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POLICY PAPER

The Systematic Effects of the Research Impact Agenda: Qualitative Evidence from the Irish Research Sector

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Abstract: Research centres are non-academic, publicly funded R&D organisations that are not part of academia or the private sector. They play an important role across national innovation systems yet what they do is, to a large extent, undocumented and misunderstood. This study addresses the current gap in the literature by analysing the influence and implications of the research impact agenda on the research centre sector in Ireland. Thirteen semi-structured interviews were conducted with selected leaders from publicly funded research centres and funding agencies in Ireland. Exploratory interviews were transcribed, and thematic analysis was conducted to identify underlying themes. The findings suggest that this agenda has already had significant implications across the Irish research centre sector. Current conceptualisations adopt a narrow view of research impacts, based predominantly on demonstrating economic impacts, which threatens academic autonomy, rewards instrumental research, and may contribute to a 'sensationalist' approach to evidencing impacts.

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I INTRODUCTION

The research impact agenda refers to a strategic focus within research communities, funding bodies, and academic institutions that emphasises the importance of ensuring that research has a measurable impact beyond scientific quality, including impacts on the economy, society, health, environment and culture. This agenda has gained considerable traction in academic and policymaking circles over the past 30 years, with considerable focus on accountability, value for money, and returns on investment in research policy (Martin, 2011). This focus intensified following the Global Financial Crisis of 2007-2009, which resulted in widespread austerity measures and substantial cuts in public R&D funding. In Ireland, for instance, annual public R&D funding decreased from €930 million to €765 million in the decade following the crisis (DBEI, 2018). Consequently, research policy shifted towards prioritising private sector R&D and targeting economic and societal impacts in strategically targeted areas.

Initially, the research community responded to this shift with scepticism. Critics highlighted several potential negative effects, such as infringing on academic autonomy (Chubb and Reed, 2017), promoting a neoliberalist political agenda (Holbrook, 2017), rewarding short-termism (Ma and Ladisch, 2019), and favouring commercially-driven research over scientific quality (Jones *et al*., 2017). Additionally, the increased competition for limited public resources may incentivise researchers to overstate the short- and medium-term impacts of their work to justify its importance (Chubb and Watermeyer, 2017; Smith *et al*., 2011; Martin, 2011).

Despite these concerns, the research impact agenda has become an integral part of national evaluation systems. However, notwithstanding the growing influence of the agenda, there is still a lack of consensus on widely accepted definitions of impact (Alla *et al*., 2017; Samuel and Derrick, 2015; Pedersen *et al*., 2020), robust measurement tools to capture diverse types of impacts (Guthrie *et al*., 2013; Greenhalgh *et al*., 2016; Deeming *et al*., 2017; Pedersen *et al*., 2020), or practical policy recommendations applicable across various research disciplines (Meagher and Martin, 2017; Rau *et al*., 2018). This raises concerns about fairness, consistency, and potential biases in funding decisions, as well as the risk of "counting what is easily measured rather than measuring what counts" (Muller, 2018).

Ireland provides a particularly compelling case study for examining the research impact agenda due to its unique position as a small, open economy with a rapidly evolving research landscape. The rapid development of Irish research policy offers valuable insights into how smaller nations navigate the demands of the research impact agenda. Furthermore, given the size of the country, any changes in research policy or directed funding programmes can have disproportionately significant effects on the entire research ecosystem. This sensitivity makes Ireland particularly illustrative of how research impact policies can influence the direction and effectiveness of research in smaller nations.

The research impact agenda is still in its early stages of development across the research system in Ireland, and there is a scarcity of studies analysing its influence on the research centre sector. The following three research questions provide a framework for studying the systematic effects of the research impact agenda in Ireland:

1. What is meant by research impact?
2. How can research impact be measured?
3. What are the systematic effects of the research impact agenda in Ireland?

This study makes a significant contribution to the debate on the implications of the research impact agenda for the research centre sector in Ireland and other small, advanced economies. Firstly, despite Ireland's unique position as a small, open economy with a research sector that, while robust, is smaller in scale compared to larger European countries, there is a notable scarcity of academic studies focusing on the implications of the research impact agenda within the country (Ma and Ladisch, 2019; Ma, 2019).

Secondly, while many studies examine university perspectives on the research impact agenda (Gunn and Mintrom, 2016; Chubb and Watermeyer, 2017; Jones *et al*., 2017), studies on research centres are more scarce (Hallonsten, 2017). Research centres play significant roles in national and international innovation systems; what they do is, to a large extent, undocumented and misunderstood (Arnold *et al*., 2010). These centres often have different structures, goals, and impact mechanisms compared to universities, meaning their contributions and challenges in the research impact agenda might be overlooked or inadequately addressed.

Furthermore, this analysis, albeit a small case study, provides valuable analogies and insights that are relevant to the politics of research policy in other small advanced economies. These insights can illuminate how similar countries might navigate the complexities of the research impact agenda, address common challenges, and leverage unique strengths. This comprehensive approach ensures that the perspectives and experiences of smaller but significant players in the global research landscape are not only recognised but also used to inform better policy decisions.

Building on prior literature, we develop a framework for studying the systematic effects of the research impact agenda in Ireland. To address our three research questions, qualitative interview data were collected from 13 research centre leaders and senior investigators in Ireland. These individuals are familiar with the development of the research impact agenda in Ireland and play crucial roles in setting research missions and guiding strategic decision-making within publicly funded research centres. Thematic analysis reveals how the Irish research impact agenda influences research organisations' behaviour and missions.

The rest of the paper is organised as follows: Section II provides an overview of key developments in the research centre sector in Ireland. Section III reviews the literature on the research impact agenda. Section IV describes the research methodology, which includes primary analysis of qualitative data from semi-structured interviews with key representatives from the Irish research sector. Section V presents the findings from these interviews. Section VI discusses the implications of these findings.

II EVOLUTION OF IRELAND'S RESEARCH CENTRE LANDSCAPE

Ireland's Science, Technology, and Innovation (STI) policy has undergone significant evolution, transforming from an underdeveloped system into a cornerstone of national development. The foundation for this transformation was laid in the 1960s, influenced by the OECD, but it was not until 1996 that a comprehensive strategy targeting a knowledge-based economy truly emerged. Before this, Ireland's research capacity was limited, primarily due to inadequate funding for higher education and the absence of a dedicated research council. The minimal funding available was largely directed towards applied agricultural research (Flanagan, 2006), leaving other areas underdeveloped.

A pivotal moment in the development of Ireland's STI policy came with the National Development Plan (NDP) 2000-2006 (Government of Ireland, 2000), which allocated €2.5 billion to support both basic and applied research. This substantial investment led to the establishment of Science Foundation Ireland (SFI), which was tasked with supporting oriented basic research in strategic areas critical to Ireland's economic future, such as Information and Communications Technology (ICT) and Biotechnology. These focus areas reflected the strategic priorities of the time, aiming to position Ireland as a leader in these rapidly developing fields.

Following the NDP, several research centres and initiatives were established to foster public-private collaboration, coordinated primarily through SFI and Enterprise Ireland (EI). Among these were SFI's Centres for Science, Engineering, and Technology (CSETs) and EI's Applied Research Enhancement (ARE) Centres. SFI's Centres for Science, Engineering, and Technology (CSETs) were designed to focus on oriented basic research in strategic areas, encouraging collaboration between academia and industry to drive innovation and economic growth. In contrast, ARE Centres were more focused on immediate market needs, facilitating the swift translation of academic research into practical solutions and commercial products.

Building on the foundation laid by the NDP, Ireland refined its research and innovation strategy with the launch of the *Strategy for Science, Technology, and Innovation (SSTI) 2006-2013*. This strategy sought to further integrate research and innovation into Ireland's economic development, particularly by enhancing industry

collaboration and focusing on sectors with high commercial potential. In line with these objectives, Enterprise Ireland (EI) launched their Technology Centre programme in 2007, targeting market-driven, industry-led research in key sectors such as bioenergy, IT innovation, applied nanotechnology, composite materials, and microelectronics.

However, the onset of the 2008 financial crisis presented significant challenges to these initiatives. Public R&D funding contracted notably, declining from €930 million in 2008 to approximately €765 million over the subsequent decade. This fiscal tightening necessitated a strategic reassessment of research funding priorities, with a greater emphasis on cultivating private sector partnerships and prioritising research areas with immediate economic benefits.

In response to these challenges, a significant development occurred with the passage of the *Industrial Development (Science Foundation Ireland) (Amendment) Act*. This legislation expanded SFI's remit to include funding for applied research alongside its traditional focus on oriented basic research. The intent behind this shift was to ensure that research outcomes could be more directly aligned with market applications, thereby enhancing the contribution of scientific research to economic growth and societal development. This legislative change was aligned with the strategic priorities identified in the *National Research Prioritisation Exercise*, broadening the scope of research projects that SFI could support and enabling the foundation to play a more active role in Ireland's economic recovery.

Building on this expanded remit, SFI launched the Research Centre programme to bolster Ireland's research infrastructure in the post-crisis environment. This programme aimed to focus research funding on areas with the greatest potential for economic and societal impact. The programme targeted key sectors such as ICT, biotechnology, and sustainable energy, which were deemed crucial for driving economic recovery and fostering long-term growth. By concentrating resources on these strategic areas, the Research Centre programme sought to maximise the economic return on research investments and position Ireland as a leader in innovation.

Despite these advancements, this shift towards directed research programmes raises both ideological and practical concerns (Chubb and Reed, 2018). Critics argue that the increasing politicisation of research threatens academic autonomy, forcing researchers to align their interests with the priorities set by policymakers and funding agencies (Smith *et al*., 2011; Boswell and Smith, 2017). This shift could potentially undermine the breadth of research, as researchers may feel compelled to focus on topics that promise immediate economic benefits, at the expense of fundamental research.

Furthermore, while these initiatives were designed to maximise the economic return on research investments, they did not result in a significant increase in the overall R&D budget as a percentage of GDP. Consequently, Ireland's R&D expenditure remained relatively low compared to other EU nations, standing at

1.13 per cent of GDP in 2021, well below the EU average of 2.28 per cent and behind countries like Denmark and Belgium, where R&D spending exceeds 2.8 per cent of GDP (World Bank, 2024). This underinvestment is reflected in Ireland's slipping position in innovation indices, such as the Global Innovation Index, where it has fallen from seventh to 19th place over the past five years. The declining innovative performance is partly due to insufficient government support for business R&D, as well as lower levels of business R&D expenditures and employment in innovative enterprises (WIPO, 2023).

The current R&D funding structure reflects the continuation of this post-crisis strategy. In 2023, SFI was allocated €225.6 million (21 per cent of the R&D budget), while EI saw its funding rise to €112.4 million (10.5 per cent of the R&D budget). This distribution underscores the government's ongoing emphasis on applied research in strategic economic areas. Meanwhile, the Irish Research Council (IRC), which supports a broader range of disciplines including the social sciences and humanities, experienced a slight decrease in funding to €47.7 million (Government of Ireland, 2023). This shift towards commercially-oriented research raises concerns about the potential marginalisation of fields less aligned with immediate economic outcomes, potentially narrowing the scope of Ireland's research agenda. These concerns are particularly acute given the establishment on 1 August 2024 of the new research and innovation funding agency, Taighde Éireann, which amalgamates the activities and functions of SFI and IRC. There is a risk that the merger could lead to a further narrowing of research priorities, with a disproportionate emphasis on applied and economically-driven research, potentially marginalising areas critical for understanding societal challenges but less commercially viable.

III RESEARCH IMPACT AGENDA: CURRENT CHALLENGES

3.1 Conceptualising Research Impacts

The challenge of measuring the impacts of publicly funded research has generated an extensive and evolving body of literature (Guthrie *et al*., 2018). However, evaluating these impacts remains challenging due to the lack of conceptual clarity surrounding the term "impact," which can vary considerably depending on the context and stakeholders involved (Martin, 2011). As Reinhardt (2013, p.97) states, "Inuits are said to distinguish 50 words for snow. In contrast, European research agencies talk about impact, impact, and impact, but they all mean different concepts, attach different importance to it and implement it in different ways." This multiplicity in the conceptualisation of impact creates challenges for policymakers, funding agencies, and the research community, as how impact is defined directly influences the types of knowledge that are valued, incentivised, and rewarded (Williams, 2020).

The Higher Education Funding Council for England (HEFCE) offers one of the most widely recognised definitions of impact, describing it as "an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia" (HEFCE, 2010). This definition frames research impact as largely attribution-based, results-focused, and positive. However, this perspective introduces conceptual and methodological challenges, as research impact is often a complex, dynamic, and non-linear process involving multiple stakeholders. Attributing specific impacts to particular projects, programmes, or grants can be challenging, if not impossible. These difficulties have prompted a shift in how research impact is conceptualised – from attribution-based approaches towards contribution-based approaches, which emphasise the complexities, dynamism, and non-linearities inherent in generating research impacts (Spaapen and Van Drooge, 2011; Morton, 2015; Ofir *et al*., 2016).

Research impacts can be generated simultaneously across diverse categories, including economic, health, environmental, public policy, human capacity, technological, societal, academic, and cultural impacts. Despite the recognition of these diverse channels, there is concern within the scientific community that the increased emphasis on accountability and the need to justify public funding has shifted the focus towards short-term, applied research, often at the expense of longer-term, blue-skies research (Gunn and Mintrom, 2016; Chubb and Reed, 2018).

3.2 Measuring Research Impacts

The development of standardised tools for assessing research impact is constrained by well-known methodological challenges, including data availability, attribution issues, additionality effects, and time lags (Barge-Gil and Modrego, 2011; Morton, 2015; Donovan, 2011). These challenges have led to the creation of numerous tools and methodologies for measuring and evaluating research impacts, but no consensus has emerged on a standalone method that comprehensively assesses the process and outcomes of publicly funded research (Guthrie *et al*., 2013; Greenhalgh *et al*., 2016; Deeming *et al*., 2017; Pedersen *et al*., 2020).

Methodological approaches to impact assessment can be broadly categorised as quantitative, qualitative, or mixed-method approaches. Quantitative approaches include surveys, bibliometrics, altmetrics, econometric studies, and economic analysis. These methods provide top-down, longitudinal data that are comparable across time, sectors, and countries (Guthrie *et al*., 2013). However, they often fail to capture the underlying dynamics and complexities of the research impact process (Morton, 2015; Ofir *et al*., 2016). As a result, policymakers and funding agencies are sometimes accused of "counting what is easily measured rather than measuring what counts" (Muller, 2018). This limitation of metrics-based approaches has led to calls for qualitative and mixed-methods approaches to assess the impact of publicly funded research. While these approaches allow for a more in-depth,

detailed description of the processes and outcomes of public investments in research, they also offer a narrower scope and reduced generalisability compared to top-down approaches.

3.3 Systematic Effects of the Research Impact Agenda

Several studies have explored researchers' attitudes towards the research impact agenda, revealing a blurring of boundaries between research, politics, and industry as multiple stakeholders engage in knowledge production (Chubb and Watermeyer, 2017; Chubb and Reed, 2017; Marcella *et al*., 2018; Lauronen, 2020; Ma, 2019). This has shifted the rationale for public funding of research from a focus on delivering scientific excellence to demonstrating broader economic and societal impacts with tangible real-world benefits. Consequently, accountability, value-for-money, and justification for public funding have become central to research policy.

While demonstrating scientific excellence and producing economic and societal impacts are not mutually exclusive goals, the research impact agenda has created tensions between aligning research centre missions with individual researchers' objectives. The agenda prioritises instrumental research that addresses real-world problems, yet the reward systems for individual researchers often remain based on traditional bibliometric indicators, such as publications and citations. This creates an underlying tension between the incentives offered to different stakeholders within the research system.

Researchers are increasingly expected to balance multiple mandates: producing scientifically excellent research, securing external funding, engaging in knowledge transfer and commercialisation, developing intellectual property, and applying research findings to industrial and societal needs. Evans and Cvitanovic (2018) highlight the challenges of balancing research missions aimed at impacting policy and practice while operating within a university sector that still largely incentivises the 'publish or perish' model. These challenges are particularly problematic for early-career researchers, who typically have less job security, fewer networks, and limited institutional support compared to established academics.

The rise of the research impact agenda, coupled with increased competition for scarce public resources and limited job security, creates perverse incentives for researchers and research centres to overstate the impacts of their research. Edwards and Roy (2017) argue that researchers have become increasingly perverse in their competition for research funding, the development of quantitative metrics to measure performance, and the changing business model for higher education. In such bureaucratic environments, "the honesty, integrity, and plurality of impact claims are potentially thwarted, minimalised, and/or fictionalised" (Watermeyer, 2016: p.362).

IV METHODOLOGY

Building on the review of existing literature on research impact assessment and preliminary exploratory interviews with key stakeholders across Ireland's research sector, this study identifies a significant gap in understanding the attitudes and experiences of these stakeholders towards the research impact agenda. To address this gap, a thematic analysis was conducted on 13 semi-structured interviews with key figures, including research centre managers, directors, and representatives from funding agencies.

4.1 Recruitment

These interviews aimed to include participants with diverse perspectives and deep expertise in the research impact agenda, ensuring a comprehensive analysis of its influence on research policy and practice in Ireland. To guide this process, convenience sampling was used to select research centres based on geographical location, accessibility, and participant availability. A national research directory was utilised to identify potential interviewees, resulting in 31 contacts, of whom 13 agreed to participate (42 per cent). The sample included representatives from Ireland's largest research centre programmes, such as the Science Foundation Ireland and Enterprise Ireland programmes, helping to mitigate potential biases and enhance the generalisability of the findings.

Table 1: Description of Interview Participants

No.	*Position*	*Gender*	*Participant Affiliation*
R1	Research Centre Director	Male	EI
R2	Head of Research	Female	EI
R3	Programme manager	Male	SFI
R4	Programme manager	Male	EI
R5	Principal Investigator	Female	SFI
R6	Principal Investigator	Male	SFI
R7	Research Centre Deputy Director	Male	SFI
R8	Senior Research Policy Leader	Female	SFI
R9	Commercialisation manager	Male	SFI
R10	General manager	Male	SFI
R11	Research Centre Director	Male	SFI
R12	Research Centre Director	Male	SFI
R13	Head of Business Strategy	Male	EI

Source: Compiled by the authors.

4.2 Data Collection

Semi-structured interviews were chosen for data collection due to their ability to generate "rich and illuminating data" (Robson, 1993: p.229), making them

particularly effective for exploring complex and emerging concepts like research impact. The interviews, conducted between December 2018 and February 2019, were primarily face-to-face, except for one conducted by telephone. Each interview was recorded and transcribed verbatim, with detailed field notes taken for the phone interview. Ethical approval was obtained from the Social Research Ethics Committee (SREC) at University College Cork (UCC) before participant recruitment. Participants were fully briefed on the study's aims, scope, and ethical considerations, and consent was obtained before commencing each interview. The interviews, lasting between 45 and 75 minutes, explored participants' conceptualisations of research impacts, methods for evaluating these impacts, and their experiences with the research impact agenda.

4.3 Data Analysis

The data were analysed using thematic analysis, a flexible qualitative approach that is not tied to any specific theoretical framework or epistemological stance (Braun and Clarke, 2006). The analysis followed the six-step framework outlined by Braun and Clarke (2006), which includes familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This structured approach ensured a rigorous analysis of the interview data, allowing for the identification of key themes related to stakeholders' attitudes and experiences with the research impact agenda.

V RESULTS

The experiences of key stakeholders provide critical insights into how the research impact agenda is understood and implemented within the research sector. These insights reveal several contextual factors that shape stakeholders' perceptions of the processes and outcomes associated with the research impact agenda. Through a detailed thematic analysis, three primary themes emerged, each offering a distinct perspective on how the research impact agenda influences research centre missions, behaviours, and strategic decision-making. These themes are: (i) Conceptualising research impacts (Table 2), (ii) Measuring research impacts (Table 3), and (iii) The systematic effects of the research impact agenda (Table 4). The themes and sub-themes are described using the words of the interviewees.

5.1 Rationale for Impact Assessment

The participants in this study universally acknowledged that research impact is a complex, dynamic, and multidimensional concept, with meanings that can vary depending on the context and the stakeholders involved. However, the interviews revealed that conceptualisations of impact are predominantly shaped by policymakers and funding agencies, which often dictate the terms and criteria of

Table 2: Conceptualising Research Impact

Theme	*Sub-Theme*	*Reflection*	*Exemplary Quote*
Conceptualising Research Impact.	Rationale for Research Impact Assessment.	Research evaluation systems have become increasingly top-down, bureaucratic, driven primarily by funding agencies.	So, they're having this big, long consultation, but it seems to me, already, major decisions have been made about how their investments are categorised, and how they are valued, and the mood music about what their impact is supposed to be. Are people joining up the dots on that? I'm not so sure, but that is the reality (R10, General Manager).
		Accountability and allocation are the most commonly identified rationales for RIA exercises.	We need to have an informed citizenry so that citizens appreciate science, so that there's a respect for science, but also that there will be an acceptance to increased funding for science. So there's a bit of a self-interest thing as well as a societal benefit (R11, Director).
	Defining research impact.	Research impact means different things to different people.	It can mean different things. There are different dimensions to it. The way I would look at it is it's very hard to define it in a single way because I think it has to be multidimensional (R9, Commercialisation manager).
		Funding agencies have adopted narrow conceptualisations of research impact focused primarily on economic impacts.	Screw your Nature papers, Science papers, Nobel prizes, to hell with that. The number one thing, or else we aren't going to get funded, or we're in trouble, is going to be this ability to bring in industry money. That is the tone that is set (R10, General Manager).

Table 2: Conceptualising Research Impact (Contd.)

Theme	*Sub-Theme*	*Reflection*	*Exemplary Quote*
	Defining research impact (Contd.)	Industry cash was identified as most important impact but does not measure external impacts.	When we are discussing the metrics, I get a sense that things like the amount of cash you have got in the bank from companies is paramount and dominates almost everything else (R7, Deputy Director).

Source: Authors' own.

impact assessment. Most participants articulated their understanding of impact in relation to the frameworks established by these external bodies. The primary rationales for conducting research impact assessments were identified as accountability and resource allocation. These drivers have become increasingly pertinent in the context of reduced public R&D spending and heightened competition for limited resources, particularly following the Global Financial Crisis of 2008.

The political dimensions of the research impact agenda are expected to significantly influence the outcomes and evolution of future research impact assessments (Gunn and Mintrom, 2016). A common sentiment among participants was that policymakers and funding agencies exhibit a clear preference for economic impacts. This is consistent with the traditional emphasis on job creation within Ireland's STI policy, and the highly centralised nature of research funding under the Department of Enterprise, Trade and Employment. These factors contribute to a prioritisation of economic outcomes over other forms of impact.

5.2 Defining Research Impacts

The perceived bias towards economic impacts was evident in participants' identification of key impact metrics. Many interviewees pointed to industry cash targets as the most critical measure of impact for their research centres. This focus on industry-generated income reflects the expectations set by funding agencies regarding research outputs and performance, highlighting the significant influence these agencies wield in shaping the strategic direction, operational performance, and overall behaviour of research centres in Ireland.

A recurrent concern among participants was that this heavy emphasis on economic impacts, particularly industry cash, might have unintended negative consequences on the scientific quality of research. The tension between pursuing scientific excellence and delivering economic and societal impacts was frequently mentioned, with many respondents expressing concerns that the incentives for these two objectives are often in conflict rather than complementary. Striking the right balance between these competing demands is seen as a persistent challenge.

Participants also questioned whether traditional scientific outputs, such as publications and citations, are still valued by research funding agencies as measures of impact. The shift in policy focus from scientific excellence towards the demonstration of economic and societal impacts suggests that these conventional metrics may no longer be regarded as the most appropriate indicators of research impact.

In light of these concerns, several participants suggested alternative dimensions of impact that might be more relevant for assessing the contributions of research centres. These include human capital impacts, capacity building, and policy impacts. For instance, many interviewees identified the training of skilled graduates as a key impact delivered by publicly funded research centres. However, generating these impacts has been described as a "catch-22 situation" (R2, Head of Research),

as research centres must increasingly rely on private sector funding through collaborative projects while simultaneously competing with private firms for high-quality staff, often without the ability to offer competitive compensation. This situation has led to the sector being described as "cannibalistic" (R2, Head of Research), highlighting the intense competition for talent within the research landscape in Ireland.

5.3 Established Approaches for Measuring Impact

Participants identified several approaches for assessing research impacts, which can be broadly categorised into quantitative, qualitative, and mixed-method approaches. Despite this range, most impact assessments were conducted on an ad hoc basis, revealing a clear lack of a systematic approach across research centres. The choice of methodological tools was often influenced by the expectations and requirements of funding agencies, with research centres frequently developing their assessment tools to align with these external demands. Interestingly, participants did not refer to well-established assessment frameworks, which may reflect the relative infancy of the research impact agenda within Ireland's research sector. Discussions of research impacts were generally framed around broad dimensions – such as economic, societal, policy, scientific, environmental, and capacity building – but more often focused on specific individual metrics.

The most commonly identified approach for measuring research impact was metrics-based. These approaches are well-established tools for capturing the economic and societal impacts of publicly funded research, valued for their ability to ensure consistency and comparability across researchers, research centres, and research systems. However, participants highlighted several challenges associated with metrics-based approaches. Firstly, there was a strong caution against one-size-fits-all methods. Research centres are highly diverse, varying significantly by ownership, size, age, mission, and financial structure (Gulbrandsen, 2012). Therefore, flexible approaches that account for these contextual factors are essential for conducting robust research impact assessments. Despite these limitations, some participants accepted metrics-based approaches as part of the research funding "game," acknowledging that "whatever metric you use, it alienates some people" (R12, Director).

Given the limitations of metrics-based approaches, participants expressed a growing interest in alternative methods to measure and demonstrate research centre impacts. Narratives were highlighted as particularly useful for providing in-depth, detailed descriptions of the processes and outcomes of public investments in research. These narratives allow research centres to present evidence of intangible impacts, which are often associated with longer-term economic and societal outcomes. Thus, combining metrics-based approaches with comprehensive narratives was identified as an effective strategy for capturing and measuring the full spectrum of research centre impacts.

Table 3: Measuring Research Impacts

Theme	*Sub-Theme*	*Reflection*	*Exemplary Quote*
Measuring Research Impacts.	Established Approaches for Measuring Research Impacts.	There is a lack of a systematic approach to research impact assessment across publicly funded research system in Ireland.	It's a one-size-fits-all framework, but actually, it doesn't take any cognisance of the different product life cycles, even if you look at it on that level, and the different journey (R10, General Manager).
	Challenges measuring research impact.	Lack of robust measurement tools, coupled with increased pressure to secure funding may lead to research centres overestimating or at least overstating impacts from research.	I think it's sometimes a bit weird when a research centre that's basically grounded in scientific research starts making these wild claims that aren't necessarily scientifically based, that their research or a particular finding led to or caused a particular outcome. It's more a leap of faith rather than an evidence-based piece of analysis (R9, Commercialisation Manager).
		Research evaluation systems have become increasingly bureaucratic and burdensome.	You have to report on what you do, and it's reasonable to have metrics, but I think if you over-engineer your system, and as it becomes overly bureaucratic, anecdotally, I would say, surely, in the centre's context, there is a hell of a lot of reporting. (R10, General Manager).
		Disciplinary differences across research centres challenge the robustness of benchmarking exercises.	TRLs are different on each market and will run at different speeds. Life science is quite slow, software is very quick, most of the rest are somewhere in between. So, if you tried to look like for like for like, it is comparing apples with oranges essentially. (R4, Programme Manager).

Source: Authors' own.

5.4 Challenges in Measuring Research Impact

The findings from the semi-structured interviews also revealed several methodological challenges that evaluators face when assessing the impacts of publicly funded research centres. One of the primary challenges identified was the burden of evaluation. Participants noted that impact assessment exercises often place significant demands on research centre resources. This burden is exacerbated by the perceived absence of a systematic approach to evaluation across the Irish research system. While participants recognised the importance of impact assessment for accountability, they also highlighted inefficiencies in the current data collection and evaluation systems. Issues such as double reporting and duplicative processes increase the workload on researchers, particularly when impact assessments are conducted by a small number of staff who are often juggling multiple responsibilities (Jones *et al*., 2017).

Measuring the impact of publicly funded research centres also requires data collection from a wide range of stakeholders. Research centres often receive funding from multiple agencies, each with its own reporting standards, data collection methods, and evaluation criteria. However, participants indicated that research centres are frequently limited by the willingness of stakeholders to provide the necessary information for robust research impact assessments. Cultural differences between publicly funded research centres and private sector firms were identified as a key barrier to successful data collection efforts. Issues such as confidentiality, secrecy, and a lack of trust, which are common in business R&D operations, present significant challenges when gathering data for impact assessments.

These findings underscore the complexity of measuring research impacts in a way that is both comprehensive and sensitive to the diverse contexts in which research centres operate. The challenges highlighted by participants point to the need for more systematic, flexible, and context-aware approaches to research impact assessment that can accommodate the varied and dynamic nature of research activities.

The third theme identified through the semi-structured interviews was the systematic effects of the research impact agenda in Ireland (Table 4).

5.5 Unbalanced Research Objectives

The perceived lack of effective engagement between policymakers, funding agencies, research practitioners and end users has likely contributed to unbalanced research objectives, favouring short-term, applied, commercially driven research over longer-term, fundamental or "blue-skies" research. Participants in the study highlighted the growing influence of the private sector in shaping the research agenda across Ireland's research centres, leading to tensions between the need to secure industry funding, deliver high-quality technology services, and produce immediate economic and societal impacts. At the same time, these demands must

be balanced with the traditional missions of research centres, such as fostering scientific excellence and training skilled graduates.

There was also concern among participants that the focus on the research impact agenda might be causing research activities to become increasingly fragmented across centres. The pressure to demonstrate immediate impact can lead researchers to spread their efforts too thinly, diverting attention away from deep, focused research that could yield significant long-term benefits. Chubb and Reed (2018) note that "the pursuit of impact may spread researcher capacity too thinly, taking time away from research and forcing researchers to look beyond their core expertise, prioritising breadth over depth".

5.6 Influence on Research Careers

Attracting and retaining high-quality staff was frequently mentioned as the most pressing challenge facing the research sector in the short to medium term. As part of the evaluation system, research centres are incentivised to provide training and produce researchers who can then transition into the private sector. However, this focus on transferring talent has created significant challenges in maintaining a stable research workforce. Publicly funded research centres often struggle to compete with private sector salaries, making it difficult to retain skilled researchers, a challenge that participants described as a "catch-22 situation" and "cannibalistic."

This competitive environment has been particularly detrimental to early-career researchers, whose career trajectories are increasingly shaped by the pressures of the research impact agenda. The inability of research centres to offer competitive salaries and career stability risks exacerbating the talent drain from the academic sector to industry, potentially undermining the long-term sustainability and capacity of Ireland's research ecosystem.

5.7 Influence on Collaborative Relationships

The research impact agenda also seems to be reshaping collaborative relationships between research centres and industry partners. Chubb and Reed (2018) suggest that incentivising research impact may lead to an increase in research conducted in a "consultancy mode," where the focus is on applying existing knowledge rather than generating new insights. This shift could result in research becoming more "pedestrian" and non-transformative, limiting its potential for significant long-term contributions.

Participants expressed concerns that the emphasis on demonstrating economic impacts has skewed collaborations toward larger multinational corporations (MNCs) at the expense of Small and Medium Enterprises (SMEs). The current funding model appears to disadvantage research disciplines and sub-fields that are more closely aligned with SMEs, leaving some research centres at a disadvantage in terms of their overall impact capacity. This trend not only limits the diversity of research partnerships but also marginalises smaller firms that could benefit significantly from academic collaborations.

Table 4: Systematic Effects of Research Impact Agenda in Ireland

Theme	*Sub-Theme*	*Reflection*	*Exemplary Quote*
Systematic Effects of Research Impact Agenda.	Unbalanced Research Objectives.	The emphasis on accountability contributes to a natural shift towards targeting short term, applied research projects at the expense of longer-term, 'blue skies' research.	It's a horrible thing to say – but if SFI want to fund fundamental research – and I think SFI have lost the plot a bit, they've kind of come more like EI – but they've all gone to applied research. So, they should fund fundamental research (R5, Principal Investigator).
		The research impact agenda may be contributing to increasingly fragmented research activities that prioritises breadth of activities over depth.	I tend to find myself, particularly with centre grants, having a lot of different fragmented activities. I will have a bunch of people all doing quite different things for different companies and there may not be a theme (R7, Deputy Director).
		Marketisation of research leads to disadvantages across certain disciplines, such as mathematics, theoretical physics, and astronomy.	It would worry me that the focus on impact as it is currently defined would mean that some very interesting and valuable research will not get funded (R7, Deputy Director).
	Influence on collaborative relationships.	The research impact agenda may incentivise research being done in 'consultancy mode' increasing likelihood that results from research will be "irrelevant to all but a single user" (Gulbrandsen, 2011).	There can be a narrow boundary between high TRL research and consultancy. And it's great to be empowering business and supporting business and making sure there's a value added coming from the research, but if it's providing a service to business, the research element can suffer as a result. So, it might have short-term benefits, but not long-term. But that's a tricky balancing act (R11, Director).

Table 4: Systematic Effects of Research Impact Agenda in Ireland (Contd.)

Theme	*Sub-Theme*	*Reflection*	*Exemplary Quote*
Systematic Effects of Research Impact Agenda (Contd.)	Influence on collaborative relationships (Contd.).	The research impact agenda presents a general bias towards collaboration with larger companies at the expense of SMEs.	My main challenge is that we have small players that are in our space that we routinely ignore, we're going to ignore, I believe, we are in danger of ignoring, because of the limited resources. It's much better chasing a bigger project than chasing ten small projects (R12, Director).
	Impact on research careers.	The systematic effects of the research impact agenda have created a culture that is "more stressful and less attractive to early career staff" (Chubb and Reed, 2018).	That's the number one challenge that we are facing at the moment; we have got more projects than we have people to work on them (R3, Programme Manager).
		The research impact agenda has intensified the 'cannibalistic' nature of the research jobs market.	Sooner rather than later, sort out careers for people to stay sticking in the space. Because the churn on talent is huge (R4, Programme Manager).

Source: Authors' own.

VI DISCUSSION

The research impact agenda in Ireland, though still evolving, has already begun to exert a significant influence across the research centre sector. The findings from this study indicate that current conceptualisations of impact within this sector are narrowly focused, with a predominant emphasis on economic outcomes. This focus appears to be driven largely by policymakers and funding agencies who, despite acknowledging a broad range of potential impacts, place the highest value on economic returns. This bias towards economic impact is understandable, given the current emphasis on accountability, value for money, and return on investment that dominates research policy discussions.

The shift towards economic impacts is evident in the evolving funding models for universities and publicly funded research centres. Historically, these institutions were incentivised to produce high-quality, scientifically excellent research that contributed to the general stock of knowledge within the economy. However, the research impact agenda has shifted these reward structures significantly towards securing industry funding (Chubb and Watermeyer, 2017). Metrics used by funding agencies to monitor, measure, and evaluate the performance of research centres are increasingly aligned with economic indicators, particularly those related to non-Exchequer funding. This has led to the emergence of a system where the ability to attract industry cash has become a primary measure of research impact, a development that many participants view as problematic.

The prioritisation of industry cash as a measure of impact is indicative of a top-down approach to research funding, where policymakers and funding agencies impose industry cash targets as conditions for funding. This focus on industry cash raises several conceptual and methodological challenges. It conflates performance metrics with impact assessment, two processes with distinct objectives: performance measurement is internal-facing, concerned with what activities the research centre has undertaken and how well it has performed them; impact assessment, on the other hand, is external-facing, focusing on the broader effects of research on the economy and society. Importantly, industry cash represents an input into the research process rather than an impact itself. The transformation of these inputs into broader economic and societal impacts is uncertain, often unequal, and can take many years, particularly in the case of basic research (Salter and Martin, 2001).

Although it is widely recognised that scientific excellence and economic impact are not mutually exclusive, the increasing influence of commercial interests poses a challenge to the autonomy, impartiality, and objectivity of research centres. There is a danger that an over-reliance on industrial funding could skew research agendas towards narrow commercial interests, potentially biasing research outcomes in favour of industrial partners' products and services (Lundh *et al*., 2017), while diverting attention away from potentially unfavourable evidence (Fabbri *et al*.,

2018). Moreover, there is a risk that research centres could become "irrelevant to all but a single user" (Gulbrandsen, 2011), losing sight of the broader public interest.

The evolving research landscape in Ireland is further complicated by the impending merger between SFI and the IRC. This merger introduces challenges, particularly for social sciences and humanities research, which traditionally do not align as closely with the market-driven agendas that SFI tends to prioritise. The IRC has been a crucial supporter of a diverse range of disciplines, many of which may not produce immediate economic returns but are vital for understanding and addressing complex societal issues. The integration of SFI's more commercially focused remit with IRC's broader portfolio raises concerns that the social sciences and humanities could be marginalised, resulting in a narrowing of the research agenda and a reduction in the diversity of research outputs.

Policymakers have increasingly adopted a more focused approach to the public funding of research and innovation, concentrating competitive funding in areas deemed most likely to yield significant economic and societal benefits (DJEI, 2015). While this strategy may be effective in driving short-term economic gains, it risks undermining the pursuit of fundamental research, which is essential for long-term scientific advancement and international reputation. Participants in this study underscored the critical role of research centres in maintaining a balance between immediate commercialisation needs and longer-term, blue-skies research that explores future disruptive technologies.

The research impact agenda also creates tensions within the research system, as research centres must balance the competing demands of competition and cooperation. The need to attract highly skilled employees is a key reason private firms collaborate with research centres, while doctoral students view these collaborations as opportunities to screen potential future employers. However, this dynamic is complicated by the fact that publicly funded research centres must also compete with these private firms for talent but are often unable to offer competitive salaries. This situation, described by participants as "cannibalistic," has led to inefficiencies within the system, with some research centres managing more projects than they have staff to execute, and increasing the burden on remaining researchers.

The challenges associated with a one-size-fits-all approach to impact assessment were also highlighted. Research centre outputs, outcomes, and impacts vary significantly across disciplines, making the development of universally accepted metrics and indicators particularly challenging. The pressure to demonstrate research impacts sometimes leads to "impact sensationalism" (Chubb and Watermeyer, 2017), where researchers and research centres may overstate their findings. This is particularly problematic in a system grounded in scientific principles of openness, integrity, and objectivity, which are not always applied with the same rigour to impact assessment.

Furthermore, participants stressed the need for more systematic approaches to data collection across the Irish research system. The burden of evaluation is exacerbated by the lack of a cohesive evaluation framework, leading to inefficiencies such as double reporting. The call for increased support in impact-related activities, including the development of case studies and the allocation of specialised personnel, aligns with findings from other studies (Wilkinson, 2019; Jones *et al*., 2017), which emphasise the necessity of dedicated resources to manage these tasks effectively.

In conclusion, while the research impact agenda in Ireland is still evolving, its current trajectory raises several concerns. The emphasis on economic impacts, the potential marginalisation of fundamental research, the pressures on research careers, and the challenges of measuring impact all point to the need for a more balanced and nuanced approach. Ensuring that the research system remains diverse, inclusive, and capable of addressing long-term societal challenges will require careful consideration of how impact is defined, measured, and rewarded.

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