8 Artificial intelligence in the public sector

Norway has deployed artificial intelligence across its public sector to explore how it could help the sector become more efficient, effective, and innovative. As Norway seeks to expand its integration into the sector, it could aim for a more strategic and coordinated approach to AI that ensures that its use is effective, responsive, efficient, and accountable.

Like many countries, Norway is increasingly focussed on how to leverage artificial intelligence (AI) to make its public sector more efficient, effective, and innovative. Its application spans the full scope of public sector delivery, from the automation of tasks to improve operations, to delivering more personalised and human-centred government services, and to deriving key insights from large datasets to inform policymaking and improving accountability. However, countries need to take the right approach to adopting AI technologies to ensure its use is effective, responsive, efficient, and accountable.

Norway has made progress in its adoption of AI, having taken steps to develop the right governance and strategy, to set appropriate guardrails for its use, to implement solutions to support a broad range of agencies, and to provide oversight of the use of AI across the public sector. However, there are still some remaining challenges that Norway could overcome in its implementation of AI, including policy levers for algorithmic transparency, a more whole-of-government approach to delivery, and broader performance monitoring, audits, and impact assessments to maintain accountability.

Progress to date

In the 2023 DGI, Norway scored 55% overall for AI, compared to the average score of 54% amongst the OECD countries. Although this result appears relatively low, Norway in fact performed strongly in many of the elements of effective AI adoption across the policy lifecycle including strategic approach, policy levers, and monitoring. By having maturity in these key areas, the Government demonstrates that it is heading in the right direction for the effective, responsive, efficient, and accountable use of AI, which is reflected by the existing use cases of AI across Norway's public sector.

Use cases of AI in the public sector

A recent non-exhaustive overview of AI projects in the public sector developed by Digdir and NORA.ai in March 2023 lists 178 projects across different policy areas, stages of development, and timeframes for implementation (Felles datakatalog, 2023[1]). Norway's registered AI projects are being developed in many policy areas and by different organisations. Table 8.1 below shows the owners with most registered projects and the departments to which they have been registered, which also serves as a proxy indicator of their sector or policy area. Even though 58 different organisations have registered AI projects, 60% of projects are concentrated in the 12 organisations shown below. For instance, the National Library has been developing language models trained on Norwegian texts from the last 200 years and making them publicly available, in order to foster further AI developments in the country. Thematically, around 31% of projects belong to health and care, 19% to industry and trade, and 12.4% to culture and equality, while 13% have no information.

Table 8.1. Owners and departments of AI use cases in Norway (2023)

Owner	Number of projects		Department	Number of projects
National Library AI Lab	13		Ministry of Health and Care Services	55
Posten Norge (Postal Service)	13		Ministry of Trade, Industry and Fisheries	34
Ruter (Oslo's public transport system)	13		*No information*	23
The Norwegian Public Service Pension Fund	10		Ministry of Culture and Equality	22
Northern Norway Regional Health Authority	9		Ministry of Labour and Social Inclusion	13
Western Norway Regional Health Authority	9		Ministry of Education and Research	13
National Archives	9		Finance	6
Oslo Universe Hospital	9		Ministry of Transport	3
Health Middle	7		Ministry of Justice and Public Security	3
Trondheim Municipality	6		Ministry of Local Government and Rural Affairs	2

University of Oslo	5		Ministry of Petroleum and Energy	1
University of Bergen	4		Parliament	1
Others	71		Ministry of Climate and Environment	1
Grand Total	**178**		Foreign ministry	1
			Grand Total	**178**

Source: Author's own development, based on data from (Felles datakatalog, 2023[1]).

One of example of these projects was during the COVID-19 pandemic in Norway, where the Labour and Welfare Administration used a conversational AI called Frida to help citizens access social benefits 24/7, resolving 80% of enquiries without requiring the intervention of a civil servant. (boost.ai, 2023[2]) This helped improving the timeliness and precision of the assistance provided, a particularly important objective under the pandemic.

Norway's AI projects can also be classified according to operational characteristics. First, for a minority of projects specifying their operational status, most have already been implemented or ended, while less than half are in operation or planned to start by 2023. Second, most projects are being implemented at the central government level (61%) and just a few at state-owned companies (13%) or at the sub-national level (8%). Finally, most projects (56%) are developing their own AI models, showing that public sector organisations are acting more as developers rather than sole users of AI.

Table 8.2. Overview of the status, ownership, and development of AI use cases in Norway (2023)

Status	Number of projects		Type of ownership	Number of projects		Model development	Number of projects
No information	139		Central government activities	109		*No information*	58
Implemented	14		Other	31		No	20
In development	9		State-owned company	23		Yes	100
Ended	8		Local government sector	8		**Grand Total**	**178**
Pilot	3		Municipal activities	6			
Ongoing	2		State activity	1			
Planned	2		**Grand Total**	**178**			
In use	1						
Grand Total	**178**						

Source: Author's own development, based on data from (Felles datakatalog, 2023[1]).

Going forward, Norway has dedicated 1 billion NOK (or around USD 90 million) in funding over the next 5 years to research on AI and digital technologies shows how implementation has gained traction as a priority for the higher levels of government. (Ministry of Education and Research, 2023[3]) The initiative is financed within the framework of the Ministry of Education and Research, encompassing diverse priorities, including research on how digital technologies can be used for innovation in the public sector and the consequences of AI for society, democracy, trust, or ethics. Such concrete investment plans are a positive sign and commitment to the implementation of AI in the public sector and the implementation of concrete use cases.

Strategic approach to AI in the public sector

Norway is taking a strategic approach to governing the implementation of AI in the public sector, with a dedicated strategy and an institutional structure to support its implementation. The National Strategy for AI sets the ground for the coordinated development of this technology in the country. (Ministry of Digitalisation and Public Governance, 2020[4]) Originally, the former Ministry of Local Government and Modernisation oversaw the development of the AI Strategy, but more recently this function was moved to the newly-created Ministry of Digitalisation. At a more operational level, the digitalisation agency, Digdir, is

responsible for high-level oversight of AI projects in government and is developing technical guidance for public organisations.

In its AI strategy, the Government demonstrates an understanding of its role in setting the right basis for AI development by having in place good data availability[2], good language resources, fast and robust communication networks, and sufficient computing power. Public administration stands among the key areas where the country sees opportunity for investment. As part of its wider vision to rationalise and create better services using digital technologies, the Government sees AI as an opportunity to enhance public innovation. Among the relevant commitments on this topic, the Government is actively fostering collaboration and the exchange of best practices in central and subnational administrations and plans to potentially reintroduce a GovTech function for collaboration between start-ups and the public sector on AI.

Developing and using trustworthy AI that respects individual rights and freedoms is another relevant pillar of the strategy. On this aspect, the Government sets guiding ethical principles and commits to encourage their adoption across society and the public sector, including the expectation for the supervisory authorities to develop the necessary capabilities to ensure compliance with the principles (discussed further in the following subsection).

The development of the AI strategy was supported by a public consultation with inputs from a wide variety of actors, including other public sector institutions, as well as external stakeholders such as business, academia, civil society, GovTech community, and representatives of under-represented groups. (Ministry of Digitalisation and Public Administration, 2019[5]) Having a public consultation in place with participation from a wide variety of actors increases the collective ownership of the instrument, as well as its legitimacy and representativeness.

Policy levers for the responsible use and development of AI

Norway is using key policy levers to set the guardrails required for the responsible use and development of AI in its public sector. Through its AI strategy, Norway has adopted seven key requirements that AI systems should meet to be deemed trustworthy. These requirements are the same issued by the High-Level Expert Group on AI set up by the European Commission in 2019 and can be comparable to the five AI Principles set by the OECD. (European Commission, 2019[6]) As a complement to these principles and as part of the commitments set out by the Strategy, the digital agency, Digdir, released an 'open beta' Guide to Responsible Use and Development of Artificial Intelligence to provide concrete and actionable advice to public organisations. (Digdir, 2024[7]) Open beta means that the guide is permanently evolving according to users' feedback and normal technological and regulatory development.

Beyond these instruments, Norway shows an open and iterative approach to new regulations. For instance, the regulatory sandbox of the Data Protection Authority was designed to explore privacy challenges of innovative solutions, mainly AI, in the public sector. (Datatilsynet, 2024[8]) In its 5th round in November 2023, 3-4 projects were expected to be added to the 12 projects that were either ongoing or finalised. Most of the new projects are concerned with the legality and ethics of using generative AI or language models in different areas. (Datatilsynet, 2023[9])

Monitoring Norway's AI policies and implementation

Norway has multiple public organisations contributing to monitoring AI policies and use cases. In response to the rise of AI, Norway has adopted as an approach the extension of responsibilities of existing agencies or directorates to encompass AI-related issues, rather than establishing new entities. This approach is

[2] For further information see the Government's policy for value creation using data as a resource, https://www.regjeringen.no/en/dokumenter/meld.-st.-22-20202021/id2841118/?ch=1

considered more cost-effective and aligns with existing professional environments, fostering synergies. For instance, the Data Protection Authority's mandate covers the country's data protection law (based on GDPR), the Equality and Anti-Discrimination Ombud covers the laws on discrimination and inclusion[3], and the Auditor General of Norway (Central government) and the County Governors (local and county level) oversee the rule of law and transparency in public sector decision making. These three legal areas apply to the use of AI in the public sector.

The Office of the Auditor General (OAG) is additionally developing more specific capabilities and plans for AI policy monitoring. Since 2023, it has started auditing the use of AI in the central government as part of its pipeline of new performance audits. (Riksrevisjonen, 2023[10]) Additionally, in its Strategic Plan 2018-2024, the OAG also envisions using AI for service delivery, pointing that "problem solving will become more automated, and the use of [AI] will gradually take over tasks in both the public administration and the OAG". (Office of the Auditor General, 2028[11]) These efforts are aligned with the international work developed by the OAG in increasing oversight capabilities of by non-executive branches of government (e.g., judiciary and parliament) and accountability institutions (e.g., access to information agencies, data protection agencies, ombudspersons, audit offices) over the development and use of AI within the public sector4. Table 8.3 summarises the monitoring functions developed by the OAG and other previously mentioned monitoring organisations in Norway, comparing them to the OECD average.

Table 8.3. Regulatory oversight and ethical advice of AI (based on 2023 DGI)

Types of oversight or advice on AI provided by the responsible body	Norway's score	OECD average score
Procedural guidance (e.g., guidelines, standards, codes of conduct, collective agreements)	100%	55%
Ethical oversight and monitoring (e.g., AI councils, data ethics bodies)	100%	45%
Educational guidance (e.g., capacity awareness building, inclusive design, training)	100%	42%
Regulatory oversight, legal enforcement, or compliance	100%	42%
Auditing conducting by National Supreme Audit Institutions (SAIs)	100%	6%
Technical guidance (e.g. toolkits, documentation, technical standards)	0%	39%
Reporting frameworks (e.g., algorithmic impact assessments)	0%	15%
Internal auditing	0%	9%
Other	0%	6%

Source: (OECD, 2024[12])

Remaining challenges

The AI efforts developed by Norway show a good level of maturity, with a balanced coverage across the different stages of the policy cycle. However, there are some remaining challenges, particularly with policy levers for algorithmic transparency, a more whole-of-government approach to implementation, and with its monitoring and evaluation of AI.

Policy levers for algorithmic transparency

To build more sound policy levers and guardrails for AI in the public sector, Norway could enhance its digital maturity by further developing algorithmic transparency initiatives. This improvement could involve

[3] See for instance, the Equality and Anti-Discrimination Act: https://lovdata.no/dokument/NLE/lov/2017-06-16-51

[4] See for instance, "Auditing machine learning algorithms", a white paper for public auditors released by the Supreme Audit Institutions of Finland, Germany, the Netherlands, Norway and the UK: https://www.auditingalgorithms.net/.

implementing the provisions of the EU AI Act to support public sector institutions in better communicating how and why they use algorithm tools. Additionally, establishing an open algorithm register or an equivalent platform showcasing detailed information of the algorithms used by different public sector institutions could contribute to transparency[5]. There are relevant initiatives building up towards this objective. On the first category, Digdir's AI Guide does address and encourage openness, meaning the ability to explain how an AI model has reached a decision, and it also guides when current regulation requires some degrees of transparency. (Digdir, 2024[13]) However, a specific requirement for algorithmic transparency is expected to come with the European Union's upcoming AI Act[6]. On the second category, there is no public algorithm register, although the overview of AI projects in the public sector developed by Digdir and NORA.ai is a first step towards such degree of explainability. (Digdir, 2024[14]) It is worth noting that that there are limited international benchmarks for this, but the Government could refer to the Algorithm Register of the Netherlands[7] and Canada's required publication of completed Algorithmic Impact Assessments[8], which provides public information for each automated system used to make or support administrative decisions.

Whole-of-government approach to implementation

Under the current approach to implementing of AI projects in the public sector, each public organisation is granted autonomy for the development of a wide variety of use cases across many fields. Looking ahead, Norway could consider establishing a whole-of-government approach that maintains the momentum for innovation seen in many organisations while also strengthening the capacity of central actors, such as in the Ministry and Digdir, to support AI use cases in prioritised policy areas. The implementation of the EU AI Act can be leveraged to streamline this process, especially through measures such as the establishment of common codes of conduct, transparency mechanisms, and the alignment of innovation-supporting measures with existing tools (e.g., AI regulatory sandboxes). This approach would also involve tracking and supporting the investment in AI systems, including through procurement processes and collaboration with other actors, such as GovTech entities.

Monitoring and evaluation of AI

Strengthening the central supervisory capabilities could improve the monitoring process of AI policies and use cases, not only in the executive but also in other branches of power, such as the supreme audit institutions. This improvement could provide better guidance and resources for public organisations to conduct regular internal audits and develop continuous performance monitoring and impact assessments. The purpose of such measures would be to maintain accountability and ensure that AI applications within the public sector align with pre-defined objectives.

[5] As a complement to and in coordination with the EU Database for High-Risk AI Systems foreseen under Article 60 of the AI Act.

[6] See in particular Article 13, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52021PC0206

[7] See: https://algoritmes.overheid.nl/en

[8] See: https://www.canada.ca/en/government/system/digital-government/digital-government-innovations/responsible-use-ai/algorithmic-impact-assessment.html

Recommendations

Based on these findings, the Government could consider incorporating the strategic objective below into its new digitalisation strategy, which could be achieved by addressing the associated recommendations:

Strategic Objective: Artificial Intelligence (AI)

As it seeks to expand its integration into the public sector, Norway could aim for a more strategic and coordinated approach to AI that ensures that its use is effective, responsive, efficient, and accountable.

- **Recommendation 15:**

  The Government could formalise its guidance on the use of AI in the public sector in line with the provisions of the EU AI Act to drive the transparency and explainability of AI algorithms that are being used across the public sector.

- **Recommendation 16:**

  The Government could consider strengthening the monitoring and oversight of the portfolio of AI projects in the public sector and formalise its approach for pursuing new initiatives to maximise the impact of its investment. In line with Recommendations 5-6, this can be done through stronger oversight and evaluation of AI projects to maximise their collective impact and support their successful implementation.

- **Recommendation 17:**

  In coordination with the National Competent Authority under the EU AI Act and in alignment with its provisions, the Government could develop guidance and mechanisms for the monitoring and evaluation of the use of AI in the public sector. This may include regular internal audits, performance monitoring, and impact assessments.

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