

Digitalisation of the Public Sector

Key Results and Impact of the
Research and Innovation Initiative
2020–2024



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Introduction

In recent years, we've been in the midst of a technology-driven paradigm shift as profound as any in history. Demographic changes across Europe have created new service demands, raising questions about the public sector's capacity to meet them. At the same time, governments are facing increasing expectations from users to deliver more innovative and responsive services in real or near-real time.

The Nordic region has already for a number of years been digitally mature with regards to the public sector. However, it is a strong political imperative to further improve the efficiency, effectiveness, and governance of the digital transition of the public sector. In 2017, the Ministers for Nordic Co-operation addressed the need for the Nordic and Nordic-Baltic co-operation to leverage the potential of digitalisation with the ambition to support the region as a digital frontrunner. To accomplish this goal, they decided to establish a fixed-term council of ministers, MR-Digital, for the period 2018 to 2020.

Against this backdrop, NordForsk launched a Nordic-Baltic-United Kingdom [research and innovation initiative on digitalisation of the public sector](#) in 2019 to generate new knowledge useful to practitioners as well as policy-makers. The call was a collaboration between the Research Council of Norway, the Research Council of Finland, the Swedish Research Council for Health, Working Life and Welfare (Forte), the Innovation Fund Denmark, the Estonian Research Council, the Latvian Ministry for Education and Science, the Economic and Social Research Council (part of UK Research and Innovation), and NordForsk.

The main aim of the call was to bring together knowledge-based digital innovation efforts with research on the effects and impacts on society and end-users. This includes exploring the key factors that enable and drive digital transformation in the public sector—such as emerging technologies, new organisational practices, and evolving regulatory frameworks and governance mechanisms.

Six excellent research projects which have targeted a wide range of digital solutions for the public sector were funded under this call. I am convinced that this collaboration has given us a deeper understanding of how to approach digital innovations in the public sector in the years to come, and we now have new knowledge on the advantages and challenges of sharing sensitive data.

At the same time, we saw that the 2020-2022 Covid-19 pandemic accelerated the development underscoring the gulf between those who are able to deploy new technology, and to develop and adapt their practices and value creation to new conditions, and those who cannot. This highlighted the need to address digital divides and ensure that digital transformation benefits all sectors of society.

Arne Flåøyen
Director of NordForsk

Summary

In this report we have outlined key insights from all six interdisciplinary projects funded under the Nordic-Baltic-UK research and innovation initiative on digitalisation of the public sector. The six projects were supported between 2020–2024, each addressing different aspects of digital innovation in public services. They have all produced impactful outputs of which the main ones are listed in this report.

Key findings include:

- **DigiVet** focused on improving veterinary public health through better use of livestock data. It highlighted the importance of harmonised data practices and produced tools to support data sharing and disease surveillance.
- **CUPP** critically examined predictive policing technologies. The project revealed risks of bias, lack of transparency, and the potential for function creep, stressing the need for democratic oversight and ethical implementation.
- **NORDeHEALTH** benchmarked patient access to electronic health records across the Nordic-Baltic countries. The project identified barriers, policy differences, and design improvements to enhance patient engagement and healthcare transparency.
- **SOS** investigated informal welfare work supporting digital services. It exposed how public sector digitalisation depends heavily on unacknowledged help from citizens and frontline workers, highlighting the need for inclusive, universal design.
- **CAPE** explored how public libraries can facilitate co-design of e-services with citizens. It showed that libraries can bridge digital gaps and foster civic participation, especially for vulnerable groups.
- **COLDIGIT** studied how digital tools enable collective intelligence and participatory governance. The project developed frameworks and practical pilots for citizen engagement in urban planning and decision-making.

Across the projects, a recurring theme was the need to address digital inequality, ensure responsible governance of digital systems, and support inclusive design. The initiative provided both practical tools and critical insights to guide the ongoing digital transformation of public services in the Nordic region and beyond.

Digitalisation of livestock data to improve veterinary public health (DigiVet)

Project leader: Jessica Enright, University of Glasgow, UK

Project duration: 2021-2024

Participating countries: Denmark, Sweden, Estonia, Norway and the UK

Funding from NordForsk: 99,4766 EUR

Project website: [DigiVet](https://digi.vet)

The DigiVet project studied how livestock data is used across the partner nations, and how technology, training, and regulatory frameworks might provide societal benefit by improving the public-interest uses of these data. The project investigated the risks associated with missing, sparse, or coarsely aggregated data, and evaluate the potential societal benefits of making better quality data more widely available. The study included workshops with stakeholders to map existing practices, and document the gaps, roadblocks, and opportunities for improvement.

The project supports the following UN Sustainable Development Goals



DigiVet produced several technical tools for further use and development, including an animal movement analysis tool, an AMU surveillance tool, and a data-protecting deadswitch tool to allow free sharing of data. All of these have seen development or use beyond DigiVet.

Key Findings

DigiVet had a variety of findings across the spectrum of their investigation.

- From interviews and data surveying they have identified key differences in data sources between their partner nations. **While significant portions of the key data exist across nations, they have found that the barriers to use are quite different.** These in some cases relate to regulatory framework and privacy protection differences, and in some cases to the nature of the data themselves, their format, spatio-temporal granularity, etc. These differences are highlighted in one of DigiVet's completed outputs: **an inventory of agricultural datasets.**
- After these initial findings, DigiVet's later workshops focussed on data and digitalisation in particular use cases, and in trialling technological tools to address some gaps. A common theme across the three workshops was a combination of differences and similarities across partner nations: **while the particular obstacles are different, often the big picture is similar.**
- The workshop on food safety revealed that **although historical attitudes and traditions with respect to sharing of data relating to foodborne disease differed among countries, future challenges relating to changing legal requirements and shifting attitudes to sharing sensitive data are likely to be similar.**
- The workshop on animal movement data highlighted the wider risks and benefits of data digitalisation with the potential to improve outbreak preparedness by enabling data analysis with a disease outbreak. **Greater sharing of data, of the right type and for the right purpose across more people and organisations, can have differing societal impacts depending on its use.**
- The workshop on antimicrobial usage showed that despite different data collection, management and use infrastructures, the countries were experiencing similar challenges in relation to data digitalisation. **Certain challenges could be partly addressed by a well-designed data digitalisation tool, though there was a perception that the needs of different actors should be addressed separately, including restricted access because of the sensitivity of AMU data.**
- Interleaving with their workshop work, **DigiVet produced several technical tools for further use and development, including an animal movement analysis tool, an AMU surveillance tool, and a data-protecting deadswitch tool to allow freer sharing of data.** All of these have seen development or use beyond DigiVet.

Impact Story

The work within DigiVet was very diverse, with several workshops where the researchers have met stakeholders and done a lot of social science-style work to find out how people use data, what it's used for, where it's stored, what the legal and ethical implications of it are. For instance, the DigiVet project ran a workshop hosted by the Swedish National Veterinary Institute. The workshop looked at how antimicrobial usage is recorded in the different nations, how it's used and how it can be used to understand the relative contribution of different industries and issues concerning privacy and so on.

"Livestock are important for food security in a number of ways in our nations. We need safe food, and we need to deal with things like foodborne pathogens which are factors that trigger morbid processes in the body such as malnutrition, vitamin deficiency, toxins and bacterias. One of our case studies was about pathogens that might cause illness in animals, which could also cause illness in humans. So, basically, we need our food to be safe", says project leader Jessica Enright.

Key outputs

Shortall, O., Kyle, C., Boden, L., Denwood, M., Enright, J., Bogaardt, C., Cha, W., Nielsen, S., Puk Skarbye, A., Frossling, J., Gustafsson, W., & Hopp, P. (2023). *DigiVet Deliverable 3.1: reports from international workshops*. Zenodo. <https://doi.org/10.5281/zenodo.10462232>

Hopp, P., Udhwani, T., Helgesen, K. O., Cha, W., Denwood, M., Bogaardt, C., & Enright, J. (2023). *DigiVet Deliverable 2.3: Publicly available and reproducible holistic data analysis workflows for the case studies*. Zenodo. <https://doi.org/10.5281/zenodo.10417693>

Cha, W., Denwood, M., Bogaardt, C., & Enright, J. (2023). *DigiVet Deliverable 2.4: Dashboards to support decision-making by relevant stakeholders within each case study*. Zenodo. <https://doi.org/10.5281/zenodo.10406499>

Fernanda Dórea, Ivana Rodriguez Ewerlöf, Matthew Denwood, Wonhee Cha, Stefan Widgren, & Petter Hopp. (2021). *Digivet data sources inventory* [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7540953>

Boden, L., Denwood, M., Enright, J., Rodriguez Ewerlöf, I., Fujiwara, M., Saxmose Nielsen, S., & Shortall, O. (2022). *MAPPING DATA ECOSYSTEMS AND ASSOCIATED REGULATORY FRAMEWORKS*. Zenodo. <https://doi.org/10.5281/zenodo.7462364>

Boden, L., Enright, J., Bogaardt, C., Denwood, M., Rodriguez Ewerlöf, I., & Shortall, O. (2022). *Digivet Stakeholder Workshops: Theoretical Framework (1.0)*. Zenodo. <https://doi.org/10.5281/zenodo.7440884>

All DigiVet's outputs are available at <https://zenodo.org/communities/digivet/>

Critical Understanding of Predictive Policing (CUPP)

Project leader: Vasilis Galis, IT University of Copenhagen, Denmark

Project duration: 2021-2024

Participating countries: Denmark, Estonia, Latvia, Norway and the UK

Funding from NordForsk: 99,9847 EUR

Project website: cuppresearch.info

The aim of the CUPP project was to investigate how institutional and social values, digital affordances, and organizational politics are conceived and embedded in data-driven police innovations, as well as experienced and practiced by police officers and developers of digital police infrastructure in Denmark, Estonia, Latvia, Norway, Sweden and the UK. The project applied an interdisciplinary framework at the intersection of Science and Technology Studies (STS), Critical Criminology, and Critical Big Data Studies to identify and explore the related effects and impact of data driven police technologies on society and end-users. CUPP constituted a comprehensive technology assessment to critically study and evaluate new police technologies as well as to inform and build public and political opinion about them.

The project supports the following UN Sustainable Development Goals



Increasing use of digital police tools could lead to them being used for purposes beyond their original intent, raising concerns about basic rights and data protection.

Key Findings

- Initially hailed as a 'super weapon,' POL-INTEL is now referred to as a routine tool and basic search engine for the police. Although it has accelerated police analyses, its structure relies on embedded decisions made by private actors and the police itself, rather than an objective or scientific framework. The case study in Denmark revealed **a lack of political debate, transparency, and understanding of the software's technical aspects among politicians, highlighting a significant democratic deficit in the procurement and implementation of such complex systems.**
- The implementation of STATUS was motivated by utilising existing competences in Sweden in a Public Private Partnership. While the project was informed by a notion of police work as inherently scientific, objective and unbiased, the case study found that **the implementation of STATUS has been accompanied by biased policing practices, where individuals from marginalized communities are disproportionately targeted and subjected to police scrutiny.**
- New digital police tools such as speed cameras, drones, and mobile apps are changing how traffic is managed and enforced. **While meant to improve prevention of accidents, the punishment aspect may not actually help change drivers' behaviour.** Additionally, the increasing use of these tools could lead to them being used for purposes beyond their original intent (function creep), raising concerns about basic rights and data protection.
- The three studied technology systems in Estonia primarily targeted vulnerable groups, heightening control and suspicion toward them. This has deepened existing inequalities, yet the increased surveillance has quickly become normalised and is seen by many as fair. The study also showed that **how technologies are presented strongly impacts public opinion, often overriding existing reservations.** In conclusion, transparency and critical discussion are crucial to highlight how new digital tools can contribute to criminalising certain parts of the population.
- Digital tools are built on certain assumptions and can shape police work. **The officers in Norway, however, still prioritise their professional judgment over software-generated probabilities.** Additionally, the Norway's police faced internal conflicts regarding the Palantir platform Omnia, which struggled to integrate with existing systems. Overall, the adoption of digital policing technologies in Norway has been slower due to a preference for gradual change and preserving public trust.
- The UK has a long history of surveillance programs, with facial recognition technology (FRT) for law enforcement being one of the most controversial. Often it perpetuates and even worsens long-standing historical discriminations. The study found that police officers themselves are split as to the benefits and efficiency, given the significant high rates of mismatches. Meanwhile, the researchers also found a **high level of sophistication and knowledge in parts of the public regarding the uses and pitfalls of the technology.**

Impact Story

The police in Denmark and Norway work with the American software company Palantir. When studying the company, the CUPP team found that the company has created a world of semantics, that is, interpretations with classifications, categorisations, and options embedded in the software systems. These systems are prompting the police to perform in a certain way. When the police officers go to their mobile phones or tablets to register something, they're exposed to certain options such as burglary, attempted murder, or something similar. The research indicates that because of these classifications, certain crimes are prioritised over others, such as gang crime over domestic violence. Consequently, digital tools are not only technologies that describe the world, but they also influence the world.

"Our ambition for the impact of our research project is to shake up the societies and make them aware that there are other alternatives to the 'new' way of policing. Because what governments and police authorities have put forward as a very scientific and neutral procedure is in fact not neutral. Societies ought to explore alternatives that will hopefully provide more transparency and respect basic human rights", says project leader Vasilis Galis.

Key outputs

Galis, Vasilis, Helene O.I. Gundhus, and Antonis Vradis. *Critical Perspectives on Predictive Policing*. Cheltenham, UK: Edward Elgar Publishing, (2025). DOI: <https://doi.org/10.4337/9781035323036>

Masso, Anu, Kasapoglu, Tayfun, Kaun, Anne and Galis, Vasilis "Citizens' perspectives on platformisation of police work: a scenario and story-based exploration in Estonia and Sweden" in *Information, Communication & Society*, 1–19, (2024). DOI: <https://doi.org/10.1080/1369118X.2024.2333842>

Galis, Vasilis and Karlsson, Björn "A world of Palantir – ontological politics in the Danish police's POL-INTEL" in *Information, Communication & Society*, 1–19, (2024). DOI: <https://doi.org/10.1080/1369118X.2024.2410255>

Barkane, Irena, Adamsone-Fiskovica, Anda and Kilis, Emils. "Creeping Road Traffic Surveillance in Latvia: Social and Legal Implications of Digital Policing Tools" in *Surveillance & Society*, Vol. 21 No. 4 (2023). DOI: <https://doi.org/10.24908/ss.v21i4.15812>

Gundhus, H. O. I., Skjevrak, P. E., & Wathne, C. T. (2023). "We will always be better than a spreadsheet: Intelligence logic and crime prevention in practice" in *European Journal of Policing Studies*, 6(1), 27–49. <https://doi.org/10.5553/EJPS/2034760X2022001009>

Egbert, S., Galis, V., Gundhus, H. O. I., & Wathne, C. T. (2024). "The platformization of policing: A cross-national analysis" in *Policing and Intelligence in the Global Big Data Era, Volume I: New Global Perspectives on Algorithmic Governance* (pp. 349–392). Cham: Springer Nature Switzerland.

Kilis, E., Gundhus, H. O. I., & Galis, V. (2025). Prediction. In M. Kaufmann & H. M. Lomell (Eds.), *Handbook of Digital Criminology*. De Gruyter

Nordic eHealth for Patients: Benchmarking and Developing for the Future (NORDeHEALTH)

Project leader: Maria Hägglund, Uppsala University, Sweden

Project duration: 2021-2023

Participating countries: Sweden, Estonia, Finland, Norway and USA

Funding from NordForsk: 99,9469 EUR

Project website: nordehealth.eu

NORDeHEALTH aimed to identify the challenges and opportunities in digitalization of health services, particularly in the context of implementing national portals that give patients online access to their electronic health records (PAEHR). These systems are designed to support patient self-management, improve transparency, and enhance patient engagement in healthcare. With a focus on the Nordic region, which is commonly considered the blueprint for digital health innovation, the project sought to understand how national differences in policy, design, and user experiences reflect the effectiveness and implementation strategies of PAEHRs. By benchmarking existing solutions and comparing local implementations, the project contributed to the development of evidence-based recommendations for personal eHealth services (PeHS).

The overarching goal was to support public healthcare systems in their digital transformation by offering concrete feedback to national authorities and PeHS developers in the participating countries: Sweden, Norway, Finland, and Estonia. Guided by data, the project sought to provide guidelines for the design, implementation, and evaluation of PeHS.

The project supports the following UN Sustainable Development Goals



Key Findings

The NORDeHEALTH project generated a number of impactful findings that contributed to research, policy, and the Nordic added value:

- **Patient portals are widely used and valued by patients across the Nordic countries.**

In the largest international survey to date of nearly 30,000 national patient portal users, NORDeHEALTH gathered insights on patient and PAEHR characteristics that shape user experiences. The extensive dataset provided critical understanding of access barriers, implementation challenges and opportunities, enabling future refinement of the PAEHR services. The findings informed recommendations to national authorities and contributed to NordForsk's *Fast Track to Vision 2030* strategy for regional digital health.

- **Despite many national similarities, differences in national policies pointed to opportunities for improvements.** Cross-country socio-technical analyses revealed major differences in how policies shape access to electronic health records, particularly for adolescents and proxy users.
- **Nordic collaboration enabled shared learning and joint solutions.** By combining expertise from four countries, NORDeHEALTH created a platform for comparative research, co-development, and coordinated dissemination.

Despite many national similarities, differences in national policies pointed to opportunities for improvements. Cross-country socio-technical analyses revealed major differences in how policies shape access to electronic health records, particularly for adolescents and proxy users.

Impact Story

National patient journals have been implemented in Sweden, Norway, Finland and Estonia a long time ago, but they all have significant differences in access to the patient records. By assessing the systems, the project helped providing knowledge and experience to other countries in Europe. As a proposal for a European Health Data Space has been launched in the EU, all countries in Europe will soon have to implement the same type of services and give patients online access to their medical records.

"That's why we believe that our research results come at exactly the right time, and that there will be a general European requirement for everyone to have access to their medical records. But it's important to identify the challenges, opportunities and impact linked to open patient portals from the Nordic countries," says project leader Maria Hägglund.

Key outputs

Hägglund M, Kharko A, Hagström J, ..., Johansen M. *The NORDeHEALTH 2022 Patient Survey: Cross-Sectional Study of National Patient Portal Users in Norway, Sweden, Finland, and Estonia*. J Med Internet Res 2023;25:e47573. doi: 10.2196/47573

Moll J, Scandurra I, ..., Klein GO. *Sociotechnical Cross-Country Analysis of Contextual Factors That Impact Patients' Access to Electronic Health Records in 4 European Countries: Framework Evaluation Study*. J Med Internet Res 2024;26:e55752 doi: 10.2196/55752

Hagström J, Hägglund M, ..., Hörhammer I. *Minors' and guardian access to and use of a national patient portal: A retrospective comparative case study of Sweden and Finland*. Int J Med Inform. 2024 Apr 25;187:105465. doi: 10.1016/j.ijmedinf.2024.105465.

Fagerlund, A., Bärkås, A., Kharko, A., ..., Johansen, M.A. *Experiences from patients in mental healthcare accessing their electronic health records: results from a cross-national survey in Estonia, Finland, Norway, and Sweden*. BMC Psychiatry 24, 481 (2024). <https://doi.org/10.1186/s12888-024-05916-8>

Bärkås A, Kharko A, ..., Hägglund M. *Errors, Omissions, and Offenses in the Health Record of Mental Health Care Patients: Results from a Nationwide Survey in Sweden*. J Med Internet Res 2023;25:e47841. doi: 10.2196/47841

Simola S, Hörhammer I, ..., Kujala S. *Patients' Experiences of a National Patient Portal and Its Usability: Cross-Sectional Survey Study*. J Med Internet Res 2023;25:e45974 doi: 10.2196/45974. PMID: 37389909. PMCID: 10365631.

Hägglund M, Kharko A, ..., Johansen M. A (2024). *Nordic Perspective on Patient Online Record Access and the European Health Data Space*. J Med Internet Res 2024;26:e49084, URL: <https://www.jmir.org/2024/1/e49084>, DOI: 10.2196/49084

Infrastructures for partially digital citizens: Supporting informal welfare work in the digitized state (SOS)

Project leader: Brit Ross Winthereik, Technical University of Denmark

Project duration: 2021-2024

Participating countries: Sweden, Denmark and Norway

Funding from NordForsk: 98,1416 EUR

Project website: sosproject.dtu.dk

The SOS project offered a comparative mapping of information-processing and communicative aspects of informal welfare work across three welfare sectors across three Nordic countries. The main ambition was to propose and prototype socio-digital innovations that enable synergy between informal welfare work and requirements of public authorities. Informal welfare work is unpaid support of citizens in his/her interactions with welfare state institutions and actors.

The project supports the following UN Sustainable Development Goals



Key Findings

The project has provided a multi-sited ethnography within Denmark, Sweden and Norway and a survey among public sector employees across these countries. The research has shown that **the relative success of public sector digitalisation in the Nordic countries depends on a large amount of "informal welfare work". The current digital public infrastructures are not universal and inclusive, and significant support work is supplied by both formal and informal helpers – family, volunteer citizens, and frontline workers in the public sector.** For instance, nurses, teachers, and other employees offer support also outside of their working hours or core responsibilities. These helpers are largely unacknowledged in current policy and design practices.

Based on these findings, SOS argues that:

1. **Policymakers and designers must protect and anticipate in-person support to prevent widening social inequalities through digitalization.** Also the helpers must be acknowledged and supported.
2. Policies and design processes must consider problems and breakdowns as an opportunity to learn and improve. **Feedback loops that bring citizens' experience to the decisionmakers should be considered a critical element of universal digital infrastructures.**
3. **Digital welfare infrastructures across Denmark, Sweden and Norway are not universal,** thus the countries direly need more focus on inclusive design and universal design approaches to develop inclusive public digital infrastructures.

The current digital public infrastructures in the Nordics are not universal and inclusive, and significant support work is supplied by both formal and informal helpers – family, volunteer citizens, and frontline workers in the public sector.

Impact Story

A side effect of digitalisation is that it can inadvertently create inequality. Project leader Brit Ross Winthereik cites an example from Norway, where a group of researchers conducted fieldwork among immigrants who are in contact with the Norwegian healthcare services. The challenge for those immigrants is that the language and the digital user interface create barriers for them, as they must understand the professional medical language, the Norwegian language, and not least the digital language. The consequence has been that the immigrants largely seek online communication with the healthcare services in their home countries.

"So, it's not that people in this group aren't digital, because they actually use digital platforms to access the health services they need. But it can create inequality if digitalisation leads to barriers that are too high, which means that some citizens are worse off than others. However, we don't know enough about this type of situation, which is why it's important to make extra efforts to get to the bottom of it," Winthereik explains.

Key outputs

Brown, K. (2025): *Connected yet excluded: how change in national context contributes to digital exclusion for immigrants to Norway*. Scandinavian Conference for Information Systems.

Carreras, B. N. (2024). *Frictional infrastructures: An ethnography of compulsory digital self-reliance and collective access in the Danish welfare state* (PhD dissertation). IT University of Copenhagen.

Carreras, B.N, & Winthereik, B.R (2023). "Narrating Digital Access, Trauma, and Disability Through Comics and Image Description in Denmark". *Medical Anthropology*, 42(8), 787-814.

Winthereik, B.R., Aanestad, M., Mäkitalo, Å (2024): *Digital Inclusion*, DJØF Forlag.

Winthereik, B. R. (2024). "The citizen from hell: Experiencing digitalization". In J. Perriam & K. M. Kjær (Eds.), *Digitalization in practice: Intersections, implications and interventions* (Vol. 14, pp. 109–124). Walter de Gruyter GmbH & Co KG.

Winthereik, B.R., Carreras, B.N., Aanestad, M. (2023) "Putting People at the Centre of Digital Welfare Services: Towards a socially sustainable Nordic Region". [Fast Track to Vision 2030](#). NordForsk policy brief

Åberg, M., Lundin, M., Bergviken Rensfeldt, A., & Mäkitalo, Å. (2024). "The invisible professional helper: Encounters at the digital frontline of public education". In *5th Street-level Bureaucracy Conference*, June 18-20 in Copenhagen.

Civic Agency in Public E-service innovation (CAPE)

Project leader: Jörn Christiansson, IT University of Copenhagen, Denmark

Project duration: 2020-2023

Participating countries: Sweden, Denmark and Finland

Funding from NordForsk: 99,9993 EUR

Project website: cape.itu.dk

The aim of the CAPE research project was to investigate how to increase user involvement in the development of public e-services. The project explored a new approach to public e-service design in collaboration with public libraries, where citizens engaged in co-design of improvements to existing public e-services and co-design of new service innovations. Results showed that the public libraries, with their strong tradition of democracy and civic participation, can bridge the gap between public service delivery and citizen needs and capabilities. In so doing, they help to reduce the inequalities in society.

The project supports the following UN Sustainable Development Goals



Strengths identified include libraries' commitment to democratizing digitalisation, and flexibility to accommodate collaboration and trust on bottom-up initiative of their personnel.

Key Findings

- The case study from the Danish site **demonstrated how a volunteer-driven IT help-desk, hosted by the library, can act as a buffer service bridging the gap between elderlies' capacities and public service delivery**. The IT helpdesk supplemented the IT support provided by public citizen offices by offering unlimited time, patience and learning opportunities. Over time, it also accumulated valuable knowledge about the needs and access capabilities of elderly IT users. A link was created between the IT help-desk and a public service provider as a means for service improvement.
- A second case study on the Danish site investigated a transformation process of public sector organisations and public libraries, showing how service design can be a vehicle of organisational and societal changes. Using a wider context of a growing role of design and service design (SD) in change processes, **the study demonstrated how design helped to gradually expand the visions, theories of change, mindsets, and new ways of designing in the organisation, helping to achieve more agency in transforming, impacting the organisation and the local community**. This work contributes to the growing body of knowledge connecting design with change.
- On the Swedish site, case studies at two libraries developed protocols for how libraries can identify local needs, engage citizens through interviews and workshops, analyse results thereof, communicate findings to relevant public sector stakeholders and provide feedback to citizen participants. **At one of the libraries, workshops with unemployed elderly migrant women revealed that their problems of finding employment were rooted in a broader set of social issues faced by migrants, and a lack of sufficient and accessible information from public service providers. These findings were reported to the unemployment office, and the library organised a job fair**. This event brought together representatives from the unemployment office, social services, study programs and community organisations, with information provided in Arabic.
- In Finland, a case study explored libraries' capabilities to infrastructure digital innovation in a collaboration between two universities, a city library and two library networks. A project developing a virtual reality environment to recommend literature for various library client segments was evaluated. **Strengths identified include libraries' commitment to democratizing digitalisation, and flexibility to accommodate collaboration and trust on bottom-up initiative of their personnel**.
- **A handbook was produced to aid libraries in developing their potential role in bridging the gap between public service delivery and citizen needs**. The handbook is available for download in English, Danish, Finnish and Swedish from cape.itu.dk.

Impact Story

A large part of the help with digital services available already exists in the public sector. But the umbrella provided by public services is not sufficient to grant the accessibility of some citizens to digital services; they also need a different type of assistance to solve the tasks and challenges they encounter. A significant part of this support work is already carried out by volunteer IT support staff at the local libraries.

The IT volunteers have a lot of experience about the needs of vulnerable citizens, as well as the elderly and other groups, which is valuable for developers of digital services. Consequently, CAPE has taken the initiative to build a bridge between the IT volunteers and the Danish Agency for Digital Government to collaborate on MitID, a new personal identification system in Denmark, which many citizens have had challenges in using. Among other things, the co-operation has resulted in workshops with software developers from the Danish Agency for Digital Government and the IT volunteers, during which the Agency for Digital Government informed the IT volunteers about the further development of MitID, while the IT volunteers spoke about the typical experiences and challenges that the vulnerable groups have faced.

Key outputs

Boztepe, S., Christiansson, J., de Götzen, A., Hepburn, L.-A., & Keinonen, T. (2024). "Rethinking Design in the Public Sector: A Relational Turn". *International Journal of Design*, 18(3), 1-7. <https://doi.org/10.57698/v18i3.01>

Boztepe, S., Linde, P., & Smedberg, A. (2023). "Design making its way to the city hall: Tensions in design capacity building in the public sector". In *IASDR 2023: Life-Changing Design*, 9-13 October, Milan, Italy. Design Research Society.

Camilla Christensen, Jörn Christiansson, and Joanna Saad-Sulonen. 2024. "\"But will they listen?\" Learnings from a design after design experiment in civics". In *Proceedings of the 2024 ACM Designing Interactive Systems Conference (DIS '24)*. Association for Computing Machinery, New York, NY, USA, 2173–2182.

Christiansson J, Grönvall E, and Saad-Sulonen J. (2024) "Mapping User Participation in the Design of Digital Public Services: Is PD Relevant?" *Proceedings of the 18th Biennial Participatory Design Conference (PDC)*. New York: ACM.

Ehrenberg N, Hergatacorzian C, Keinonen T. (2024). "Public Libraries and Digital Service Development: Bridging the Gap in Company Collaborations". *International Journal of Design*, 18 (3), pp. 61-72.

Starostka J, De Götzen A, Morelli N. (2022). "Design thinking in the public sector – a case study of three Danish municipalities". *Policy Design and Practice*, 5 (4), pp. 504-515.

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Collective Intelligence through Digital Tools (COLDIGIT)

Project leader: Mikko Rask, University of Helsinki, Finland

Project duration: 2020-2023

Participating countries: Sweden, Norway, Finland and the UK

Funding from NordForsk: 99,4965 EUR

Project website: [COLDIGIT](https://coldigit.org)

The overall purpose of the COLDIGIT project was to generate new knowledge on innovative digital tools and approaches, in order to understand how they can support governance of complex societal processes in the Nordic region. The project catalogued 150-200 cases of innovative digital tools, created a conceptual model of the digital ecosystem of collective intelligence, studied obstacles and drivers of adoption and use of new technologies, and tested innovative solutions through a series of pilots on participatory budgeting projects in Finland, Sweden, and Norway.

The project supports the following UN Sustainable Development Goals



Key Findings

- The COLDIGIT project explored how **collective intelligence (CI) – the combination of human creativity and digital technologies** – can improve public governance in the Nordic region. CI **was used as a lens to develop and test new models for inclusive and participatory decision-making, working closely with municipalities and stakeholders.**
- A central output was **a digital repository that maps real-world examples of collective intelligence tools used in urban planning and civic engagement.** This platform supported practice and research, informing a peer-reviewed article in *Government Information Quarterly* (2024) that identified key opportunities and risks in using digital participation technologies.

The Co-Creation Radar (CC-Radar), a framework for evaluating the quality and significance of participatory processes, helped city officials and stakeholders assess how citizen input is recognised, prioritised, and used in decision-making.

- The project also **advanced theoretical understanding by connecting CI to democratic innovation.** A review article published in *Societies* (2024) showed how **CI can reinforce participatory governance and deliberative democracy by enabling more inclusive and adaptive decision-making.** These insights shaped how the researchers designed and evaluated participatory pilots across different city contexts.
- One of the key methodological contributions was the development of **the Co-Creation Radar (CC-Radar), a framework for evaluating the quality and significance of participatory processes.** It was piloted in real-life cases in Helsinki, Gothenburg, and Trondheim, **helping city officials and stakeholders assess how citizen input is recognised, prioritised, and used in decision-making.**

Impact Story

The COLDIGIT project laid the foundation for long-term innovation in democratic governance. In 2024, the team secured funding from Business Finland to further develop the Co-Creation Radar, a tool for evaluating participatory processes. This support enabled deeper collaboration with Finnish municipalities and strengthened the practical application of the project's research in real-world governance settings.

Building on this success, COLDIGIT inspired the creation of Väki Insight Ltd, the first spinout company from the Faculty of Social Science at the University of Helsinki. Founded by project team members, the company now works with public organisations to improve citizen engagement and collective learning through methods first developed and tested within the project. In addition, COLDIGIT's digital repository of participation tools served as a valuable resource for Nordic cities during the project, supporting knowledge exchange and inspiring experimentation across national contexts.

Key outputs

Shin, B., Floch, J., Rask, M., Bæck, P., Edgar, C., Berditchevskaya, A., ... & Branlat, M. (2024). "A systematic analysis of digital tools for citizen participation". *Government Information Quarterly*, 41(3), 101954.

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Rask, M., Albayrak, T., Husukić, E., Nikšić, M., Shin, B., Tuominen, P., & Zejnilović, E. (2024). "Examining Civic Participation Across Diverse Contexts: Insights from the Co-Creation Radar". In *Placemaking in Practice Volume 2: Methodologies for Engagement in Placemaking* (pp. 181–212). Brill.

Rask, M., Bæck, P., Floch, J., Tuominen, P., Edgar, C., & Shin, B. (2023). "Harnessing Collective Intelligence to Strengthen Democracy in the Nordics". In *Fast Track to Vision 2030*, NordForsk, pp. 42–4

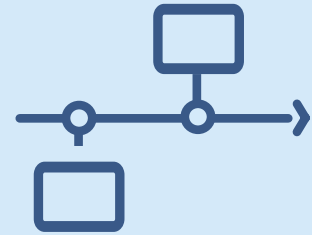
Rask, M., Bæck, P., & Edgar, C. (2023). *Using collective intelligence to transform public institutions*. Nesta. <https://www.nesta.org.uk/project-updates/using-collective-intelligence-to-transform-public-institutions>

Shin, B., Rask, M., & Tuominen, P. (2022). "Learning through online participation: A longitudinal analysis of participatory budgeting using Big Data indicators". *Information Polity*, 27(4), 517–538.

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Key Figures

*Based on data reported in Researchfish between 2021-2025.



6

Projects



202

Engagement
Activities



53

Collaborations
and Partnerships



5

Awards and
Recognition



149

Publications



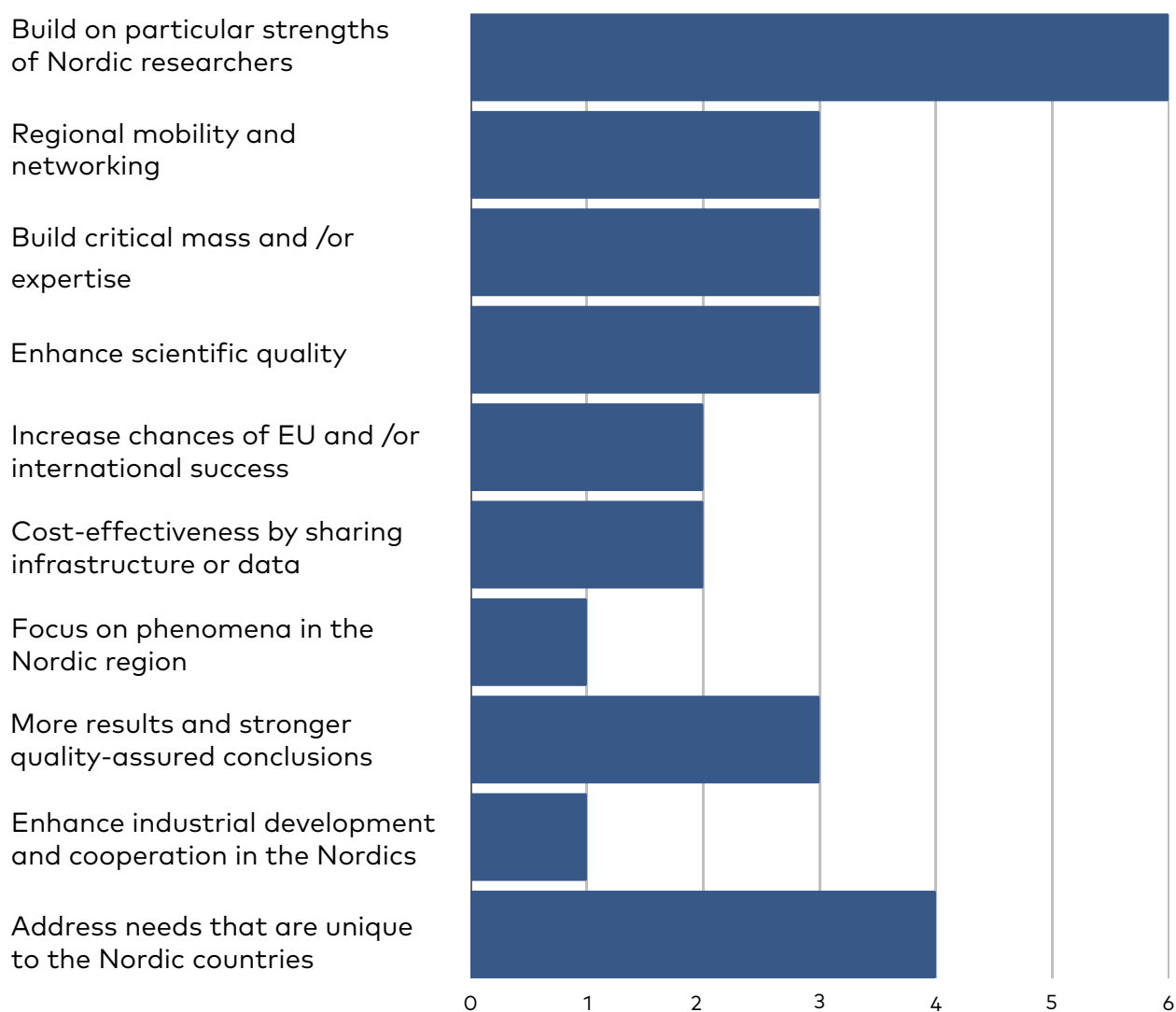
63,6

Million NOK
Funding Value

Nordic Added Value

NordForsk funded projects create Nordic added value in a number of ways. We have devised our own definition of Nordic added value to be used when developing initiatives, designing calls for proposals, assessing grant applications and reporting impact. In all, we have 11 categories of how research create Nordic added value. Read more about Nordic added value at nordforsk.org.

Reported Nordic added value from projects in the Digitalisation of the Public Sector initiative



Conclusion

The overarching aim of the initiative has been to combine knowledge-based, digital innovation efforts with research on the related effects and impact on society and end-users. This should be based on factors that enable digital transformation of public sector: emerging technologies, organisational practices and regulatory frameworks as well as governance mechanisms.

The key findings and outputs displayed in this report show that the funded projects have already contributed in different ways to the aim of the call and more publications are still underway. The self-reported Nordic added value highlights that the projects find the collaboration to have contributed to the research ecosystem by enhancing scientific quality and building on particular strengths of researchers in the Nordic, the Baltic countries and UK. The projects also set light on the challenge of cross-border sharing of sensitive data from different angles.

Digital inclusion is a priority for the Nordic Council of Ministers. By addressing digital inequality and integrate digital inclusion in all parts of the digitalisation of the public sector the projects have provided relevant insights for Nordic cooperation and societies in the participating countries.

In the years since the call was announced, the digital transition has rapidly changed our region, identifying further need for Nordic and Nordic-Baltic collaboration and research on our digital future. From 2025, MR-Digital is a permanent part of the co-operation within the frameworks of the Nordic Council of Ministers and includes also the Baltic countries at ministerial level.

In the coming years, The Nordic Council of Ministers and NordForsk will continue the focus on digital inclusion, green transition, artificial intelligence, and quantum technology through different initiatives.



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