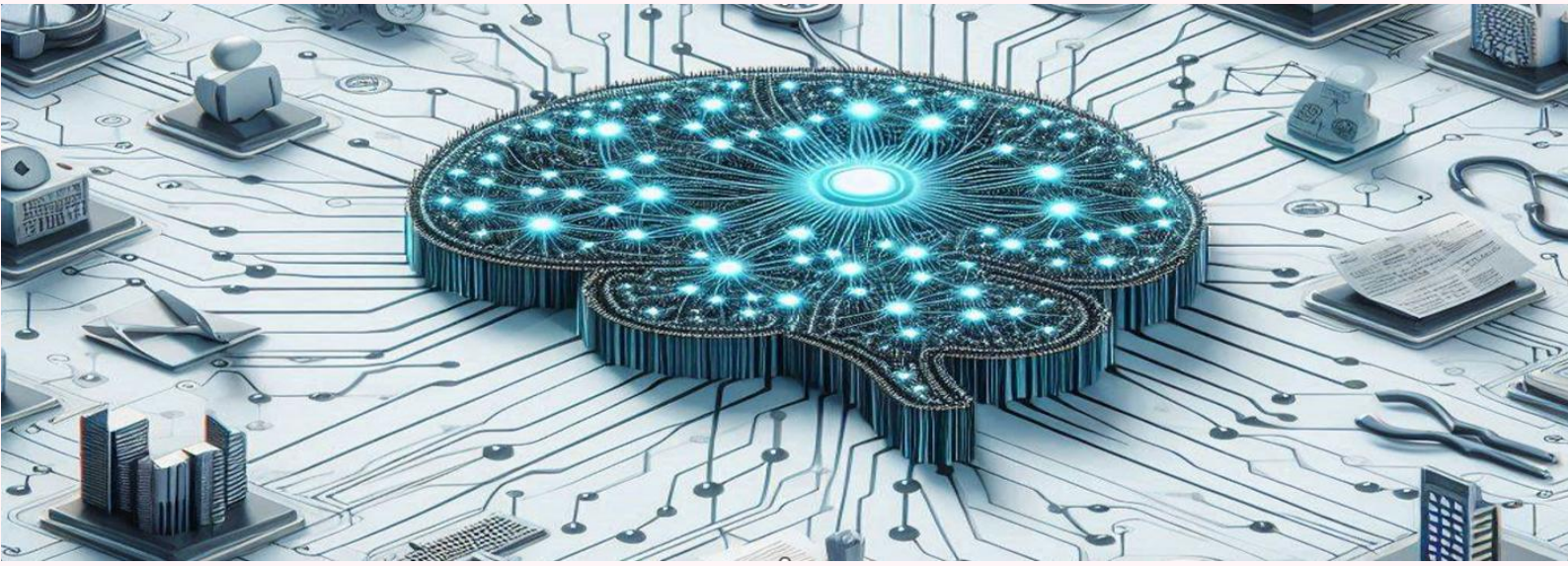
Riksrevisjonen

The use of artificial intelligence in the central government

Document 3:18 (2023–2024)



We published an updated version of the document on October 29th, 2025. We have updated the footnote referring to the figure “155,000 full-time equivalents” on page 10 with a simplified description of the method used to arrive at the figure, and a clarification of the uncertainty associated with that method.

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Riksrevisjonen

To the Storting (the Norwegian Parliament)

The National Audit Office of Norway hereby submits Document 3:18 (2023–2024) *The use of artificial intelligence in the central government*.

The document is structured as follows:

- The National Audit Office of Norway's conclusions, elaboration of conclusions and recommendations, the Minister's response and the National Audit Office of Norway's statement to the Minister's response
- Appendix 1: The National Audit Office of Norway's letter to the Minister
- Appendix 2: The Minister's response
- Appendix 3: Performance audit report with assessments[1]

The National Audit Office of Norway, 2 September 2024

For the Board of Auditors General

Karl Eirik Schjøtt-Pedersen
Auditor General of Norway

[1] The appendices are not translated into English

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Overview of figures

Overview of boxes

The National Audit Office of Norway can issue criticism according to the following three levels of severity:

Highly objectionable is the National Audit Office of Norway's strongest criticism. We use this level of criticism when we find serious weaknesses, flaws and shortcomings that can entail major consequences for individuals or society in general.

We use **objectionable** when we identify significant weaknesses, flaws and shortcomings that may often entail moderate to major consequences for individuals or society in general.

We use **unsatisfactory** when we identify weaknesses, flaws and shortcomings that to a lesser degree will have direct consequences for individuals or society in general.

1 Introduction

Norway is facing several major challenges in the years to come, such as significantly fewer working individuals per pensioner, a greater need for workers in the healthcare sector, decreasing significance of oil revenues and increasing expenditures for retirement pensions and health-related benefits. To address these challenges, it will be crucial to enhance the efficiency of the public sector. Artificial intelligence (AI) has the potential to significantly improve public sector productivity and to contribute to fundamentally altering the public administration.[2]

The potential for and need to adopt AI in the public sector has been addressed in a number of Reports to the Storting, such as Report to the Storting no. 27 (2015−2016) *Digital agenda for Norge – IKT for en enklere hverdag og økt produktivitet* [Digital agenda for Norway – ICT for a simpler everyday life and increased productivity] and Report to the Storting no. 30 (2019−2020) *An innovative public sector – Culture, leadership and competence,* as well as in the two government strategies *National strategy for Artificial Intelligence* from 2020 and *One digital public sector: Digital strategy for the public sector 2019−2025*.[3] The Reports to the Storting and the strategy documents emphasise that the public sector should be rendered more effective through digitalisation. In their consideration of Report to the Storting no. 30 (2019−2020), the Standing Committee on Local Government and Public Administration noted that AI is an example of rapidly developing technology. The Committee underlined the importance of the Government's efforts to ensure that Norway develops world-class AI infrastructure, in the form of digitalisation-friendly legislation, good language resources, fast and robust communication networks and sufficient computing power.

The Ministry of Digitalisation and Public Governance is responsible for coordinating the government's ICT policy, cf. Proposition No. 1 to the Storting (2023−2024). The Ministry was established on 1 January 2024, when it assumed the responsibility for the digitalisation efforts in the public sector from the Ministry of Local Government and Regional Development. Digitalisation and AI-related efforts in the public sector otherwise follow the sector principles, whereby each ministry is responsible for its own sector.

In the spring of 2024, the Minister of Digitalisation and Public Governance stated that the objective is for 80 per cent of the public sector to have started using artificial intelligence by 2025. This objective is intended to contribute to a better and renewed public sector, and all government agencies are encouraged to increasingly adopt this technology.[4]

Proposition No. 1 to the Storting (2023−2024) for the Ministry of Local Government and Regional Development states that the purpose of the ICT

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[2] See e.g., Menon Economics, *KI: Betydning for arbeidsstyrken. En analyse av potensialet for kunstig intelligens-drevet effektivisering i norsk næringsliv* [AI: Significance for the workforce. An analysis of the potential for AI-driven improved efficiency in the Norwegian business sector], November 2023; the National Audit Office, *Use of Artificial Intelligence in Government* https://www.nao.org.uk/reports/use-of-artificial-intelligence-in-government/, March 2024; and the Alan Turing Institute, *AI for bureaucratic productivity: Measuring the potential of AI to help automate 143 million UK government transactions*, March 2024.

[3] The Ministry of Local Government and Modernisation (2019) One digital public sector: Digital strategy for the public sector 2019–2025 and the National Strategy for Artificial Intelligence (2020).

[4] Oral question time at the Storting, 8 May 2024: Case No. 1 [10:01:35] - stortinget.no. Retrieved 13 June 2024.

policy is to develop framework conditions that support digitalisation within the various sectors, across the sectors and in society at large. Part of the Ministry of Digitalisation and Public Governance's coordinating responsibility is to identify cross-sectoral challenges and to initiate, coordinate and follow-up cross-cutting measures. The digitalisation of society should take place in a sustainable and inclusive fashion and contribute to simplifying and rendering more effective both the public and the private sector. At the same time, it should not contribute to a development that centralises tasks and work processes, impairs privacy or consumer protection, renders society more vulnerable to cyberattacks, weakens competition in the digital markets or amplifies digital exclusion.

The budget proposals for 2021 and 2022 for the Ministry of Local Government and Regional Development refer to the government's 2020 National Strategy for Artificial Intelligence which sets the course for Norway's AI efforts. The strategy includes a set of ethical principles for the development and use of AI and points to a potential for significant gains through its adoption, such as better and more personalised services, greater efficiency and improved planning. According to the strategy, government agencies should actively explore the potential of AI and that "responsible and trustworthy AI" should form the basis for this endeavour.

The purpose of the investigation has been to assess whether government agencies and wholly state-owned companies[5] take advantage of the opportunities offered by artificial intelligence, and whether they develop and use AI in a responsible manner, in conformity with the Storting's resolutions and assumptions.

The investigation has examined the following audit questions:

1. Are government agencies using AI to improve and increase the efficiency of services?
2. Are government agencies adopting ethical principles when developing and using AI?
3. Is the Ministry of Digitalisation and Public Governance's coordination fostering responsible use of AI in government agencies?

The term artificial intelligence can cover a number of different systems in public administration. In this audit, we use the same definition that has been applied in the government's National Strategy for Artificial Intelligence (the AI strategy): Artificial intelligence systems perform actions based on interpreting and processing structured or unstructured data, to achieve a given goal.[6] The interpretation of data can be done in many different ways, e.g., entirely rule-based in a software bot or based on machine learning. This definition of AI may therefore include simple algorithms which do not fall under the definition of AI in e.g., the EU AI Act[7].

[5] In the following, the term *government agencies* also encompasses wholly state-owned companies.
[6] The Ministry of Local Government and Modernisation. (2020). *National Strategy for Artificial Intelligence.* (Own translation of the AI definition in the National Strategy)
[7] European Parliament legislative resolution of 13 March 2024 on the proposal for a regulation of the European Parliament and of the Council on laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act), P9_TA(2024)0138, recital 12 in the preamble.

Artificial intelligence is a rapidly evolving technology. Since late 2022, tools based on generative artificial intelligence[8] have become readily available and are now used by many. The tools, such as ChatGPT[9] and M365 Copilot[10], may for instance be used to generate text and to assist in creating presentations and writing code. This investigation includes the use of off-the-shelf systems such as ChatGPT *only* if the AI system has been further developed or adapted by the government agencies or integrated into a separate AI system.

In this investigation, the expression *responsible use of artificial intelligence* is used to describe the development, procurement and use of AI systems that adhere to basic ethical principles by taking into account privacy, equality, transparency, technical safety and robustness and through governance mechanisms that ensure that these principles are observed throughout the life cycle of the AI system.

To elucidate the audit questions, we have conducted a mapping survey of around 200 government agencies. We have also conducted a survey with more than 100 respondents in 66 government agencies, who provided detailed information on close to 200 AI systems. We have also carried out case studies of four select AI projects in the Norwegian Tax Administration, the Norwegian Labour Inspection Authority, the Norwegian Public Service Pension Fund and at St. Olav's Hospital, respectively. The cases were chosen based on the models' complexity and use of personal data, among other things. Furthermore, we have analysed documents such as allocation letters, annual reports and research reports. In addition, we have interviewed several ministries and government agencies.

The investigation covers the period 2018−2023.

The investigation is among other documents based on the following resolutions and assumptions from the Storting:

- Report to the Storting no. 27 (2015−2016) *Digital agenda for Norge – IKT for en enklere hverdag og økt produktivitet* [Digital agenda for Norway – ICT for a simpler everyday life and increased productivity], cf. Recommendation 84 S (2016−2017)
- Report to the Storting no. 30 (2019−2020) *An innovative public sector – Culture, leadership and competence*, cf. Recommendation 191 S (2020−2021)
- Report to the Storting no. 22 (2020−2021) *Data as a resource – The data-driven economy and innovation*, cf. Recommendation 568 S (2021−2022)
- The budget proposals for the period 2021−2023 for the Ministry of Local Government and Regional Development (cf. Proposition No. 1 to the Storting 2020−2021 and 2022−2023), which refer to the 2020 National Strategy for Artificial Intelligence and that the strategy sets the course for Norway's commitment to artificial intelligence. / Recommendation 16 S

[8] Generative AI refers to AI systems developed to produce content such as text, images or code.
[9] ChatGPT is a chatbot developed by OpenAI based on a large language model, which can be used as a virtual assistant, see https://openai.com/index/chatgpt/
[10] M365 Copilot is an AI system from Microsoft based on a large language model, which is embedded in Microsoft 365 and can be used as a virtual assistant with access to internal data.

(2020−2021) recommendation from the Standing Committee on Local Government and Public Administration on allocations in the Budget for 2021.

The report was submitted to the Ministry of Digitalisation and Public Governance, the Ministry of Labour and Social Inclusion, the Ministry of Finance, the Ministry of Health and Care Services, the Ministry of Justice and Public Security and the Ministry of Culture and Equality by letter of 24 April 2024. The ministries have provided comments on the report in separate letters.[11] The comments have largely been incorporated into the report and into this document.

The report, the letter of transmittal from the Board of Auditors General of 21 June 2024 and the Minister's response of 7 August 2024 are enclosed. [12]

2 Conclusions

- Government agencies are harnessing the potential of AI unevenly, and AI is still not widely adopted.
- Important prerequisites for the adoption of AI on a larger scale are not yet in place.
  - Strong need to clarify legal questions regarding the use of AI
  - Inadequate infrastructure and access to high-quality data
  - Strong need for competence
  - Important to have language resources in Norwegian
- The ethical principles for the responsible use of AI are observed to varying degrees; Control mechanisms ensuring the responsible use of AI must be in place.
- The coordination of AI-related efforts in the public sector is inadequate, and the overall efforts are insufficient given Norway's ambition of having world-class AI infrastructure.

[11] Letter of 22 May from the Ministry of Health and Care Services, letter of 27 May from the Ministry of Digitalisation and Public Governance and letter of 24 May 2024 from the remaining ministries.
[12] The appendices are not translated into English

3 Overall assessment

Unsatisfactory

It is unsatisfactory that the Ministry of Digitalisation and Public Governance, through governance and in cooperation with the other ministries, has inadequately facilitated the public sector's ability to harness the potential of AI and its responsible adoption. The overall efforts are insufficient given Norway's ambition of having world-class AI infrastructure.

4 Elaboration of conclusions

4.1 Government agencies are harnessing the potential of AI unevenly, and AI is still not widely adopted.

Artificial intelligence is an important tool for the development of a sustainable, effective and user-oriented public administration, cf. e.g., Report to the Storting no. 27 (2015−2016) *Digital agenda for Norge – IKT for en enklere hverdag og økt produktivitet* [Digital agenda for Norway – ICT for a simpler everyday life and increased productivity], Report to the Storting no. 30 (2019−2020) *An innovative public sector — Culture, leadership and competence* and the National Strategy for Artificial Intelligence.[13] The Storting also notes the importance of developing and using AI within a responsible framework, where privacy, among other things, is safeguarded.[14]

The potential for increasing public sector efficiency through the use of AI is immense. In Norway, for instance, the research-based analysis and consultancy firm Menon estimates that the potential annual value creation from AI in the private and public sectors combined is approximately NOK 500−600 billion overall. There is a particularly significant potential within administrative procedure in the public sector. According to the report, by fully harnessing modern AI technology, the public sector will be able to increase efficiency in work tasks corresponding to 155,000 full-time equivalents of

[13] The Ministry of Local Government and Modernisation (2019) One digital public sector: Digital strategy for the public sector 2019–2025
[14] Recommendation 191 (Resolution) (2020–2021).

work each year.[15] Several international studies point in the same direction. According to a report from the Alan Turing Institute, more than 80 per cent of complex repetitive tasks in British public administration can be automated using AI.[16] McKinsey & Company estimates that there is a significant potential for increasing productivity through generative AI in the public sector, including health services and education. The consultancy firm estimates that 40 per cent of all working hours across industries can be affected by AI systems summarising and analysing content, and that customer-oriented services have an automation potential of 60 per cent over five to ten years through technology such as chatbots.[17]

Nevertheless, artificial intelligence is rapidly evolving, and studies of productivity gains are often based on a small number of early adopters. For the technology to have a lasting macroeconomic impact, AI must be adopted on a large scale over time and be effectively integrated in organisational processes.[18]

The investigation shows that the degree to which government agencies have adopted AI varies greatly, and that AI is still not widely adopted. Among the around 200 investigated government agencies[19], less than 50 per cent have experience in developing and/or using AI. Moreover, less than 20 per cent of government agencies without AI experience are planning to adopt AI in the future. The National Audit Office of Norway has based this investigation on a relatively broad definition of artificial intelligence, which corresponds to the definition in the National Strategy for Artificial Intelligence. Many projects and systems including nothing more than simple software bots can therefore be classified as AI. For instance, more than half of the AI systems in the investigation only use simple models to interpret data. With a stricter definition of what may be considered an AI system – including e.g., requirements for more advanced models – the number of reported AI systems in the central government would have been significantly lower. However, as mentioned initially, simpler applications of off-the-shelf products, such as ChatGPT, are not included in the scope of the investigation.

Among government agencies with experience using AI, the investigation shows that a majority of these (56 per cent) only have experience with one to three AI projects. Just over 10 per cent of the government agencies have experience from ten or more AI projects.

Regardless of how advanced the AI systems are, the investigation shows that the government agencies' goals in developing and adopting AI systems

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[15] Menon Economics (2023), *KI: Betydning for arbeidsstyrken. En analyse av potensialet for kunstig intelligens-drevet effektivisering i norsk næringsliv* [AI: Significance for the workforce. An analysis of the potential for AI-driven rationalisation of the Norwegian business sector] The analysis in the report used AI (GPT-4) to estimate of how much AI can be used in different kinds of jobs and multiplied this with employment rates from Statistics Norway (SSB) to calculate the potential for increased efficiency. The report points out that these calculations are only estimates and will be imprecise.

[16] Alan Turing Institute. (2024). *AI for bureaucratic productivity: Measuring the potential of AI to help automate 143 million UK government transactions*.

[17] McKinsey & Company (2023), *Unlocking the potential of generative AI: Three key questions for government agencies*, online article

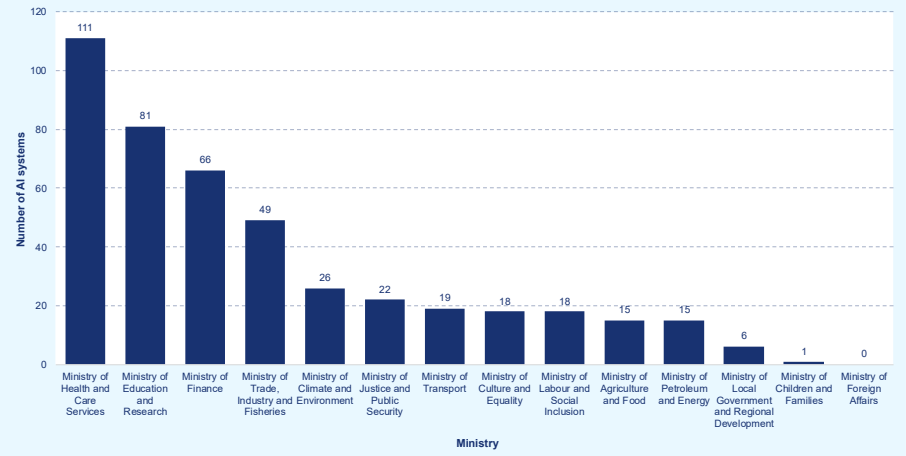
[18] OECD (2024), *The impact of artificial intelligence on productivity, distribution and growth. Key mechanisms, initial evidence and policy challenges*. OECD artificial intelligence papers No. 15

[19] This constitutes nearly all government agencies, including wholly state-owned companies. The exception is the Storting and the Sameting, the defence sector, all the government ministries, the county governors and state funds.

are mainly to improve and increase the efficiency of their own task performance, which includes freeing up time. The investigation also reveals that most government agencies deem they are largely succeeding in attaining the goals they have set themselves with the use of AI.

Figure 1 shows the number of AI systems reported by ministry. The health trusts have by far the most AI projects. They are also the actors that use more advanced models to the greatest extent. After the Ministry of Health and Care Services follow the education and research sector and several agencies under the Ministry of Finance with the highest number of AI projects. There are also several AI projects under the Ministry of Trade, Industry and Fisheries, both among subordinate agencies and wholly-owned companies. Nearly 70 per cent of all reported AI projects are under these four ministries.

Figure 1 Number of reported AI systems by ministry, 2018–spring of 2023[20]



Source: Replies to letter to government agencies and wholly state-owned companies (n = 130)

In the National Audit Office of Norway's opinion, some of the differences between the sectors can be attributed to the sectors having different needs and basic prerequisites for developing and using AI. Governance and the degree of facilitation may also be contributing factors.

In the health sector, it has been explicitly stated that AI can contribute to more efficient use of resources and to a sustainable national health service, cf. e.g., Report to the Storting no. 7 (2019−2020) *National Health and Hospital Plan 2020−2023.* In the assignment letter for 2024 to the regional health authorities, the Ministry of Health and Care Services has also issued instructions to take an active approach to developing and applying AI within the sector. This is also the case in the allocation letters to the Norwegian Directorate of Health for the period 2020−2024, where the national coordination project "Better use of artificial intelligence" forms part of the

[20] Document 3:8 (2023–2024) *Riksrevisjonens undersøkelse av myndighetenes tilrettelegging for deling og gjenbruk av data i forvaltningen* [The National Audit Office of Norway's investigation how the authorities facilitate the sharing and reuse of data in the public administration], appendix on the mapping of the development and use of AI in the public administration and state-owned companies.

work of following up the National Health and Hospital Plan 2020−2023. Furthermore, the health sector has some basic prerequisites for developing and adopting AI. Even though there may be challenges related to lack of digitalisation and linking of different data sources in the health sector, there is a wealth of data available, e.g., in the health registers, which can be leveraged to train and develop models. There are also major established research environments in the health trusts.

In the other investigated sectors, instructions regarding AI may have been given to subordinate agencies in some cases; however, in general, the decision to adopt AI has largely been left to the discretion of each individual agency. The ministries we interviewed referred to the principles on goal and performance management in this context, and thus that it is at the discretion of the government agencies to select and use the means and technology that provide the best solutions in terms of ensuring efficient task performance.

Furthermore, the investigation shows that the examined ministries may have different approaches to preparing authorisations that clarify whether subordinate agencies have a clear legal basis for processing personal data. This is discussed in greater detail in Chapter 4.3.

To date, the overall development and use of AI in government is limited in scope. However, certain sectors and government agencies began exploring the possibilities more than a decade ago, and some have deployed more advanced systems. Among the health trusts, as well as e.g. in the Norwegian Tax Administration and the Norwegian Public Service Pension Fund, there are examples of development and use of AI that other government agencies can learn from.

Box 1 Examples of AI use in the central government

Two examples of AI systems used in government agencies

- The Norwegian Tax Administration's *deduction model* for risk-based control sampling predicts the likelihood of mistakes in reported tax deductions. The system is used as decision support when sampling tax returns for the purpose of inspecting deductions. The AI system was developed by the Norwegian Tax Administration and has been in operation since 2014. The system has contributed to significantly improving the efficiency of the Norwegian Tax Administration's tax deduction inspections and more cost-effective controls.
- St. Olavs Hospital uses a *fluorescence microscope* with an integrated AI system for classifying cells as part of an analysis used in cancer diagnostics. The AI system was developed by a supplier in collaboration with which St. Olavs Hospital has adapted it for its own patient population. The results from the AI system are verified by professionals. The system helps the hospital save time on diagnostics and has contributed to higher-quality analyses and enhanced quality assurance.

Source: The National Audit Office of Norway's case studies

On the other hand, the investigation shows that there are major government agencies that have worked on developing their own AI models over several years, but that still do not have any solutions based on self-developed AI in operation. The alternative is purchasing off-the-shelf AI systems. Apart from the generative models, it can be challenging to find ready-made models that align with the characteristics of the government agencies. Any purchase of advanced models might also require comprehensive testing, adaptations and quality assurance to ensure that the model works as intended. In addition, there will often be very few suppliers of specialised systems.

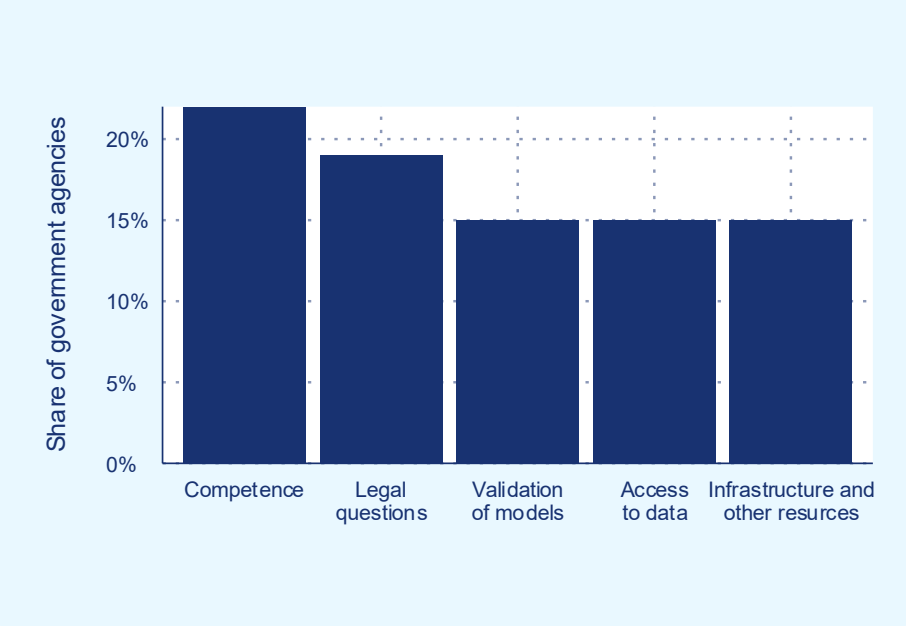
Since there are few examples overall of AI systems being developed and adopted, there are also few instances where artificial intelligence has significantly enhanced the efficiency and productivity of the public sector.

In the National Audit Office of Norway's opinion, there is significant untapped potential in the public sector to enhance efficiency through digitalisation and the use of AI.

4.2 Important prerequisites for the adoption of AI on a larger scale are not yet in place

The investigation shows that there are several barriers to the development and use of AI in the central government. Some of the key barriers are shown in Figure 2. Several government agencies also bring up other factors which may impede the effective development of AI, including the development of language models.

Figure 2 Perceived challenges in developing and using AI. Percentage



Source: Replies to letter to government agencies and wholly state-owned companies (n = 130)

4.2.1 Strong need to clarify legal questions regarding the use of AI

In Norway, the legislation is generally technology neutral. The public sector is therefore free to choose the technology that best fits its task performance, and the legislation should not hinder the use of technology. Furthermore, there is no specific regulation of AI in Norway. However, a number of acts are relevant in the development and use of artificial intelligence such as the Personal Data Act and the Equality and Anti-Discrimination Act. The AI Act, which was adopted by the European Parliament in March 2024, has also been deemed to have EEA relevance, and the Ministry of Digitalisation and Public Governance has started preparing its implementation into Norwegian law.

The investigation shows that both the lack of a clear legal basis in sector legislation and uncertainty surrounding the interpretation of acts and other legislation in general, are factors that appear to be preventing government agencies from developing and adopting AI to a greater extent. To map the challenges related to developing and adopting AI, the National Audit Office of Norway distributed a survey to government agencies with experience in developing and/or using AI. The survey was sent to 143 contact persons, of which 78 per cent responded. Around 40 per cent of the respondents stated that it is difficult to safeguard privacy when developing AI systems. There is much uncertainty regarding what is considered an adequate legal basis for processing personal data both in the development and use of AI systems.

Some of the ministries included in the investigation, such as the Ministry of Finance and the Ministry of Health and Care Services, have through the sector legislation worked on providing subordinate agencies with a clearer legal basis for processing personal data in general. As mentioned, the investigation also shows that these are the sectors that have the highest number of AI projects; however, this does not necessarily indicate a direct correlation. Nevertheless, the Norwegian Labour and Welfare Administration (Nav) and the Norwegian Public Service Pension Fund (SPK), both of which fall under the Ministry of Labour and Social Inclusion, have different legal bases for processing personal data in their respective acts. While SPK has a clear legal basis for processing personal data, this remains unresolved for Nav, even though the Norwegian Data Protection Authority highlighted this issue to the agency in January 2022.

The investigation shows that regardless of whether the government agencies have a general legal basis for processing personal data, they often find it difficult to handle issues related to privacy in the individual AI projects. That is particularly because the use of personal data has to be assessed specifically in each project and because privacy has to be safeguarded in all parts of an AI project, including the development phase. Some of the key questions that need to be answered, are whether the use of personal data is compatible with the purpose for which the data is collected, and whether the processing is necessary and proportional. There is a lot of uncertainty in this area among government agencies. It is encouraging that some public agencies choose to address such uncertainty by piloting smaller projects to gain experience. In the opinion of the National Audit Office of Norway, there is nevertheless a considerable risk that the persistent uncertainty

surrounding several legal questions will delay and prevent government agencies from taking full advantage of the opportunities provided by AI.

The ministries and government agencies are responsible for assessing their respective legal basis and need for any amendments to their acts and regulations to clarify the basis for processing personal data. At the same time, there are several legal issues that are nearly identical for many government agencies. For instance, the government agencies may have largely the same questions regarding legal basis and the interpretation of legislation, particularly regarding the processing of personal data. To assist the government agencies with such questions, the Ministry of Digitalisation and Public Governance has worked on drawing up guidance, particularly through the Norwegian Data Protection Authority, but also through the Norwegian Digitalisation Agency. In an interview, the Norwegian Digitalisation Agency states that they see a need for a more unified interpretation of legislation concerning the development and use of AI. In National Audit Office of Norway's assessment, the challenges that a large number of government agencies face in their work with personal data indicate that there is a particularly strong need for guidance in this area.

The establishment of the Norwegian Data Protection Authority's regulatory sandbox in 2020 was an important initiative for assisting government agencies and others to enhance their understanding of the regulatory privacy requirements. Enhanced knowledge will shorten the time from the development and testing to the actual deployment of AI solutions. The solutions deployed after having participated in the sandbox were meant to serve as leading examples. On the surface level, the sandbox seems to have been a good initiative. It provides learning both for the participating agencies and for the Norwegian Data Protection Authority. However, our investigation shows that since the sandbox was established in November 2020, only five governmental projects have participated. There have been relatively few applicants for the scheme, and the Norwegian Data Protection Authority also lacks the capacity to manage more projects than it currently does. In interviews with two of the government agencies that participated in the sandbox, it also appears that they have contrasting experiences from the participation. One of them found the process less positive, because no answer was given to the question that the project sought to clarify. The other project found the participation positive, but nevertheless encountered larger, fundamental questions that could not be answered within the scope of the project. Even though participation can provide a learning opportunity for the individual project, it seems to be a challenge for the sandbox to communicate important lessons to others and ensure that they are used by other AI projects for the further development and clarification of legal questions. In the opinion of the National Audit Office of Norway, it is also hard to see that the projects that have participated in the sandbox have served as leading examples for other projects and reduced the time from testing to full deployment of AI projects.

In its consideration of Report to the Storting no. 30 (2019−2020), the Standing Committee on Local Government and Public Administration underlined the importance of the Government's efforts to ensure that Norway develops a world-class AI infrastructure, including a digitalisation-friendly

The regulatory sandbox

The objective of the Norwegian Data Protection Authority's regulatory sandbox is to stimulate privacy-enhancing innovation and digitalisation. The sandbox is meant to assist individual actors comply with the legislation and develop solutions that safeguard privacy. The sandbox offers free guidance to selected private and public undertakings of varying types and sizes, across different sectors.

Source: The Norwegian Data Protection Authority

legislation. The National Strategy for Artificial Intelligence also sets out that the Government should review and assess legislation that is hindering the appropriate and desired use of AI in the public and private sector. The investigation shows that such a review has not been carried out. The Ministry of Digitalisation and Public Governance states that the need for a review must be assessed by the ministries and government agencies themselves and that the strategy does not call for a broad review and assessment of the legislation. In the summer of 2023, as part of the preparation for the AI Act, the Government appointed a fast-track working group chaired by the Ministry of Justice and Public Security. The working group's mandate was to draw up a plan to implement the EU AI Act into Norwegian law and to assess any national needs for regulation (civil sector) beyond the EU Regulation. The legal working group has been maintained for the purpose of working on other issues relevant across ministries. Adaptations to the EU Regulation alone will not solve the apparent uncertainty across sectors and government agencies surrounding the use of the current overall legislation. In the National Audit Office of Norway's assessment, the Ministry of Digitalisation and Public Governance has not sufficiently fulfilled its overarching role by contributing to developing framework conditions that support the digitalisation in and across the various sectors.

4.2.2 Inadequate infrastructure and access to high-quality data

Access to large quantities of high-quality data is often an important prerequisite for developing efficient AI systems. This may include data both from the government agencies itself and from other government agencies. The data must be of sufficient quality and quantity to enable machine training before a system can be deployed. Access to data is also necessary to validate purchased AI models and to calibrate and continuously monitor existing models. The potential for streamlining with the aid of AI lies in the possibilities of utilising both existing and new data.

For several years, the principle of "order in one's own house" has highlighted that high-quality data is of particular importance in the efforts to digitalise the public sector, cf. Report to the Storting no. 27 (2015−2016) *Digital Agenda for Norge* [Digital agenda for Norway]. Moreover, through the Digitalisation Circular government agencies are required to ensure high-data quality, which is also highlighted in the National Strategy for Artificial Intelligence.

The investigation shows that inadequate access to high-quality data can hinder the development and use of AI. Approximately half of the respondents to the National Audit Office of Norway's survey stated that inadequate access to data and low data quality has been a challenge in the work on AI. Limited access to high-quality data can be due to several factors. Some government agencies do not have high-quality internal data. Other government agencies have a lot of data, but they are not necessarily digital or accessible in a common system where the data can be used for developing AI models. Whether access to data is a problem can also depend on the government agency's level of ambition. Complex models using multiple sources, such as images and text in addition to structured register data, require much larger data sources than for instance a simple accounting bot.

Furthermore, several government agencies do not have the infrastructure to store or handle large datasets for analyses. They point to e.g., the significance of modern data warehouses and analysis platforms in order to develop and adopt AI. Some health trusts also point to the lack of infrastructure between the systems in the hospitals as a challenge in the work with AI. The investigation shows that inadequate digital infrastructure leads to delays in the work of developing AI models, lowers the quality of the solutions and generates higher costs.

For small government agencies in particular, it can be expensive to invest in various digital solutions required for the development and use of AI. Several government agencies are in this context calling for shared digital solutions and access to cloud solutions. The National Audit Office of Norway notes that according to Skate, there are major synergies to be gained through greater interaction across agencies with shared solutions and the chance to save resources.[21] In addition, the Norwegian National Security Authority's concept study for a national cloud service has pointed out that being dependent on foreign cloud services renders some data types and IT systems vulnerable, and recommends to the Ministry of Justice and Public Security that a national cloud service for Norway is established.[22] However, the National Audit Office of Norway notes that there is disagreement about the best approach for establishing a national cloud solution, in part because several government agencies have already invested in commercial cloud services.

In an interview, the Ministry of Digitalisation and Public Governance points out that Sigma2 is a shared High-Performance Computing (HPC) infrastructure for the research environment. The Ministry states that the goal is for this solution to be utilised more extensively by sectors beyond just research and education.

In the opinion of the National Audit Office of Norway, it appears that the lack of common solutions, such as the possibility to store and analyse large datasets, can weaken the efficiency of AI development efforts. Improved access to necessary infrastructure could also strengthen the technological maturity throughout the public sector.

A lack of data sharing across government agencies could be another reason why the access to data is inadequate. For data sharing to work, each government agency must make their own data accessible in a way that others can use the data in an appropriate manner. According to the Ministry of Digitalisation and Public Governance, each individual government agency must take responsibility for the quality of their own data. The establishment of the National Data Catalogue and other initiatives by the Norwegian Digitalisation Agency have made a positive contribution to greater sharing of open data. However, it is estimated that only a quarter of the government agencies that are subject to the Digitalisation Circular satisfy the requirements for sharing data in the National Data Catalogue and reusing the information. In this context, we also refer to our findings regarding

Skate

The director-level body Skate, which in Norwegian stands for Management and coordination of services in e-government, is a strategic collaboration forum and advisory body for the Norwegian Digitalisation Agency and the Minister of Digitalisation and Public Governance. Skate contributes to a coordinated digitalisation of the public sector, generating gains for citizens, the industry, the voluntary sector and government agencies.

Source: The Norwegian Digitalisation Agency.

[21] Skate's experience report for 2023.
[22] The Norwegian National Security Authority (2023) *Konseptvalgutredning for nasjonal skytjeneste* [Concept study for a national cloud service] https://nsm.no/regelverk-og-hjelp/rapporter/konseptvalgutredning-for-nasjonal-skytjeneste

challenges related to data sharing in the public sector and a lack of registration in the National Data Catalogue, reported in Document 3:8 (2023−2024) *Riksrevisjonens undersøkelse av myndighetenes tilrettelegging for deling og gjenbruk av data i forvaltningen* [The National Audit Office of Norway's investigation of how the authorities facilitate sharing and reuse of data in the public administration]. Furthermore, the National Data Catalogue should only contain open data and facilitate the sharing of closed datasets through metadata. The actual access to closed datasets with e.g. personal data requires other solutions. Once more, the National Audit Office of Norway refers to Document 3:8 (2023−2024). According to this report, the public sector possesses a wealth of data that is not shared or reused, and many government agencies lack an adequate overview of their own data. The report also concludes that the lack of clarification or late clarifications of legal issues prevents government agencies from sharing and reusing data.

In the opinion of the National Audit Office of Norway, limited access to high-quality data, often related to inadequate infrastructure and weak data management systems, causes challenges in the work with artificial intelligence. The sectors have an independent responsibility for the quality of their data and for ensuring that open data are of a quality that can easily be shared with other sectors. Given the challenges related to limited access to high-quality data, the National Audit Office of Norway finds that compliance with the requirements for data sharing and, in particular, for "order in one's own house" is not being sufficiently followed up in the government agencies. In the National Audit Office of Norway's assessment, this could have consequences for the public sector's opportunity to develop and harness the potential of AI.

4.2.3 Strong need for competence

The investigation shows that one of the greatest challenges with developing and using AI is the lack of competence, often IT-related expertise, but also legal competence. There is also a need to raise the competence on the risk of discrimination when using AI, and different professionals within each government agency must collaborate more effectively. Some major agencies such as the Norwegian Tax Administration, Nav and the health trusts, in addition to some medium-sized government agencies such as the Norwegian Public Service Pension Fund, have made an effort to establish environments with the competence to work with artificial intelligence. However, several government agencies have neither the capacity nor the resources to employ more people with the necessary digital competence. Many government agencies are dependent on hiring consultants to develop and use AI. In such cases, procurement skills are important, as well as facilitation of the necessary knowledge transfer.

With regard to the challenges with technical expertise, the National Audit Office of Norway notes that Report to the Storting no. 14 (2022−2023) *Outlook on the skills needs in Norway* states that the authorities and the universities and university colleges in Norway have a shared responsibility for scaling education programmes – partly based on particular labour requirements. The demand for IT competence is expected to grow in the years leading up to 2030.

Nevertheless, technical expertise, across subject areas such as IT and law, is just part of the challenge related to insufficient competence. Another aspect is the lack of competence among managers and decision-makers: In order for AI projects to succeed and deliver benefits, changes in the public agency's processes and good change management are often necessary. The investigation shows that insufficient internal embedding of the project, unrealistic expectations from users or management and resistance in the organisation to changing existing processes or work structures are some of the challenges in the efforts to develop AI.

4.2.4 Important to have language resources in Norwegian

In order for Norwegian citizens to benefit from more advanced AI services in their own language, it is crucial that there are quality language resources in both the written standards (Bokmål and Nynorsk) and in Sámi. Pursuant to the Act relating to Language, government agencies have an obligation to use, develop and strengthen Bokmål, Nynorsk and Sami languages, which also applies for digital communication using new AI solutions.[23] With the use of AI, it is for instance possible to make the work of translating and writing texts and analysing the contents of large sets of documents more efficient. When developing these types of solutions for Norwegian and Sámi written standards and dialects, the technology must be adapted to these languages and the local circumstances. Language technology, as a tool for voice recognition and language understanding, is therefore an important component of AI. However, the development of AI is being led by international technology companies, which do not necessarily take Norwegian language and social conditions into account.[24]

A key prerequisite for training the language models is access to large quantities of language resources. According to the National AI Strategy, the Government will facilitate for language resources to be collected and made available.

The use of generative AI based on language models has increased significantly since the launch of the openly available ChatGPT in November 2022[25]. As mentioned, there are many possible areas of application in the public sector. However, the foundation models for these AI tools are almost exclusively based on and developed by a handful of global private companies without any connection to the Norwegian language, social conditions and values.

The National Audit Office of Norway notes that according to the Ministry of Culture and Equality, more work needs to be done to secure language data for use in AI and other areas, and several factors in this connection point towards facilitating a common Norwegian AI infrastructure. Both intellectual property rights and access to computing power are challenges in the work of securing language resources.

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[23] Letter of 19 February 2024 from the Ministry of Culture and Equality.
[24] Letter of 19 February 2024 from the Ministry of Culture and Equality.
[25] See e.g., the Norwegian Board of Technology (2024). *Gjennombruddet for generativ kunstig intelligens – en tidslinje* [The breakthrough for generative AI – a timeline]. Online article

4.3 The ethical principles for the responsible use of AI are observed to varying degrees; Control mechanisms ensuring the responsible use of AI must be in place

The Standing Committee on Local Government and Public Administration has stated that it is of particular importance that the authorities have the necessary control and regulate the use of AI to safeguard privacy.[26] The basis for this is a responsible and trustworthy development and use of AI. The starting point for the Government's National Strategy for Artificial Intelligence is that AI in Norway shall be based on the ethical principles developed by the European Commission's Expert Group on AI.[27] The responsible use of AI is thus tied to requirements for privacy, equality, technical safety and robustness, transparency and responsible governance. This involves complying with privacy regulations, monitoring the AI system to identify any errors or biases and being able to explain how the algorithms work and make decisions, amongst other things. By following up the ethical principles and assessing measures, the public sector can develop and use AI in a manner that benefits society, respects individual rights and meets ethical standards.[28]

Much of AI's potential for improving productivity is based on the automation of work processes. Where AI is used in connection with automated administrative procedure, key principles related to the rule of law may be challenged, and it is crucial to have both sufficient knowledge about administrative law when developing the system, and technological expertise when inspecting the administrative procedure and decisions.[29] AI systems that are in contact with citizens, such as systems based on language models that offer personalised guidance on administrative procedure, require competence among the population and clarified liability in the event of errors due to misunderstandings in the communication with the AI system. AI systems that learn from data can sustain and amplify historical biases or change performance or practice over time. Furthermore, with advanced machine learning models, it can be challenging to find a good explanation as to why the system acted or concluded in the manner it did, making it difficult to ensure transparency and explicability and thus an auditable administrative procedure, to safeguard the right of redress.[30]

The importance of checking the AI system's output is for instance highlighted in the EU AI Act, which mandates all high-risk AI systems to be set up so that humans can effectively oversee the system.[31]

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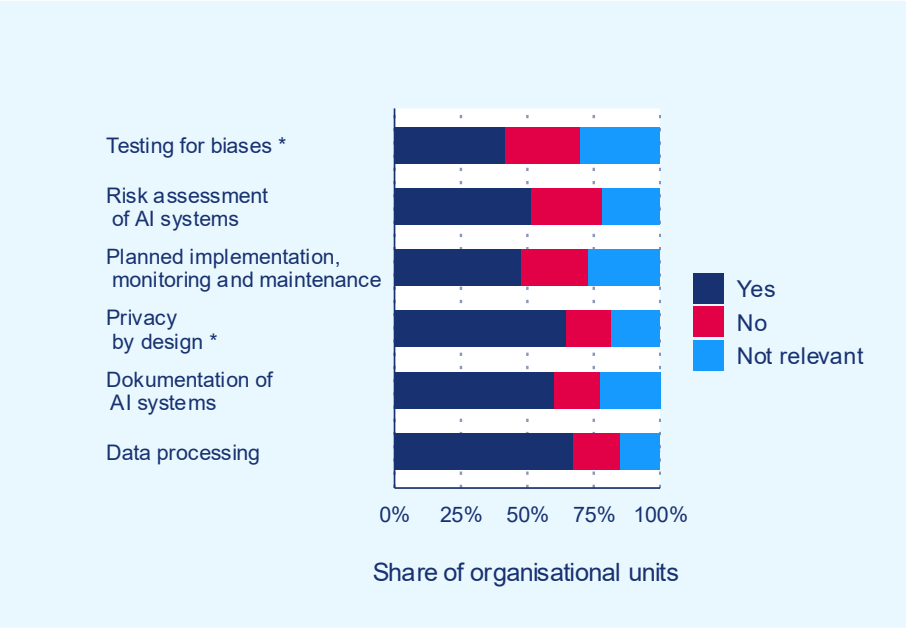
[26] Recommendation 191 (Resolution) (2020–2021).
[27] Independent High Level Expert Group on Artificial Intelligence set up by the European Commission (2019): *Ethics guidelines for trustworthy AI*
[28] The Ministry of Local Government and Modernisation (2020), National Strategy for Artificial Intelligence
[29] The Parliamentary Ombud for Scrutiny of the Public Administration. (2020). *Årsmelding for 2019. Dokument 4 (2019–2020)* [Annual report for 2019. Document 4 (2019–2020)].
[30] The Parliamentary Ombud for Scrutiny of the Public Administration. (2020). *Årsmelding for 2019. Dokument 4 (2019–2020)* [Annual report for 2019. Document 4 (2019–2020)].
[31] European Parliament (2024). *Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts*, Final draft (2024), Article 14

The investigation reveals a varying degree of maturity as to how the government agencies adhere to the ethical principles that constitute the responsible use of AI. This applies both to the government agencies' framework for ensuring the responsible development and use of AI and in the practical work of developing and using AI models.

An important part of regulating the development and use of AI is that the government agencies establish a framework of policies and procedures to ensure the responsible use thereof. Documentation of decisions, trade-offs and results in the development process and in use is an important part of the responsible use of AI. This contributes to building trust and ensuring that the AI systems operate within the ethical frameworks.[32]

The investigation shows that the government agencies' frameworks for ensuring the responsible use of AI adhere to the ethical principles to varying degrees. This is for instance evident in the responses to the survey the National Audit Office of Norway sent to contact persons responsible for AI systems in government agencies. One of the questions posed, was whether, on a general level, written policies or similar documents were used in the development of AI systems. The responses are summarised in figure 3.

Figure 3 Use of written guidelines or policies in the development of AI systems



Source: The National Audit Office of Norway's survey (n = 104 respondents, aggregated to 82 organisational entities).

** Responses regarding guidelines for privacy by design and testing for biases in the AI system's output are only shown for government agencies with at least one AI system that uses personal data.*

[32] The Ministry of Local Government and Modernisation (2020), National Strategy for Artificial Intelligence

The survey shows that the governing documents used focus more on requirements for security, robustness and privacy and less on requirements for equality, explicability and transparency. For instance, Figure 3 shows that more than 60 per cent state that they have used governing documents for data processing and privacy by design when developing AI. Less than half have used governing documents that satisfy requirements for e.g. equality, such as testing for biases in the output of AI systems using personal data.

Figure 3 also shows that the majority of the government agencies use standards for documentation of AI systems. The degree to which the contents of these take the ethical principles into account varies. For the majority of government agencies that have standards for documentation, these cover data sources and data processing, while less than half include explicability of the AI system's results. We have conducted case studies of four selected AI projects. The review of these cases shows similar weaknesses in the documentation of the AI systems. For instance, the documentation does not clearly state which choices that have been made when developing the AI model, and why one AI model has been chosen over others. In this context, one of the AI projects from the case study calls for common templates to be used in AI development, based on factors such as risks related to AI, including what *not* to do or document. According to the project, this could make the work with AI in the government agencies significantly more efficient and could open the door to more AI-related innovation in small and medium-sized government agencies.

There are a number of risks and issues that particularly apply to the development and use of artificial intelligence and the observance of the ethical principles, such as how personal data is processed, equality, the ability to explain why the AI system acted or concluded in the manner it did (explicability) and the algorithm's reliability over time. The review of the government agencies' policies for risk assessment, which the National Audit Office of Norway has collected from those government agencies that work with advanced AI systems, shows that they are designed in a general way and that the degree to which they cover the risks associated with the responsible use of AI varies. The guidelines largely address general risks related to the security and readiness of IT equipment, and to varying degrees cover the specific risks associated with automation and data-driven learning in AI systems. The systematic manipulation of input data, unintentional shifts in accuracy over time and biases that could lead to discrimination are only somewhat covered by these guidelines. It therefore varies whether the policies enable the government agencies to uncover risks associated particularly with the ethical principles for the responsible use of AI.

The varying degree of observance of the ethical principles is also evident from how the government agencies work with AI. In our survey, the majority of the government agencies confirmed that they work with safety and robustness, whereas a lower share made similar affirmations regarding transparency and equality. For instance, more respondents confirmed that they test for weaknesses against cyberattacks than that the AI system justifies its decisions or results.

The ethical principles for the responsible use of AI

In the investigation, the ethical principles are summarised as *privacy, equality, transparency, technical safety and robustness* and a project management that ensures the observance of these principles throughout the life cycle of the AI system (*governance and accountability*).

In order to investigate the degree to which the requirements related to the ethical principles are being followed up and observed in the management of the AI systems, the National Audit Office of Norway carried out a case study of four AI systems. The four selected systems have different purposes and operate under different framework conditions. The four AI systems in the study are being used as decision support systems in administrative procedures or medical diagnostics. Three of the AI systems have been developed by the public agency itself, while one has been procured from a supplier. The study of the AI systems shows that the guidelines regarding the responsible use of AI are observed to varying degrees.

The selected AI projects have undertaken the most activities to ensure safety, robustness, and privacy, while fewer activities have been undertaken to ensure equality, explicability and openness.

Two of the AI systems which were developed by the government agencies themselves, process and use personal data in accordance with the privacy legislation. For example, they assess which information can be used in line with the privacy principles. The work with privacy in AI systems is perceived as both time-consuming and resource-intensive. All four AI systems provide information internally regarding function, performance and quality and inform external users that AI is being used in the government agency. However, the degree to which the decisions and outcomes of the AI systems can be explained varies. Equality has been assessed on a general level in the development of the four AI systems in the case study. Few tests have been conducted to check for biases in the AI system’s input data or outcomes in order to avoid unjustified discrimination. No analyses have been carried out to explore whether the AI systems work just as well for different groups of people. The AI projects are based on the premise that equality is ensured by everyone being subject to the same calculations in the AI system and by a human decision-maker always being involved. However, there is also a risk of discrimination when the AI systems are used as decision-making support and not just in autonomous systems.

In the National Audit Office of Norway’s assessment, the government agencies that develop and use AI have only in part established comprehensive frameworks for the responsible use thereof. The government agencies are at different stages in the development of frameworks to ensure the responsible use of AI. In practice, the ethical principles are also observed to varying degrees when developing and using AI. In the National Audit Office of Norway’s opinion, the shortcomings in the government agencies’ frameworks and in how they develop and use AI may indicate that the work related to equality, explicability and transparency is not sufficiently systematic. Furthermore, the identified shortcomings in the government agencies' frameworks may lead to certain risks associated with the development and use of AI being overlooked or inadequately assessed. At the same time, the government agencies find that issues related to ensuring the responsible use of AI can serve as barriers to the use and development of AI systems. In the National Audit Office of Norway’s assessment, there is a lack of knowledge and support for government agencies to better safeguard equality, transparency, and explicability in their work with AI.

These shortcomings entail a risk that the ethical principles for AI may not be observed.

4.4 The coordination of AI-related efforts in the public sector is inadequate, and the overall efforts are insufficient given Norway's ambition of having world-class AI infrastructure.

In its consideration of Report to the Storting no. 30 (2019−2020), the Standing Committee on Local Government and Public Administration underlined the importance of the Government's efforts to ensure that Norway develops world-class AI infrastructure, in the form of digitalisation-friendly legislation, good language resources, fast and robust communication networks and sufficient computing power. These overriding objectives have been incorporated in the 2020 National Strategy for Artificial Intelligence. The strategy includes 51 measures that the Government sought to implement.

The Ministry of Digitalisation and Public Governance reports that most of the measures in the strategy have been carried out or initiated, but that no systematic evaluation has been carried out of the implementation of the strategy. Furthermore, there is no overview of the use of AI in the central government. In the National Audit Office of Norway's opinion, the Ministry of Digitalisation and Public Governance thus possesses only limited information regarding the development and use of AI within the public sector. There is an incomplete overview of AI projects in the public sector which has been drawn up on the initiative of several Norwegian institutions for higher education and research (known as NORA) and later in cooperation with the Norwegian Digitalisation Agency. However, there are no plans to systematically update this mapping.

The Ministry of Digitalisation and Public Governance states that the current National AI Strategy does not include a financial commitment to AI. However, the Ministry emphasises that it is a political objective to utilise AI to improve public sector efficiency and create value in society. The National Audit Office of Norway notes that the Minister of Digitalisation and Public Governance set a goal in the spring of 2024 of significantly increased use of AI in the public sector.

The Ministry underlines that even though it is responsible for the coordination of the digitalisation efforts in government, the sector principles apply, meaning that each sector is responsible for the development and use of AI within their own area of responsibility. However, the Ministry can facilitate the use of AI through general measures – in particular through educational measures such as guidance. The guidance efforts are primarily undertaken by the Norwegian Data Protection Authority and the Norwegian Digitalisation Agency.

The Norwegian Digitalisation Agency is the Government's primary tool for the efficient and coordinated digitalisation of the public sector and society at large. The Digitalisation Agency's only task related to the follow-up of the

NORA

Norwegian Artificial Intelligence Research Consortium (NORA): A Norwegian collaboration between eight universities, five university colleges and five research institutes in the fields of AI, machine learning and robotics.

Norwegian AI Strategy was to draw up a guide on the responsible use of AI in the public sector. The guidance material was published in 2023 and can be found on the Digitalisation Agency's website. The guidance material is described as being 'under development' with a request for input. The guide is at a general level, with links to more detailed material where available, from e.g., the Norwegian Data Protection Authority and the Equality and Anti-Discrimination Ombud. There is little concrete guidance on how the ethical principles can be observed in practice. For instance, there is no harmonised method for uncovering algorithm bias.[33] Given this and the identified shortcomings in the government agencies' efforts with responsible AI, the National Audit Office of Norway finds that there is still a strong need for concrete guidance in order to ensure that the overarching guidelines on the responsible use of AI are being observed.

Individual AI projects can receive more concrete guidance on legal questions via the Norwegian Data Protection Authority's regulatory sandbox. As shown earlier, only five central government projects have participated since the sandbox was established in November 2020. The external evaluation also shows that the sandbox has potential for improvement with regard to developing and disseminating insights across projects.

According to the Ministry of Digitalisation and Public Governance, its proactive role on AI entails identifying cross-cutting needs and establishing common solutions across sectors. It also means working to ensure better coordination in the event of identified needs. The National Audit Office of Norway notes that the Ministry of Digitalisation and Public Governance[34] established an cross-ministerial working group for AI as early as 2018, which was extended with a new mandate in the spring of 2024. All ministries are represented in the extended working group. The purpose of the working group is to ensure better coordination and exchange of information in the field of AI. The National Audit Office of Norway notes that the working group generally does not discuss challenges related to the development or use of AI in subordinate agencies and undertakings. The National Audit Office of Norway finds that the Ministry of Digitalisation and Public Governance's use of the forum has largely been limited to facilitating information exchange across ministries. Information sharing is key, but it is not in itself a sufficient measure to ensure good coordination. The National Audit Office of Norway furthermore notes that the working group will be kept on and used in the work with the forthcoming new national digital strategy.

In an interview in the spring of 2024, the Ministry of Digitalisation and Public Governance stated that it now recognises the need for competence and guidance as a shared issue. The Ministry states that the sector legislation differs, but is also uncertain about the degree to which it should engage with each specific sector and the relevance of issues in one sector to others. The

[33] Algorithm bias means that the algorithm does not work equally well for everyone, causing the AI system to systematically make more mistakes for one group of people than for others, e.g., that the system is less accurate for some groups of people than for others. (The Norwegian Data Protection Authority (2023). Ahus, exit report: *Hjerterom for etisk AI* [A good heart for ethical AI]. https://www.datatilsynet.no/en/regulations-and-tools/sandbox-for-artificial-intelligence/reports/ahus-exit-report-a-good-heart-for-ethical-ai/)

[34] Formerly the Ministry of Local Government and Modernisation.

National Audit Office of Norway wants to point out that all these issues have been central themes for a number of years.

Each government sector and agency have to assess whether and to what extent AI is a technology that should be used to e.g., improve and streamline their own task performance. At the same time, the National Audit Office of Norway believes that cross-sectoral measures are key to ensuring a good common infrastructure for AI. In the National Audit Office of Norway's opinion, the development cannot be left up to the individual sector and ministry.

Some basic prerequisites must be in place in order to succeed, such as ensuring high-quality data and reliable data sharing, technological infrastructure and competence. Sound national and sectorial common solutions could be an important contribution to this work. It is also important to ensure a mutual understanding of and approach to legal questions concerning privacy. The investigation shows that in these areas, there are challenges that prevent the public sector from using AI to a greater extent. The National Audit Office of Norway also notes that it is unclear how the ethical principles can be safeguarded in practice. This includes what algorithmic bias can lead to, and the personal data required in order to test for and prevent discrimination with AI. In the National Audit Office of Norway's opinion, there are several key issues related to the development and use of AI that are currently left too much to the discretion of each individual government agency and sector.

Given the immense potential of AI and the identified challenges related to the development and use of AI in government, the National Audit Office of Norway finds that the Ministry of Digitalisation and Public Governance has not sufficiently fulfilled its role as the coordinating ministry for facilitating the use of AI. The Ministry of Digitalisation and Public Governance ensures information sharing on AI at a general level, but few measures have been implemented to solve the overarching challenges related to the development and use of AI. Even though all sectors and ministries have a responsibility to ensure goal attainment in this area, Norway will not be able to have a world-class AI infrastructure without a clear and jointly coordinated effort. In the National Audit Office of Norway's opinion, this cannot be left up to each individual sector.

The National Audit Office of Norway therefore finds that it is unsatisfactory that the Ministry of Digitalisation and Public Governance has inadequately facilitated the public sector's ability to harness the potential of AI and its responsible adoption through governance and in cooperation with the other ministries. In the National Audit Office of Norway's opinion, a mere continuation of the current coordinating activities will not ensure that the immense potential for the use of AI within a responsible framework is harnessed by the public sector. The overall efforts are insufficient given Norway's ambition of having world-class AI infrastructure.

5 Recommendations

The National Audit Office of Norway recommends that the Ministry of Digitalisation and Public Governance strengthen its proactive and coordinating role to actively stimulate and facilitate the responsible use of AI in the public sector through cooperation with other ministries by

- further developing the range of available policy instruments to ensure that the basic prerequisites for the responsible use of AI are in place, such as adequate digital infrastructure, common digital solutions, access to high-quality data and relevant interdisciplinary competence;
- contributing to regulatory clarifications and a unified interpretation of the legislation related to the development and use of AI;
- ensuring a unified understanding of the ethical principles and guidance as to how the principles can be safeguarded in practice in the development and use of AI.

6 The Minister's response

Document 3:18 (2023−2024) The National Audit Office of Norway's investigation of the use of artificial intelligence in government was sent to the Minister of Digitalisation and Public Governance. The Minister's response is enclosed in its entirety in Appendix 2.[35]

7 The National Audit Office of Norway's statement on the Minister's response

The National Audit Office of Norway has no further remarks.

The case will be submitted to the Storting.

Adopted at the National Audit Office of Norway's meeting of 20 August 2024.

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[35] The appendices are only available in Norwegian.

Appendices