INNOVATION & RESEARCH CAUCUS

MEASURING THE REPUTATIONAL IMPACT OF INTERNATIONAL R&I INVESTMENTS

IRC Report No. 033

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About the Innovation and Research Caucus

The Innovation and Research Caucus supports the use of robust evidence and insights in UKRI's strategies and investments, as well as undertaking a co-produced programme of research. Our members are leading academics from across the social sciences, other disciplines and sectors, who are engaged in different aspects of innovation and research systems. We connect academic experts, UKRI, IUK and the ESRC, by providing research insights to inform policy and practice. Professor Tim Vorley and Professor Stephen Roper are Co-Directors. The IRC is funded by UKRI via the ESRC and IUK, grant number ES/X010759/1. The support of the funders is acknowledged. The views expressed in this piece are those of the authors and do not necessarily represent those of the funders.

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Executive Summary

Background - International Research and Innovation (R&I) activities involve collaborations at national, organisational, and individual levels between the UK and other countries. These collaborative activities include joint research, product-, service- and process- innovations, infrastructure development, knowledge sharing, talent development, network building and addressing social and environmental challenges. The UK's funding programmes, policies, and regulatory frameworks play a crucial role in supporting these international R&I collaborations.

An aim of the international R&I investment by the Department for Science, Innovation, and Technology (DSIT) and UK Research and Innovation (UKRI) is to enhance the UK's global reputation and influence (Integrated Review Refresh, 2023). Reputation is a term used to indicate the perception of a nation, organisation or an individual. National reputation is defined as a country having a good name or image in the world nations as a collective judgement of foreign countries (Mercer, 1996).

Significance of reputation generated through international R&I investment - Reputation generated through international R&I amplifies the benefits by unlocking new opportunities and competitive advantages. Strengthened positive reputation generates additionality by significantly improving access to resources, boosting research output, increasing influence in global policy, and generating positive societal and environmental impacts. Financially, reputation attracts additional investments and R&I funding opportunities and opens-up new markets. Relationally, reputation enhances strategic networks and partnerships required for continued and scaled-up future value generation that is not possible otherwise.

Gap in our knowledge - Despite the critical importance of reputation building, there remains a substantial gap in understanding, capturing, and measuring how international R&I activities influence the UK's reputation. This lack of knowledge poses challenges in effectively identifying the reputational benefits derived from the UK's investments in international R&I.

Contribution of this report - In light of this, the report aims to make an initial step to provide valuable insights into developing a conceptual framework on how international R&I activities and associated investments enhance the UK's reputation, and to outline methods that can be adopted to effectively capture and measure the reputational impacts.

- Due to the lack of existing literature explicitly discussing reputation building through international R&I investment, **a conceptual framework** (Figure 2) was developed by reviewing and integrating literature on reputation, brand building, and soft power etc (see Appendix 1 for these similar concepts) across various organisations and contexts, including international R&I engagement by corporations.
- The report then analyses example programme evaluation reports (Table 4) and broader literature (Table 5) on measuring reputation to discuss **methods** that could be used to capture and measure reputational impacts. A pilot text mining experiment is also detailed, highlighting challenges such as the lack of suitable data that captures reputational impacts (Appendix 3).
- The report concludes with key lessons for enhancing the capture and measurement of reputational impacts by presenting **matrices**. The matrices deconstruct the concept of 'reputation' into multiple dimensions - including national (Table 6) and organizational-level (Table 7) reputation building, as well as by investment type - enabling the development of targeted measures tailored to each investment context (Table 8). These insights offer practical value for policymakers, funding bodies, and research institutions (including universities and businesses engaged in international R&I) to better recognise, leverage, and benefit from the reputational gains generated through such investments.

Future evaluations and research could adapt and test the conceptual framework, methods, and matrices presented in this report to more effectively capture and assess the reputational impacts of international R&I. Refining the associated measurement scales would further enhance the rigour and reliability of how reputation is understood and evaluated in the context of such investments.

An overview of reputational impacts of international R&I

The conceptual framework suggests that the UK's investment in international R&I bolsters its reputation at both national and organisational levels (Figure 1). The reputation built at the organisational level collectively contributes to the national reputation. It is important to note that whilst this conceptual framework has been built from the available literature, a lack of robust, quantifiable empirical evidence exists surrounding reputation developed through international R&I investment. By using the diverse reputational benefits of international R&I investments identified in this report, we can gain a comprehensive understanding of how the UK can

leverage these efforts to measure, establish and maintain a robust, positive reputation on the global stage.

Figure 1: National and International Reputation building through International R&I Investment

National reputation

As reputation is perceptual and predominantly shaped by a country's actions and behaviour, it can be either positive or negative. The conceptual derivation and programme evaluations suggest that the UK's investment in international R&I can significantly enhance the positive reputation of the UK as a 'Great Research, Science and Innovation Nation' with unique R&I capabilities, resources, talent and skills.

- First, international R&I investment boosts international perception of the UK's economic attractiveness, positioning the country as a prime destination for research and innovation investments.
- Second, the UK's leadership and influence in the global R&I landscape are reinforced, showcasing its proactive and strategic role in driving international collaborations and advancements.
- Third, the robust research support and infrastructure provided by the UK for international R&I further solidify its reputation as a hub for cutting-edge research and innovation.

- Fourth, the UK's trustworthiness and reliability as an international R&I funding partner are highlighted, demonstrating its commitment to equitable and transparent international R&I collaborations.
- Fifth, the UK's investment in socially and environmentally responsible international R&I also enhances its reputation as a compassionate nation, underscoring its role in promoting global well-being.
- Conversely, incidents such as the discontinuation of international R&I funding programmes or cases of intellectual property theft and espionage can negatively affect the UK's reputation as a reliable, secure and capable nation for supporting and investing in international R&I.

Organisational reputation

UK investment in international R&I significantly enhances the reputation of the UK organisations that receive this support.

- First, international R&I funding bolsters recipient organisations' reputation for research and innovation expertise and capabilities, showcasing their ability to produce high-quality, impactful outputs.
- Second, the resourcefulness of these organisations is highlighted, demonstrating their capability to access and use unique resources.
- Third, the international credibility of these organisations is strengthened, positioning them as reliable and esteemed partners in the global R&I landscape.
- Fourth, the financial strength of these organisations is also recognised and made visible, enhancing their reputation as financially robust entities.
- Fifth, these organisations' brand awareness is improved as important and trusted influencers, capable of shaping and driving advancements in the global research and innovation arena and generating social and environmental value.

Measuring reputational impacts of international R&I investment

Methods to measure reputational impacts

Tracking and measuring the reputational impacts of international R&I investments pose several challenges, particularly in defining reputation as a psychological construct. This complexity contributes to a lack of explicit literature and data on the subject. Additionally, complexities in

the context of international R&I and the interactions between different types of R&I activities reduce the potential to establish causality between specific R&I investments and associated reputation building. The intangible nature of reputation also creates complex feedback loops associated with R&I activities, reputation building, and their impacts.

Despite these challenges, a combination of methods and data can be used to measure the UK's reputation resulting from international R&I investments. Considering the strengths and limitations of each method, it is advisable to employ a combination of methods. Such a mixed-method approach would provide a comprehensive understanding and allow for triangulation and validation of the findings on reputational impacts.

Some of these methods have already been utilised in the UK's international R&I programme evaluation reports. Yet, since these evaluation reports examine the broader impacts of a funding programme, they have placed less emphasis on reputation, often overlooking its multi-dimensional nature.

Below, we summarise potential methods to capture and measure reputation, along with their advantages and disadvantages.

- **Surveys**: Surveys are a widely adopted method for data collection in research and evaluation, with online formats now being the most prevalent. They typically gather quantitative information but can also provide qualitative insights through open-ended questions. Surveys can be used to assess either (A) the general reputation of the UK generated from its overall investment in international R&I, or (B) the reputational impacts of specific grants or programmes. A key challenge in survey design is determining the type of reputation being measured and identifying the appropriate target audience, as reputational impact depends on whose reputation is being assessed and by whom.

  For measuring the general reputation of the UK based on its overall investment in international R&I, surveys distributed to a broad range of national and international stakeholders may be appropriate. However, this approach makes it difficult to establish a causal link between specific R&I investments and the overall reputation.

  In contrast, to evaluate the reputational effects of specific grants or programmes, surveys can be tailored to those initiatives and sent to funding recipients and their beneficiaries—provided these individuals can be accurately identified. Such targeted surveys can yield quantifiable insights, particularly regarding direct reputational benefits at the organisational

and individual levels. With well-crafted questions, it may also be possible to assess national-level reputation gains resulting from specific funding programmes.

However, surveys are generally less effective at capturing detailed insights into *how* specific investments contribute to national reputation. Additionally, they are resource-intensive to design and analyse, and are subject to response bias, particularly among beneficiaries.

- **In-depth interviews and case studies**: In-depth interviews and case studies provide rich, detailed insights into specific instances of reputation building, capture the complexities and nuances that quantitative methods may miss, and offer flexibility to adapt to various contexts. However, they have limited generalisability, can be resource-intensive, and may be influenced by the biases and interpretations of the beneficiaries of funding, when they are interviewed to gather insights, as well as the researchers involved in gathering and analysing data. Due to their limited generalizability, in-depth interviews and case studies may be less suitable for assessing the overall extent to which national reputation is built through international R&I investments. However, they are valuable for exploring *how* reputation is generated in specific contexts. These qualitative methods are particularly effective for examining reputational impacts linked to targeted programmes or specific beneficiary groups, such as organisations or communities, from whom rich, detailed data can be collected.

- **Text mining:** Text mining tools can be used to analyse large volumes of text data from project and programme reports and case studies to uncover patterns and insights related to reputation building. However, for text mining to be effective, it is essential to have data that explicitly captures reputation-building aspects. As part of this project, the research team in collaboration with the analysts of DSIT and UKRI piloted a text mining approach. It concluded that, despite its potential usefulness to measure reputation, there is a lack of suitable data explicitly addressing reputation building, particularly at the national level. For more details on this experiment, please see Appendix 3.
- **Collaboration and network analysis/ bibliometric analysis:** Collaboration and network analysis maps international interactions by visualising co-authorships, co-patenting, and co-recipients of grants, showcasing the breadth of engagement across institutions and disciplines. Network analysis offers a holistic view of collaboration networks, identifies key players, provides clear visual representations, and allows for longitudinal analysis. Bibliometric analysis identifies the citation of patents and publications stemming from

international R&I investments, demonstrating their visibility. Although the data sources are readily accessible for bibliometric and network analysis, they may not be the most effective for capturing the multi-dimensional nature of reputational impacts of international R&I investment. The findings of these techniques can be misinterpreted without proper context and may not capture the full depth and breadth of reputational benefits, as it often only focuses a limited range of activities e.g. co-authorships, co-patenting, co-grant recipients and citations.

- **Social media and online sentiment analysis:** Sentiment analysis tools use natural language processing to analyse social media mentions and online discussions, assessing public sentiment towards a country's research contributions. Engagement metrics track likes, shares, and comments related to research outputs on social media platforms. Social media and online sentiment analysis are cost-effective compared to traditional research methods. However, they lack the ability to derive direct causality, may suffer from a potential lack of data on funding acknowledgment, can be noisy with irrelevant information, may not capture nuanced opinions, and are limited by platform-specific biases that can overlook other important communication channels.

- **Media coverage analysis:** Media coverage analysis assesses the volume and tone of media coverage regarding the country's international R&I engagement. Media coverage analysis provides a broad view of how a country is portrayed in the media and allows for tracking changes in reputation over time. Content analysis serves as a valuable method for examining media coverage by systematically analysing text, images, audio, and other content forms. It helps identify patterns, themes, and underlying meanings within media reports, offering insights into the messages conveyed, the perspectives of writers, and audience perceptions. However, media coverage analysis lacks the ability to derive direct causality, can be subjective, may suffer from coverage bias, and might not accurately reflect changes in reputation directly linked to international R&I investments due to inherent media platform and reporting biases.

Dimensions of reputation to develop a measurement scale

In order to capture reputation using mixed methods, it is important to have a broader understanding of the multiple dimensions of reputation. As such, we propose three matrices

(Table 6, 7 and 8 in the report) for reputation building from investment in international R&I. The matrices highlight the multifaceted reputational benefits of international R&I investments at both the national and organisational levels.

Many of these reputational impacts are closely linked to specific types of R&I investments. This underscores the importance of using tailored reputation dimensions when investigating the causality between specific types of R&I investments and the reputation they generate. Table 1 presents how specific reputational dimensions are predominantly associated with various types of R&I investments such as research, product and service innovation, knowledge sharing, talent development, network building, resource and infrastructure development, and social and environmental value generation. As these are developed based on the review of literature that does not explicitly discuss international R&I investment related reputation building, future empirical evidence could further validate and refine these multiple reputational dimensions associated with different types of R&I investments.

Table 1. Reputation Matrix by the type of International R&I Investment

Type of UK's International R&I Funding	Dimensions of Reputation Building
UK Funding for Research Output Production	• **Research Intensity:** Recognition of robust research activities and output. • **Impact Generation from Research:** Reputation of the ability to produce significant and impactful research outcomes. • **Source of Unique Knowledge and Resources:** Signalling as a provider of unique knowledge, resources, and collaborative opportunities. • **Scientific Capability and Expertise:** Recognition of scientific expertise and capabilities. • **Influence on the Research Landscape:** Demonstrating the ability to shape and influence the global research environment. • **Trustworthiness:** Reputation as a reliable and impartial collaborator
UK Funding for Product Innovation	• **Financial Strength:** Showcasing financial robustness and stability on an international platform. • **Customer Confidence:** Enhancing customer trust and confidence in innovative products. • **Brand Awareness:** Strengthening global recognition and visibility.
UK Funding for Service Innovation	• **Customer Confidence:** Building trust and confidence in the innovative services. • **Enhanced Credibility:** Strengthening the credibility in delivering international, customised, and culturally embedded innovative solutions. • **Brand Awareness:** Increasing the global recognition and visibility. • **Employee Reputation:** Enhancing the reputation of individual employees, such as award-winning designers and academics, who are critical to service innovation.
UK Funding for Knowledge Sharing and Talent Development	• **Source of Unique Knowledge and Collaboration:** International signaling as a provider of unique knowledge, resources, and collaborative opportunities. • **Influence on International Knowledge and Skills:** Demonstrating the ability to shape and influence the global knowledge, skills and R&I landscape. • **Education Provider and Knowledge Sharer:** Building the reputation as an excellent provider of education, developer of talent and sharer of knowledge and skills. • **Trustworthiness:** Enhancing the international reputation of reliability and integrity. • **Customer Confidence:** Increasing customer trust and confidence.
UK Funding for Social and Environmental Impact Generation	• **Social Value Generation:** Showcasing the ability to create significant social value. • **Environmental Value Generation:** Signaling the ability to produce environmental benefits. • **Customer Acceptance:** Increased acceptance and approval of customers. • **Trustworthiness and Compassion:** Reputation as a trustworthy and compassionate entity.

Type of UK's International R&I Funding	Dimensions of Reputation Building
UK Funding for Resource and Infrastructure Development	• **Infrastructure and Resource Development:** The reputation of the ability to engage in developing new infrastructure and resources. • **Access to Advanced Resources:** The reputation of having access to advanced, competitive, and unique resources and infrastructure.
UK Funding for Network Building	• **Competitive Positioning and Signalling:** Enhanced competitive positioning and signalling as a member of a reputed alliance with other esteemed members. • **Legitimacy in Global Networks:** Improved legitimacy as a member of a global network.

Key recommendations

1. **Incorporate reputational impacts into funding allocation decisions:** As highlighted in the report, reputation cultivated through international R&I investments strengthens the UK's competitive edge far beyond direct output of the funded projects. A robust, positive reputation drives financial growth by attracting investment, unlocking expanded R&I funding, and opening new market opportunities. It also enhances access to resources, collaboration opportunities, policy leverage, societal outcomes, and the strategic partnerships essential for future value creation. Together this positions the UK as a global influencer, amplifying its soft power and shaping international decision-making.

   Therefore, when evaluating funding allocations for international R&I projects, policymakers and funders should explicitly consider these ripple effects and multi-dimensional reputational gains. This means integrating the potential for reputation building as a key criterion in grant application evaluation and review processes as well as higher level decisions on the amount of international R&I investments.

2. **Incorporate reputational impacts in programme evaluations:** It is evident from the report that current programme evaluations often do not adequately capture the multi-dimensional reputational impacts of international R&I investments, and are rarely tailored to capture the specific reputational outcomes relevant to individual programmes. To address this gap, funders could incorporate targeted questions on reputational dimensions into both existing and future impact evaluations. Doing so would enable a more comprehensive understanding of reputational impacts and provide a cost-effective means of data collection to inform future strategic decisions and refine the measurement scale.

3. **Request reputational impacts to be mentioned in project outcome reports:** To better understand and harness reputational impacts of projects, it is important to collect more explicit data—such as recognising reputation as a distinct outcome area within impact tracking systems like ResearchFish. Currently, UKRI-funded international R&I projects often fall short in this area, limiting visibility of these strategic impacts. It is also important to provide clear guidance to those reporting project outcomes, as they may not be familiar with the multi-dimensional nature of reputational impacts and how to effectively capture them. With improved reporting of multi-dimensional reputational impacts generated from projects, reputational impacts could be more effectively analysed using text mining techniques to extract insights at scale and inform future funding and policy decisions.

4. **Develop robust measurement tools for capturing reputational impacts:** In order to effectively integrate reputational impacts in key strategic funding decisions and associated evaluations and impact reporting, it is recommended that funders develop robust measurement tools to gather feedback from grant recipients, other beneficiaries, international funders, and wider stakeholders on their perception and experience of reputation building through international R&I investments. This report offers a starting point to develop such measurement tools by outlining important dimensions of reputational impacts and methods that could be used to measure them. Such tools and measurement scales could then be used to evaluate programmes, assess project impacts, and independently gather data on national reputation building through international R&I investments.

5. **Tailor measurement to specific reputation dimensions and stakeholders:** When developing measurement scale, it is important to recognise that reputational impact depends on whose reputation is being assessed by whom using which methods. When the focus is on a specific dimension of reputation (e.g., the trustworthiness of the UK as an international funding partner) or specific type of investment (e.g. investment to support product and service innovation), policymakers and funders should select targeted reputational dimensions and methods and identify the most relevant respondents. For instance, qualitative interviews with international funders and beneficiaries can be particularly valuable for assessing trustworthiness and understanding how specific types of reputational impacts

are generated for distinct beneficiary groups through targeted international R&I programmes.

6. **Adopt a mixed-method approach for a comprehensive measurement:** To comprehensively understand and validate findings on reputational impacts, it is advisable to employ a combination of methods. This mixed-method approach could utilise a range of tools such as surveys, in-depth interviews, detailed case studies, workshops, bibliometric analysis, text mining, social media and online sentiment analysis, and media coverage analysis, depending on the specific objectives and data accessibility. A mixed-method approach also allows for triangulation and validation of findings.

7. **Further refine measurement scales:** Policymakers and funders should continuously adapt and test the conceptual framework, methods, and matrices presented in the report to capture and measure the reputational impacts of international R&I. Further refining the associated measurement scales will enhance the rigor and reliability of evaluating reputation generated through such investments. This includes exploring and integrating the multi-dimensional nature of reputation as outlined in the report's matrices.

8. **Address negative reputational impacts proactively:** Policymakers and funders should recognise that the abrupt discontinuation of international research and innovation (R&I) funding - such as through budget cuts - and the absence of safeguards to protect project outputs (e.g. against intellectual property theft) can significantly damage national reputation. Strategies should be in place to mitigate such negative impacts and maintain trust and reliability as an international R&I funding partner.

1. Introduction

International Research and Innovation (R&I) encompasses collaborations at national, organisational, and individual levels between the UK and other countries. These R&I activities include joint research; product, service, and process innovations; shared resource and infrastructure development and use; knowledge sharing and talent development; network building; and R&I to address social and environmental challenges. The UK's international R&I investments— including bilateral, multilateral, unilateral and international development grant funding programmes, policies, regulatory frameworks, and infrastructure—play crucial roles in supporting the UK's engagement in international R&I (Dusdal and Powell 2021; UKRI 2020; Cummings and Kiesler 2007; Adams and Gurney 2018; Wagner and Leydesdorff 2005; Kazim et al 2021; Lazell and Petrikova 2025; De Silva and Ghorbankhani 2025).

An important aim of the Department for Science, Innovation, and Technology (DSIT)'s international R&I investments, including those delivered by UK Research and Innovation (UKRI), is to enhance the UK's global reputation and influence. Despite this goal, there is a significant gap in understanding how international R&I investments and associated collaborations impact the UK's reputation. This lack of knowledge makes it challenging to capture and measure the reputational benefits of such investments.

In response to this knowledge gap, this report makes an initial step towards developing a conceptual framework of the reputational impacts of international R&I and proposes methodologies for their measurement. Given the limited research explicitly addressing reputation-building through international R&I investments due to its psychological, perceptual and multidimensional nature, the report synthesises insights from various streams of academic and grey literature. These streams of literature include those on reputation, brand building, and soft power etc. from diverse disciplines such as political science, marketing, international business and innovation (see Appendix 1 for these similar concepts) across diverse organisational contexts, including corporate international R&I engagement. The report discusses various methods that could be used to capture and measure reputational impacts of international R&I. It also explores innovative assessment techniques, such as text mining, using existing secondary data (see Appendix 3 for the text mining experimentation). Through these approaches the report offers strategic recommendations for effective identification and measurement of reputation building through international R&I investment.

Policymakers, funding agencies, and research organisations, including universities and businesses engaged in international R&I, can utilise the report's recommendations to better articulate the complex psychological construct of “reputation”. They can leverage the report to capture and assess the reputational impacts of international R&I investments, and to inform future investments and evaluations. Adapting and testing the conceptual framework, methods and matrices presented in this report to capture and measure the reputational impacts of international R&I—and further refining the associated measurement scales—would enhance the rigour and reliability of how we understand and evaluate reputation generated through such investments.

The rest of the report is structured into three main sections. The first section presents the conceptual framework of reputational impacts generated through the UK's international R&I investments, exploring how these investments contribute to building a positive reputation at both national and organisational levels. The second section discusses the methods used to measure reputational impacts, addressing the challenges and limitations in tracking and measuring reputation in the context of international R&I. The third section of the report then focuses on developing a structured approach to measuring reputation generated through international R&I investments. It introduces reputation matrices for national and organisational levels and discusses the application of various methods for assessing reputation.

2. Conceptual Framework: An Overview of Reputational Impacts of International R&I

Reputation is a term used to indicate the perception of a nation, organisation or individual. National reputation is defined as a country having a good name or image in the world nations as a collective judgement of foreign countries, which will have economic, social and environmental impacts (Mercer, 1996). Reputation is context-dependent—varying by what the reputation is for, who is evaluating, and for what purpose (Lewellyn, 2002; MacMillan et al., 2005). Judgments of reputation are informed by past performance as a signal of future potential, often summarised as "being known for something" (Lange et al., 2011; Dimov et al., 2007; Jensen et al., 2012). Especially concerning R&I, it is not only government policies and political relationships but also the reputation of a country's R&I ecosystem and its organisational-level relationships with international counterparts that are likely to influence national reputation (European Commission 2022; OECD 2022; De Silva and Ghorbankhani 2025).

This section presents a conceptual framework surrounding the reputational impacts generated through international R&I. It explores how the UK's investments in international R&I contribute to building and sustaining a strong, positive reputation on both national and organisational levels. By examining various dimensions of reputation, including national prestige and organisational credibility, this framework, presented in Figure 2, intends to provide a comprehensive understanding of the multifaceted reputational impacts derived from international R&I investments. The insights are useful to inform strategic approaches to enhance the UK's global standing and effectively measure the reputational outcomes of its international R&I investments. These insights are further explored in section 4 of this report, where matrices for measuring reputational impacts of international R&I are developed.

2.1. The UK's Investment in International R&I

The UK's investment in international R&I spans several key areas (Figure 2). Table 2 presents a brief overview of these types of international R&I funding with some examples.

Table 2. Types of UK's Investment in International R&I

Types of UK's International R&I Funding For:	Description of Funding	Examples
1. High-quality Research Output	Supports joint initiatives, access to facilities, and research publication/IP development.	AHRC-DFG Bilateral Funding Agreement
2. Product, Service, and Process Innovation	Supports prototyping, testing, market entry, and service innovation through cross-border collaboration.	Innovate UK's Global Business Innovation Programme
3. Social and Environmental Impact	Targets global challenges like climate change and public health through international collaboration.	Climate Adaptation and Resilience Programme
4. Resources and Infrastructure Development	Invests in research facilities, advanced equipment, and digital infrastructure for global collaboration.	Diamond Light Source, CERN, Copernicus
5. Knowledge Sharing, Talent Development and Network Building	Supports travel grants, workshops, conferences, fellowships, and international research consortia.	Mobility and partnership schemes; Royal Society Faraday fellowship

2.2. Reputation Generated through International R&I Investments

One of the benefits of international R&I investments and associated output often cited is the positive change made to the UK's reputation (O'Sullivan et al 2024; De Silva and Ghorbankhani 2025). International R&I investments could enhance both national and organisational reputation. The accumulated organisational reputation of funded companies and research institutions contributes to an enhanced national reputation – see Figure 2.

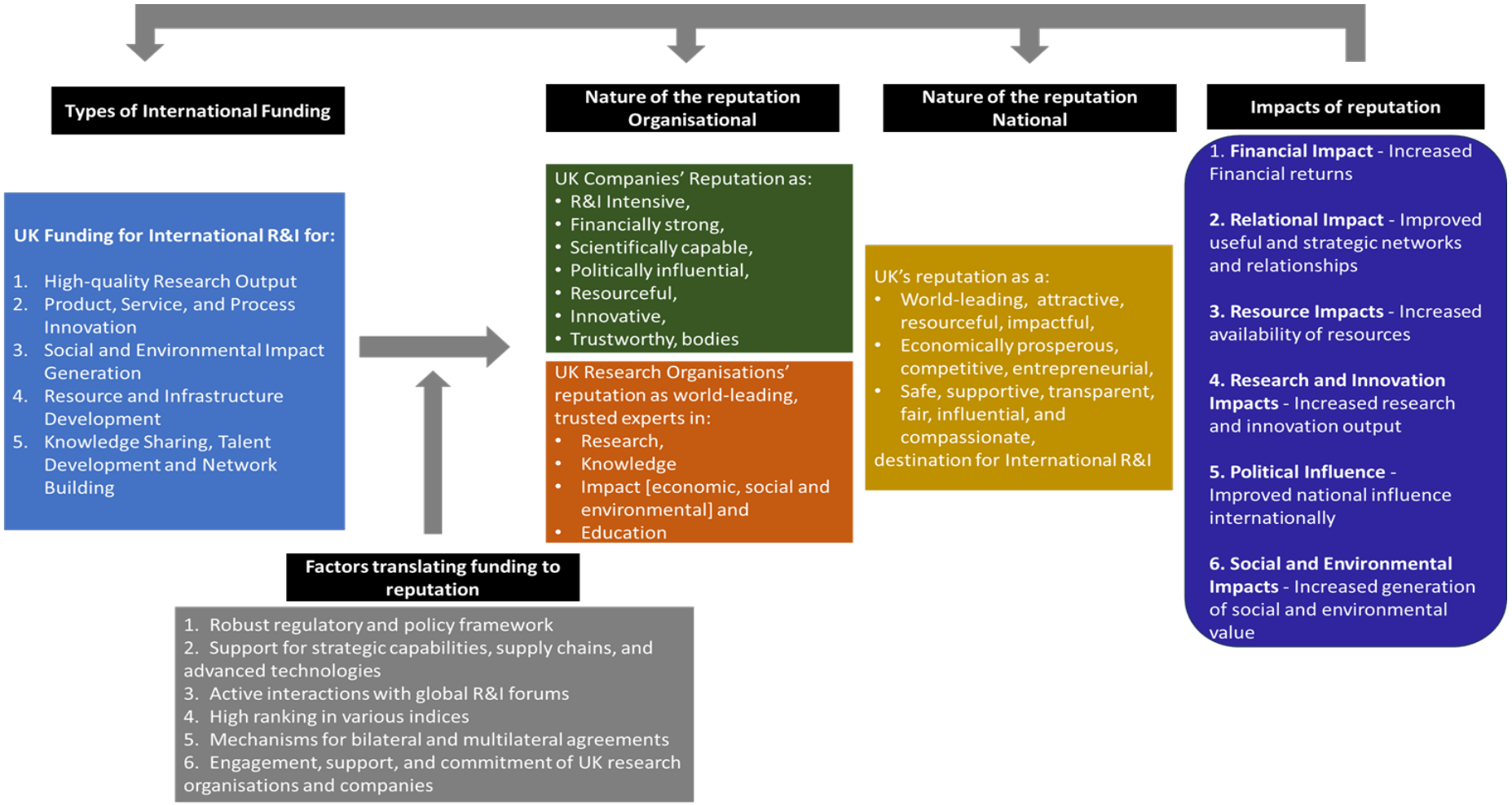

Figure 2: Overview of Reputational Impacts Generated by International R&I Investments

2.2.1. Enhancing National Reputation through International R&I Investments

The UK's investment in international R&I is believed to significantly enhance the reputation of the UK as a great research and innovation nation with unique R&I capabilities, resources, talent and skills (De Silva and Ghorbankhani 2025). Building on Figure 2, which outlines the overall relationship between international R&I funding, reputation, and associated impacts, Figure 3 explicitly illustrates the dimensions of national reputation building..

Such investments improve economic attractiveness of the UK by enhancing the UK's reputation as a world-leading, resourceful, economically prosperous, and entrepreneurial destination for International R&I. By showcasing competitive advantages in key sectors, the UK attracts global investors and collaborators, further solidifying its reputation (Global Entrepreneurship Monitor 2023/2024, Freel & Harrison, 2007; Gassman et al., 2009).

The UK's active participation in global R&I initiatives establishes it as a global leader and influencer in the international R&I landscape. International R&I investments also strengthen the UK's reputation as an exemplary leader in directing the international funding landscape, policy, and practice (Amanatidou et al 2016; Cunningham 2015).

International R&I investments highlight the UK's robust research support and infrastructure, making it an attractive destination for international R&I. The nation's unique resources and large-scale infrastructure developed through these collaborations underscore its appeal as a hub for cutting-edge R&I (Ryan 2023; Branco and Rodrigues 2006).

The UK's proactive and influential leadership in collaborative research, innovation, and technology advancement promotes global missions and addresses critical challenges, reinforcing its reputation. These investments enhance the UK's image as a safe, transparent, fair, and trustworthy destination for R&I. The UK's commitment to responsible research and innovation practices enhances its reputation as a compassionate destination that drives international social and environmental well-being. By being a committed and exemplary member of the international community, the UK builds trust as a reliable and equitable partner for co-funding and bilateral/multilateral collaborations. These activities demonstrate the UK's commitment to offering an equitable state for partnerships, ensuring fairness and mutual benefit (UK Secondary Benefits Study: the Newton Fund 2022; Oke et al 2013; Kattel and Mazzucato 2018; De Silva et al 2021; British Council 2024). Collectively, these reputational

attributes resulting from international R&I investments and engagements significantly contribute to the UK's strong and positive national reputation.

Conversely, when international R&I funding is discontinued —such as the budget cut of Official Development Assistance (ODA) in 2021—it can negatively impact the national reputation. International R&I investments can also negatively affect national reputation, when concerns are raised over intellectual property theft, espionage, and misuse of sensitive technologies by foreign partners, raising international doubts about the UK's ability to ensure secure and trustworthy research collaborations. Such negative reputations are mitigated by the introduction of National Security and Investment Act.

Figure 3: Enhancing National Reputation through International R&I Investments

Enhancing Organisational Reputation through International R&I Investments

International R&I investments by the UK significantly contribute to reputation building of UK organisations that receive respective types of funding (De Silva and Ghorbankhani 2025). By building on Figure 2 that demonstrates the overall link between international R&I funding, reputation, and associated impacts, Figure 4 details organisational reputation building by type of R&I investment (De Silva and Ghorbankhani 2025).

The UK organisations that receive ***funding for international research output production*** benefit from enhanced competitive signalling of their research intensity on a global scale. Engagement in international research boosts the organisations' reputation for generating impactful research, positioning them as sources of unique knowledge, talent, resources, and collaboration. The resourcefulness and scientific capability of organisations are internationally recognised, demonstrating their ability to influence the global research landscape. This leads to increased acceptance of the organisations' world-leading expertise and their experts, establishing them as trustworthy collaborators (Freel and Robson 2004; McDonald et al 2004; Altbach and Salmi 2011; Padgett and Moura-Leite 2012; Bozeman and Gaughan 2007).

UK organisations that successfully use ***funding for product innovation with international partners*** benefit from enhanced international visibility, showcasing their innovative capabilities on an international platform. International product innovation instils customer confidence in the innovative products developed by the organisation, thereby strengthening its brand awareness and value globally. The ability to innovate and introduce new products to national and international markets enhances the organisation's reputation for financial strength, making it a preferred partner in international collaborations (Iglesias et al 2020; Salavou et al., 2004; Laforet 2008; Ambos et al 2008; Geuna and Nesta 2006).

Successfully capitalising on ***funding for international service innovation*** further builds organisational reputation by enhancing customer confidence in the innovative services offered. Engaging in service innovation with international partners boosts the credibility of the organisation in delivering international, customised, and culturally embedded innovative solutions. The strengthened brand awareness and enhanced reputation of individual employees, such as award-winning designers and academics, resulting from international service innovation, are critical to the organisation's recognition in the international arena (Blackler 1995; Corrocher et al 2009; Faems et al 2005; Miles 2005; Dolmans et al 2022).

Effectively utilising ***funding for international knowledge sharing and talent development*** positions the organisation as a source of unique knowledge, resources, and collaboration on a global scale. International knowledge sharing and talent development demonstrates the organisation's ability to influence international knowledge and the associated R&I landscape. The reputation of the organisation as an excellent education provider and knowledge sharer is enhanced, along with its trustworthiness. Customer confidence in the organisation is also bolstered, contributing to its overall reputation (Nuñez-Sánchez et al 2012; Sengupta and Rossi 2023; Starbuck 1992; Verganti 2006).

Organisations that successfully employ ***funding for social and environmental impact initiatives*** in collaboration with international partners significantly enhance their international reputation for contributing to address global challenges. Engaging in international R&I that generates social and environmental value increases customer acceptance and builds the organisation's reputation for trustworthiness and compassion. The organisation is seen as a responsible entity that drives positive social and environmental outcomes while generating economic value, further solidifying its overall reputation (De Silva et al 2020; Fombrun and Shanley 1990; Keh and Xie 2008; Lash and Wellington 2008; Li et al 2014).

Productively leveraging resource and infrastructure development funding enhances the reputation of the recipient organisations' ability to engage in developing new infrastructure and resources. Additionally, ***UK investment in international infrastructure development*** highlights the access that UK organisations may have to advanced, competitive, and unique resources - positioning it as a leader in the field (Ryan 2023 Cunningham 2015; Science & Technology Framework 2024).

Finally, the organisations that benefit from the ***UK's investment in international R&I network building*** enhances the competitive positioning of an organisation by signalling its membership in reputed alliances with other esteemed members. R&I network building improves the organisation's legitimacy as a member of a global network, strengthening its overall reputation. The organisation is seen as a key player in international networks, contributing to its prestige and influence on the global R&I landscape (Salman and Saives 2005; Birchall et al., 1996; Chandler et al., 2000; McAdam et al., 2004).

As UK organisations benefit from various types of international R&I investments, the collective reputational impact enhances the UK's national reputation (De Silva and Ghorbankhani 2025).

Figure 4: Enhancing Organisational Reputation through International R&I Investments

2.2. Moderators that Enhance the Generation of Reputation from International R&I Investments

The translation of UK funding for international R&I into reputation building is significantly enhanced by several key moderating factors, crucial for strengthening the transformation of the investment in international R&I into national and organisational reputation (Table 3). These moderators, discussed below, are identified by conceptually integrating different sources of literature (e.g. Hodgson, et al. 2016; Taylor 2022. De Silva et al 2023; Science & Technology Framework 2024; World Bank 2023; FIC Impact Evaluation Report 2023; Kauser and Shaw 2004; De Silva and Ghorbankhani 2025; Abreu et al 2007; Akhavan and Beckmann 2017).

Table 3. Moderators that enhance the generation of reputation from international R&I investments

Moderator	Nature of moderating influence
1. Robust Regulatory and Policy Framework	Create a conducive, ethical, credible and trustworthy environment for global collaboration. Provides clarity and stability for international partners, reducing uncertainty and encouraging long-term commitment and engagement.
2. Support for Strategic Capabilities, Supply Chains, and Advanced Technologies	Strengthen the UK's position in the international R&I landscape and attract excellent talent and collaborators to the UK. Ensure that research outcomes have practical applications and contribute to global advancements
3. Active Interactions with Global R&I Forums	Enhance influence, attractiveness and visibility. Support network building, knowledge exchange and engagement.
4. High Ranking in Various Indices	Serve as tangible evidence of the UK's R&I prowess. Plays a crucial role in attracting talent, networks and investment.
5. Mechanisms for Bilateral and Multilateral Agreements	Foster international collaboration by streamlining collaborative processes, facilitating the sharing of resources and expertise, and building lasting partnerships with key international players. Demonstrate a proactive approach to international cooperation in R&I.
6. Engagement, Support, and Commitment of UK Research Organisations and Companies	Showcase the strength, attractiveness and dynamism of the UK R&I ecosystem. Demonstrate trustworthiness, commitment and reliability of UK collaborating organisations.

(Sources: Hodgson, et al. 2016; Taylor 2022. De Silva et al 2023; Science & Technology Framework 2024; World Bank 2023; FIC Impact Evaluation Report 2023; Kauser and Shaw 2004; De Silva and Ghorbankhani 2025; Abreu et al 2007; Akhavan and Beckmann 2017)

2.3. Impacts of Reputation

The reputation generated through international R&I collaborations brings about a wide array of impacts across various levels, including local, regional, national, and international (Figure 2) (De Silva and Ghorbankhani 2025).

Financially, the reputation of the UK as an attractive, economically prosperous and entrepreneurial destination for R&I enhances investor confidence, attracts funding and foreign investment, and improves market positioning, ultimately driving economic growth and development (Laforet, 2011; Freel & Harrison, 2007; De Silva and Ghorbankhani 2025). The global R&I reputation of the UK also opens new pathways for generating financial returns through improved business development opportunities and market advantages (Rodríguez et al., 2018; Salavou et al., 2004).

Resource-wise, the reputation of the UK as a global R&I hub with unique research support and infrastructure facilities further enhances access to international, cutting-edge laboratories, talent, resources, knowledge, and infrastructure as well as associated talent development opportunities, fostering scaled-up collaboration and economic growth. An improved perception of the UK as a resource hub for future R&I is essential for ensuring continuous availability and development of resources to explore new avenues that enhance the UK's unique competitive advantages, which might otherwise be inaccessible (Salman & Saives, 2005; Cunningham, 2015).

In the realm of ***research and innovation***, the UK's reputation as an influential and exemplary leader in international R&I agenda setting and funding significantly enhances its opportunities to engage in larger, more profitable, and strategically relevant international collaborations. This reputation of the UK as a trusted, R&I intensive expert encourages long-term commitments from international stakeholders and mitigates risks associated with exploratory and large-scale R&I initiatives (Gassman et al., 2009; De Silva and Ghorbankhani 2025; Tlemsani et al., 2023).

Relationally, the developed reputation as an R&I intensive, trusted and reliable partner further strengthens networks at various levels, boosts stakeholder, shareholder and employee satisfaction, and attracts international students to the UK universities. These relational benefits derived through reputational building are crucial for further fostering and scaling-up R&I collaboration output, sharing knowledge, and driving innovation and economic growth (Siegel and Wright, 2015; Gassmann et al., 2009; Raithel and Schwaiger 2015).

Politically, the reputation as an equitable, influential, an exemplary global leader in R&I elevates the UK's status and acceptance worldwide, enabling it to exert soft influence and form strategic partnerships. This enhanced status allows the UK to play a pivotal role in international policy-making and diplomatic initiatives. By being a trusted and influential partner, the UK can advocate for global standards and practices that align with its values and interests. Furthermore, this politically influential status helps the UK to secure favourable trade agreements and foster international cooperation on critical issues such as climate change, security, and economic development (Lomer, 2017; House of Commons, 2018; British Council, 2021; Archetti, 2014; Turner, 2019).

Socially and environmentally, the reputation as a compassionate promoter of global missions and well-being offers enhanced opportunities to collectively address global socio-economic challenges. This reputation also opens up opportunities for the UK academics and businesses to engage in policy-making roles, ensuring sustainable and impactful solutions (Hoffman, 2005; Kolk & Pinkse, 2004).

Collectively, these impacts highlight the multifaceted additional benefits of reputation building through international R&I, underscoring the importance of understanding, capturing, and measuring these reputational impacts.

3. Methods to Measure Reputational Impacts of International R&I

Capturing and measuring the reputational impacts of international R&I investments is crucial for evaluating their broader benefits and informing strategic decisions aimed at enhancing reputation. This section of the report, by examining four past evaluation examples of UK international R&I programmes, provides an overview of how reputational impacts are currently assessed. Additionally, we discuss the limitations and challenges associated with rigorously tracking and measuring reputation in the context of international R&I.

3.1. Measuring Reputation Building through International R&I: Insights from Past Evaluation Examples

As examples, we have analysed four different types of international R&I programme evaluation reports as to how they have captured and measured reputation building stemming from these investments. These four types of evaluation reports are: (A) the Evaluation of the Benefits of the UK's Membership of CERN, (B) the Newton Fund: UK Secondary Benefits Study, (C) the ESRF and European XFEL Evaluation Reports, and (D) the Evaluation of the Fund for International Collaboration (FIC) (Please see Appendix 2 for more details on each programme and their evaluation reports).

These evaluations have demonstrated how the UK's international R&I investments strengthen its global standing as a leader in science and innovation. As the primary goal of these evaluations is to assess the broader impacts of these investments, they partially gather and analyse data on reputational impacts as one of the benefits, rather than examining how investments may have uniquely contributed to the multi-dimensional aspects of reputation building.

Below is a summary of the methods used in these example reports to measure the UK's reputation resulting from international R&I investments, followed by a detailed analysis of each report in relation to their methodological approaches illustrated in Table 4:

Data sources:

These evaluation reports have used a combination of primary and secondary data sources that have enabled the measuring of reputation building.

- **Primary:** UK and international recipients of UKRI international R&I funding (e.g. researchers, and businesses), representatives of the Department for Science, Innovation and Technology (DSIT), partner-country funders, and national and international stakeholders (i.e. wider beneficiaries of the funding sharing their broader perception of R&I ecosystem in the UK)
- **Secondary:** Patents, academic publications, and secondary evidence from existing reports and evaluations etc.

Methods:

A combination of the following methods had been employed in these evaluation reports:

- **Surveys** – Measure the perceptions and experiences of the extent of reputation building through the UK's international R&I investments.
- **In-depth interviews** - Provide qualitative insights into perceptions and experiences of reputation building through the UK's international R&I investments.
- **Detailed case studies** - Illustrate broader impacts and the UK's evolving relationships with international funders, researchers and businesses.
- **Workshops -** Gather data from wider stakeholders (e.g. international committees) to validate reputational benefits for the UK at project- and country-level.
- **Bibliometric analysis** - Examine publication data to assess the impact and visibility (e.g. through international co-publication indicators and citations) of UK research publications with international collaborators stemming from specific international R&I investments.

Reputation dimensions identified in the example UK's international R&I programme evaluation reports:

Below we offer an overview of reputation dimensions, stemming from the UK's investment in international R&I, identified in these evaluation examples.

- **Visibility and Recognition of the UK as an Attractive R&I Destination**: Improved visibility and recognition of the UK's R&I resources, funding systems, capabilities, and talent, positioning the UK as a preferred partner for research and innovation and associated investments.

- **Science Diplomacy and Influence**: Enhancement of the UK's global influence through strategic international partnerships and science diplomacy, including soft power and influence in international science agenda setting and science policy decision-making.
- **UK's Reputation as an Equitable and Open Collaborator for R&I**: Strengthened positive views of the UK as an equitable and open collaborator in research and innovation and increased global brand value of UK companies and reputation of UK researchers.
- **UK's Attractiveness as an Educational Destination:** Improved visibility of the UK as a destination for overseas students compared to other common destinations.

Appendix 2 summarises each of the four evaluation reports and Table 4 compares the methodologies used, and key findings related to reputation discussed in each of the four evaluation reports.

Table 4. Measuring Reputation Building through International R&I: Insights from Past Evaluation Examples

Evaluation Report	Evaluation of the Benefits of the UK's Membership of- CERN	The Newton Fund: UK Secondary Benefits Study	ESRF and European XFEL Evaluation Reports	• Evaluation of the Fund for International Collaboration (FIC)
Methodology used to measure the overall impact of the programme	• Desk research • Surveys • Interviews • Case studies • Bibliometrics	• Desk-Based Analysis: analysed online survey data from 1,516 Award Holders, including 206 UK-based respondents, and telephone survey data from 217 Award Holders, including 67 UK-based respondents, • Key Informant Interviews: conducted 16 interviews with representatives from BEIS, Newton Fund Delivery Partners, and academia, • Case Studies: developed six case studies of UK impacts, involving 13 interviews with UK-based Award Holders and collaborators, • Review of Partner Country Case Studies: drew upon findings from Tetra Tech's partner country case studies to identify benefits for the UK at project- and country-level.	• Surveys with users and suppliers, • Stakeholder interviews (stated in the report as the most useful to gather information on reputation), • Publications analysis (an analysis of data on UK authored research publications with international authors that have cited European XFEL or ESRF)	• A desk-based review of programme documentation and data, • Bibliometric analysis, • Secondary data analysis, • Consultations with 89 stakeholders through interviews and workshops, • Surveys of 403 successful and unsuccessful UK applicants to FIC programmes, • International participants in UK-led grants • Five detailed case studies that examine the UK's evolving relationships with international funders across five priority countries
Methods used to measure reputational	• Surveys (with UK researchers & international participants) to gather perceptions and experiences,	• Surveys (with stakeholders) to gather perceptions and experiences,	• One of the five principal routes to impact considered in the evaluation report	• Included metrics such as international participants' perception of the UK's research

Evaluation Report	Evaluation of the Benefits of the UK's Membership of- CERN	The Newton Fund: UK Secondary Benefits Study	ESRF and European XFEL Evaluation Reports	• Evaluation of the Fund for International Collaboration (FIC)
impacts of the programme	• In-depth interviews (with stakeholders such as DSIT representatives, partner-country funders, and national and international stakeholders) to understand the qualitative aspects of reputation building, • Bibliometric analysis (international co-publication indicators) using patents, publications, and pre-existing evidence to examine publication data and assess the impact and visibility of UK research associated with CERN.	• In-depth interviews (with key individuals) to understand qualitative aspects, • Detailed case studies to illustrate broader impacts	is the UK's international standing and the facilities' role in enhancing the UK's reputation as a centre of world-leading science. • Questions mostly considered reputation building as a single dimension rather than looking at multiple different dimensions attached to reputation. • Questions include the impact of ESRF and European XFEL on national/international reputation and the contribution of contracts to reputation and global brand value.	and education system, and views of partner-country funders on the UK's capabilities and reputation as a partner of choice. • The evaluation also measured improved visibility and recognition of the UK researchers/businesses among participating individuals and organisations in partner countries. • Data sources include interviews (overseas funding agencies), workshops (international committee), case studies (incl. interviews), and survey (international FIC participants).
Key reputational impacts of the programme identified in the evaluation report	• **UK's Image as a 'Great Science and Innovation Nation':** UK involvement in CERN – including the opportunities and access offered to the UK research community and its achievements and progress - has significantly enhanced the UK's international presence and visibility, contributing to its reputation as a leading research nation. • **UK as a Nation Welcoming International Collaborations**: Extensive and welcoming international collaborations at CERN has resulted	• **Strengthened Positive Views of UK Research and Innovation**: The Newton Fund has bolstered positive views of UK R&I, with many international partners reporting improved perceptions due to equitable and relevant collaborations. • **Soft Power**: Although is the report acknowledges the challenge of pinpointing Newton's exact	• **Enhanced International Standing of the UK as a great science and innovation nation**: UK participation in ESRF and European XFEL has improved its reputation and	• **UK's Visibility and Recognition:** FIC has improved the visibility and recognition of UK R&I resources, funding systems, capabilities and talent, - in terms of research quality, relevance and openness - positioning

Evaluation Report	Evaluation of the Benefits of the UK's Membership of- CERN	The Newton Fund: UK Secondary Benefits Study	ESRF and European XFEL Evaluation Reports	• Evaluation of the Fund for International Collaboration (FIC)
	in producing research papers, which are generally cited more frequently than those resulting from national collaborations or single-author efforts, leading to higher visibility. • **Enhanced Brand Value of the UK and Companies**: The positive 'brand' of the UK as an important science nation supporting R&D of companies has increased. UK companies benefit from CERN contracts, which enhance their global brand value and open new markets. • **Credible Science Diplomacy**: CERN provides a platform for international engagement, leadership and agenda setting, enhancing its image as a leader in science and innovation. • **Leading Hub for Talent Concentration:** The reputation gained from the UK's involvement in CERN is crucial for attracting top scientific talent and international R&D funding.	contribution, interviewees—including Newton Fund delivery partners, academics, award holders, and collaborators—recognise the Fund as a valuable instrument of 'soft power' that strengthens the UK's global reputation and influence. The Fund has played a crucial role in fostering relationships with government entities, reinforcing the UK's position as a preferred partner in international collaborations. More broadly, it has helped establish the UK as a prominent and competitive force within the global scientific landscape. • **Visibility of the UK as a Destination for Overseas Students**: It was outlined that the UK leading initiatives as a result of the fund improves the visibility of the UK as a destination for overseas students in comparison to other common destinations (such as the USA).	standing in international science, showcasing the UK's leadership in managing large-scale scientific projects. • **Enhanced Visibility and Influence of the UK**: These facilities have increased international collaboration, enhancing the UK's visibility and influence in global science. The UK's involvement provides some 'soft power' and influence with other countries in science policy decision making and helps to confirm the UK's commitment to collaborating in research in Europe, following Brexit. • **The UK being more internationally open, and more connected to the European context**: Some stakeholders have spoken of how the UK's financial	the UK as a preferred partner for research and innovation amongst peer funders. • **UK's Science Diplomacy:** The Fund supports government objectives by fostering strategic international partnerships, enhancing the UK's global influence in science diplomacy. • **Perception of the UK as a destination for investment:** The fund is reported to enhance the visibility of the UK and its researchers and businesses, thus enhancing the perception of the UK as a destination for investment.

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Evaluation Report	Evaluation of the Benefits of the UK's Membership of- CERN	The Newton Fund: UK Secondary Benefits Study	ESRF and European XFEL Evaluation Reports	• Evaluation of the Fund for International Collaboration (FIC)
			involvement in the facility, even after Brexit, helps the UK come across as being more internationally open, and more connected to the European context	
Recommendations by the evaluation report for <u>future reputation measurement</u>	• Create a tool to invite feedback from its scientific partners of their collaboration experiences with UK-based scientists (e.g. the tool kit could capture wider dimensions of reputational impact). This would serve as a learning and reflective support mechanism to identify strengths and areas needing improvement, where STFC could offer training or encourage different behaviours. • To gain a comprehensive understanding of perceptions (e.g. reputation being perceptual), commission international research to gather views from scientists, administrators, professionals, and the public in CERN partner countries • Conduct biennially to identify significant trends and analyse correlation between UK work at CERN and broader perceptions of UK science, potentially through selected critical incidents	• Demonstrated the significance of using mixed methods to measure reputational impacts.	• Demonstrated the need to conceptualise reputation as a multi-dimensional construct if the aim is to comprehensively understand reputational impacts of international R&I investment. Since the purpose of the evaluation report was to investigate general impact of the programme, the wide array of reputational impacts had not been considered.	• Demonstrated the need to conceptualise reputation as a multi-dimensional construct if the aim is to comprehensively understand reputational impacts of international R&I investment. Since the purpose of the evaluation report was to investigate general impact of the programme, the wide array of reputational impacts had not been considered.

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3.2. Limitations in Rigorously Tracking and Measuring Reputational Impacts of International R&I

The evaluation reports have made significant progress in measuring the reputational impacts of international R&I investments, despite the inherent limitations associated with reputation as a construct. This section discusses the limitations of capturing and measuring the reputational impacts, so that future methods could consider these limitations when developing reputation matrices.

- **Lack of Explicit Literature and Data**: There is a scarcity of literature and data explicitly discussing the reputational impacts of international R&I, although some papers have addressed corporate reputation building through R&D activities in general (e.g., Fombrun & Shanley, 1990; Gassmann et al., 2009; Padgett & Galan, 2010; Padgett & Moura-Leite, 2012; Tlemsani et al., 2023) or measured the perception of nations without necessarily linking to R&I (British Council 2024).
- **Difficulties in Capturing the Scope of a Psychological Construct**: The lack of literature and data on the reputational benefits of international R&I is mainly due to the inherent difficulties associated with tracking and measuring reputation. Since reputation is a psychological, perceptual, and subjective construct, it is challenging to measure reputation and derive explicit causalities of reputation building. Some attempts have been made to measure the perception of different countries, such as the British Council's 2021 survey of 37,158 young people from 36 countries on the perception of countries (British Council 2024). As discussed in the previous section, the four reports have gathered data using multiple methods and sources of data to overcome this difficulty.
- **Complexity in the Context of International R&I**: Tracking and measuring reputation in the context of international R&I is further complicated by the international scope and spillover effects, leading to attribution challenges. International R&I could generate reputational impacts across borders both as direct and spillover effects. While direct reputational effects may arise from specific investments and associated international R&I activities, spillover effects could include unintended reputation building and/or loss over the long term.
- **Complex Feedback Loops**: There are complex feedback loops concerning the generation of reputational impacts, which could then influence engagement in certain activities and the generation of other impacts. Due to the conceptual nature of these

derivations, it is sometimes difficult to clearly outline some complexities (De Silva and Ghorbankhani 2025). Yet, capturing and measuring reputational impacts as an outcome of international R&I investments is not impossible. The inherent complexities and feedback loops mainly inhibit the explicit identification of pathways for generating these impacts.

4. Towards a Measurement of Reputation generated through International R&I

In the realm of international R&I, reputation stands as a pivotal yet often intangible asset. This section of the report, by building on the earlier sections, delves into the multifaceted approaches to measuring reputation, particularly in the context of international R&I investments. By reviewing existing methodologies, such as surveys, case studies, text mining, collaboration and network analysis, social media sentiment analysis, and media coverage analysis, we aim to uncover the strengths and limitations of each method. Furthermore, we explore how these methods can be integrated to provide a comprehensive framework for assessing reputation, considering both national and organisational levels. Through this exploration, we seek to provide valuable insights into the mechanisms and metrics that can effectively capture the reputation generated by international R&I efforts.

4.1. Review of Methods for measuring reputation generated by International R&I Investments

Measuring reputation, which is often considered as a valuable but intangible resource, is a complex process that might draw on a variety of methodological approaches (Table 5). Existing research on reputation proposes a variety of methods for measuring reputation and associated concepts, where each of these methods has their own advantages and disadvantages. They individually offer distinct insights, but they are not always comprehensive enough to capture the multifaceted nature of reputation. Surveys and feedback mechanisms are foundational tools that provide direct, structured input from stakeholders, capturing perceptions and experiences that can be quantitatively analysed. These methods have been widely used in reputation studies (e.g. by utilising existing databases such as Fortune's World's Most Admired Companies survey). Case studies and qualitative research offer rich, contextual narratives that uncover the deeper factors influencing reputation and they can be effective for uncovering underlying mechanisms, which may not surface in surveys.

Text mining enables researchers to systematically analyse large volumes of qualitative data, which may help identify new reputation dimensions as well as uncover new insights. We carried out a text mining analysis on GtR data [the UKRI gateway to UKRI funded research and innovation], which provides insights into the impacts of UKRI-funded projects. The decision to trial a text mining method was driven by its efficiency in extracting insights from secondary data, which aligned well with the project's timeline and resources. While text mining proved to

be a valuable tool, the absence of data explicitly addressing how the UKRI funded projects generated national and organisational reputation limited its effectiveness and potential applications [Please see Appendix 3 for more details of the text mining experiment].

Collaboration and network analysis provides a structural view of reputation by mapping partnerships, highlighting the reputational capital derived from strategic collaborations as well as positioning in a network of other actors.

Social media and online sentiment analysis is an advantageous approach in offering dynamic data that reflects how reputation evolves in public discourse, while media coverage analysis provides a curated view of how institutions or individuals are portrayed in media outlets. Although the selection of one of these methods would be informed by the evaluator's objectives, when integrated, these methods have greater potential to create valuable synergies.

Table 5 below outlines how each method could be employed to measure reputation generated through international R&I investment together with advantages and disadvantages of using each method. Most existing literature on reputation measurement primarily focuses on corporate reputation or reputation as a strategic asset, rather than on measuring the reputational impacts of R&I. To address this gap, we have conceptually explored how these methodologies could be adapted to assess the reputational effects of international R&I. Consequently, the methodology review presented in Table 5 is based on a synthesis of relevant, but not exact, research. Box 1 illustrates an example of how various methods could be integrated to develop a more comprehensive measure of national reputation.

Table 5: Review of Methods for measuring reputation generated through International R&I Investments

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
1. Surveys and Feedback Mechanisms	Surveys can be used to assess either (A) the general reputation of the UK generated by its overall investment in international R&I, or (B) the reputational impacts of specific grants or programmes. **(A) The general reputation of the UK** Surveys distributed to a broad range of national and international stakeholders of international R&I investment by the UK. Gauge how they view the country's reputation based on their investment in international R&I. **(B) The reputational impacts of specific grants or programmes** A targeted survey can yield quantifiable insights, particularly	**Direct Causality:** The survey offers the opportunity to derive the reputational impacts of specific grants if the surveys are sent to the specific beneficiaries. **Direct Insights**: Provides firsthand information from stakeholders about their perceptions and experiences. **Customisable**: Surveys can be tailored to specific audiences and objectives, allowing for targeted questions. **Quantifiable**: If survey questions are appropriately constructed, the impacts can be easily quantified and analysed statistically. **Efficient incorporations**: Survey questions on reputational impacts could efficiently be integrated in a	**Response Bias**: Results may be influenced by the respondents' biases or willingness to participate. i.e. those who have responded might not be representative of the population. **Beneficiary Bias:** Beneficiaries of a specific investment might be biased towards the reputation built through that specific investment. **Time-Consuming**: Designing, distributing, and analysing surveys can be resource-intensive. **Investment:** Survey respondents might not see the direct advantage of participating in a survey particularly if it is long and takes time to respond.	Black, Carnes, and Richardson, 2000; Brammer and Pavelin, 2006; Cho, Guidry, Hageman, Patten, 2012; Melo and Garrido-Morgado, 2012 Fortune's annual 'most admired companies' survey has used a questionnaire to measure corporate reputation. On a poll of 3,380 executives, directors, and analysts, respondents were requested to rate enterprises in their own industry on nine criteria, from investment value and quality of management and products to social responsibility and ability to attract talent. Melo and Garrido-Morgado (2012) has utilised the data from this survey to explore the role of corporate social

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
	regarding direct reputational benefits at the organisational and individual levels. With well-crafted questions, it may also be possible to assess national-level reputation gains resulting from specific funding programmes. **1. Grant recipients:** Assess how the grants have helped them enhance their individual and organisational reputation and their perception and experience of any reputational gains at the national level. **2. Beneficiaries and collaborators of the grants:** Understand how their perception of grant recipients and the UK may have evolved as a result of the grant and associated benefits. The beneficiaries could be nominated by grant recipients, funder, and other stakeholders.	survey aimed at measuring general impacts of a programme	Therefore, achieving a good response rate might be challenging.	responsibility in reputation building. Reputation quotient' instrument assesses perceptions of a company across six dimensions: emotional appeal, products and services, financial performance, vision and leadership, workplace environment, and social and environmental responsibility. These dimensions are evaluated through 20 specific attributes, providing a comprehensive view of a company's reputation among stakeholders. Surveys could be used to measure corporate reputation using these dimensions.

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
2. Case Studies and Qualitative Research[1]	Impact case studies developed by grant recipients (or other stakeholders) Qualitative interviews and focus group discussions conducted with grant recipients, other funders, beneficiaries, and wider stakeholders	**In-Depth Insights:** Provides rich, detailed information about specific instances of reputation building and associated pathways of how the grants may have resulted in reputation building with specific examples. **Contextual Understanding:** Captures the complexities and nuances of reputation that quantitative methods may miss. **Flexibility:** Can adapt to various contexts, grants, recipients and beneficiaries.	**Limited Generalisability**: Findings from case studies may not be applicable to broader contexts. **Resource Intensive**: Conducting qualitative research can be time-consuming and costly. **Subjectivity**: Analysis may be influenced by the researchers' and respondents' biases and interpretations.	Cornelissen and Thorpe, 2002; Walker, 2010; Walsh and Wiedmann, 2004 Through interviews, the study conducted by Walsh and Wiedmann (2004) tested the generalisability of the 'Reputation quotient' instrument. The study confirms that the instrument was generalisable to some extent to Germany, but a deep understanding of the specific setting is needed to identify context-dependent determinants of reputation. It was the qualitative interview that outlined the context specific detailed information

[1] Gathering qualitative evidence could enable conducting a qualitative Comparative Analysis to systematically compare multiple cases to understand how different combinations of conditions lead to a particular outcome. Developed by Charles Ragin (Ragin 1987), QCA is especially useful in studies with a limited number of cases where traditional statistical methods may not be suitable. QCA uses Boolean logic to identify patterns of necessary and/or sufficient conditions across cases. Rather than isolating variables, it treats each case as a configuration of attributes, allowing researchers to explore complex causality—where multiple pathways can lead to the development of reputation. This will be useful considering the perceptual nature of reputation resulting in derived through multiple influences. While QCA is rooted in qualitative logic and case-oriented thinking, it requires systematic and structured data—which can be derived from either qualitative or quantitative sources.

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
				and enabled them to understand the contextual and stakeholder-specific factors influencing reputation. This qualitative approach helped them identify reputation attributes that were particularly relevant in the local setting, demonstrating the value of qualitative methods in reputation research.
3. Text mining of impact case studies	Text mining involves extracting useful information from large volumes of unstructured text data. When applied to impact case studies on R&I, text mining can uncover patterns, trends, and insights that might not be immediately apparent through manual analysis. Text mining could be a valuable tool if qualitative data on the reputational impacts of international R&I investments are	**Efficiency and Scalability:** Text mining can process large volumes of data quickly, making it possible to analyse numerous case studies and reports that would be time-consuming to review manually. **Uncovering Hidden Insights:** It can reveal patterns, trends, and correlations that might not be immediately apparent, providing deeper insights into how international R&I impacts reputation.	**Contextual Limitations:** Text mining algorithms may struggle to fully understand the context or nuances of language, potentially leading to misinterpretation of the data. **Quality and Quantity of Data:** The accuracy of text mining results depends heavily on the quality of the input data. Poorly written or inconsistent case studies can affect the outcomes. Similarly, lack of	Confente, Siciliano, Gaudenzi, and Eickhoff, 2019; Ghose, Ipeirotis, and Sundararajan, 2008; Morinaga, Yamanishi, Tateishi, and Fukushima, 2002; Herhausen et al 2025. Morinaga, Yamanishi, Tateishi, and Fukushima (2002) introduces a novel automated framework leveraging text mining of online opinions to address the costly manual analysis of product reputations

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
	available. Specifically, if grant recipients and programme evaluators are requested to discuss these impacts in their reports (refer to section 4.2 for multidimensional matrices of reputational impacts that could be used to structure their reports), text mining could generate a comprehensive quantitative understanding of the textual data aiding generalisability. However, the current textual data available on platforms like Researchfish, REF Impact cases, or final grant evaluation reports is insufficient, as these sources do not explicitly discuss reputational impacts. Also, while GtR data has successful grant proposals in which "expected" impacts are discussed, many projects have not reported "actual" impacts generated. Moreover, in the few instances where reputational impacts are mentioned in GtR and REF Impact case studies, the	**Objective Analysis:** By using algorithms, text mining reduces human bias in data interpretation, leading to more objective and consistent results. **Predictive Power:** Supervised machine learning and LLMs can classify and predict outcomes with high accuracy.	sufficient amount of data could negatively impact on text mining. **Technical Complexity:** Implementing and maintaining text mining systems requires specialised knowledge and resources, which can be a barrier for some organisations. **Computational Complexity:** Advanced models (e.g., LLMs, neural topic models) are resource-intensive and may require significant computational power. **Manual Effort in Dictionary Development:** Creating or refining dictionaries, required to train the machine, is time-consuming and requires domain expertise.	[i.e. to understand a company's own product reputation and/or that of its competitors]. The authors developed linguistic rules, validated through human testing, to identify and categorise product-related opinions gathered from the web. Each extracted opinion is tagged with its sentiment (positive/negative), the mentioned product, and a confidence score. This labeled opinion data is then analysed using text mining techniques to uncover statistically significant insights, such as characteristic terms, co-occurring words, typical expressions for specific product sentiments, and comparative relationships across different products. The framework's effectiveness in reducing analysis costs and revealing valuable knowledge from online opinions is

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
	focus tends to be on individual and organisational reputation rather than national-level reputation. Please see Appendix 3 for more information on the text mining experiment that we conducted.			demonstrated using real-world marketing data.
4. Collaboration and Network Analysis	Map and analyse collaboration networks based on co-authorships, co-patenting, or co-recipients of grants and associated citations. Some techniques and methods commonly used for network analysis include network centrality (used to identify key players, hubs, and gatekeepers in the network), clusters (which group the nodes in a network into communities based on their patterns of connectivity), and equivalence (used to identify nodes with similar patterns in terms of their connections, which can imply that they have similar characteristics).	**Holistic View of Networks developed through international R&I funding:** Reveals the structure and dynamics of collaboration networks, highlighting influential actors. **Identifies Key Players**: Help identify central institutions and researchers that enhance reputation. **Visual Representation:** Provides clear visualisations of relationships and networks. **Potential for longitudinal analysis**: It is possible to analyse how the networks have evolved.	**Potential Misinterpretation:** Network metrics can be misinterpreted without proper context. It is less clear if the expansion of networks is an indication of reputational building. **Lack of ability to capture the depth and breadth of benefits**: Network analysis is often conducted based on co-authorships, co-patenting, co-grant recipients, etc. These do not necessarily cover reputational benefits.	Fares, Chung, and Abbasi, 2021; Kilduff and Krackhardt, 1994; Mehra, Dixon, Brass, and Robertson, 2006; Salman & Saives, 2005 Fares, Chung, and Abbasi (2021) use network analysis to study how research collaboration networks of authors, institutions, and countries evolve; identify the leading people, organisations, or countries in these research collaborations; and discern the longitudinal impact of these networks. They utilise UCINET (a software tool widely used for analysis of network data), and

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
		Availability of data: In general, the easy accessibility of data on patents, publications, and grant recipients is an advantage that supports the use of this method.		their analysis finds that centrally positioned authors in networks are advantageous in receiving government funding, having higher research outputs, and improving the reputation of their research community.
5. Social media and Online Sentiment Analysis	Sentiment Analysis Tools: Use natural language processing to analyse social media mentions and online discussions, assessing public sentiment towards the country's research contributions. Engagement Metrics: Track likes, shares, and comments related to research outputs on social media platforms. Content analysis: Text analysis of the posts helps identify patterns, themes, and underlying meanings within media reports	**Cost-Effective:** Many tools for sentiment analysis are relatively inexpensive compared to traditional research methods – e.g. see a blog from HubSpot for cost-effective tools.	**Lack of ability to derive causality:** There is no possibility of deriving direct causality between funding of international R&I and associated reputation-building **Potential Lack of Data:** how well government funding is acknowledged in such social media portals is questionable **Noise in Data:** Social media data can be noisy and may include irrelevant or misleading information. **Limited Context:** Sentiment analysis may not capture the	Vidya, Fanany, and Budi, 2015; Caviggioli, Lamberti, Landoni, and Meola, 2020; Jansen, Zhang, Sobel, and Chowdury, 2009; Rust, Rand, Huang, Stephen, Brooks, and Chabuk, 2021 Vidya, Fanany, and Budi (2015) measure brand reputation of competing mobile phone providers in Indonesia through sentiment analysis of Twitter data. In this study, they compare different products from three mobile phone providers to evaluate their brand reputation, and they create a dashboard showing

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
			nuances of opinions or the reasons behind them. **Dependence on Platforms:** Insights are limited to the platforms analysed and participants who share information in those platforms, potentially missing out on other important channels and the perceptions of those who are not active on these platforms, introducing bias into the findings.	reputation scores in real-time, which can be applied in other contexts.
6. Media Coverage Analysis	Assess the volume and tone of media coverage regarding the country's international R&I engagement. Content analysis serves as a valuable method for examining media coverage by systematically analysing text, images, audio, and other content forms. It helps identify patterns, themes, and underlying meanings within media	**Broader Overview**: Provides a broad view of how a country is portrayed in the media. **Trend Analysis**: Allows for tracking changes in reputation over time based on media narratives. .	**Lack of direct causality:** There is no possibility of deriving direct causality between funding of international R&I and associated reputation-building **Subjectivity:** Analysing media tone can be subjective and may vary based on the analyst's interpretation.	Deephouse, 2000; Rindova, Petkova, and Kotha, 2007; Pollock and Rindova, 2003 Deephouse (2000) leverages content analysis of archival newspaper data to measure the 'media reputations' of a group of US banks. The author analysed newspaper data and rated the content as 'favourable', 'neutral', and

Method	How to use the method to measure reputational impacts	Advantages of the Method	Disadvantages of the Method	Citations and example use
	reports, offering insights into the messages conveyed, the perspectives of writers, and audience perceptions.		**Coverage Bias:** Not all countries receive equal media attention, which can skew results. **Lag Time:** Media coverage may not reflect real-time changes in reputation.	'unfavourable' to evaluate the firms' reputations. The study concludes that 'media reputation' is a strategic resource that increases firm performance.

Box 1: An example of using Mixed Methods to Develop a Reputation Indicator Measure

Hitz, Schwaiger, & Gabel (2024) discuss the importance of a country's reputation in enhancing foreign direct investment, tourism, and overall well-being. It emphasises that countries need to actively manage their public perception, and advertising plays a crucial role in shaping this perception.

In this context, the authors propose a comprehensive model to measure and manage a country reputation, conceptualising it as a two-dimensional construct comprising **competence** (cognitive dimension) and **likability** (affective dimension). Their work is not exclusively on reputation building through international R&I investments but the reputation of a country in general. Yet, the methodology offers good insights on how to use a mixed method approach to develop a measurement too for national reputation.

Key Components of the Model:

1. **Two-Dimensional Construct**:
   - **Competence**: Reflects stakeholders' perceptions of a country's capabilities and contributions.
   - **Likability**: Captures the emotional connection and positive feelings stakeholders have towards a country.
2. **Indicators**:
   The model utilises **six reflective indicators** to measure reputation and a **catalogue of 30 formative indicators** structured around five key constructs to identify drivers of country's reputation.

Steps to Develop the Reputation Indicator Measure:

1. **Literature Review**:
   The authors reviewed existing measurement approaches in country reputation and branding, identifying gaps and limitations in current models.
2. **Focus Group Interviews**:
   Conducted interviews to gather qualitative insights on what stakeholders associate with country reputation, confirming the relevance of identified categories.
3. **Operationalisation of Categories**:
   Developed a list of 86 initial indicators based on existing measurements and insights from focus groups.
4. **Validation of Indicators**:
   Conducted an online survey to test the indicators, followed by expert interviews to ensure content validity and refine the list to 30 formative indicators.
5. **Principal Component Analysis**:
   Used this statistical method to group indicators into thematic constructs, leading to the identification of five key constructs that explain the two dimensions of reputation.
6. **Model Construction**:
   Developed a structural equation model (SEM) to analyse the relationships between the constructs and indicators, ensuring the model's reliability and validity.
7. **Benchmarking**:
   Compared the proposed model against existing models (e.g., RepTrak and Anholt-GfK) to demonstrate its superior convergent and criterion validity.

Conclusion

The article concludes that a well-structured model for measuring country's reputation can help nations identify strengths and weaknesses in their public perception, allowing for targeted communication strategies to enhance their reputation effectively. This model thus serves as a valuable tool for both academic research and practical applications in country branding and reputation management. It thus offers valuable insights as to how mixed methods could be used to measure national reputational impacts of international R&I investment.

Source: Hitz, N., Schwaiger, M., & Gabel, J. (2024). How to measure and manage country reputation. International Journal of Advertising. https://www.tandfonline.com/doi/full/10.1080/02650487.2024.2411670

4.2. Dimensions of Reputation to Develop a Measurement Scale

Developing matrices to measure reputation is crucial for systematically capturing and evaluating the reputational impacts of international R&I investments. This section, by building on the discussions in earlier sections of the report, develops three types of matrices:

- Matrix 1 - Building National Reputation through International R&I Investments,
- Matrix 2 - Building Organisational Reputation through International R&I Investments
- Matrix 3 - Reputation Building by the Type of International R&I Investment.

These matrices provide a structured approach to quantify and analyse reputational impacts, offering valuable insights into how international R&I investments by the UK influence its global standing. Each matrix is designed to capture a unique aspect of how the UK as a nation and its organisations receive reputational benefits from the UK's international R&I investments, from showcasing their scientific capabilities and resource management to enhancing their credibility and financial attractiveness.

When employing the methods discussed in section 4.1 of this report, these matrices can help to structure and frame the data one might want to gather to ensure comprehensive capture and measurement of reputational impacts of international R&I investment depending on the requirements.

4.2.1. Matrix 1: Building National Reputation through International R&I Investments

By delineating the main reputational dimensions and sub-dimensions, matrix 1 (Table 6) provides a comprehensive framework for understanding the diverse national reputational impacts of UK international R&I investment.

Table 6: Matrix of National Reputation through International R&I Investments

Key Dimension	Sub-dimensions
Investment and Economic Attractiveness of the UK	• The UK's reputation as an attractive destination to invest in R&I • The UK's competitive advantages in key sectors • The UK as an economically prosperous and entrepreneurial country
Leadership and Influence of the UK	• The UK's proactive and influential leadership in international collaborative research, innovation, and technology advancement • The UK's role in directing the international R&I funding and associated policy landscape • The UK's influence on international policy and practice • The UK as an exemplary member of the international community
Research Support and Infrastructure of the UK	• The UK's attractiveness as a hub with unique resources and large-scale infrastructure • The UK's reputation for providing robust research support for international R&I
Trustworthiness and reliability of the UK	• The UK as a trusted and reliable partner for co-funding and bilateral/multilateral agreements • The UK's reputation for offering equitable partnerships
Social and Environmental Responsibility of the UK	• The UK's commitment to responsible research and innovation • The UK's role in driving international social and environmental well-being • The UK as a promoter of global missions through international collaborations

4.2.2. Matrix 2: Building Organisational Reputation through International R&I Investments

Matrix 2 (Table 7) highlights key dimensions and sub-dimensions that can be used to measure organisational reputation building through international R&I investments.

Table 7: Matrix of Organisational Reputation through International R&I Investments

Key Dimension	Sub-dimensions
Reputation of the Research and Innovation Expertise of the Organisation	• **Research Intensity**: The international recognition of an organisation's robust research activities and output • **Impact Generation from Research**: The international reputation of an organisation's ability to produce significant and impactful research outcomes. • **Scientific Capability and Expertise**: The international recognition of an organisation's scientific expertise and capabilities.
Reputation of the Resourcefulness of the Organisation	• **Source of Unique Knowledge and Resources**: The international signalling of an organisation as a provider of unique knowledge, resources, and collaborative opportunities. • **Access to Advanced Resources:** The reputation of an organisation having access to advanced, competitive, and unique resources and infrastructure. • **Infrastructure and Resource Development:** The reputation of an organisation's ability to engage in developing new infrastructure and resources.
International Credibility of the organisation	• **Trustworthiness**: The international reputation of an organisation as a reliable and impartial collaborator. • **Enhanced Credibility**: Strengthening the credibility of an organisation in delivering international, customised, and culturally embedded innovative solutions. • **Customer Confidence**: Building trust and confidence in the innovative products and services provided by an organisation. • **Legitimacy in Global Networks**: Improved legitimacy as a member of a global network.
International Reputation of the Financial Strength of the Organisation	• **Financial Strength**: Showcasing an organisation's financial robustness and stability on an international platform. • **Attractiveness to Investors**: Enhancing the attractiveness of an organisation to investors.
Reputation of the organisation's International Influence	• **Influence on the R&I Landscape**: Demonstrating an organisation's ability to shape and influence the global knowledge and R&I landscape. • **Impact on International Policy and Practice**: Demonstrating an organisation's ability to influence international policy and practice. • **Influence on the International Funding Landscape**: Demonstrating an organisation's ability to influence the international funding landscape.
Reputation of the Organisation's ability to generate Social and Environmental Impacts	• **Social Value Generation:** The international reputation of an organisation's ability to create social value. • **Environmental Value Generation:** The international reputation of an organisation's ability to produce environmental benefits. • **Customer Acceptance:** Increased acceptance and approval of an organisation by customers and stakeholders.
International Brand Awareness of the Organisation	• **Brand Awareness:** Strengthening the global recognition and visibility of an organisation's brand. • **Employee Reputation**: Enhancing the reputation of individual employees, such as award-winning designers and academics, who are critical of a service an organisation's success.

4.2.3. Matrix 3: Reputation building by the type of international R&I investment

The following Table 8 outlines the various dimensions of national and/or organisational reputation building facilitated by different types of UK investment in international R&I. Each type of investment—ranging from research output production to network building—contributes uniquely to enhancing the reputation of the nation and/or its organisations.

Table 8: Matrix of Reputation by the type of International R&I Investments

Type of UK's International R&I Funding	Dimensions of Reputation Building
UK Funding for Research Output Production	• **Research Intensity:** Recognition of robust research activities and output. • **Impact Generation from Research:** Reputation of the ability to produce significant and impactful research outcomes. • **Source of Unique Knowledge and Resources:** Signalling as a provider of unique knowledge, resources, and collaborative opportunities. • **Scientific Capability and Expertise:** Recognition of scientific expertise and capabilities. • **Influence on the Research Landscape:** Demonstrating the ability to shape and influence the global research environment. • **Trustworthiness:** Reputation as a reliable and impartial collaborator
UK Funding for Product Innovation	• **Financial Strength:** Showcasing financial robustness and stability on an international platform. • **Customer Confidence:** Enhancing customer trust and confidence in innovative products. • **Brand Awareness:** Strengthening global recognition and visibility.
UK Funding for Service Innovation	• **Customer Confidence:** Building trust and confidence in the innovative services. • **Enhanced Credibility:** Strengthening the credibility in delivering international, customised, and culturally embedded innovative solutions. • **Brand Awareness:** Increasing the global recognition and visibility. • **Employee Reputation:** Enhancing the reputation of individual employees, such as award-winning designers and academics, who are critical to service innovation.
UK Funding for Knowledge Sharing and Talent Development	• **Source of Unique Knowledge and Collaboration:** International signaling as a provider of unique knowledge, resources, and collaborative opportunities. • **Influence on International Knowledge and Skills:** Demonstrating the ability to shape and influence the global knowledge, skills and R&I landscape. • **Education Provider and Knowledge Sharer:** Building the reputation as an excellent provider of education, developer of talent and sharer of knowledge and skills.

Type of UK's International R&I Funding	Dimensions of Reputation Building
	• **Trustworthiness:** Enhancing the international reputation of reliability and integrity. • **Customer Confidence:** Increasing customer trust and confidence.
UK Funding for Social and Environmental Impact Generation	• **Social Value Generation:** Showcasing the ability to create significant social value. • **Environmental Value Generation:** Signaling the ability to produce environmental benefits. • **Customer Acceptance:** Increased acceptance and approval of customers. • **Trustworthiness and Compassion:** Reputation as a trustworthy and compassionate entity.
UK Funding for Resource and Infrastructure Development	• **Infrastructure and Resource Development:** The reputation of the ability to engage in developing new infrastructure and resources. • **Access to Advanced Resources:** The reputation of having access to advanced, competitive, and unique resources and infrastructure.
UK Funding for Network Building	• **Competitive Positioning and Signalling:** Enhanced competitive positioning and signalling as a member of a reputed alliance with other esteemed members. • **Legitimacy in Global Networks:** Improved legitimacy as a member of a global network.

Now you have read our report we would love to know if our research has provided you with new insights, improved your processes, or inspired innovative solutions.

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Thank you

The Innovation & Research Caucus

Appendix 1: Synthesised Definitions and Explanations for Key Concepts

This appendix clarifies the definitions of terms that share conceptual overlap with "reputation." Given the limited direct literature on reputation building through international R&I investments, this report has drawn insights from studies exploring these related concepts. Nevertheless, we deemed it important to outline how existing literature defines these specific terms, noting that much of this research, to date, has focused on the domain of corporate reputation building.

Table A1: Definitions of reputation and other overlapping concepts

Concept	Definitions and Explanations
Reputation	Reputation is a term used to indicate the perception of a nation, organisation or an individual. National reputation is defined as a country having a good name or image in the world nations as a collective judgement of foreign countries (Mercer, 1996). Organisational reputation is a perception of an organisation's past actions and future prospects, reflecting its overall appeal to key constituents relative to competitors (Fombrun, 1996). It is context-dependent—varying by what the reputation is for, who is evaluating, and for what purpose (Lewellyn, 2002; MacMillan et al., 2005). Judgments of reputation are informed by past performance as a signal of future potential, often summarised as "being known for something" (Lange et al., 2011; Dimov et al., 2007; Jensen et al., 2012).
Science Diplomacy	Science diplomacy refers to the use of scientific collaboration to advance international relationships, national interests, and global problem-solving (UK Parliament, 2025). It encompasses three main dimensions: using scientific advice to inform foreign policy (science in diplomacy), enabling international scientific cooperation (diplomacy for science), and leveraging science cooperation to improve international relations across organisations, regions, or countries (science for diplomacy). (Copeland, 2016). Science diplomacy operates through interactions between actors representing distinct political entities, maintained by scientific objectives but producing diplomatic effects—both intended and unintended (Kaltofen & Acuto, 2018). It is a relational practice that builds, deepens, and sustains cross-border ties through science, while also acting as a powerful tool of soft power that shapes national image, brand, and reputation (Copeland, 2016; Kaltofen & Acuto, 2018).
Soft Power	Soft power is the ability to achieve desired outcomes through attraction rather than coercion or force, rooted in and enhanced by cultural appeal, political values, and perceived legitimacy (Nye, 2004). It works by shaping what others want, using tools like ideology, culture, and institutions. Countries with strong soft power, like the UK—widely seen as an open, free, and liberal country—benefit from enhanced reputational resilience, allowing them to better withstand international controversies (British Council, 2019; 2021).
Influence (on policy, global R&I landscape etc.)	Influence is the ability to shape how someone or something develops, behaves, or thinks (Cambridge Dictionary, n.d.). A closely related concept is power, defined as the capacity to influence others through control of valued or needed resources—such as rewards, information, or support—which creates dependency (Emerson, 2009; Turner, 2005).

Concept	Definitions and Explanations
	Power manifests in various forms. Expert power, for example, stems from perceived knowledge or skills; it requires credibility, trust, and relevance in the eyes of others (Lunenburg, 2012; Luthans, 2011).
Brand	Brands are strategic assets that shape consumer perceptions of a firm's products and services (Barnett & Pollock, 2014; Wernerfelt, 1984). The definition of 'brand' varies by its stakeholder and purpose (Wood, 2000). Wood (2000, p. 666) describes a brand as "a mechanism for achieving competitive advantage…through differentiation," offering benefits customers value and are willing to pay for. While brands often precede and support reputation, they are narrower and don't reflect reputation's full breadth or impact (Barnett & Pollock, 2014).
Credibility	Corporate credibility is consumers' belief in a firm's expertise and trustworthiness—its ability and intent to deliver promises (Hovland et al., 1953; Newell & Goldsmith, 2001). Brand credibility reflects the same traits: trustworthiness (willingness) and expertise (capability) (Sweeney & Swait, 2008), serving as a cumulative signal of consumer-brand interactions and the firm's overall credibility (Erdem & Swait, 1998, 2004). As LaBarbera (1982, p. 223) notes, "A firm without a reputation has a problem with credibility," which can lead to negative audience responses. Credibility must be built over time across all functions of the organisation—it is hard to gain, easy to lose (Erdem & Swait, 1998, 2004).
Legitimacy	Legitimacy is an assessment that an entity or its actions are appropriate and desirable within a system of socially constructed norms, values, and beliefs (Suchman, 1995). It reflects social acceptability judgments by individuals or collectives (i.e., groups, industries, or societies) based on conformity to established standards (Bitektine et al., 2025). Unlike legitimacy, which is about social acceptance, reputation involves comparative evaluations across organisations (Deephouse & Carter, 2005). Legitimacy is positively influenced by trustworthiness, reputation, authenticity, and status; and in turn, legitimacy also positively impacts trustworthiness, reputation, and authenticity (Bitektine et al, 2025).

Appendix 2: Evaluation Reports of International R&I Investment Programmes

Evaluation of the Benefits of the UK's Membership of CERN

CERN stands as the largest particle physics laboratory globally, offering sophisticated, specially designed particle accelerators and detectors, along with advanced computing technology, to its international research community. Over the past ten years, the UK's annual investment in CERN, through subscriptions and funding, has averaged £152 million. This community of researchers at CERN comprises over 13,000 researchers from more than 75 countries and 100 nationalities, working across diverse fields such as particle physics, nuclear physics, astrophysics, accelerator physics, computing, engineering, and more.

The Science and Technology Facilities Council (STFC) commissioned Technopolis to conduct an evaluation aimed at capturing, demonstrating, and measuring the scientific, economic, and social impacts resulting from the UK's investment in and collaboration with CERN, including both direct UK involvement and broader influences of CERN on the UK. The evaluation of the UK's benefits from CERN membership (2020), even though it has not solely focused on measuring reputation, has outlined a few elements related to reputation building as a benefit of the partnership.

The Newton Fund: UK Secondary Benefits Study

The Newton Fund's main goal was to create development impact through science and innovation partnerships with partner countries. While achieving this primary objective, the Newton Fund also produced secondary benefits, known as UK Benefits. These benefits emerged directly from Newton Fund activities, such as research projects that align with UK policy objectives, or indirectly, through relationships fostered by the collaboration. This evaluation report of the secondary benefits of the Newton Fund (2022) examines the various types and nature of benefits that the UK derived from Newton Fund activities. It also touches upon the fund's impact on enhancing the UK's reputation, albeit not in exhaustive detail.

ESRF and European XFEL Evaluation Reports

The UK has invested in the European Synchrotron Radiation Facility (ESRF) from 2011 to 2020 and the European XFEL facility since 2018. The ESRF, located in Grenoble, France, is the world's brightest X-ray light source. The European XFEL, situated in Hamburg, Germany, is a powerful X-ray free-electron laser facility. By investing in these facilities, the UK ensures that its researchers have access to state-of-the-art equipment and international collaborations, which are essential for maintaining the country's leadership in scientific research and innovation. This supports a wide range of scientific fields and strengthens the UK's role in global scientific research. The evaluation studies commissioned to measure and demonstrate the impacts of the UK's involvement in the ESRF and XFEL facilities provide valuable insights into reputation building, despite lacking a comprehensive and detailed analysis of how these investments contribute to reputation building.

Evaluation of the Fund for International Collaboration (FIC)

The Fund for International Collaboration (FIC) was a £160 million initiative by UKRI designed to foster strategic partnerships with leading global R&I entities. It aimed to fill a critical gap in the national R&I funding landscape. The programmes supported by this fund were executed by various UKRI Councils, often in collaboration with international funding agencies from 22 different countries. UKRI has commissioned multiple reports to assess the process, impact, and economic outcomes of the FIC. The objectives of these evaluations are to guide improvements to the Fund, maximise the value of public investment, showcase the Fund's achievements to taxpayers, and build a robust evidence base on effective practices in international collaborative R&I. One aspect of the evaluation examines the Fund's contribution to enhancing the UK's global reputation in R&I. However, the evaluation does not acknowledge the broader, multidimensional nature of reputation.

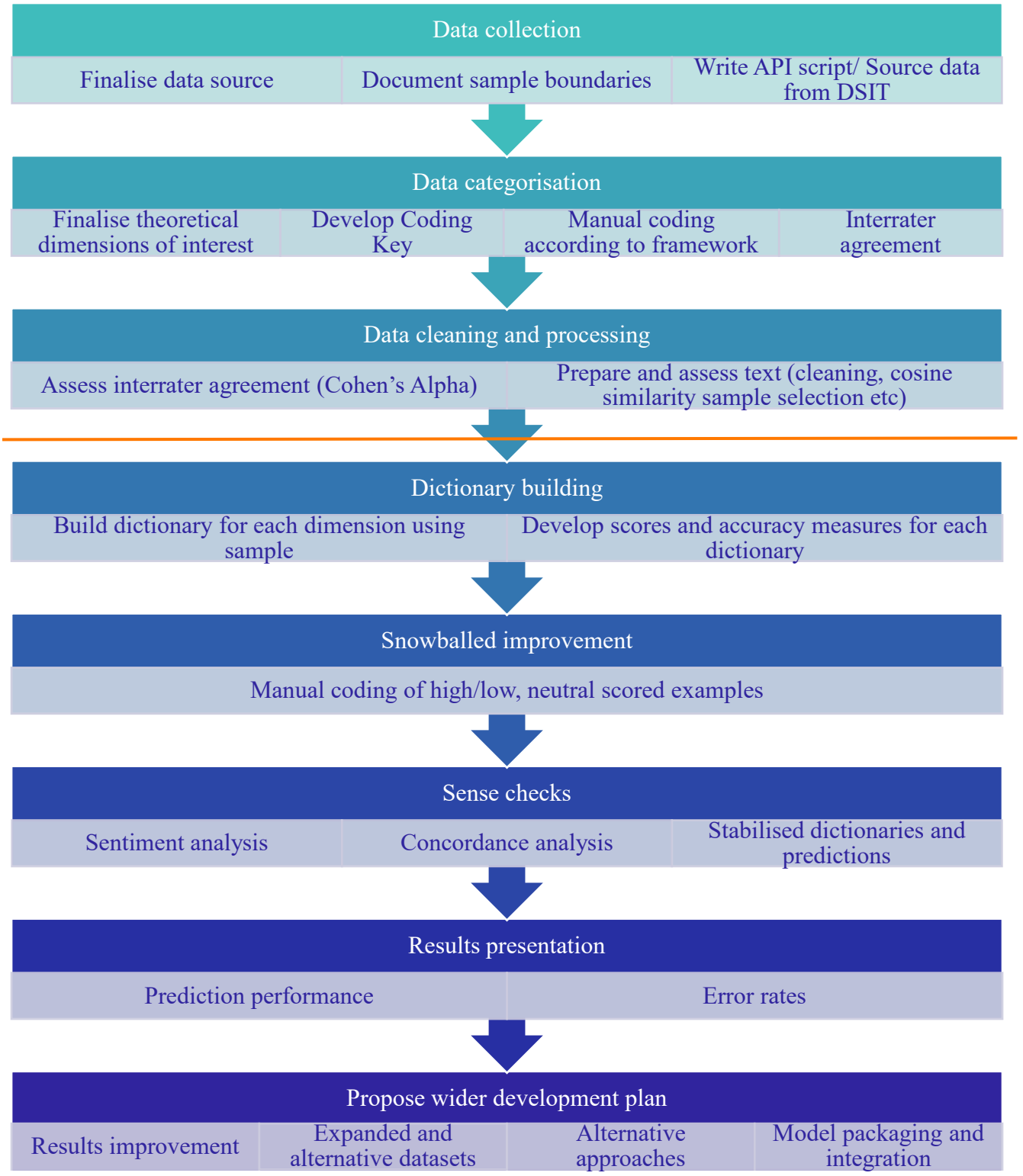
Appendix 3: A Pilot of the Text Mining Tool

The authors Dr Lauren Tuckerman, (Lecturer, University of Glasgow) and Dr Kevin Walsh, Research Fellow (Oxford Brookes University) conducted a pilot project to assess the possibility of using a text mining tool to understand reputation building through international R&I investments for DSIT and UKRI. DSIT and UKRI analysts were involved in scoping the model and agreeing the data source.

After evaluating the suitability of different sources of secondary data on the impacts of UKRI funded international R&I projects, it was decided that Gateway to Research (GtR) [UKRI's online database of research and innovation projects funded by UKRI councils] was the most suitable. GtR data contains Principal Investigator [PI]-reported impacts of UKRI funded projects. The pilot project aimed to quantify the dimensions of reputation building through international R&I investment by analysing project impact statements.

The figure A3 illustrates the text mining process decided to be adopted for experiment. Despite initial efforts, the project faced several challenges that hindered its success. Therefore, it was decided to abandon the experiment at the stage of "Data cleaning and processing". Below is a summary of the experience, focusing on why it didn't work out and the areas of learning.

Figure A3: Text mining Process



1. Challenges and Reasons for Limited Success

- **Implicit vs. Explicit Data**: The data often implicitly referenced reputation-building rather than explicitly, making it difficult to create a reliable dictionary of terms for coding.

- **Level of Analysis**: The data primarily focused on project-specific impacts rather than broader organisational or national-level reputation, limiting its applicability for the intended analysis.

- **Potential vs. Actual Impact Data**: Given that only a significantly smaller percentage of projects have reported actual impacts, relying solely on this field would not have provided a comprehensive view of impacts and would reduce the representativeness of the dictionary. Therefore, to develop the dictionary, it was decided to use sections discussing both actual and potential impacts. However, the manual coding stage revealed that training the dictionary on both types of data might not be useful for text mining of actual impacts of reputation building due to potential discrepancies between potential and actual impacts.

- **Nature of Projects:** The data was reported by PIs of university-led projects, which skewed the focus towards academic impacts rather than broader reputational aspects. In line with the nature of these projects, there was limited discussion on the generation of financial impacts of organisations or the UK and/or associated reputational dimensions, which was a key dimension of interest.

- **Interrater Agreement:** The application of the theoretical framework across different project impact statements lacked consistency, as reflected in low interrater agreement scores. This inconsistency stemmed in part from the data not explicitly addressing reputation building, leading to an increased level of researcher interpretation bias. To bridge the gap between broader benefits outlined in the impact statements and reputation as an impact, the researchers conducted an additional literature review to examine how various impact activities may contribute to reputation building. Consequently, the manual coding process was not only highly labour-intensive but also subject to interpretation bias,

particularly in determining how broader impacts translate into specific aspects of reputation

2. Areas of Learning

- **Enhancing Data Sources for Reputation-Building Insights** –Future projects should prioritise data sources that explicitly address reputation-building to enhance data relevance and accuracy. Specifically, if future project reports and UKRI international R&I investment programme evaluation reports capture reputation-building as a multidimensional construct (as outlined in this report—see Section 4.2), there will be greater potential to use text mining to quantify qualitative evidence. Additionally, if qualitative data collection such as case studies or in-depth interviews could be conducted, these sources of data can provide explicit insights into reputation-building through international R&I as these data sources could support the development of more refined dictionaries. This would, in turn, improve measurement precision, enhance rigour, and generate stronger analytical inferences

- **Leveraging Advanced Techniques -** Exploring advanced text mining techniques and tools, such as machine learning algorithms, could improve the efficiency and accuracy of the analysis

The text mining project provided valuable insights into the complexities of quantifying reputation building through international R&I investment. The challenges faced and the lessons learned will be instrumental in guiding future efforts to develop more effective and reliable methodologies

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