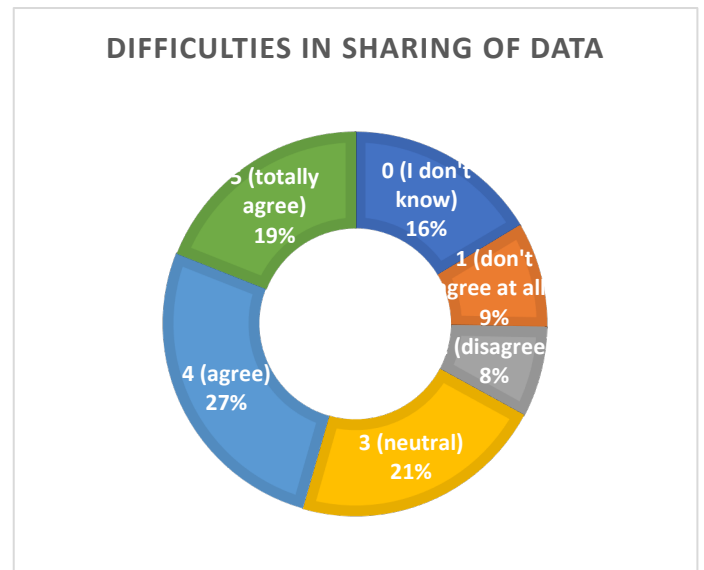
Not having enough high quality data in the organisation present for AI could hinder every AI initiative from taking off. Hence, respondents were asked if they perceive the lack of high quality data a barrier to the use of AI in their organisation. Results are quite mixed, with 26% of the respondents agreeing or totally agreeing, whereas 29% disagreed or did not agree at all.



### Difficulties in sharing of data

Similarly, users may find challenges in sharing the data or obtaining the data they need for AI development. Unlike the rather mixed results regarding the availability of high-quality data, **data sharing issues are a more prevalent barrier** to AI use in Belgium public administrations. A sizable 27% of the respondents agreed that data sharing difficulties hinder their organisation's use of AI, with 19% even totally agreeing with this. This shows that data-related initiatives should focus potentially more on data sharing rather than only enhancing data quality.

In addition to these obstacles, the respondents shared several other reasons why the organisation is not using AI:



- The organisation is perceived 'stuck' in old habits and is unwilling to change its practices. Traditional models and ways of working are being maintained, with own input and out-of-the box thinking are not stimulated.
- That employees and management are not sufficiently aware of what artificial intelligence is.
- Lack of vision to develop innovative projects and, consequently, dedicate enough people on these – even when there is enough expertise present in the organisation.
- Poor budget management
- Too little knowledge the positive contribution of Artificial Intelligence
- Too little manpower to investigate new possibilities
- Previous experiences with poorly functioning AI and/or ICT systems limits motivation to pursue AI-related innovations.
- confidentiality issues
- That civil servants are not trained in the importance of data. There is still overreliance within the public administration on using excel files, rather than using databases.
- A significant technological and (potential) generational gap is present in the administrations. Some staff (even up on the higher managerial and even political level) still work paper-based, despite that digital alternative, such as e-signatures should be used.
- Existing ICT services are available, but not used at all, not used properly by the end-users, or can be tied to administrative red tape.
- Unclear costs and benefit-ratio of AI-enabled public sector innovation.
- Existing difficulty in already maintaining day-to-day operations, leaving limited resources available for innovation.

## Discussion and concluding remarks

As expected at the start of this research, the use of AI in Belgian public administration is **still in a beginning, exploratory phase** and not yet widespread. The results show that only a handful respondents indicated that their organisation was widely using AI technologies, and in most cases only a small scale.

In many organisations, however, AI is being used yet though this being planned. Therefore, in order to improve the functioning of public administrations in Belgium, the use of AI would require additional support, and further investigation to see if the technology is applied – and, if so, how, and to which extent. It is expected that with adequate support and care of innovating culture and means in the organisations, more and more civil servants would, at some point, use AI technologies in their work. It is thus expected that, in a few years, more and more respondents will indicate they will be using AI and will be capable of providing more detailed information about the AI used in their organisations.

Concrete examples of the use of AI in the organisations were rather scarce. While one of the key objectives of the survey was to gather precise examples of current use of AI in government, this has proven to be rather challenging. Respondents either mentioned that they did not know about all the AI used in their organisations or ignored the question, leaving only several respondents to reply with some examples. Detailed descriptions regarding the functioning, goals, experiences, and effects of these AI systems are at the moment still lacking. They could however be deepened with more targeted follow-up research. Similarly, the results seemed to be influenced by the **“AI adoption paradox”** found in other surveys: there seems to be a gap between in general ‘AI adoption’ and the mention of specific examples of AI. As a matter of fact, 35% of the respondents indicated that AI is being used in their organisation, but when examples, types or other more detailed information were asked, the actual use seemed much lower. It is still unclear what causes this measurement gap, but it shows that going from general understanding of ‘AI adoption’ to measuring specific AI subtypes/purposes is challenging.

Overall, there seems to be **moderate support for future development** of AI within Belgium public administrations. Common factors which are associated with assisting the development of AI in public administrations are present – although, most of them, on average, scored moderately. This suggests that the Belgium public administration is not in poor nor in an excellent starting point to work with AI. However, it is clear that there are (big) differences between the organisations, or the perception of the respondents. Many of the factors had both a large group of respondents agreeing and disagreeing a specific element, which shows that some organisations may need specific tailored support in some areas, whereas others are already more advanced in that respect. It should also be noted that none of the antecedents really scored very high, showing that **there is definitely still room for improving many of the factors contributing to AI-enabled public sector innovation**. In particular, there were a number of antecedents which scored rather poorly – even in organisations already in a more advanced stage of AI usage.

In this perspective, in fact, it showed that the activity in **related networks**, such as AI4GOV, was rather regarded highly. This could be due to the efforts by the AI4Belgium activity, as there are some activities ongoing in stimulating the use of AI within Belgium – including public administrations. Alternatively,

it could also be slightly biased, as many of the respondents may have retrieved the survey through the AI4Belgium network, and thus, were already part of the network. It is likely that many organisations not involved within the relevant networks (such as AI4Belgium), such as local administrations (only a handful replied to this survey), may have never seen the survey. Nevertheless, the presence of an active network might actually be useful in strengthening some of the other antecedents, such as sharing insights, improving awareness of the potential of AI, resource sharing and other factors and good practices.

Similarly, our findings showed that data-related antecedents were generally well-developed, which illustrates that **most of the respondents are generally quite positive regarding the data governance, data quality and data sharing within their organisation**. Significant barriers that can surely be identified within specific projects and lowered, but according to the answers, data related obstacles to moving forward with AI appeared to be. However, some variance is observed, some respondents did not see their organisation having the required data antecedents while others did.

One of the key findings of the survey, however, is the **reported lack of expertise of AI** within Belgium public administrations. One of the lowest scoring antecedents is the lack of employees with expertise in AI, which showed **the need to improve the number of AI-related skills and capacity within government organisations**. Surprisingly, only few respondents indicated that their organisation has introduced training on AI in their organisation, assumedly to counteract this lack of expertise.

This finding was further reinforced in the perceived barriers to the use of AI. For public organisations not using AI yet, it was shown that **the lack of expertise is the most important barrier to moving forward with using AI. This finding was not surprising, but the contrast between some other perceived barriers is striking. For instance, ethical concerns are only considered as a minor barrier by the respondents – but much of the policy attention and research focus often (only) highlights ethical barriers and concerns**. This shows that public administration is faced with more 'practical' barriers mostly, such as lack of expertise, lack of awareness and difficulties in sharing data to really get started with AI.

**In this respect, it is thus recommended to not only pay attention to overcoming ethical risks in stimulating public administrations to use AI technologies, but to also promote policy responses which tackle with more practical concerns.** Understandably, these should firstly tackle the lack of AI-related expertise in Belgium public administrations but should also include improving awareness and understanding of what AI could mean for administrations, facilitate mechanisms for (trustworthy) data sharing amongst public administrations, overcoming technological barriers and providing funding to move forward with AI. In addition, as respondents highlighted that the organisational culture hinders (data-based) innovation, special attention should also be given in stimulating an innovative culture amongst civil servants, by promoting sandboxing, experimenting, and overcoming risk aversion.

### *Limitations*

The number of "I don't know" answers to the survey is a limitation to the findings. While the design of the survey had heavily considered the various backgrounds and levels of expertise and knowledge of AI, many of the respondents felt that they could not answer all the questions effectively. This has had some significant consequences to the results, as in many questions over one-third of the

respondents did not know the answer to the question. Should this research be reiterated or more largely deployed, more consideration could be given to the type of respondents, and more focus on their personal use of AI technologies.. More specific questions regarding the organisational use of AI could be tackled by a separate, targeted questionnaire for (higher) management with in-depth knowledge regarding the state of affairs in their organisation, such as asking the CIOs.

A second limitation of the study was the relative uneven distribution of the respondents in terms of organisational background. It was expected that many municipalities would respond to the survey, but in practice most of the respondents came from federal organisations. In some cases, multiple respondents from the same federal organisation replied to the survey – with sometimes contradicting statements regarding the use of AI in their organisation. It is very well possible that the perceptions of these individuals may, in fact, be heavily influenced by their own experiences, and different departments or units within the whole organisation may have different levels of AI usage than others. This could be considered in the next iteration of the study as well.

More in-depth research may also be needed to gain a full picture of the use of AI in the organisation as well – going beyond merely asking if AI is being used. Different research approaches may be considered to gain a comprehensive picture of the actual AI systems in place, as well as the experiences and effects of their use. While it was expected that some of this knowledge may be more widespread amongst civil servants, the survey has shown that many civil servants within Belgium also do not clearly know what AI is being used in their own organisation. More work may thus also be needed to provide transparency and awareness of internal AI usage amongst civil servants as well – not just to provide citizens more information regarding which AI systems are being used within the Belgium administrations.

## Contributors

BOSA thanks Colin van Noordt (TalTech), Joep Crompvoets (KU Leuven) and Siqing Yu (KU Leuven), for the contribution to a better knowledge of the AI landscape in Belgium. The scientific framing of this research within the existing landscape and literature, the necessary AI expertise in public sector, the lead and the implementation of this exploratory survey would not have been possible without their expertise and involvement. The following members contributed the ideation implementation and the finalization of this survey (Nathanaël Ackerman, Christine Copers, Marianne Rosolen).

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## Annex:

### Use of AI in governments

There appears to be a significant gap between **the technological potential of AI**, and its **current use in our society**. Narrowing this gap is crucial to fully exploit the potential of AI. **Governments** play a crucial role in this.

Through this survey, we want to get a better understanding of the following research questions

*What exactly do we understand by the term "Artificial Intelligence"?*

*How is AI currently used by governments?*

*What types of AI are being used?*

*What factors play a role in the adoption of AI by governments?*

*What are the positive and negative effects of using AI?*

Through the results of this survey, we want to **map the use of AI in governments** on the one hand, and **formulate policy recommendations** on the other hand. The results will be presented during a future **AI4GOV** event.

This survey takes about **15 minutes** to complete for employees of federal government organisations. Employees of other governments should count on 10 minutes. Your contribution is highly appreciated.

FPS Policy and Support  
AI4Belgium

There are 33 questions in this survey.

### General information

1. What is the name of your public administration? \*

Please write your answer here:

2. At which level is your organisation operating? \*

Check all that apply

Please choose **all** that apply:

International / European

Federal government

Flemish Region

Walloon Region

Brussels Region

Municipality

Other:

3. What is your current position in this organisation? \*

Choose one of the following answers

Please choose **only one** of the following:

Senior management

Middle management

Civil servant

Data scientist / AI developer

IT staff

Other

4. How often are you involved with AI in your work? \*

Choose one of the following answers

Please choose **only one** of the following:

Very frequently

Frequently

From time to time

Rarely

Very rarely

Never

5. What is according to you Artificial Intelligence (AI)? Please provide a short answer.

Please write your answer here:

6. In general, what do you think about the main potential of AI for public administrations? Please provide a short answer

Please write your answer here:

7. In general, what do you think about the main risks of using AI in public administrations? Please provide a short answer.

Please write your answer here:

8. Does your organisation currently use any software or hardware using artificial intelligence? \*

Choose one of the following answers

Please choose **only one** of the following:

Yes

No, but is planning to do so within the next two years

No, and is not planning to do this within the next two years

Use of AI in your organisation

1. How would you describe the level of usage of AI within your organisation? \*

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Choose one of the following answers

Please choose **only one** of the following:

AI is currently being tested

AI is being used on a small scale within my organisation

AI is moderately used within my organisation

AI is highly and widely used throughout my organisation

I don't know

2. For which of the following purposes AI is being used in your organisation?

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Check all that apply

Please choose **all** that apply:

to detect social issues more quickly

to estimate potential effects of policy

to improve public policy decisions

to monitor the implementation of policy

to evaluate existing policy

to enhance citizen participation in policy making

- to improve the information services of the organisation
- to improve public service delivery to businesses and citizens
- to develop new innovative public services
- to improve the allocation of human resources
- to improve recruitment services of the public organisation
- to improve financial management of the organisation
- to improve maintenance of assets
- to facilitate the processing of data
- to improve the detection of fraud and/or corruption
- to improve public procurement processes
- to improve organisational cybersecurity

Other:

3. Which of the following types of AI applications are used by your organisation? \*

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please choose the appropriate response for each item:

	0 (i don't know)	1 (never used)	2 (used sometimes)	3 (used from time to time)	4 (used frequently)	5 (used at large scale)
<b>AI-based knowledge management: AI which generate, systematize, gather, sort, record and share knowledge. These include the use of neural networks to analyse, distribute and share knowledge with others.</b>						
<b>AI Process Automation Systems: Automation of standard tasks, the support of people through automation systems, the use of</b>						

	0 (i don't know)	1 (never used)	2 (used sometimes)	3 (used from time to time)	4 (used frequently)	5 (used at large scale)
software robots to mimic human interaction with user interfaces or other software systems.						
<b>Virtual Agents:</b> Computer-based systems which interacts with users through speech analytics, computer vision, written data input, real-time universal translation to communicate and/or performs tasks for people. Often these agents are chatbots or other virtual avatars.						
<b>Predictive analytics:</b> Processing of large volumes of quantitative data, which could include machine learning, for reporting, prescriptive and predictive analysis.						
<b>Identity analytics:</b> Software combining big data, advanced analytics and identity management to conduct risk-based identity checks.						
<b>Cognitive robotics &amp; autonomous systems:</b> Robotic systems which are able to learn and respond to their environment in real time.						
<b>Recommendation systems:</b> Information filtering systems that personalize information to the preference of the users						
<b>Intelligent Digital Assistants:</b> Software based on speech analytics that provides an interface between a						

	0 (i don't know)	1 (never used)	2 (used sometimes)	3 (used from time to time)	4 (used frequently)	5 (used at large scale)
user and a system to search information or complete simple tasks.						
<b>Speech analytics: Software used for the recognition and processing of language, used for understanding or responding to language input or translate language.</b>						
<b>Cognitive security analytics: Application using AI-technologies to analyse security information to detect threats</b>						

4. Could you give an example of AI currently in use at your organisation?

Only answer this question if the following conditions are met:

Answer was at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) and Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

5. What are the current AI applications already in use in your government department?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) and Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

6. Are there plans to develop other AI applications?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) and Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

7. Which of the following statements apply to your organisation? \*

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please choose the appropriate response for each item:

	0 don't know	(i) 1 (fully disagree)	2 (disagree)	3 (neutral)	4 (agree)	5 (fully agree)
<b>My own organisation plays an active role in the development of AI used by my organisation</b>						
<b>External commercial contractors play an active role in the development of AI used by my organisation</b>						
<b>External non-profit organisations play an active role in the development of AI used by my organisation</b>						
<b>Other public administrations play an active role in the development of AI used by my organisation</b>						

8. To which extent do you agree with the following statements? \*

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please choose the appropriate response for each item:



	0 (i don't know)	1 (fully disagree)	2 (disagree)	3 (neutral)	4 (agree)	5 (fully agree)
My organisation is active in networks, such as AI4Belgium/ AI4GOV which assist in the development and adoption of AI in my organisation						
My organisation is aware of the latest AI applications available on the commercial market						
My organisation has a budget for AI prototypes and pilots						
My organisation has enough staff with expertise in AI						
My organisation has conducted programmes to increase awareness of AI among staff						
My organisation has introduced AI training programmes for staff						
My organisation has high quality datasets to base AI on						
My organisation has put forward initiatives to improve data governance						
My organisation has put forward initiatives to increase data sharing across different teams						
My organisation allows the experimentation of AI technologies						
My organisation has used innovative public procurement						

	0 (i don't know)	1 (fully disagree)	2 (disagree)	3 (neutral)	4 (agree)	5 (fully agree)
<b>methods to procure AI applications</b>						
<b>There is management support for using AI in my organisation</b>						
<b>In general, colleagues in my organisation are positive about the use of AI in my organisation</b>						

9. Are there other initiatives undertaken by your organisation to stimulate the use of AI?

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

10. Which budgetary provisions are there to develop current AI applications within your government department? For which timeframe is this planned?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) *and* Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

11. Which budgetary provisions are there to develop future AI applications within your government department? For which date are they planned?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) *and* Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

12. If AI applications are already in use, what data is or has been used for this?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) and Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

13. If there are plans for AI applications, what data will be used for this?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) and Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

14. Do you see any obstacles to open data within your FPS? Do you see other barriers, e.g. data quality, data format, privacy, etc.?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) and Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

15. Do you share the data you hold/collect with other FPS or the private sector to develop or use AI tools?

Only answer this question if the following conditions are met:

Answer was 'Federal government' at question '2 [Organisatieniveau]' (2. At which level is your organisation operating?) and Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

16. Have you experienced one or more of the following side-effects?

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Check all that apply

Please choose **all** that apply:

Staff does not trust the results of the AI

Insights of AI are overused and not critically assessed by the staff

Difficulties in following up on predictions made by the AI

Staff jobs have been lost following the deployment

There is more competition between the staff

The staff has more feelings of becoming redundant to the organisation

Costs for the development and maintenance of AI were higher than expected

The predictions by AI have not been as accurate as anticipated

AI made biased recommendations/ decisions

Crucial cases were not picked up by AI

Citizens do not accept the use of AI

There were/are legal procedures started by external parties regarding our use of AI

There are unclear liabilities in case AI makes mistakes

Pressure to stop using AI

Safety and security risks

Other:

Use of AI within the next two years

1. Which of the following factors do you perceive as a barrier for the use of AI in your organisation? \*

Only answer this question if the following conditions are met:

Answer was 'No, but is planning to do so within the next two years' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please choose the appropriate response for each item:

	<b>0 (i don't know)</b>	<b>1 (fully disagree)</b>	<b>2 (disagree)</b>	<b>3 (neutral)</b>	<b>4 (agree)</b>	<b>5 (fully agree)</b>
<b>The lack of financial resources in my organisation</b>						
<b>Technological barriers</b>						
<b>The lack of policy guidance on how to use AI</b>						
<b>Lack of governance mechanisms</b>						

	0 (i don't know)	1 (fully disagree)	2 (disagree)	3 (neutral)	4 (agree)	5 (fully agree)
Ethical concerns of applying AI						
The lack of related expertise within the organisation						
Lack of awareness regarding the possibilities of AI for the organisation						
Political leadership is limiting the use of AI						
The lack of high-quality data						
Difficulties in sharing of data						

2. Which of the following statements apply to your organisation?

Only answer this question if the following conditions are met:

Answer was 'No, but is planning to do so within the next two years' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please choose the appropriate response for each item:

	0 (i don't know)	1 (fully disagree)	2 (disagree)	3 (neutral)	4 (agree)	5 (fully agree)
My organisation is active in networks, such as AI4Belgium/AI4GOV which Assist in the development and adoption of AI in my organisation						
My organisation is aware of the latest AI applications available on the commercial market						

	0 (i don't know)	1 (fully disagree)	2 (disagree)	3 (neutral)	4 (agree)	5 (fully agree)
<b>My organisation has a budget for AI prototypes and pilots</b>						
<b>My organisation has enough staff with expertise in AI</b>						
<b>My organisation has conducted programmes to increase awareness of AI among staff</b>						
<b>My organisation has introduced AI training programmes for staff</b>						
<b>My organisation has high quality datasets to base AI on</b>						
<b>My organisation has put forward initiatives to improve data governance</b>						
<b>My organisation has put forward initiatives to increase data sharing across different teams</b>						
<b>My organisation allows the experimentation of AI technologies</b>						
<b>My organisation plans to use innovative public procurement methods to procure AI applications</b>						
<b>There is management support for using AI in my organisation</b>						
<b>In general, colleagues in my organisation are positive about the use of AI in my organisation</b>						

3. Are there other initiatives undertaken by your organisation to stimulate the use of AI?

Only answer this question if the following conditions are met:

Answer was 'No, but is planning to do so within the next two years' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

4. For which purposes is your organisation planning to use AI for?

Only answer this question if the following conditions are met:

Answer was 'No, but is planning to do so within the next two years' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Check all that apply

Please choose **all** that apply:

My organisation plans to use AI to detect social issues more quickly

My organisation plans to use AI to estimate potential effects of policy

My organisation plans to use AI to improve public policy decisions

My organisation plans to use AI to monitor the implementation of policy

My organisation plans to use AI to evaluate existing policy

My organisation plans to use AI to improve citizen participation in policy making

My organisation plans to use AI to improve the information services of the organisation

My organisation plans to use AI to improve public service delivery to businesses and citizens

My organisation plans to use AI to develop new innovative public services

My organisation plans to use AI to improve the allocation of human resources

My organisation plans to use AI to improve recruitment services of the public organisation

My organisation plans to use AI to improve financial management of the organisation

My organisation plans to use AI to improve maintenance of assets

My organisation plans to use AI to facilitate the processing of data

My organisation plans to use AI to improve the detection of fraud and/or corruption

My organisation plans to use AI to improve public procurement processes

My organisation plans to use AI to improve organisational cybersecurity

I don't know

Other:

No use of AI within the next two years

1. Which of the following factors do you perceive as a barrier for the use of AI in your organisation? \*

Only answer this question if the following conditions are met:

Answer was 'No, and is not planning to do this within the next two years' at question '8 [UseofAI]' (8.

Does your organisation currently use any software or hardware using artificial intelligence?)

Please choose the appropriate response for each item:

	<b>0 (i don't know)</b>	<b>1 (fully disagree)</b>	<b>2 (disagree)</b>	<b>3 (neutral)</b>	<b>4 (agree)</b>	<b>5 (fully agree)</b>
<b>The lack of financial resources in my organisation</b>						
<b>Technological barriers</b>						
<b>The lack of policy guidance on how to use AI</b>						
<b>Lack of governance mechanisms</b>						
<b>Ethical concerns of applying AI</b>						
<b>The lack of related expertise within the organisation</b>						
<b>Lack of awareness regarding the possibilities of AI for the organisation</b>						
<b>Political leadership is limiting the use of AI</b>						
<b>The lack of high-quality data</b>						
<b>Difficulties in sharing of data</b>						

2. What do you think may be other reasons why your organisation not planning to use AI in the near future?



Only answer this question if the following conditions are met:

Answer was 'No, and is not planning to do this within the next two years' at question '8 [UseofAI]' (8. Does your organisation currently use any software or hardware using artificial intelligence?)

Please write your answer here:

Thank you for your participation

Thank you for participating in this survey. The results will be shared with the AI4Belgium community through a report and a presentation at the next AI4GOV event.

Would you like to receive the results of the study when it is completed in your mail? \*

Choose one of the following answers

Please choose **only one** of the following:

Yes

No

Would you be interested in participating in a follow-up study? \*

Choose one of the following answers

Please choose **only one** of the following:

Yes

No

Please fill out your e-mail address:

Only answer this question if the following conditions are met:

----- Scenario 1 -----

Answer was 'Yes' at question '31 [EndReceiveResults]' (Would you like to receive the results of the study when it is completed in your mail?)

----- or Scenario 2 -----

Answer was 'No' at question '32 [EndVervolgOnderzoek]' (Would you be interested in participating in a follow-up study? )

Please write your answer here:

Submit your survey.

Thank you for completing this survey.

