

Nordic perspectives on research impact

An exploratory study of how Nordic research
funding institutions define and measure impact.



NordForsk

Summary

This report presents the content analysis of semi-structured interviews, conducted with representatives from major Nordic research councils and funders. The analysis considers the methodologies and philosophies adopted by Nordic research councils and funds in assessing research impact. It provides insight into the phenomenology of research impact measurement, analysis and data utilisation within the Nordics.

A central theme revolves around the challenges in defining, measuring, and reporting research impact, as research impact extends beyond academic circles into broader societal benefits. Each Nordic country showcases its unique approach, reflecting their cultural and institutional nuances. However, a common thread among them is the growing emphasis on reliable and practical digital infrastructure, valid operationalisation and definition of research impact itself, and qualitative assessments to complement the shortcomings of the traditional scientometrics.

One notable challenge, highlighted in our findings, is the researchers' reporting burden. Our results further underscore complexities faced by researchers and funders alike in documenting their work's impact, balancing between the need for comprehensive assessment and the constraints of time and resources. This aspect raises concerns about the practicality and efficiency of time consuming but comprehensive reporting practices, and highlights the importance of meaningful operationalisation when quantifying impact.

Our results also underscore the importance of data quality in research impact assessment. Ensuring accurate, relevant, and comprehensive data collection is difficult, especially when dealing with qualitative impacts or long-term effects. The variability in methodologies across different fields adds another layer of complexity, often resulting in inconsistent and partially incomparable data sets.

In addressing these challenges, our findings point to the potential of qualitative assessments and case study approaches to complement quantitative metrics. While these methods offer a richer, more nuanced understanding of research impact, they are not without their own shortcomings. The risk of subjective interpretations and the labour-intensive nature of detailed case studies are notable concerns.

Furthermore, our results stress the importance of a robust workflow for research impact assessment. An efficient digital infrastructure, a well-organised database system, and competent software tools are essential for effective data management and analysis. Equally important is the expertise in collating, analysing, and reporting data, which plays a central role in drawing accurate and meaningful conclusions from the research findings and their impact.

As such, our hope is that this report will serve as a contribution to the ongoing discourse on how best to measure and understand the broader implications of research, not just within academia but in society at large.

Simon Jernroth, Analytics Officer

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Definition of Research Impact

Highlighted Methodologies

Norway

Comprehensive, covering immediate and longer-term societal and policy impacts.

Integration of impact early in funding proposal evaluations.

Sweden

Varied across agencies, generally includes societal progression towards goals like sustainable development.

Mix of qualitative and quantitative methods. Storytelling.

Finland

Broad, includes academic, societal, economic, and policy influences.

Qualitative and quantitative assessments. Self-assessment by applicants vs third-party reviews.

Denmark

Varied across agencies. Work in progress vs. established definition.

Impact reports database and dashboard for analysis. Theories of change.

Iceland

Emphasises societal, economic, and policy influences.

Progress and final reports from funded projects. External third-party impact assessments.

Faroe Islands

Expected impacts in project proposals, evaluated by external experts.

Annual and final reports. Outreach activities.

Noted Challenges

Unique Approaches

Balancing immediate results with long-term impacts.	Comprehensive evaluations of research fields every ten years.
Directly linking research to societal changes.	Diverse methodologies reflecting agency mandates.
Ensuring data quality and comprehensiveness of reporting.	Comprehensive strategy blending various methods.
Measuring societal impacts. Aligning long-term goals with short-term measurements.	Integration of Theories of Change. Systematic three year follow-up after project end date.
Resource constraints. Lack of systematic processing and analysis.	Pragmatic stance due to resource consciousness.
Resource constraints. Lack of systematic standardisation of measurements.	Emphasis on potential outcomes and communication of success stories.

Table 1. Overview of aspects highlighted by respondents.

1. Introduction

For this report, interviews from key representatives of research councils and funds across Finland, Sweden, Denmark, Iceland, Norway, and the Faroe Islands, aiming to explore the complexities and nuances of research impact assessment in the Nordic region were collated and analysed. The overarching motivations for of these councils to measure impact include enhancing research quality, ensuring accountability and transparency, informing policy and strategy, and, in some cases, fostering long-term societal benefits.

Research impact is broadly understood as the effects or contributions of research on academia, policy, society, culture, and the economy. However, this definition varies across councils, reflecting diverse priorities and methodologies.

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The study provides qualitative data that contribute to the understanding of research impact philosophies and approaches in the Nordic context.

The national research infrastructure in the Nordics employs a range of approaches for impact assessment, from qualitative narratives and expert evaluations to sophisticated data-driven approaches. This diversity, stemming from different organisational sizes, scopes, and resource availabilities, highlights both the challenges and innovations in the field. However, despite methodological differences common challenges emerge, such as the complexity of defining and quantifying impact, aligning long-term research goals with short-term measurements, and the

constraints of limited resources. These shared difficulties underscore the need for collaborative efforts and shared learning. Further, there is a trend towards more structured, data-driven methodologies, with an increasing interest in leveraging digital tools, automation, and AI for data gathering and impact evaluation, but also and in contrast, a simultaneous trend toward complimentary qualitative assessments in the form of narrative- and case study-based approaches.

2. The study

This report is built as an exploratory study designed to understand how research impact is defined, measured, reported, and utilised by the research councils of the Nordic countries. The study aims to contribute to the broader discourse and to the knowledge base on research impact philosophy and measurement among the Nordic research councils.

Employing a qualitative methodological framework, nine semi-structured interviews with representatives from key Nordic research bodies, selected by the Nordic Heads of Research Councils Committee, were conducted during December 2023 and January-March 2024. These interviews were conducted virtually, transcribed, anonymised, and subjected to content analysis to extract definitions, measurements, methods, and utilisation strategies of research impact as well as respondents' thoughts and attitudes toward them. An OpenAI GPT-4 language model, primed for the qualitative analysis and context, was employed as an assisting tool in the rudimentary content analysis of the anonymised transcriptions.

The study provides qualitative data that contribute to the understanding of research impact philosophies and approaches in the Nordic context, simultaneously informing planning, practice and future scholarly inquiry.

3. Findings

Drawing from interviews with representatives from the Research Council of Finland, the Research Council of the Faroe Islands, Formas and Forte from Sweden, Innovation Fund Denmark, the Independent Research Fund Denmark, the Icelandic Research Fund Rannis, the Norwegian Research Council, and Vetenskapsrådet from Sweden, this chapter presents a collective analysis of their methodologies, philosophies, workflows, and definitions. It also explores the specific challenges they face and the future directions they envision. Through this examination, the chapter aims to provide a further understanding of the strategies employed across the Nordic region and the common themes that emerge.

3.1. Research impact

Defining research impact itself presents multiple challenges, reflective of the broader issues in the global academic-society interface, some of which are philosophical in nature, others epistemological and methodological.

One of the foremost challenges in defining research impact is its inherently complex nature. Research impact is seldom considered limited to academic advancements but extends to societal, economic, and policy influences. This multifaceted aspect makes it difficult to create a universally applicable definition. For instance, while academic impact might be, and often is, assessed quantitatively through publications and citations, societal impact might involve capturing changes in public policy, improvements in health outcomes, or technological advancements. The diverse nature of these “impacts” requires a broad lens for evaluation, which can complicate the process of establishing a clear and concise definition. Further, the difficulty in quantifying certain types

of impact, particularly those that are non-tangible or qualitative, adds to the challenge.

While quantitative metrics like citation indices, patent counts, or economic returns are commonly used to measure certain aspects of impact, these may not adequately capture the broader societal, cultural, or environmental influences of research. Qualitative assessments in turn, though valuable in capturing these aspects, often lack the objectivity and standardisation of quantitative methods, leading to challenges in consistent and comparable impact evaluation.



Research impact is seldom defined as limited to academic advancements but extends to societal, economic, and policy influences.

Another challenge is accounting for the long-term effects of research caused by the inherently stochastic processes in science and the time-lag this may cause before any observable change, influence, or impact. Many research outcomes, particularly those related to societal and policy changes, unfold over extended periods. This delay poses a problem in immediate assessment and reporting, as the full extent of the impact may not be apparent for years or even decades. For example, research in climate change or public health might take a long time to manifest tangible societal benefits. Consequently, assessing and reporting on the immediate impact of such research may be misleading or incomplete at best.

Adding to the challenge, attributing specific outcomes directly to particular

research activities is a complex task. This is especially true in collaborative and interdisciplinary research efforts where multiple entities contribute. Determining the exact impact of one research project or researcher within a larger collaborative framework is next unachievable.

Furthermore, in fields where progress is incremental and built on a wide array of preceding work, pinpointing the specific impact of a single research initiative becomes even more problematic. Thus, some chose to disregard the effort of demonstrating causal relationships from research to impact, instead opting for plausible "contributions", "influences" or "indicators".



...to ensure accountability and transparency in the use of public funds by demonstrating the value and effectiveness of research investments.

The definition of impact is also subject to varying interpretations by different stakeholders. For some parts of academia, impact might be primarily measured in terms of scholarly contributions, while industry stakeholders might prioritise commercial viability or technological innovation. Policymakers, on the other hand, may focus on societal and policy changes. This variation in expectations and values among different stakeholders leads to subjective interpretations of what constitutes a significant impact.

Furthermore, the dynamic nature of research fields and societal needs means that the definition of impact is constantly evolving. What is considered impactful today might change in the future, as

new societal challenges emerge and research priorities shift. This evolving landscape necessitates a flexible and adaptive yet robust approaches to defining and measuring impact, capable of accommodating new forms of research outputs and their influences while simultaneously providing some clear metrics that are comparative across fields and across time.

These challenges necessitate a multi-faceted, flexible enough approach that accommodates different dimensions of impact, recognises the long-term effects of research, navigates the attribution complexity, respects stakeholder diversity, facilitates trust, transparency, and evolves accordingly. Addressing these challenges effectively is important for developing a comprehensive and accurate understanding and ways to demonstrate the value of investments in science and research.

3.2. Motivations

The motivations and goals of Nordic research councils and institutions in measuring research impact are rooted in several key objectives, similar across all respondent organisations.

Foremost is the aim, and sometimes requirement, to ensure accountability and transparency in the use of public funds by demonstrating the value and effectiveness of research investments. Some report increasing pressure on this front, as economic restraints become ever more prominent. Impact measurement data is also perceived to have the potential to guide policy development and strategic decision-making within the research councils and governmental bodies.

By evaluating impact, these entities aim to encourage high-quality research and sometimes direct funding towards projects promising societal or academic benefits

and/or facilitate impact potential among projects. The hope is that this process aids in fostering collaboration between academia, industry, and other sectors, while showcasing the benefits of research to policymakers and the public.

3.3. Methodologies

The Nordic countries employ varied models for measuring and reporting on research impact, reflecting their specific priorities but also, and perhaps mainly, their resources. However, the workflows also share many similarities across the countries.

3.3.1. General observations

Most of the respondent organisations fund research through thematically directed calls or/and evaluate research efforts funded by other entities in their respective countries. In the call applications, data on projects expected impact is gathered and sometimes accounted for in the evaluations. This information is mostly descriptive and partially hypothetical, written from the researchers' expert perspective. Further, some form of final report is generally expected from all funded projects. These reports typically include a description or narrative of the project, and a bibliography of its results, activities, and outcomes. In some cases, projects are further expected to report activities and outcomes in a quantitative format, sometimes throughout the funding period; scientometrics, bibliometrics and sometimes different aspects of altmetrics. How this data is then utilised, if at all, varies greatly, from systematic reporting to stakeholders and use for process iteration to simply archiving.

While some methods to measuring research impact, especially in field-wide reports, generally take a top-down approach, where data is collected and collated by the research councils themselves or outsourced third parties,

many formats rely on researchers self-reporting their activities and outcomes. Apart from the biases and omissions typically encountered in self-reported formats, a challenge here lies with the researchers' reporting burden, which revolves around the complexities and time-consuming nature of documenting and communicating the impact of their research. Researchers are often required to provide detailed reports and evidence of their research's impact, which can be a time-consuming and intricate process. This requirement often leads to additional workload, taking valuable time away from their primary research activities. The challenge here is in balancing the need for thorough impact assessment with the practical workload limitations faced by researchers, underlining the need for meaningful and valid operationalisations of research impact to report on.

Regardless of methodology, ensuring the accuracy, relevance, and comprehensiveness of the data collected is another notable challenge. In self-reporting there is an inherent risk of subjective bias, misinterpretation, or overlooking important impact aspects, particularly those that are less tangible or longer-term. Additionally, the variability in data collection methods across different fields and institutions may lead to inconsistencies, making comparative analysis challenging. These factors collectively contribute to the complexity in ensuring high-quality data in collated research impact assessments.

In contrast, qualitative assessments and case study approaches are emphasised by some respondents for their effectiveness in capturing a more nuanced view of research impact. These qualitative methods allow for a more in-depth understanding of the impact, particularly in areas that are less quantifiable. Nonetheless, they also present challenges in terms of data quality. These challenges include the potential for

subjective bias in narrative descriptions, difficulties in standardising and comparing qualitative data, and the time-intensive nature of conducting detailed case studies. Nonetheless, these qualitative approaches are valuable for providing a more comprehensive view of research impact. None of the respondents reported a systematic or broad awareness of how other Nordic countries work with impact assessments. This knowledge was deemed to rely on specific contact points on the individual level.

3.3.2. Denmark

The Innovation Fund Denmark (IFD) focuses on fostering growth and employment alongside addressing key societal challenges through its investments. IFD targets sectors such as green technology and innovation, life science, health and welfare technology, and digitalisation, technology, and innovation, aiming to stimulate innovation and technological advances, interdisciplinary alliances, thriving entrepreneurship, and research excellence. The IFD's approach to impact measurement is evolving quickly at the moment. The IFD, since its inception in 2014, has undergone various changes in leadership and location, influencing its focus on impact analysis. Initially, there was a significant emphasis on conducting elaborate impact analyses, but this approach experienced shifts with changes in leadership and structural relocations.

Currently, their work involves building an impact model across all programs of the fund, focusing on integrating theories of change, monitoring models, and evaluations to influence future investment choices. This approach indicates a shift towards a more structured and systematic method of impact assessment, aiming for a balance between operational feasibility and the fund's long-term goals, such as growth, employment, and addressing other societal challenges.

The IFD recognises the complexity of measuring societal impacts and the challenge of operationalising these measurements, especially when the societal challenges addressed by research are not precisely defined and may emerge bottom-up from applicants. This makes program evaluation and the aggregation of individual project impacts challenging. Another significant consideration is the alignment of long-term goals with short-term measurements, a common challenge in impact assessment.

The IFD has an ongoing effort to find meaningful short-term measurements that can indicate progress towards long-term impacts, balancing the need for immediate results with the recognition that significant impacts, particularly in research and innovation, often manifest over extended periods. Further, the IFD is in the process of developing more structured and systematic approaches, drawing from Theories of Change, acknowledging the need for both quantitative and qualitative measures, and is exploring ways to operationalise these assessments in a manner that aligns with their strategic goals and the realities of the funding and political environment.

At present, the IFD lacks the infrastructure, in terms of resources and integrated systems, for collecting data and reporting. Nonetheless, the IFD now has the opportunity to develop bottom-up, first producing a robust and valid theoretical framework, followed by development of necessary infrastructure for data management.

The Independent Research Fund of Denmark (DFF), on the other hand, focuses mainly on basic research, which is reflected in their comprehensive approach to research impact as well.

DFF considers research impact to be of significant importance and has been

collecting data on research impact for almost three years, with the process now in the analytical phase. The DFF has published their views on how to define and measure research impact in their report titled "Five Ways to Research Impact", which outlines impact across cultural and societal, industry and business, policy and legislative, as well as scientific and educational domains.

The impact measurement process at DFF begins after a project ends, with researchers required to submit a final report that includes their impact metrics, consisting of a broad range of questions. Reports are submitted through DFF's own reporting portal. This report is followed up three years later to assess any new impacts that have emerged. In the report, DFF asks researchers for both qualitative and quantitative data regarding the impact of their projects. The metrics are defined by the funds strategy and cover a range of areas including career advancement, additional funding received, academic impacts (e.g., presentations at meetings), and impacts in the public sector (e.g., analysis used in public sector decision-making). These data are collated into a simple database construct that feeds into a PowerBI-built dashboard, that provides analytics at a glance for the user.

DFF acknowledges challenges such as ensuring researchers are aware of what impact they contribute to, dealing with missing reporting, and varying individual definitions of impact. They emphasise the importance of their approach of collecting data both immediately after project completion and three years later to capture longer-term impacts and are currently focusing on capturing the non-linearity and stochasticity of the impact process. Further, DFF plans to start publishing "impact-reports" on their findings and continue refining their approach to impact measurement.

3.3.3. Finland

The Research Council of Finland's approach to research impact assessment is notably comprehensive. The Council has developed a strategy that blends both qualitative and quantitative methods to evaluate research impact, emphasising the importance of capturing a wide range of factors, from academic advancements to societal influences. The standing definition of what the Council calls societal impact is "the ways in which research contributes to developments in society and to dealing with social issues and impact is complex phenomenon that arises in interaction between research data and other factors, often over the long period of time".

For funding applications, like the Flagship Programme for example, the Council requires a detailed research and impact plan that encompasses aims, objectives, implementation strategies, and expected societal effects beyond academia. Applicants are encouraged to self-assess the expected societal impact of their research, acknowledging the potential for science to contribute to prosperity, policymaking, skill development, and the broader development of society.

Furthermore, the Strategic Research Council (SRC) within the Research Council of Finland provides funding for long-term and program-based research, aimed at addressing major challenges facing Finnish society. The SRC's projects are selected based on scientific quality, societal relevance, and impact, emphasising the Council's commitment to research that seeks concrete solutions to societal challenges. Monitoring funded projects and evaluating their impact are indeed part of the statutory duties of the SRC (Act on the Research Council of Finland, section 5 b). The SRC operates under a governance model that includes strategic decision-making and impact assessment, reflecting a structured approach to fostering impactful research.

While the project reports are the Councils main source of scientific impact measures, their methodology includes employing a variety of metrics to assess outputs, collaboration, and researcher mobility, alongside a self-evaluation component for projects to gauge their societal impact. This multidimensional approach allows for nuanced and thorough analysis of the consequences of research activities, even though their theoretical framework regarding impact faces the same definitional and epistemological challenges as their peers. Moreover, the Council engages in periodic interim evaluations on specific funding instruments, like the Flagship programme, sometimes involving external reviewers for more specialised analysis. This practice may facilitate objectivity and diversity in evaluation.

In addition to these practices, the Council produces reports on the state of scientific research in the country. These reports incorporate both quantitative and qualitative analyses, providing a comprehensive view of research trends, outputs, and impacts. This approach of regular reporting serves a proactive and continuous effort to monitor and evaluate the research landscape in Finland.

The Council's approach to impact assessment is not without its challenges. The respondent highlights concern regarding the quality of data and reporting, signalling an ongoing effort to refine and improve the processes and tools used for impact assessment. To address these challenges, the Council aims to enhance its reporting system, targeting a more structured and efficient process.

The Council's approach to research impact assessment is thus characterised by a blend of diverse methodologies with both quantitative and qualitative assessments, and a continuous effort to improve and refine impact measurement practices. This strategy reflects a drive to understanding

the nature of research impact and a commitment to capturing a broad spectrum of research outcomes, from scientific contributions to societal benefits.

To summarise, the Council measures research impact through project reports, including basic measures for outputs, collaborations, mobility, and self-evaluation of societal impact. They use bibliometric studies for scientific impact and qualitative measures for societal impact. The Council is developing a structured reporting system to better report societal impact alongside scientific impact. Challenges include improving the quality of reporting data and developing tools for analysing impact. They aim to improve data quality and dissemination of research impact to validate public investment in research.

3.3.4. Iceland

In Iceland, the Icelandic Centre for Research, Rannís, is responsible for administering domestic grants in research and innovation, and as such manages the only comprehensive bottom-up research fund in Iceland. It is hence primarily a research funding organisation. Rannís' approach to research impact assessment is marked by a pragmatic and resource-conscious stance. While there is an acknowledged legal obligation to collect and report on data on research outputs and impact, Rannís faces challenges in systematically capturing and utilising this data, largely due to resource constraints and a stated lack of coherent digital infrastructure.

The current practice involves collecting progress and final reports from funded projects, which provide some degree of insight into outputs, outcomes and impact. However, these reports are not always systematically processed or analysed thoroughly, mainly due to the lack of resources. This has led to a situation where

the data may reside in files without much further utilisation, systematisation, or analysis.

Rannís supports occasional external third-party impact assessments, especially for large-scale reviews, indicating a will to focus on impact measurement but also a reliance on external expertise for more comprehensive analysis.

Despite these challenges, there is a clear recognition of the need for valid impact measurement and reporting. Rannís is exploring digitalisation and online systems for better data management, indicating a move towards more structured and systematic impact assessment methods in the future. Rannís' approach highlights the challenges smaller research councils and organisations face in effectively measuring and reporting research impact. It underscores the need for resource optimisation and the potential benefits of leveraging digital tools and cooperation to enhance impact assessment capabilities.

Conclusively, Rannís collects progress and final reports, which include typical impact parameters, but lack a systematic approach to utilise this information effectively. Rannís supports external impact assessments by contracting third parties, which is considered an efficient method. However, due to limited resources, Rannís' ability to capture and act on impact data is described as underdeveloped and under-resourced, highlighting a need for more structured approaches and more resources for impact measurement.

3.3.5. The Faroe Islands

The Faroe Islands' Research Council's approach reflects a pragmatic perspective similar to the Icelandic one.

In their methodology, funding applicants are required to include expected impacts within their project proposals. These are

evaluated by external experts, emphasising a forward-looking assessment of potential outcomes. Projects are expected to provide annual and final reports, which include information on impacts. However, the approach is not systematic or standardised across all programs, highlighting the council's resource constraints and the challenges in implementing a comprehensive impact assessment strategy.



A proactive and collaborative approach may significantly enhance the effectiveness and accuracy of research impact measurement in the Nordic region.

Furthermore, the Council occasionally conducts evaluations of specific programs or initiatives to assess general societal impact, relying on qualitative rather than quantitative assessments. The Council also engages in outreach activities to communicate research impacts, showcasing success stories to illustrate the practical outcomes of funded research. This approach, while less formalised, underscores a priority to identify and communicate the benefits of research, particularly to the wider community and stakeholders.

3.3.6. Sweden

The approach to research impact measurement in Sweden, as represented by Formas, Forte, and Vetenskapsrådet, showcases a mix of traditional and progressive understandings of research impact. It is notable, however, that Formas, Forte, and Vetenskapsrådet all have different mandates which naturally are reflected in their aims and methods.



Another challenge is the long-term nature of research impacts, particularly in societal and policy areas, where significant effects often unfold over extended periods.

Formas, focusing on sustainable development, has evolved to include funding for both the private and public sectors. They emphasise the impact of their funded research and innovation on societal progression towards sustainable development. Their strategy includes a mix of qualitative and quantitative methods, with recent advancements in data-driven approaches like successfully integrating PowerBI into their workflow, facilitating the aggregation and analysis of impact data. However, while Formas is dedicated to fostering conditions that enable projects to have an impact, they consider measuring impact challenging.

Formas has a broad and evolving approach to measuring research impact, focusing on both quantitative and qualitative assessments. They use Power BI to aggregate and analyse data from project reports, allowing them to visualise the impact in various dimensions, such as policy influence, scientific publications, and societal engagement. Formas also

stress the importance of maintaining a balance between data-driven approaches and recognising the nuanced, qualitative aspects of impact, acknowledging the challenges of directly linking specific research projects to societal changes. This approach reflects an adaptive strategy towards understanding and enhancing the impact of research on sustainable development.

Forte considers impact "that research results are used by decision makers and professionals in in different organisations, in practices and policy to ultimately improve the lives of people and our society". In emphasising societal impact, they face challenges in systematically measuring and reporting such impact. To counter these challenges, they are exploring the potential of AI and digital tools for future impact evaluation.

However, and quite similar to Formas, Forte focuses mainly on facilitating research impact, rather than directly measuring and reporting on it. Their approach emphasises creating good conditions for impact by demanding researchers to ensure their work is relevant for society and has a clear plan for implementation.

Forte defines research impact as research results being used by decision-makers and professionals to improve societal conditions. Emphasising societal impact, they face challenges in systematically measuring and reporting such impact. To counter these challenges, they are exploring the potential of AI and digital tools for future impact evaluation. As Forte sees itself mainly as a facilitator, they encourage collaboration between research and society and integrating impact considerations from the start of projects. The complex task of measuring impact is acknowledged, however the current efforts more focused on setting the right conditions for impactful research

rather than quantitatively measuring outcomes and analysing their impact.

Vetenskapsrådet, balancing academic excellence with societal relevance, employs a diverse set of methodologies, including a model inspired by the Research Excellence Framework in England as well as case studies written in collaboration with researchers, which have gotten positive responses from the researchers so far. Vetenskapsrådets organisational status stipulate that they ought to "evaluate the quality and significance of research", where they interpret "the significance of research" as societal impact or societal significance of research.

In all, Sweden seems to be moving towards structured, data-driven methodologies, balancing the need for quantitative data at Forte and Formas, and the richness of qualitative insights through the incorporation of case studies by Vetenskapsrådet.

3.3.7. Norway

The Research Council of Norway plays a central role as a tool for the Norwegian government in shaping research and innovation to address societal challenges and enhance sustainability. It functions as the government's key advisor on research policy, managing substantial annual funding for research and innovation projects. The Research Council encourages applications from research organisations, companies, and public sector entities, supporting a wide range of fields through its project portfolios.

The approach of the Research Council of Norway to research impact measurement is both comprehensive and systematic. The Council conducts subject-specific evaluations of Norwegian research every 10 years, which include qualitative assessments and the traditional scientometrics. Since 2015, societal

impact has been integrated into these evaluations, indicating a growing emphasis on broader research outcomes.

The Norwegian approach underscores the importance of both immediate and long-term research impacts, balancing the need for more immediate, measurable results with the recognition that significant impacts, especially in societal and policy domains, often materialise over extended periods. This method of assessment demonstrates Norway's aim for a thorough and evolving understanding of research impact, aligning with the country's broader research and innovation goals.

The Council conducts comprehensive evaluations of all research fields every ten years. Additionally, impact assessment is integrated into funding proposal evaluations since 2019, covering both research and societal impact. The Council uses a logic model of its own for planning and describing expected outputs, outcomes, and impacts, emphasising the contribution of research to societal benefits.

3.4. Challenges

The challenges in research impact measurement, as explored through these interviews with Nordic research institutions, encompass several key areas.

Firstly, there is a profound complexity in measuring societal impact. Quantifying and directly attributing these impacts to specific research activities pose significant challenges. Secondly, resource constraints are a notable issue, especially for smaller organisations like those in Iceland and the Faroe Islands. Thirdly, these feed into the difficulty of establishing and committing to any digital infrastructure and workflow for extended periods of time, even though such an infrastructure would, admittedly, facilitate ease of both reporting, collecting, and presenting different forms of data.

These constraints impede the ability to conduct thorough and systematic impact assessments. Another major challenge is the time-lag it may take for impact to materialise, particularly in societal and policy areas, where significant effects often unfold over extended periods, complicating immediate assessment and reporting. Additionally, councils struggle with balancing quantitative data and qualitative insights to provide a comprehensive view of research impact. Ensuring high-quality, systematic data collection and analysis remains an ongoing challenge, further complicated by the evolving nature of research fields and societal needs.

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One major takeaway is the importance of embracing diverse methodologies, as a one-size-fits-all approach seems ineffective in capturing the broad spectrum of research impact.

4. Takeaways

Each entity has developed or is developing distinct strategies that reflect their specific research landscapes and priorities. While some adopt data-driven approaches, others rely on qualitative narratives. Common challenges, such as measuring societal impact and resource constraints, highlight areas for potential improvement and collaboration.

Collaboration between councils for sharing best practices and developing standardised methodologies could be beneficial. Smaller councils, in particular, would benefit from increased infrastructure sharing dedicated to impact assessment, enabling more effective and comprehensive strategies.

Furthermore, developing methods for tracking and evaluating the long-term impacts of research would be essential, as many significant effects unfold over extended periods.

Considering methodology, a balanced integration of both quantitative data and narrative-based methods may provide a more holistic view of research impact. Councils should remain continually refining their tools and approaches for impact assessment to stay aligned with evolving research fields and societal needs. Here, a proactive and collaborative approach may significantly enhance the effectiveness and accuracy of research impact measurement in the Nordic region since all toil with the same questions and dilemmas.

Standardising some methodologies, may increase efficiency, as it could reduce redundant efforts and allow for better allocation of resources. Such partial uniformity may also enable meaningful comparisons across different landscapes and disciplines, providing a clearer picture of the effectiveness of research initiatives region wide. Collaboration fosters this sharing of best practices and innovative methodologies, enhancing the quality and effectiveness of impact assessments. Broadening perspectives through cross-country cooperation may enrich the overall understanding and analysis of research impact. Additionally, such collaborative efforts would support policy alignment at a regional level, ensuring that research strategies and funding are more effectively aligned with shared objectives and challenges. This begs the question of what kind of forum and workflow would be prudent in the facilitation of effective collaboration.

The integration of digital tools and workflows for reporting and assessment in research impact measurement can significantly streamline and enhance the process of data gathering and analysis.

Digital tools offer efficient data collection, processing, and analysis capabilities, enabling more sophisticated and timely assessments. They also facilitate data visualisation and reporting, making it easier to communicate complex impact pathways to various stakeholders. Moreover, digital workflows can ensure more consistent and standardised approaches while retaining flexibility for context-specific assessments. An efficient digital infrastructure would ensure that data collection and storage are systematic and secure.

Further, a structured database allows for the organisation of diverse data types, making it easier to retrieve and analyse information. Having the right software and knowledge to collate, analyse, and report on impact is crucial for accurately interpreting data and drawing meaningful conclusions. These components can collectively enhance the reliability, efficiency, and effectiveness of the research impact assessment process.

Maintaining context-specific assessments captures nuances, especially through qualitative assessments such as narratives and case studies. These methods provide in-depth insights that standardised quantitative approaches might overlook. They capture the unique cultural, societal, and disciplinary aspects of research impact, which are essential for a comprehensive understanding.

Conclusively, the Nordic systems present similarities and disparities. These systems seem to have evolved organically and out of necessity, in contrast to having been constructed systematically in the light of a clear theoretical framework, relating to the difficulties in defining impact in the first place.

5. The NordForsk model

The NordForsk model is included in this report to provide a further perspective to the discussion. Like the national organisations, NordForsk has a shared interest in ensuring accountability and transparency, as well as demonstrating the value of research endeavours. Measuring and reporting on research impact is a central part of this work.

5.1. Definition

At present, the standing definition of research impact at NordForsk is “the results and effects of our engagement”. However, it is recognised that this phrasing is problematic, and the discussion is ongoing regarding revising this definition to reflect more accurately what is actually measured and reported.

5.2. Methodology

NordForsk has a standard infrastructure for gathering data, which is being continually developed. For one, applications are expected to write on expected outcomes and impacts, not least on Nordic added value, a measure of strategic benefits of specific importance to Nordic research cooperation. Further, qualitative, and descriptive project data is reported by the research groups in our project management system, Insights. This data contains abstracts, popular summaries, final reports, funding, and rudimentary demographics.

Annual and final quantitative reports are also submitted to an online database, ResearchFish. Where projects self-report on activities, outcomes, results, and outputs, such as publications, policy influence and dissemination activities. Some of these are automatically validated through the systems data harvesting feature. Qualitative descriptions may be added to all datapoints by the researchers.

In addition to these, trials with impact narratives and case-studies have been made, to serve as a supplement to the quantitative reports.

5.3. Reporting

The main output for reporting is annual reports on the quantifiable metrics reported in ResearchFish. Further, the relatively robust collection and storage of data has allowed for the construction of data dashboards, where anyone can analyse the quantitative data and its relationships.

In specific cases, thematic reports are produced, where quantitative and qualitative data supplement each other for to produce a more comprehensive glimpse of a certain field of study.

5.4. Challenges

Aside from the philosophic dilemmas regarding causality, attribution and defining research impact, the harmonisation of data as well as producing reliably automated processes for analysis have been the foremost challenges. These stem mainly from the reliance on self-reporting, which affects the data quality.

Furthermore, NordForsk has a keen interest in analysing and benchmarking Nordic research endeavours, which is complicated by the difficulty of gathering comparable and standardised data on national, Nordic, European, and global levels.

These may be addressed by more robust and standardised reporting systems and collaborative databases.

6. Limitations

The representatives for the semi-structured interviews were selected by NORDHORCS, which introduces a selection bias, and the views and practices detailed by the representatives may not encapsulate all possible perspectives within each council or the broader academic and research communities within the Nordic countries. Also, the study relies on self-reported data obtained through the interviews and this data is subject to individual biases. There is also the inherent risk of misinterpretation or omission of details, especially since the interviews are conducted in a multi-lingual environment, which may influence the study's conclusions. To mitigate this, all respondents were given the opportunity to fact-check and comment on this report before publication.

Regarding the methodology, the comparative analysis aims to systematically identify similarities and differences in research impact philosophies. However, this method relies on the assumption that the categories of comparison are equivalent across contexts, which may not account for the unique cultural and operational nuances of each Nordic country. Furthermore, as the interviews were conducted via virtual meetings, there may be limitations in communication, such as missing out on non-verbal cues, which can be significant in qualitative research, are harder to discern in virtual settings.

Further, AI did set a new dimension to consider, as its use is experimental. To mitigate the risk of AI generated mistakes or misinterpretations, all steps in the process were documented and all AI supported conclusions and findings were crosschecked by a human analyst.

Recognising these limitations is important for critically assessing the research and for understanding the scope within which the findings may be applied. Future research may address these limitations by, for example, incorporating quantitative data, broader participant selection, or through longitudinal studies that capture changes over time.

7. Conclusions

This report underscores the variability and complexity inherent in measuring research impact, revealing some of how different Nordic countries tackle this challenge within their institutional frameworks.

One major takeaway is the importance of embracing diverse methodologies, as a one-size-fits-all approach seems ineffective in capturing the broad spectrum of research impact. Different fields of study, with their unique characteristics and societal impacts, require tailored assessment strategies. This diversity, while challenging, is essential for a comprehensive understanding of research impact.

Another lesson is the need for collaboration and shared learning. The interviews suggest that Nordic research councils can benefit greatly from exchanging methodologies, experiences, and insights. Such collaboration could lead to the standardisation of some assessment practices and infrastructure, making it easier to compare and understand research impact across different fields and countries.

There is a trend towards more structured, data-driven methodologies, with an increasing interest in leveraging digital tools, automation, and AI for data gathering and impact evaluation. Thus, successful integration of technology is another crucial step forward. The

lessons from this study suggest that leveraging digital tools for data collection, management, and analysis can streamline the research impact assessment process, making it more efficient and accurate. Advanced software solutions and digital platforms can facilitate the handling of large data sets, enabling more sophisticated analysis and interpretation of impact, whatever the definition, while simultaneously working toward valid operationalisation of the term research impact. In contrast, there seems to be a simultaneous trend toward complimentary qualitative assessments in the form of narrative- and case study-based approaches. The methodologies for collating and analysing these data may vary case by case but, nonetheless, these offer an attractive option for more nuanced and approachable storytelling.

Conclusively, especially central questions regarding what ought to be considered valid operationalisation of research impact and how to measure it, as well as methodology and best practices would benefit from shared discussions and development across organisations.

Visit our dedicated webpage on research
impact at nordforsk.org/research-impact

