

Policy Brief

Recommendations from the Research Council of Norway's International Advisory Board **Issue 1 / March 2020**

Innovation for a resilient, people-oriented public sector

The public sector must be dynamic and resilient to successfully address complex societal challenges and the evolving needs of citizens and businesses. It must have a well-developed internal capacity to innovate and be an effective enabler for innovation in the private and civic sector. To succeed, a more ambitious, more inclusive and more systemic approach to public sector innovation is needed.

Norway has one of the largest public sectors in the world; in 2017 public spending accounted for close to 48,3% of GDP¹ and the public sectors share of total employment was 32 %². This is due to the fact that the government to a large extent both finances and delivers health, care and educational services. Norway is one of the OECD's most inclusive countries in terms of income equality, gender equality and labour participation. Digital competence and the level of education is high. The public has a high level of trust in the public sector³ – 70 % of Norwegians answer yes when asked if they trust national government. This is a high number even compared to other Nordic countries (56 % in Sweden, 47 % in Finland, 46 % in Denmark). The business sector considers the predictability, quality and transparency of the public sector to be important assets, and innovation in the public sector is high on the agenda of the Norwegian government.

These are favourable conditions for enhancing innovation in the public sector. Public sector innovation can be defined as “designing and implementing new processes, products, services and forms of delivery leading to significant improvements in impact, efficiency, performance or quality.”⁴ On the one hand, the public sector must have a well-developed internal capacity to innovate. On the other hand, it needs to be an effective enabler for innovation beyond the sector itself. To successfully develop the public sector's internal capacity to innovate, research is essential but often underused. Research can contribute new ideas that form the starting point of an innovation

process, research can help develop immature ideas and innovations-in-the-making, and research can help gain more systematic knowledge of public sector innovations, and by extension – help prepare for diffusion or scaling-up.⁵

Conditions for innovation in the Norwegian public sector are favourable. However, in order to build a resilient and responsive public sector for the future, there is a need to:

- Enable an ambitious, research-based public sector innovation effort
- Facilitate improved public involvement in research and innovation
- Develop a well-functioning innovation system for the public sector

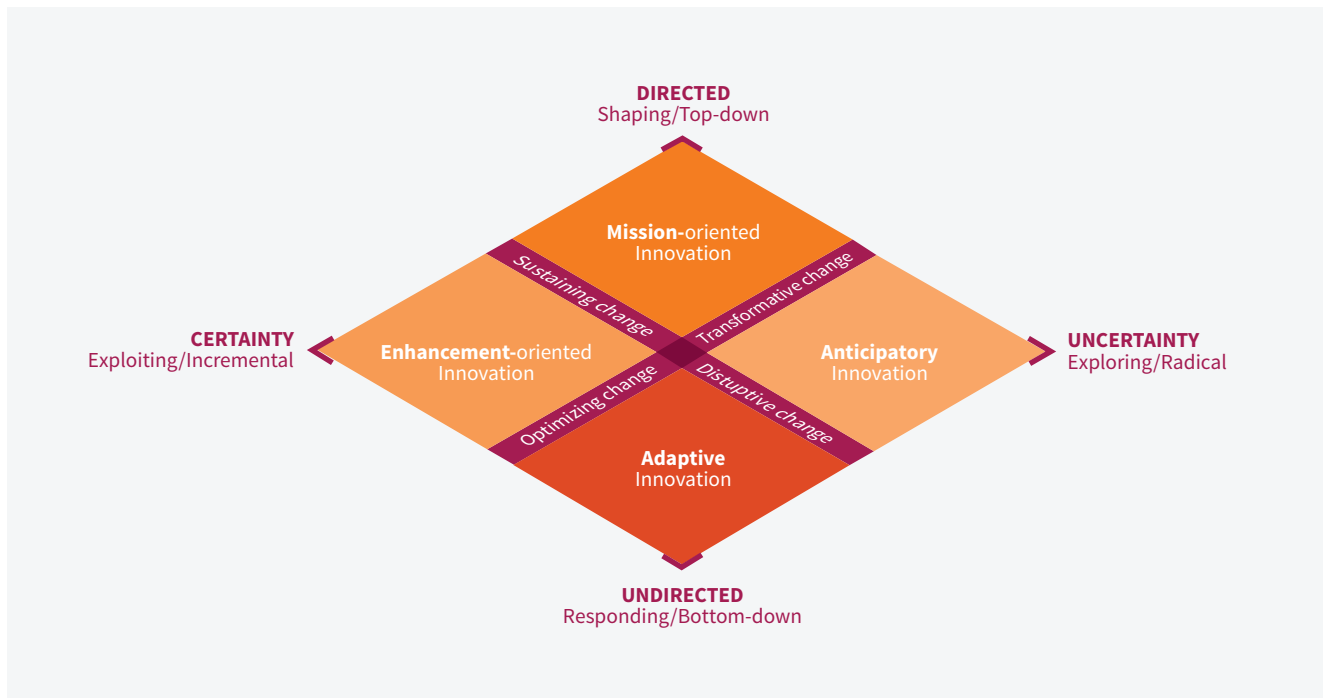
Enable an ambitious, research-based public sector innovation effort

Intractable and complex societal changes such as the climate crisis necessitate new public sector solutions. Research and innovation can contribute to enhancing the problem-solving capacity of the public sector in dealing with such challenges. Innovation already forms part of the public sector's adaption to current changes in all sectors, albeit at a very different pace and scale: “Progress is often ad hoc rather than reliable, reactive rather than deliberate, and sporadic rather than systemic. Despite a generally forward trend, the public sector has not yet taken the next step: a commitment to ensure that innovation is a consistent and reliable resource that can be used to

give governments the options they need and choices that can deliver better outcomes and greater impacts”⁶. To ensure a more effective public sector innovation effort, governments need to take

a conscious and strategic approach to facilitating innovation in all its different facets; from incremental to radical, in both a top-down and bottom-up fashion⁷:

Public sector innovation facets – model from The Observatory of Public Sector Innovation



There should be a balanced approach to the four different facets of innovation: enhancement-oriented, anticipatory, mission-oriented and adaptive. Naturally, it is unlikely that any one organisation will be able to be equally proficient across each of the facets, but through a mix of strategies and structures, the public sector as a whole should be⁸. Research should be an integrated element in all categories; to document, to challenge, to experiment and to evaluate.

Enhancement oriented incremental innovation

According to a study on public sector innovation in Norway and the other Nordic countries⁹, 77 % of Norwegian public sector workplaces have introduced one or more innovations during a two-year period. In the study, public sector innovation was defined as new or significantly changed processes or methods of organisation, services, products or communication. Of the innovations introduced, 80 % could be termed incremental innovations in the sense that they are adapted or copied from others. Only a minor part of the innovation efforts in the public sector (13 %) involve interaction with research institutions. Increasing such interaction could serve to improve public sector capability to undertake incremental

innovation as it would give improved access to a broad national and international knowledge base. More knowledge access could inspire increased adaptation and copying of solutions that have proved successful elsewhere, and that have been documented and evaluated through research.

Increased cooperation between the public sector and research institutions could also help address a well-known weakness associated with public sector innovation; it is often carried out without systematic evaluation of whether the changes have produced the desired effects and there is limited diffusion of innovations that have proven effective locally. Investing in research on public sector innovation will help gain more systematic knowledge of implemented innovations and could help prepare for diffusion or scaling-up of innovations that have proved effective and efficient.

Anticipatory radical innovation

Given the need to respond to complex societal challenges and to utilize the potential in emerging technologies, radical measures and a re-configuration of existing production and innovation systems

are increasingly called for¹⁰. There is consequently a pressing need to improve public sector ability to undertake more radical innovation, which seeks to explore completely new approaches to how things can work rather than incrementally improving old solutions. Studies suggest that research-based innovation is more effective in delivering radical innovation than experience-based innovation¹¹. Enabling increased interaction between the public sector and the research sector could thus prove essential in improving public sector ability to undertake more radical forms of innovation.

In particular, there is a need to encourage *increased public sector interaction with interdisciplinary research*. Studies have found that radical innovations are to a higher degree based on different and often non-related fields of knowledge or technologies¹². The findings pointing to the importance of knowledge diversity for achieving radical innovation are echoed in studies of radical research: Interdisciplinarity is consistently found to be an important element in research breakthroughs.¹³ Hence, to enable radical innovation and absorb its outcomes, government should interact specifically with programs and researchers that build on and foster interdisciplinarity.

The public sector's inclination to favour incremental over radical innovation can partly be explained by the higher risks associated with radical innovation. The public sector is often assumed to be more risk-averse than the private sector, while the support mechanisms to reduce the economic risk associated with innovation are predominately tailored to the private sector. Currently, the private sector receives more than 90 percent of the Research Council of Norway's (RCN) resources dedicated to innovation. Introducing complementary financial resources dedicated to innovation in the public sector is thus warranted. Succeeding in increasing the rate of radical innovation in the public sector could have substantial benefits; a NESTA study suggests that it could result in cost savings between 20 and 60 percent.¹⁴

Mission oriented innovation

The public sector must furthermore have the ability to undertake innovation in response to major societal challenges through strategic and goal-oriented efforts, often termed mission-oriented innovation. Missions should be bold and inspirational, concrete and measurable, require cross-disciplinary and cross-sectoral collaboration, and involve stakeholders and society at large in selecting appropriate missions and in shaping those selected. According to Mazzucato, "Mission-oriented R&I requires the public sector to welcome uncertainty, accept risks and learn from trial and error".¹⁵

Government capacity and capabilities in exploration and experimentation are increasingly critical to innovation. Targeted measures aimed at building public sector ability to undertake more experimentation could thus be warranted, such as funding for test-beds and research-supported experimentation. This has proved successful in the past. For example, publicly financed demonstrators and testbeds within the oil and gas-sector aimed at creating opportunities for land-based Norwegian industry have yielded positive results.

Adaptive innovation

For the public sector to successfully deliver high quality services to the public in a society with rapidly changing needs and challenges, it must be able to quickly adapt to external factors, such as new risks and challenges, new knowledge, new or changing user and societal needs, and new technologies. Emerging technologies like artificial intelligence, robotics, blockchain etc., have the potential to make the public sector more efficient and flexible. However, they also introduce new risks and challenges. To utilize their full potential and mitigate costs and challenges, a digital transformation of the public sector is in progress that requires radical changes in public sector organization, skill-sets, governance, regulation, accountability, and service delivery. Digitalization of the public sectors can only proceed successfully with a strong positive culture and technology-aware staff. Building capacity for innovation, leadership, extensive collaboration and involvement with the research sector, the R&D-intensive industry and the public, will help the public sector better handle the digital transformation.

The public sector must take a conscious and strategic approach to facilitating innovation in all its different facets; from incremental to radical, in both a bottom-up and top-down fashion.

IAB recommends that the government should consider:

- Increasing funding for public sector innovation
- Improving incentives for collaboration between the research sector and the public sector. This could on the one hand improve public sector capability to undertake innovation in all its different facets, and on the other hand encourage diffusion and scale-up of innovations.
- Improving public sector capabilities in and framework conditions for exploration and experimentation through dedicated funding for testing grounds, etc.
- Offering strategic leadership and strong incentives aimed at facilitating a digital transformation of the public sector

IAB recommends that RCN should consider:

- Strengthening its role as a driving force and facilitator for increased and improved public sector innovation
- Supporting research on and for public sector innovation
- Improving funding for innovation projects in the public sector
- Contributing to the establishment of knowledge-hubs that share and distribute knowledge from innovation efforts in the public sector
- Encouraging experimentation, testing and demonstration more extensively across its project portfolio

Facilitate improved public involvement in research and innovation

Public sector innovation aims to improve and maintain the wellbeing of citizens and stimulate sustainable solutions for society. That calls for improved citizen involvement in public sector research and innovation. Through increased involvement from citizens and businesses in prioritizing, planning and conducting research and innovation activities, more relevant and useful results can be achieved. User involvement can also contribute to more effective implementation of research results in applied research projects.¹⁶

Furthermore, increased citizen involvement in public sector research and innovation efforts can be instrumental in maintaining public trust. Given the need for the public sector to move from its current focus on incremental innovation to more radical and transformative forms of innovation, the public sector innovation effort could become more high-risk. An increased number of public innovation failures could be a consequence, posing a threat to trust in the public sector. To maintain trust in the Norwegian public sector, even as more radical forms of innovation becomes more commonplace, public involvement in the research and innovation effort could be key. Such involvement could help establish an understanding of the risks and benefits associated with innovation. It could take the form of direct citizen participation in the research and innovation effort, but also increased dialogue and consultation with citizens on research needs and priorities. This could increase public sector ability to invest in projects that offer the greatest benefits to the public.

However, when the research and innovation processes become increasingly open to participation and influence from external actors, questions of representativeness, equitable opportunities for influence and privacy concerns must be handled appropriately. While some groups may have a political agenda and the ability to exert influence over processes and results, other groups may be marginalized. It is therefore important to ensure that different types of expertise and stakeholder perspectives complement each other, while at the same time ensuring scientific quality and integrity, and observing principles of privacy and research ethics.

How different actors can participate and contribute jointly to knowledge development in a responsible way will depend on the theme and context. The principle of "as open as possible, as closed as necessary" means that each research and innovation project must consider how transparency can be best ensured, in compliance with scientific integrity and regulations, when other considerations such as ethics, security, privacy, legal or competition considerations are also factored in¹⁷. Legal and regulatory frameworks as well as ethical considerations concerning participation in the research and innovation process vary between countries and more knowledge and general guidelines are needed.

There is a need to maintain trust and improve public involvement in public sector research and innovation.

IAB recommends that the government should consider:

- Providing clear guidelines and incentives for the public sector to increasingly include citizens in prioritising and carrying out research and innovation activities
- Dedicating resources to systematically scan best international practices and methods for stakeholder involvement in the public sector research and innovation endeavour

IAB recommends that RCN should consider:

- Encouraging user involvement in the design and planning of research projects aimed at stimulating public sector innovation
- Increasing public involvement in prioritising and designing research programs and investments aimed at the public sector
- Contributing to the development of appropriate methods of public involvement in public sector research and innovation, and improved knowledge on the implications of such involvement; ethical implications, implications for scientific quality, for the role and integrity of researchers, etc.

Develop an effective innovation system for the public sector

The public sector delivers services and provides infrastructure and regulations. These functions and their interrelations are all potential subjects of innovation activities. The public sector is also an important innovation enabler for industry and the civic sector. A systemic understanding of innovation emphasizes that innovation does not occur in the closed framework of an individual organization. It arises in the interaction between several different actors and is also largely determined by the institutional framework conditions that they are subject to¹⁸.

Since the 2000s, the importance of dynamic and agile collaborative structures for value co-creation and open innovation that enjoy self-governance has been increasingly explored in the literature – by some considered a new generation of innovation systems¹⁹, by others considered a separate phenomenon, so-called innovation ecosystems.²⁰ This innovation (eco) system approach underlines the interdependencies between the actors involved – which bring exclusive and complementary experiences to the table – and the fact that non-hierarchical decision-making processes are deployed.²¹ For the public sector, the functioning of such ecosystems imply that policy makers may not need to build specialized innovation clusters in "priority" industries. Rather, the objective should be to stimulate platforms and infrastructures for networking and collaboration, which in turn can produce their own strategic agenda and initiate relevant collective action²².

Innovative or pre-commercial public procurement can be an effective measure in this respect. Through strategic use of innovative public procurement, public organisations can create new markets for products and systems that go beyond the state-of-the-art or they can create a demand "pull" by expressing their needs in functional or performance terms. Similarly, they can encourage innovation by providing a "lead market" for new technologies/solutions or provide a testing ground for innovative products.

The public sector in Norway procures goods and services for more than 500 billion NOK yearly, but less than one per thousand of this budget is used for procurement of innovative solutions. While 40 to 50 percent of public procurement in the other Nordic countries is used as an innovation tool,

the corresponding proportion in Norway is only 16 percent²³. The National Programme for Supplier Development is a joint effort between private and public associations to help remedy this situation. It was set up to accelerate innovation through the strategic use of public procurement.

However, effective public procurement is only part of the solution to developing a public sector that have both a well-developed internal capacity to innovate, and functions as an effective enabler for innovation in the private and civic sector. To identify the main bottlenecks and challenges, as well as the most important opportunities and incentives to encourage the development of such an innovative public sector, a stakeholder-driven national process could be warranted. Norway has substantial experience in organising so called 21-processes – broad national processes in which relevant actors participate in the design of a national strategy for research and innovation for the 21st century. These could provide inspiration for how a national process aimed at developing a more innovative public sector could be organised.

There is a need to a develop a more explicit and effective innovation system in the public sector.

IAB recommends that the government should consider:

- Initiating a stakeholder-driven collaborative process aimed at identifying *bottlenecks* to and effective *incentives* for increased interaction and cooperation between the public sector, the research and higher education sector, the private sector and the public
- Implementing incentives to encourage increased use of innovative and pre-commercial public procurement

IAB recommends that RCN should consider:

- Dedicating an increased share of its funding to cooperation projects between the public sector, the research and higher education sector, the private sector and the public
- Dedicating an increased share of its funding to support for innovative and pre-commercial procurement²⁴

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