To Be or Not to Be Responsible? Academic Research and Social Responsibility

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Abstract.   Publicly funded universities have been under increasing pressure to provide evidence regarding the economic value of their core activities, not least when it comes to the social benefits accrued from the research mission. This study offers a glimpse of Nordic perspectives on the social impact of research from the positions of policymakers, university leadership, and academics. From a macro perspective, the paper investigates to what extent Norwegian policy actors rely on the excellence/relevance discourse in their plans for the future development of higher education. At the meso level, the study explores how academic leaders make sense of internal and external pressures (drivers and strategic agendas) to produce and transfer knowledge that addresses social problems. Perry and May's (2006) typology of the relevance–excellence interplay is used as a framework for interpreting the findings. The findings reveal a complex mix of logics underpinning hegemonic discourses, strategic actions, and postures. Excellence and relevance were found to be deeply embedded in the activities of sub-units, academic groups, and individual academics.

Keywords: higher education, Norway, excellence, relevance, research valorisation, social impact of research.

Introduction

All over the world, universities are encouraged to carefully reassess their role in society and evaluate their relationships with various constituencies. Due to the significant public support for higher education (HE) in most Western societies, not least across the Nordic countries (EUA, 2020), public universities are under increasing pressure to take more responsibility for social needs. Historically, universities have always been expected to contribute to society, either by providing educated

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administrators and skilled researchers or by educating the citizenry (Bender, 1991; Geschwind, Kekäle, Pinheiro & Sørensen, 2019). Today, however, university impact is primarily conceived of in economic terms, such as direct contributions to local and national economic growth (Benneworth, 2018) and innovation (Capello, Olechnicka & Gorzelak, 2012). More recently, the so-called 'grand challenges' – global warming, health and well-being, educational quality, gender equality, etc. – have become dominant themes in policy discussions and HE funding schemes, with universities seen as best positioned to help tackle them (Kaldewey, 2018; Sørensen, Geschwind, Kekäle & Pinheiro, 2019). Since the rise of the 'evaluative state' (Neave, 1998), public universities have been under increasing pressure to provide evidence regarding the economic value of their core activities, not least when it comes to the social benefits accrued from knowledge production or the research mission.

This paper addresses two main research problems. From a macro perspective, it maps out the policy environment, ascertaining to what extent the Norwegian policy actors rely on the excellence–relevance discourse in their plans for the future development of HE by undertaking a desktop analysis of national policy documents and strategies. In the second part, the paper moves on to the meso level and investigates how actors within one case university are making sense of internal and external pressures to produce and transfer knowledge that addresses social problems. More specifically, at the meso level, we investigate three key aspects of universities' research impact agendas: a) drivers, b) how social impact is measured, and c) policy/strategic implications. The study offers a glimpse of Nordic perspectives on the social impact of research from the positions of policymakers, university leadership, and academics.

Assessing the social impact of academic research

Although the expectation that universities contribute to society has been constant throughout history, the nature of that expectation has changed over time. Until around the 1960s, public universities in Western countries such as Norway were mostly left alone to conduct research as they saw fit. However, in recent decades, universities have been under more pressure to provide short-term evidence of social impacts and the economic value of their activities (De Boer & File, 2009; Neave, 1998). There are ongoing calls for imposing more responsibility on universities towards funders, policymakers, and society in general (Pinheiro et al., 2019). In other words, policymakers and other stakeholders expect greater impacts from university activities, especially with regard to academic research (Benneworth & Olmos-Peñuela, 2014).

The impacts of academic research can take three main forms: scientific, political, or social. A *scientific* impact is commonly defined as "a change in research, which breaks the dominant paradigm and influences future research investigations" (Reale et al., 2018, p.299). This is the least disputed and most easily quantified kind of impact, since the tools used to evaluate academic work already exist. A *political* impact follows a transfer of knowledge, such as when decision makers or social actors

employ the reported (public) results of academic research as the basis for their policies or strategic actions (Flecha, Soler-Gallart, & Sordé, 2015; Martí, Flecha, Rodríguez, Luis, & Bosch, 2020). *Social* impacts are the most ambiguous of the three, as there is no consensus regarding the meaning of the concept or how to measure it.

According to Reale et al. (2018), there is a broad spectrum of research on social impacts that investigates topics such as human rights, social and economic cohesion, employment, human capital formation, and public health and safety. However, some argue that the social impact of research is limited to a few items that pertain to people's living conditions, such as welfare, well-being, quality of life, and habits, including consumption, work, sexuality, sports, and food (Godin & Doré, 2005). When analysed in detail, elements of the social impacts of research can be categorised along the dimensions of social, cultural, environmental, and economic returns (Bornmann, 2013, p.218). Although they are conceptually distinguishable, it is very difficult to separate such elements in practice. Therefore, in this paper, we utilise the term social impact of research holistically and rely on the broad definition by Reale et al. (2018), thus allowing our respondents to outline in what areas university-based research is making a social impact.

According to Bok (1982), social responsibility in research can be linked to three main types of stakeholders: the academics who conduct research; the governments that create the conditions for research and use its findings; and the universities, which act as mediators. One of the main challenges is to determine how to measure impact. Bornmann (2012) contends that researchers are often unaware that their research has a social impact. It is probable that research already has direct social impacts, but there is a dearth of proper tools for measuring them. Other confounding issues include the time lag between research activities and their ostensible impacts, as well as the problem of determining the extent to which any given research result caused the proposed effect (Reale et al., 2018).

Bornmann (2012, 2013) found at least four major problems or dilemmas while measuring research impact. First, there is the *causality* problem; it is difficult to prove that a given impact can be attributed to a specific cause or set of causes. Second, there is the *attribution* problem; impact can be diffused, complex, and contingent, and it is unclear what should be attributed to research or to other inputs. The third is the *internationality* problem; the international nature of research and development and innovation makes attribution virtually impossible. Finally, there is the *timescale* problem; prematurely measuring impact might result in policies that emphasise research that yields only short-term benefits, ignoring potential long-term consequences (Bornmann, 2012, p.674, 2013).

Several researchers have proposed ways to measure social impact. Weiss (1979) identified six ideal models of research use and ways to approach its evaluations, while Walter and Spitta (2004) proposed a model consisting of three types of research use and evaluation. Some institutions have tried to develop their own methods of measuring the social impact of research. For example, Wageningen University & Research, a Dutch public university specialising in technical and engineering subjects, collaborated with Elsevier to measure the social impact of its research by monitoring media, social

media, and policy documents. Their main findings showed that peer-reviewed articles were more likely to be included in policy documents, and studies cited in policy documents received more media attention than other similar studies (Hilten, 2018). Bornmann (2012) points out that research on social impact is still in its infancy; there is no distinct community with its own series of conferences, journals, or awards for special accomplishments. However, some countries are trying to develop quantitative models for measuring social impacts. According to Bornmann (2012, 2013), the bulk of studies that measure social impact are qualitative. Although this method is labour intensive, it may nevertheless be the best way to investigate the complex social impacts of research. We followed the same logic and applied a qualitative methodology in our research.

Unpacking the excellence and relevance interplay

Contemporary scholarly and policy debates surrounding the socio-economic role of science in general and HEIs in particular tend to either stress the importance of world-class research endeavours ('excellence') or to underscore their mid- and long-term social effects ('relevance'). Across many European countries, the Nordics included, funding agencies have developed a series of policy instruments geared towards fostering excellence and relevance within universities. In the Nordics, a region traditionally characterised by strong egalitarian principles, the recent decade has assisted in the rise of an 'elitist' discourse within science policy, centred on the notion of excellence in the context of global competitiveness (Geschwind & Pinheiro, 2017). Likewise, external calls for a more active role of publicly funded universities and other types of higher education institutions (HEIs) in helping to tackle the grand challenges facing societies, both locally and globally, have resulted in the rise of a 'responsibility agenda' in HE, centred around the notion of relevance (for a recent account in the Nordic context, see Sørensen et al., 2019). At the meso level, relevance and/or excellence are now part and parcel of the strategic platforms of Nordic HEIs across the board (Frølich & Stensaker, 2021).

Traditionally, accounts have tended to conceive of relevance and excellence as dichotomies, with HEIs having to make strategic trade-offs on where to position themselves. At the governance level, such bifurcation or differentiation lies at the heart of binary HE systems composed of research-intensive universities on the one hand (geared towards national/global excellence) and their more vocationally oriented and locally embedded counterparts (universities of applied sciences/colleges/polytechnics) on the other (Kyvik, 2009), stressing local/regional relevance. Perry and May (2006) refer to the 'missing middle' where excellence and relevance are conceptualised as *interdependent*: "excellence can be relevant, and relevance can be excellent" (p.76). By mapping the excellence–relevance continuum against degrees of contextualisation (global vs. local), the authors identify four different, non-exclusive policy/managerial discourses or 'logics'. Table 1 provides a summary of the key features and strategic/normative orientations associated with each of the four logics (the original terms 'embedded' and 'disembedded' were replaced with 'local' and global' for

better clarity).

Table 1. The four logics or discourses

Logic	Key Features
Globalised Excellence	Highlights policy/managerial approaches that focus on scientific self-governance, selectivity, and the concentration of resources (people and funding). It is supplemented by efforts to attract and retain the best and brightest talents in terms of academic staff and students within a global competitive environment.
Globalised Relevance	Focuses on knowledge transfers to the outside world: intellectual property, university–industry links, academic spin-offs, business-led innovation, etc. In so doing, it pays little attention to the local context as either a contributing success factor or beneficiary.
Localised Excellence	Stresses key assets or strategic inputs, such as "world-class" scientific facilities and expertise. It privileges the creation of favourable framework conditions and generic assumptions over the local benefits that will indirectly ensue, without considering the mechanisms required for their realisation.
Localised Relevance	Prioritises the generation of genuinely co-produced research priorities and agendas, centred on measures to connect the research base, both public and private, with industry, and tackle issues of social inclusion or economic opportunity.

Source: Authors' own, adapted from Perry and May (2006)

At the macro level, the identification of specific hegemonic logics or discourses along different policy domains aids the clustering of positions that cut across scales of governance, thus helping to unpack the complexity associated with the governance process and its multiple stakeholder groups and their respective normative orientations and strategic preferences.

> […] [Globalised Excellence] largely characterises the discourses of those charged with science, research and higher-education policy; *competitive relevance* [Globalised Relevance] encapsulates the dominant policy rationale within economics or trade ministries or sections; those responsible for regional economic development and innovation at national and subnational levels tend to coalesce around an *embedded understanding of excellence* [Localised Excellence], focused on the attraction and then exploitation of particular products and scientific institutions; while relatively little attention is given to the notion and potential of *contextual relevance* [Localised Relevance], with those who speak in its name dismissed as 'political' or naïve. (Perry & May 2006, p.79; emphasis added)

Case and method

The study adopts a qualitative single (in-depth) case study design based on a systematic review of the extant literature and semi-structured interviews (undertaken in the fall of 2019) with key (N=8) university actors at a comprehensive Norwegian university (see Table 2 for an overview of respondents and their positions). The case university represents a typical, research-intensive comprehensive university with a multidisciplinary profile and well-established local links and global scientific networks, thus constituting a relevant reference for similar academic organisations in the Nordic countries and beyond. The sample includes leaders at multiple levels of analysis: central

administration (rectors/vice rectors) and faculty (deans and heads of research), the latter belonging to three distinct disciplinary groupings, following Becher (1981): a) the natural sciences/technology, b) the humanities, and c) the social sciences. Interviewees were selected using strategic sampling combined with a snowball approach (Yin, 2018), encompassing actors at multiple levels directly involved with the planning, execution, and evaluation of research policies, strategies, and activities. The interviews were recorded verbatim and fully transcribed and codified using NVivo v11.

Table 2. Overview of respondents

Respondent code	Respondent leadership position	Faculty/division
R1	Pro-Rector	N/A
R2	Vice Dean – Research	Faculty of Mathematics and Natural Sciences
R3	Vice Dean – Research	Faculty of Humanities
R4	Research Group Leader	Faculty of Humanities
R5	Vice Dean – Research	Faculty of Social Sciences
R6	Director – Research Centre	Faculty of Social Sciences
R7	Senior Researcher – Centre of Excellence	Faculty of Mathematics and Natural Sciences
R8	Director	Research and Innovation Division – Central Administration

The Gioia methodology (Gioia, Corley, & Hamilton, 2013) was followed. First, the interview transcripts were recoded to fulfil the required confidentiality agreements with respondents. Second, the open coding process was conducted independently by three qualified researchers (the authors of this paper). Coding was compared, and discrepancies were addressed. Drawing upon the Gioia methodology, which "encourages the presentation of the research findings in a way that demonstrates the connections among data, the emerging concepts, and the resulting grounded theory" (Gioia et al., 2013, p.17), the coding of first-order concepts began by adhering to the terms and understandings used by informants in relation to the case context.

A second-order analysis focused on building theoretical constructs of themes and aggregate dimensions that helped us answer the research questions (Gioia et al., 2013). Nodes were condensed into narrower domains to create themes and categories. The smaller categories were then grouped according to the three main areas of this research: a) the drivers of such agendas, b) how impact is measured, and c) the policy/strategic implications of the social impacts of research. We then identified how the observed concepts and patterns were explored by different respondents and managed to distil them even further into third-order aggregate dimensions. The resulting structure provided a theoretically meaningful visual aid configuration of our data and illustrated the research analysis process from raw data to concepts and themes, which is an important aspect of rigour demonstration in qualitative research (Tracy, 2010).

Findings and analysis

This section is split into two main parts. In the first part, we map the dominant policy discourses at the policy or macro level in the Norwegian context as a way of providing the backdrop for unpacking and interpreting the dynamics within the case university. In the second part, we focus on the institutional or meso level, where we look at how the main actors (academic leaders) make sense of internal and external pressures (drivers and strategic agendas) to produce and transfer knowledge that addresses social problems.

Research excellence and relevance: The policy domain

As is the case with many other countries, Norway's Ministry of Education and Research has, in dialogue with key actors across the HE sector and society at large, developed a long-term strategic plan (2019–2028) wherein a set of key goals and priorities are specified, in accordance with social challenges and political ambitions (Norwegian Ministry of Education and Research, 2018). The plan is revised every four years (with the next iteration planned for the fall of 2021) in light of shifts at the political and societal levels, as well as global trends and developments. The current plan has *three* main strategic goals: a) strengthen the country's competitiveness and innovativeness, b) address large social challenges, and c) develop scientific environments of outstanding quality (Table 3).

Norway's strategic framework could be characterised as 'all inclusive'; i.e. it adopts a holistic or systemic policy approach (cf. Trondal et al., 2022), denoting features of all four logics or discourses delineated above. The first strategic objective (Strengthen competitiveness and innovation ability) stresses the need for fostering R&D or absorptive capacity across the board (academia and the public and private sectors) as well as cross-sectorial interactions in the context of knowledge transfers. These goals are intrinsically associated with logic 2 (globalised relevance), emphasising "the application of STI (science, technology and innovation) to specific economic or social issues and strategic priorities as a precondition for global success" (Perry & May, 2006, p.76). The second strategic objective (Address large societal challenges) is centred in the local context (Norwegian society/economy) and stresses the critical role of the public sector in the context of long-term sustainability (the green shift and welfare state). This is a clear example of logic 4 (localised relevance), where "skills, training and widening participation agendas assume wider importance" (p.78). The third and final objective (Develop scientific environments of outstanding quality) encompasses a combination of features associated with logics 1 and 3, where excellence is the key priority, both in contextualised (local) and non-contextualised (global) orientations and in the context of the nurturing of "domestic world-leading scientific environments" (Norwegian Ministry of Education and Research, 2018). Overall, these findings are associated with the fact that, in spite of the distinctions provided in Perry and May's typology, "in practice, there are many hybridisations, with different rationales for scientific investment and distribution at multiple scales" (Perry & May, 2006, p.78).

Table 3. Norway's long-term HE and Research strategy (2019-2028): Goals, rationale and conditions

Strategic goal	Policy rationale	Framework conditions
1. *Strengthen competitiveness and innovativeness*	The ability and willingness to use new technology is crucial for increased productivity and value creation. This requires a high level of knowledge and competence in the workforce and a good flow of knowledge between academia and working life and business.	• Stimulate increased R&D in business and the public sector as a basis for green shift, competitiveness and increased innovativeness • Facilitate new research-based business and better cross-sector interaction: academia, business, and public sector • Increased digitisation and the use of new technology
2. *Address large societal challenges*	The government believes it is particularly important to focus efforts on implementing the green shift and ensuring a sustainable welfare state.	• Education, research, and technology development that contribute to achieving climate and environmental goals and promoting the green shift • Research and innovation for increased quality and efficiency in the public sector • Knowledge about what can contribute to fewer people falling out of working life and more people staying longer in work, as well as highlighting challenges related to migration and an ageing population
3. *Develop scientific environments of outstanding quality*	The government will continue its efforts to strengthen the quality of HE and research and facilitate the development of more, domestic world-leading scientific environments.	• Empower young talent to build the outstanding professional environments of the future • Professional environments collaborate with and are part of the best global environments • Enable students, lecturers, and researchers to access world-class scientific equipment and infrastructure • Facilitate increased diversity, greater transparency, and a high ethical standard in research and education

Source: Authors, adapted from Norwegian Ministry of Education and Research (2018)

Research excellence and relevance: The university domain

As indicated earlier, respondents were asked questions pertaining to three key elements: drivers, measurements, and implications. The key findings for each element are briefly sketched below.

Drivers of social impact agendas

This study explores the factors that define, shape, and influence the impact of research by directing the choice of dominant themes and specific demands within social impact research (Harman & Harman, 2004; Johnston & Huggins, 2016). Our respondents were asked about the stakeholders and forces behind the research agendas in their respective academic units. Several themes emerged as driving factors that push the social impact of research to the fore. The drivers are linked to multiple factors, both within and outside the university setting: academic freedom to conduct basic research, stakeholder demands, and funding opportunities; however, these drivers can all be seen as mutually reinforcing.

Universities mostly decide on the research themes that are vital to society and that will showcase the university's relevance to society. This is primarily accomplished through research, and some institutions measure the success of their actions based on the extent to which the research has wide-reaching implications for society and practitioners. Nonetheless, some of our respondents stressed the importance of safeguarding traditional university autonomy and a commitment towards basic research aligned with one's own professional interests and expertise.

> […] this (increasing focus on social impact) makes it vital for the university to hang on to basic research, lump-sum (non-competitive) funding, and to the kind of research that is initiated by the researchers themselves. I am talking about research freedom, the free choice of topics and challenges to explore. (R1, Pro-Rector)

Autonomy in research is considered by many academics to be vital to define the challenges and research methods needed to conduct research. Some respondents, however, were concerned about the limited funds at universities to conduct basic research:

> I don't feel like there is enough balance between funding which is earmarked and funding which is for blue skies science or basic science, and I think that is worrisome. Both the Norwegian Research Council (NRC) and the EU are quite aware of this. (R7, Senior Researcher, Faculty of Mathematics and Natural Sciences)

The argument is that for universities to focus on need-based research themes that address societal challenges and that aim to produce social impacts, it is important for scholars to have the freedom to choose their topics and methods of enquiry so that they can deliver high-quality basic research. This

does not mean that academics who emphasise autonomy are less interested in the social relevance of their work. Most respondents believe that everything that they do (both in teaching and research) has or will have a social impact, but they seldom have impact as a primary goal. The main motivation for academics is their interest in the areas they research (curiosity-driven research), whereas social impacts constitute the natural, albeit indirect, outcomes of such efforts. The emphasis on autonomy and basic research represents more a reaction to pressures to obtain external funding rather than to provide socially relevant research. Observed globally, the quest for preserving autonomy in research (especially basic research) is also in line with what is defined by Perry and May (2006) as 'localised excellence; creation of favourable framework conditions and generic assumptions over the local benefits that will indirectly ensue. Nearly every respondent emphasised the importance of academic freedom.

Another important driver of social impact agendas in science is external stakeholders' demands. While researchers in most European countries enjoy guaranteed academic freedom, they are heavily dependent on government funding, especially in Norway, where public research funding is rather generous and has been increasing over the years compared to other countries (EUA, 2020). In Norway besides the central government, the most dominant stakeholders are the EU, the NRC, and industry. Each of these stakeholders, with their various interests and demands, creates, defines, and shapes research agendas that drive research to align with social needs. A major part of external stakeholders' roles relates to defining the theme of the research, providing funding, and establishing conditions in the form of policy choices that govern research and education through established institutions. There are tensions revolving around stakeholders' multiple and sometimes conflicting interests and demands, resulting in the increasing instrumentalization of science.

> When research becomes very thematically oriented, then you are in danger of losing some of the research topics that are to take place within the discipline itself; basic research … some academics argue that funding for basic research within the discipline is too little and that too much money is being allocated to thematic (strategic) areas. (R2, Vice Dean – Research, Faculty of Mathematics and Natural Sciences)

Limited funding for basic research means that universities must align with respective stakeholders who can provide the funds, allowing the state to push agendas emphasising projects that are, in the state's view, beneficial to society, even if this may not be the case. Given the nature of state funding, engaging in social impact-type studies increases the chances of acquiring future research funds, provides the university with legitimacy, and brands it as an institution that aligns itself with governmental efforts for social improvement. Thus, acquiring external research funding is quite demanding due to its limited quantity and the abundance of applicants. This leads to the notion that competition leads to the best projects obtaining funding, and this is where "excellence can really be found" (R1, Pro-Rector).

Based on respondents' comments, social impact research can be regarded as the outcome of the interplay between universities' intrinsic motivations for branding and the need to satisfy the interests of stakeholders. Academics are primarily concerned with conducting basic research and thus do not necessarily consider the social impacts of that research. According to R3 (Vice Dean – Research, Faculty of Humanities) "We don't design our research to make an (social) impact; very few of us do that. Social impact is a side effect of our research but not the focus." However, when applying for research funding, academics have to keep in mind the potential social impacts of their research. Research outcomes are used to promote the university externally (market-place) and show its commitment to addressing societal needs.

At the case university, we observed several logics or discourses at play. The first one is the mix of globalised (disembedded) and localised (embedded) excellence discourses/logics. By focusing on academic rigour, high-quality research, and publishing in high-impact journals, regardless of social needs, universities are attempting to enhance their positions both globally (globalised excellence) and domestically (embedded excellence). These logics manifest themselves in journal rankings, research assessments, criteria for academic promotion, and acquiring funding. Each of the faculties from our sample had at least one centre for excellence (a scheme developed by the NRC for universities to deliver targeted, focused, long-term research of high international calibre). These highly prestigious and well funded centres were emphasised by respondents as evidence of their efforts to produce excellent research, but also in delivering results that are beneficial to society. As presented above, our respondents outlined the desire to undertake basic research in light of disciplinary dynamics and imperatives and of having stable funding, making it a major concern for university leadership.

External demands linked to funding, including evaluation, push university research and policy agendas in directions that are shaped by external stakeholders rather than academics. The second set of logics consists of a mixture of global (competitive) and local (contextual) relevance discourses. Both logics consider social relevance, either global or local, an absolute necessity when it comes to research outcomes. According to these logics, when research topics are considered, society's needs should be taken into account. Our respondents revealed that they normally thought harder about the social relevance of their research when applying for external funding/projects than when doing basic research. When it comes to global relevance (which focuses on knowledge transfer to the outside world), interviewees reported that their research spans national boundaries and deals with global issues such as climate change, pollution, global health issues, technology, and social issues such as migration and hunger. These issues are often linked to the UN's Sustainable Development Goals (SDGs), and funding for related research projects is primarily obtained through external agencies like the European Research Council (ERC) or the NRC. Together with industry, the NRC is the main source of funding when it comes to research projects oriented towards domestic agendas (local relevance logic), such as public administration, politics, health care, marine biology and technology, etc. Notably, the interviews revealed a divergence between academic leaders from the humanities and the social

sciences, who reported greater pressure to prove that their research outcomes are relevant for society, and academics from the natural sciences/technology, who were more accustomed to relevance discourses. One interviewee from the humanities pointed out the following:

> We feel a kind of pressure, and I think we try to be socially relevant because there has been much criticism regarding research within the humanities that we don't produce anything. We feel a kind of (moral) obligation to be relevant. (R4, Research Group Leader, Faculty of Humanities)

Measuring the social impacts of research

The empirical data revealed three key interconnected elements regarding the assessment of the social impacts of research: mechanisms, challenges, and sustainability.

<u>Measuring mechanisms</u>

The data show an apparent consensus among respondents about the need to measure and sustain the social impacts of academic research. However, there seems to be no joint agreement on how to do this in practice. Publication indices are by far the most widespread methodological approach for measuring social impact at the university level. The main assumption is that as scholars publish, their research becomes available to a wider readership, providing evidence-based resources that can be utilised by researchers and practitioners from both the public and the private sectors. These forms of indices include the number of publications, journal quality/ranking, citation indices, and open access; that is, the researched materials being utilised in media, conferences, public debates, libraries, university programmes, course outlines, etc. The data also reveal that publication indices are not approached in the same way, even within the same university. While some individuals and their respective sub-units focus more on publications and citations, others place a stronger emphasis on the quality of the journal, reflecting disciplinary differences in measuring research impact.

The data suggest that research funding is also considered an important measure of social impact. Acquiring large amounts of research funds means that the stakeholders who provided the funding value the outcome of the research, as highlighted in earlier studies (Benneworth, 2018; Benneworth & Olmos-Peñuela, 2014). Key funders of research, such as the NRC and the EU, emphasise social impact as an important requirement for funding, and most competitive research applications now have a section in which the potential for social impact of the research findings should be thoroughly delineated.

> […] much of our research funding is earmarked … The NRC, the EU, the European Research Council, and so forth have become much more specific in terms of what they will fund, and that clearly has an impact (on academics' behaviours). (R7, Senior Researcher – Centre of Excellence, Faculty of Mathematics and Natural Sciences)

Publication indices and research funding should, thus, be seen in light of the salience of excellence and relevance policy discourses (both global and local), as these are important both for university rankings (meso level) and individuals' academic prestige and career progression. Assessment of research impact is also intrinsically linked to shifts in governance regimes, where a strong emphasis has been placed (in the last two decades) on performance indicators in the context of government-led reforms inspired by New Public Management centred on efficiency, accountability and responsiveness (Pinheiro et al., 2019).

Measurement challenges

Measuring the social impacts of research is considered to be rather difficult, even though some mechanisms have been devised, as pointed out in the previous passages. According to R2 (Vice Dean – Research, Faculty of Mathematics and Natural Sciences), "there are many ways to make a social impact, and of course in some areas, we (sub-unit) have made some impacts, but, generally speaking, it's (social impact) something that is not easy to measure". Our data show that measurement issues include attribution problems, timeline problems, and the problem of causality – all in line with dilemmas outlined by Bornmann (2012, 2013). Respondents generally considered measuring impact to be a rather complex process, finding it difficult to attribute a research impact to a specific project or research outcome as opposed to some other individual factor. Social impact could emerge from multiple causes, and as such, one cannot link it to only research, as pointed out by Godin and Doré (2005).

The timeline problem emerged as an important issue. Respondents believed that the impacts of research may not be immediately apparent but take time to manifest. As stated by R3 (Vice Dean – Research, Faculty of Humanities), "When dealing with the issues of social impact, the long-term commitment should be very important because you don't do research necessary for tomorrow or for today. We are doing it for 50 years ahead of time or maybe 100 years ahead of time". Bok (1982) contends that universities' social impacts are not discernible in the short run, being longitudinal in nature, which, in turn, makes these impacts difficult to quantify. Similarly, R2 (Vice Dean – Research, Faculty of Mathematics and Natural Sciences) indicated that "a lot of research is, in a way, a long-term project", but despite that "researchers have been active in giving information to society and policy makers (on its potential social consequences)". Similarly, R3 (Vice Dean – Research, Faculty of Humanities) suggested that, although it is important to measure impact, we "should stress the notion of social impact less and understand that research at the university is a long-term commitment and we cannot just change like that to fit some (short-term) political demands in order to solve some problems that are acute today."

It is obvious from these interview excerpts that the measurement of social impact is challenging and that its scope differs between sub-units. This difficulty could also be linked to the absence of universal guidelines on the best approach to measuring impact (Bornmann, 2013). What may be an

effective way to measure impact in one discipline or institution may not necessarily be an effective method in another. While most respondents from the natural sciences/technology agreed on the use of quantitative methods to measure the social impact of research, one respondent pointed to "the difficulty in doing research in the humanities because it's not about quantity; it's about quality. It [social impact] is very difficult to measure!" (R4, Research Group Leader, Faculty of Humanities).

Sustaining and promoting university social impact

Sustaining the social impacts of research concerns the various efforts of the case university and its sub-units to ensure the continued impact in society through increased research effort, strategic planning, focusing agendas on specific research areas, etc. The case university and its various sub-units (faculties, departments and research centres/groups) were found to have developed somewhat elaborate strategic plans to evaluate and attempt to measure the impacts of their research. These strategies include monitoring how often scholars and their research are mentioned in the media and on social media platforms, as well as taking stock of the number of meetings between the faculty leadership and heads of departments, alongside regular communications with the heads of the projects, gathering statistics on what was published and where (outlets), drafting publication strategies, and engagement with various government officials.

When it comes to promoting the social impact of research, this effort is apparent at several levels. At the national level, alliances with different universities, research collaborations with colleagues based at other Norwegian universities, strategic recruitment of researchers, conferences, research projects, seminars, exchanges, and promotion on various social media platforms are just some examples. At the European level, results in the outgoing EU programme Horizon 2020 are emphasised, as well as membership in the European Universities Alliance, exchanges, research collaborations, conferences in other European countries, publications, promotion on social media platforms, and building research networks. Finally, according to the interviewees, international promotion of universities' social impacts includes dealing with global issues. These include global research collaborations and alliances, strategic plans in collaboration with China, alliances with certain universities in Africa and Russia, engagements in international projects, collaborative PhD research with other global universities, and international recruitment.

The policy/strategic implications of the social impacts of research

A third important issue that this paper tackles relates to the implications of socially responsible research for policy and practice. The data reveal conscious arrangements at the university, national, European, and global levels to tackle key social issues or wicked problems through a combination of policy initiatives, strategic plans, and incentive systems.

At the national level, apart from providing policy guidelines and conditions for research,

policymakers have established institutions and agencies that demand "more challenge-based research that also strongly delivers on innovation" (R1, Pro-Rector). Moreover, Norway's Ministry of Education and Research, through its agencies and institutions, provides concrete research questions from other ministries that should be tackled. An example of such an institution is the NRC, which is "obviously very influential because they oversee the programme which gives us external funding" (R8, Director, Research and Innovation Division).

At the university level, social impact appears to be crucial to leadership, administration, and scholars. Therefore, strong efforts have been made to tackle social problems by aligning research with professional incentives and policy initiatives. For academics, professional incentives and career progression have been aligned with social impact through staff recruitment requirements, which include being able to acquire external funds and lead research projects, as well as promotional requirements and salary discussions.

The case university has established a strategic plan (2019–2022) aimed at addressing the social impact of research both domestically and internationally. Faculties have their own strategic plans that largely accord with the general plan at the central level of the university. Lending credence to this, R3 (Vice Dean – Research, Faculty of Humanities) stated that "to a certain extent, social challenges shape the directions of our research policy. Social challenges are something that many of our researchers are concerned about, and many of them want to operate with (conduct research on) different social challenges." The social impacts of research at the university are also linked to the establishment of several centres that focus on different challenges in society, such as gender-related issues.

The case university also prioritises highly international research related to global changes. According to R2 (Vice Dean – Research, Faculty of Mathematics and Natural Sciences), "we have big global challenges such as pollution, climate change, and various topics that of course we think we have a part in trying to solve", and "more and more funding from the Research Council is directed to these areas". The data show that the more funding is channelled to these strategic thematic areas, the more university research topics prioritise them. This perhaps explains why climate research has become one of the most researched areas at the case university in recent years.

Both at the national and university levels, we see clear evidence of the importance of local (contextual) relevance according to Perry and May's (2006) typology. This is the case as university actors attempt to tackle issues of social inclusion or economic opportunity while at the same time emphasising links with industry and other external actors. Nevertheless, academics' research activities tend to be global in nature, and the ability to forge local linkages with societal partners across the public, private and civic sectors varies from field to field. This is particularly challenging for 'softer' fields such as the humanities and social sciences (Becher, 1981), which in contrast to 'harder' fields such as engineering/technology, have a multitude of diverse audiences and publics, many of them with ambiguous and contradictory demands.

University respondents were of the opinion that policymakers have increased their influence over

the social impact of the research being undertaken within their respective sub-units and centres. Echoing this argument, R2 (Vice Dean – Research, Faculty of Mathematics and Natural Sciences) stated that the NRC makes strategic choices on how funding is distributed, increasingly so in the context of key thematic areas, often interdisciplinary in nature, around social problems, in contrast to more traditional disciplinary-based allocations. Given the independent nature of academic institutions, the influence of policymakers can make it challenging for both universities and academics to assert their autonomy regarding social responsibility agendas within research. Pinheiro et al. (2019) contend that (Nordic) universities should focus on thematic areas where they have the scientific competence and competitive advantage to produce outcomes that are thought to be beneficial to society, while ensuring that these research areas are prevented from being co-opted by external interests and agendas.

On a global level, the social impact of research has been directly linked to the UN's 2030 Agenda for Sustainable Development and its 17 SDGs as well as the Horizon 2020 programme. The SDGs are very much in line with what respondents perceived to be the intended social impact of research. Here we find evidence of 'global relevance' (Perry & May, 2006), as universities are actively engaged with knowledge transfers to the outside world, including in the context of help tackling global challenges that transcend national borders.

Discussion

This study set out to investigate how the social impact of academic research is framed in the context of Norwegian HE and science policy (macro level) and the strategic agendas (meso and micro) of one comprehensive university. The findings suggest that research impact agendas are driven by, and reinforced at, multiple levels of governance: global, national, and institutional. The data show clearly evidence of the prevalence of the four discourses or logics proposed by Perry and May (2006), alongside tensions and pressures arising when these coexist within a single institution, such as the chosen case university. These pressures are apparent in the increasing interconnections between research funds and external demands for social impacts of research at the national, European, and global levels (Brennan, 2008). This often entails the need to embrace multidisciplinary approaches, yet this is in sharp contrast to the still dominant disciplinary orientation of scientific research and publishing, which is largely centred on global rather than local concerns (Pinheiro et al., 2019). Ongoing initiatives such as the open-access movement are pushing universities and scholars to make their research publicly available (Moore, 2021), yet it is unclear to what extent such research ever reaches key social actors or potential users, as scientific debates tend to occur within rather than across disciplines, with findings sometimes inaccessible to laymen.

In addition, and as hypothesised at the outset, the study shows the existence of two main logics underpinning research impact agendas at universities: the logic of excellence and the logic of social relevance. However, we considered this dichotomy to be far too simplistic and instead turned to the

'missing middle', where excellence and relevance are not only conceptualised as interdependent, but both have global and local manifestations as well (Perry & May, 2006).

The analysis of Norway's long-term strategy has revealed the importance of 'hybrid' approaches that combine a variety of orientations and logics (Berg & Pinheiro, 2016). This, in itself, is unsurprising, as different policy goals demand the mobilisation of specific actors and instruments, providing evidence of the fact that 'one size does not fit all' (Benneworth, Pinheiro & Sánchez-Barrioluengo, 2016). Moreover, the data show the importance of multilevel governance approaches in science and HE policy (Geschwind & Pinheiro, 2017), which entails the need for a complex policy mix and governance approaches in the face of dynamic and rather turbulent environments (Trondal et al., 2022).

The accounts of university actors at the case university also revealed a complex mix of logics underpinning hegemonic discourses, strategic actions, and postures. Excellence and relevance are mixed in a variety of ways, lending support to Perry and May's (2006) typology. They were found to be deeply embedded in the activities of sub-units, academic groups, and individual academics. At a more generic level, at the university level our findings are associated with classic conceptions of organisational behaviour driven by either strategic choice or environmental determinism (Pinheiro et al., 2019). The latter leads to convergence or isomorphism, whereas the former results in divergence (cf. Hüther & Krücken, 2016). Environmental determinism, or the so-called TINA ('There is no alternative') syndrome, is usually linked to funding sources and external demands placed on universities and academics to pursue competitive funding and articulate research agendas that take into account policy imperatives and social impacts (Gornitzka & Maassen, 2007). By contrast, strategic choice pertains to local actors' differentiated responses to the new strategic science regime (Rip, 2004), which is centred on global or world-class excellence on the one hand and local relevance or social impact on the other (Beerkens, 2009). While some academic groups and individuals fully embrace this new agenda (as was the case in the 'hard' sciences), others ('softer' sciences) take proactive steps to resist the instrumentalisation of scientific endeavours, although this is increasingly challenging to do in practice given the need to survive in an increasingly competitive HE/science landscape, nationally and internationally (Alajoutsijärvi, Alon & Pinheiro, 2021).

The data revealed that major dilemmas remain, as the assessment of research excellence is well established when compared to proper mechanisms to evaluate research impact, both ex-ante and ex-post. The accounts and key documents analysed revealed strategic initiatives at multiple levels (discipline or sub-field, university, national, European, and global levels) to tackle social impact through diverse policy initiatives, strategic plans, and incentives. Nonetheless, a major shortcoming pertains to traditional mechanisms of career advancement and promotion in the academic profession, which, for the most part, are (still) geared towards scientific publications and disciplinary-centred inquiries (excellence within one's field) rather than societal impact per se (for a recent account in the Nordics, see Pietilä & Pinheiro, 2020).

That being said, there is now a clear trend towards interdisciplinarity as a means of solving social problems, which entails transcending traditional disciplinary boundaries and local vs. global orientations. The data provided some support for Perry and May's (2006) claim that "relevance can be excellent and vice versa", but they suggest that this is far from being a straightforward or linear process, that challenges and dilemmas at multiple levels of the governance/science/university system remain, and that these challenges are both hybrid and deeply nested in each other (Pekkola et al., 2021, 2022) and therefore require systemic rather than piecemeal solutions (Trondal et al., 2022). At the level of the knowledge domain, the findings suggest that softer fields like the social sciences and the humanities are increasingly focused on preserving and developing basic or 'free' research, with social impact occurring as a positive side effect rather than as the primary purpose. In contrast, the harder domains of the natural sciences and technology were found to be more accustomed to acquiring external funding and cooperating with external actors like industry, confirming earlier findings from the Nordics (Pinheiro et al., 2019). However, actors from both disciplinary domains (hard and soft) emphasised the importance of research publications and of applying for research projects, albeit for different purposes.

At the level of the case university, social impact appears to be crucial to academic leaders at both the central and faculty or sub-unit levels. As a result, significant efforts have been undertaken to leverage social impact by aligning research endeavours with professional incentives and policy/strategic initiatives through, for example, staff recruitment requirements, application for funding requirements, promotional requirements, and wage discussions. Different faculties and research units have developed formal strategies for developing high-quality research, alongside multiple formal and informal mechanisms for information sharing and staff socialisation, such as regular dialogues and meetings between the heads of research groups or project investigators and the heads of departments to deal with both the intended and potential unintended social impacts of research. Thus, we noticed a mutual interdependence of identified logics (as well as amongst the practices associated with these logics, Shipilov et al., 2010), where striving for excellence, either globally or locally, leads to better outcomes in terms of social relevance. Moreover, stronger engagement with a variety of external actors across the public and private sectors in the context of both 'localised and globalised relevance' (Perry & May, 2006) seems to provide additional strategic room for manoeuvring when it comes to resource mobilisation, institutional profiling and legitimacy claims, hence supporting excellence goals and imperatives as well.

At the national level, apart from providing policy guidelines and conditions for research, Norwegian policymakers have established an institutional environment (composed of programmes and agencies) geared towards challenge-based research and innovation that is tightly linked to national policy goals. This orientation is in line with the logic of embedded/local excellence (Perry & May, 2006). For example, the NRC is a highly influential research body, as it oversees the programmes that offer external funding, including long-term (prestigious) initiatives such as the establishment of

national centres for basic and applied research and innovation. Moreover, through its agencies and institutions, the Ministry of Education and Research offers concrete suggestions, including those emanating from other ministries, on key research areas of concern and national importance, including the management of natural resources such as oil, gas, and fish, as well as the transition to a greener (circular) economy and industrial outlook.

Finally, at a global level, the social impacts of Norwegian university-based research are tightly linked to the UN's 2030 Agenda for Sustainable Development and its 17 SDGs ('globalised relevance') as well as the EU's flagship and prestigious Horizon 2020 programme ('global excellence'). The data show that much of the focus on thematic research (national and university levels) has recently been influenced by the desire to satisfy the requirements of Horizon 2020 and to contribute to achieving the SDGs.

Concluding thoughts

In recent years, discussions about the social impact of research have gained much prominence in Norwegian HE and have been emphasised and reinforced at multiple levels of governance. Diversified funding sources and policymaker demands placed on universities and academics to pursue external funding on the one hand, and to articulate research agendas that consider policy imperatives based on the social needs on the other, proved to be the main drivers of the research agendas focusing on social impacts. Scholars across multiple units and disciplines and university leadership alike are paying more attention than before and are eager to invest more effort into shaping research projects and university strategies to meet social needs. In addition, social impact is used strategically by university leadership to promote the university mission in society and to gain both access to additional resources and legitimacy in the eyes of the public as a good investment of public funds. The empirical evidence underpins the complexity inherent to the interconnections between excellence and relevance logics on the one hand and emerging local and global policy and strategic discourses on the other. This implies pursuing future research agendas that take stock of developments in a more systemic or holistic way rather than solely paying attention to sub-segments of the HE/science/research systems, such as policy frameworks or university dynamics. Future studies should, as a result, embrace multidisciplinary and more systemic conceptual and theoretical frameworks as a means of unpacking system-wide developments with the aim of illuminating the intended and unintended social consequences of academic research.

References

Alajoutsijärvi, K., Alon, I., & Pinheiro, R. (2021). The Marketisation of Higher Education: Antecedents, Processes, and Outcomes. In J.D. Branch, & B. Christiansen (Eds.), *The Marketisation of Higher Education: Concepts, Cases, and Criticisms* (pp.17-45). Cham: Springer International Publishing.

Becher, T. (1981). Towards a definition of disciplinary cultures. *Studies in Higher Education*, *6*(2), 109–122.

Beerkens, E. (2009). Centres of Excellence and Relevance: The Contextualisation of Global Models. *Science Technology Society*, *14*(1), 153-175

Bender, T. (1991). *The University and the city: from medieval origins to the present*. Oxford: Oxford University Press.

Benneworth, P. (2018). *Universities and Regional Economic Development: Engaging with the Periphery*. London: Taylor & Francis.

Benneworth, P., & Olmos-Peñuela, J. (2014). Resolving tensions of research utilization: The value of a usability-based approach. *Ingenio Working Papers Series*, *10*, 1–28. Retrieved from http://www.ingenio.upv.es/en/working-papers/resolving-tensions-research-utilization-value-usability-based-approach#.VH7U-clNf6A

Benneworth, P., Pinheiro, R., & Sánchez-Barrioluengo, M. (2016). One size does not fit all! New perspectives on the university in the social knowledge economy. *Science and public policy, 43*(6), 731-735.

Bok, D. (1982). *Beyond the Ivory Tower: Social Responsibilities of the Modern Universities*. Cambridge: Harvard University Press.

Bornmann, L. (2012). *Measuring the societal impact of research*. *EMBO Reports* (Vol.13). Heidelberg.

Bornmann, L. (2013). What is societal impact of research and how can it be assessed? A literature survey. *Journal of the American Society for Information Science and Technology*, *64*(2), 217–233.

Brennan, J. (2008). Higher education and social change. *Higher Education*, *56*(3), 381-393.

Butler, N., & Spoelstra, S. (2014). The Regime of Excellence and the Erosion of Ethos in Critical Management Studies. *British Journal of Management*, *25*(3), 538–550.

Capello, R., Olechnicka, A., & Gorzelak, G. (2012). *Universities, Cities and Regions: Loci for Knowledge and Innovation Creation*. London: Taylor & Francis.

De Boer, H., & File, J. (2009). *Higher Education Governance Reforms Across Europe*. Enschede: CHEPS.

EUA. (2020). *Public Funding Observatory: Country sheets*. Brussels: European Universities Association. Retrieved from https://eua.eu/downloads/publications/pfo country sheets.pdf

Flecha, R., Soler-Gallart, M., & Sordé, T. (2015). Europe must fund social sciences. *Nature*, *528*(7581), 193–193.

Frølich, N., & Stensaker, B. (2021). Mergers and missions: investigating consequences for system diversity. *Higher Education*, *82*(2), 411-434.

Geschwind, L., Kekäle, J., Pinheiro, R., & Sørensen, M.P. (2019). Responsible Universities in Context. In Mads P. Sørensen, L. Geschwind, J. Kekäle, & R. Pinheiro (Eds.), *The Responsible University: Exploring the Nordic Context and Beyond* (pp.3–29). Cham: Palgrave MacMillan.

Geschwind, L., & Pinheiro, R.M. (2017). Raising the summit or flattening the agora? The elitist turn in science policy in Northern Europe. *Journal of Baltic Studies*, *48*(4), 513-528.

Gioia, D.A., Corley, K.G., & Hamilton, A.L. (2013). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*, *16*(1), 15–31.

Godin, B., & Doré, C. (2005). *Measuring the Impacts of Science: Beyond the Economic Dimension*. *INRS Urbanisation, Culture et Société*. HIST Lecture, Helsinki Institute for Science and Technology Studies, Helsinki, Finland. http://www. csiic. ca/PDF/Godin_Dore_Impacts. pdf.

Gornitzka, Å., & Maassen, P. (2007). An instrument for national political agendas: the hierarchical vision. In P. Maassen, & J.P. Olsen (Eds.), *University dynamics and European integration* (Vol. 19, pp.81-98). Dordrecht: Springer

Harman, G., & Harman, K. (2004). Governments and universities as the main drivers of enhanced Australian university research commercialisation capability. *Journal of Higher Education Policy and Management*, *26*(2), 153–169.

Hilten, L.G. van. (2018). Uncovering clues to the societal impact of research. Retrieved June 6, 2021, from https://www.elsevier.com/connect/uncovering-clues-to-the-societal-impact-of-research

Horizon (2020). Responsible research & innovation. Brussels: European Commission. Retrieved September 15, 2020, from https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

Hüther, O., & Krücken, G. (2016). Nested organizational fields: Isomorphism and differentiation among European universities. In E. Berman, & C. Paradeise (Eds.), *The university under pressure* (pp.53-83). Bingley: Emerald Group Publishing Limited.

Johnston, A., & Huggins, R. (2016). Drivers of University–Industry Links: The Case of Knowledge-Intensive Business Service Firms in Rural Locations. *Regional Studies*, *50*(8), 1330–1345.

Kaldewey, D. (2018). The Grand Challenges Discourse: Transforming Identity Work in Science and Science Policy. *Minerva*, *56*(2), 161-182.

Kraatz, M., & Block, E.S. (2008). Organizational Implications of Institutional Pluralism. In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The SAGE Handbook of Organizational Institutionalism* (pp.243–275). Los Angeles: SAGE.

Kyvik, S. (2009). Allocating time resources for research between academic staff: The case of Norwegian university colleges. *Higher education management and policy*, *21*(3), 1-14.

Martí, T.S., Flecha, R., Rodríguez, J.A., Luis, J., & Bosch, C. (2020). Qualitative Inquiry: A Key Element for Assessing the Social Impact of. *Qualitative Inquiry*, *26*(8–9), 948–954.

Moore, S.A. (2021). Open Access, Plan S and 'Radically Liberatory' Forms of Academic Freedom. *Development and Change*, 52(6): 1513–1525.

Neave, G. (1998). The Evaluative State Revisited. *European Journal of Education*, *33*(3), 265–284.

Norwegian Ministry of Education and Research. (2018). Long-term plan for research and higher education 2019–2028. Oslo: Ministry of Education and Research (KD). Retrieved from https://www.regjeringen.no/en/dokumenter/meld.-st.-4-20182019/id2614131/

Pekkola, E., Pinheiro, R., Geschwind, L., Siekkinen, T., Carvalho, T., & Pulkkinen, K. (2021). Nested hybridity and value definition in public higher education. In J. Vakkuri, & J.-E. Johanson (Eds.), *Hybrid Governance, Organisations and Society: Value Creation Perspectives* (pp.59-80). London: Routledge.

Pekkola, E., Pinheiro, R., Geschwind, L., Siekkinen, T., Pulkkinen, K., & Carvalho, T. (2022). Hybridity in Nordic Higher Education. International Journal of Public Administration, 1-14 (online first) doi:10.1080/01900692.2021.2012190

Perry, B., & May, T. (2006). Excellence, Relevance and the University: The "Missing Middle" in Socio-Economic Engagement. *Journal of Higher Education in Africa, 4*(3), 69-92.

Piattoni, S. (2010). *The Theory of Multi-level Governance. Conceptual, Empirical, and Normative Challenges*. Oxford: Oxford University Press.

Pietilä, M., & Pinheiro, R. (2020). Reaching for different ends through tenure track － institutional logics in university career systems. *Higher Education*, *81*(6), 1197–1213.

Pinheiro, R., Geschwind, L., Hansen, H.F., & Pulkkinen, K. (2019). *Reforms, Organizational Change and Performance in Higher Education: A Comparative Account from the Nordic Countries*. Cham: Palgrave.

Pinheiro, R., Geschwind, L., Kekäle, J., & Sørensen, M.P. (2019). Over the Cuckoo's Nest: Towards a Nordic Model of the Responsible University? In Mads P. Sørensen, L. Geschwind, J. Kekäle, & R. Pinheiro (Eds.), *The Responsible University: Exploring the Nordic Context and Beyond* (pp.291–313). Cham: Palgrave MacMillan.

Reale, E., Avramov, D., Canhial, K., Donovan, C., Flecha, R., Holm, P., … Van Horik, R. (2018). A review of literature on evaluating the scientific, social and political impact of social sciences and humanities research. *Research Evaluation*, *27*(4), 298–308.

Rip, A. (2004). Strategic Research, Post-modern Universities and Research Training. *Higher Education Policy*, *17*, 153–166.

Shipilov, A. V., Greve, H. R., & Rowley, T. J. (2010). When do interlocks matter? Institutional logics and the diffusion of multiple corporate governance practices. Academy of Management Journal, 53(4), 846-864.

Sørensen, M.P., Geschwind, L., Kekäle, J., & Pinheiro, R. (2019). *The Responsible University: Exploring the Nordic Context and Beyond*. Dordrecht: Springer Nature.

Tracy, S.J. (2010). Qualitative quality: Eight a "big-tent" criteria for excellent qualitative research.

Qualitative Inquiry, *16*(10), 837–851.

Trondal, J., Keast, R., Noble, D., & Pinheiro, R. (2022, in press). *Governing Complexity in Times of Turbulence*. Cheltenham: Edward Elgar.

Walter, S.G., & Spitta, T. (2004). Approaches to the ex-ante evaluation of investments into information systems. *Wirtschaftsinformatik*, *46*(3), 171–180.

Weiss, C.H. (1979). The Many Meanings of Research Utilization Author(s): *Public Administration Review*, *39*(5), 426–431.

Yin, R.K. (2018). *Case Study Research and Applications*. London: SAGE.