

REPUTATIONAL IMPACTS OF INTERNATIONAL RESEARCH AND INNOVATION

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Executive Summary

Aim of the Report

An aim of the UK government's international Research and Innovation (R&I) investment is to enhance the UK's global reputation and influence (Integrated Review Refresh, 2023). Despite this goal, there is a significant gap in understanding how international R&I activities impact the UK's reputation. This lack of knowledge makes it challenging to capture and measure the reputational benefits of such investments. This report thus seeks to address this gap by reviewing the literature on how international R&I activities and associated investments contribute to the UK's reputation. Given the lack of literature in this area, the report provides a conceptual analysis of existing studies [Appendix 1 for more details on methodology] to lay the groundwork for developing a measure of the reputational impacts of the UK's international R&I investments.

International R&I includes national, organisational, and individual level collaborations between the UK and other countries. These collaborations may include knowledge transfer, exchange, co-creation, alliances, and networks etc.

National Enablement of International R&I: The UK's policies, regulatory frameworks, and infrastructure that support international R&I, and the UK's bilateral, multilateral, unilateral, international development grant funding programmes play key roles in enabling the UK's engagement in international R&I. The UK's funding for international R&I is likely to result in generating international research output, product and service innovations, knowledge sharing, social and environmental impacts, resource and infrastructure and networks. One of the benefits of these investments and associated output often cited is the positive change made to the UK's reputation (O'Sullivan et al 2024). This is identified as a key property of science and technology (S&T) diplomacy in the Integrated Review (2021) and the 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. The national reputation is reported to have economic, social and environmental impacts (Mercer, 1996). 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).

Against the backdrop of the lack of understanding of the national reputational impact of the UK's international R&I investment, a systematic review of literature was conducted by reviewing 450 articles identified by using combinations of keywords related to the term "reputation" (please see Appendix 1 for more details of the methodology). The report is predominantly based on key concepts we derived from the existing literature on the reputational impacts of international R&I.

International R&I activities

Our review reveals that the definition of national reputation and its impact vary by the differing types of international R&I. We identify 16 different types of international R&I, which we group into four different categories (Figure 1). *Company-focused* and *research organization-focused* international R&I denote organizational-level activities, and *national enablements* and *funding programmes* outline national activities supporting international R&I. The report – through conceptual derivation - discusses how each of these international R&I activities generates reputational impacts.

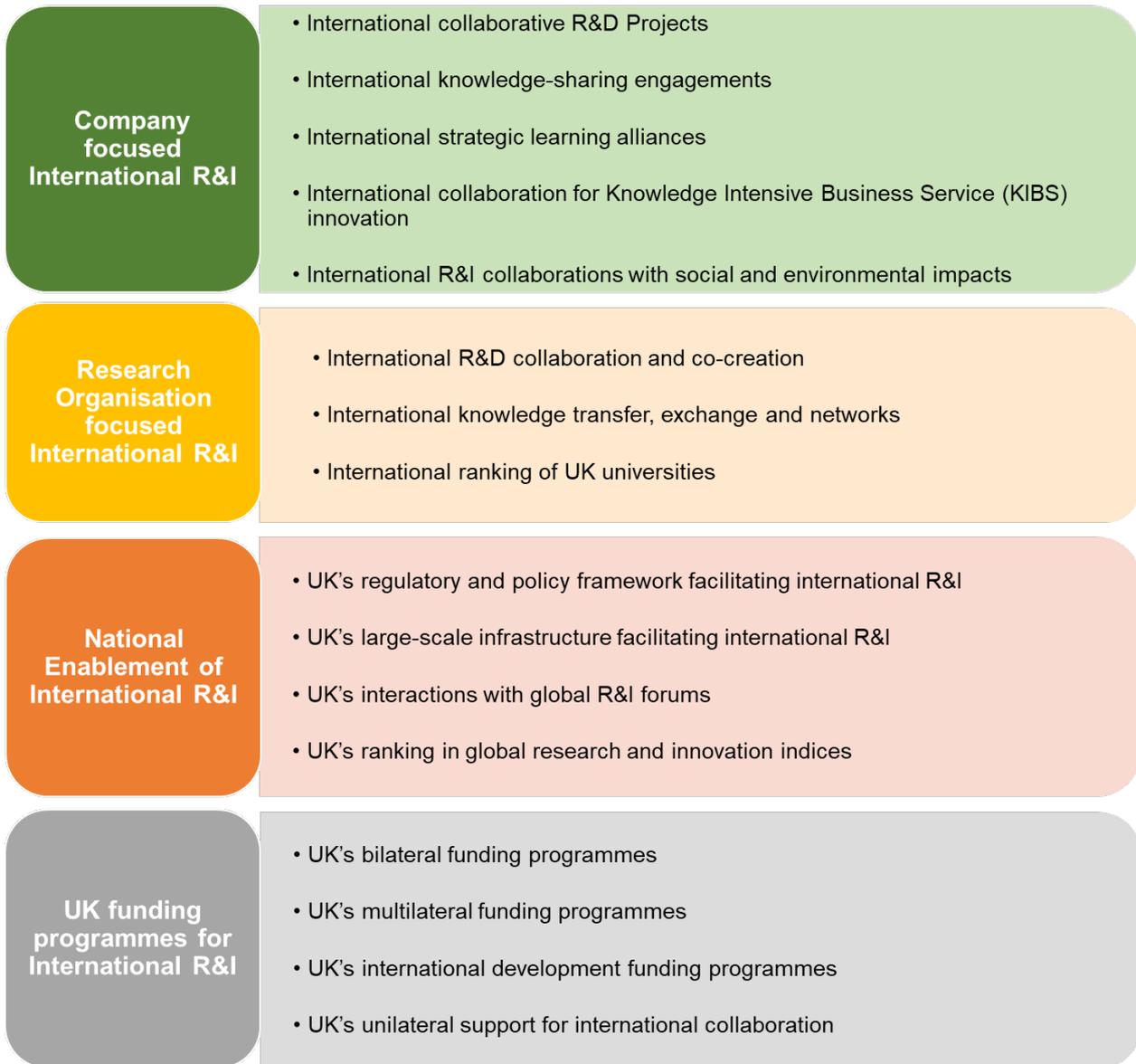


Figure I: International R&I activities

Conceptual summary of international R&I generating reputational impacts

Figure II provides a summary framework of international R&I *activities*, and the *reputation* these can generate, leading to additional *impacts*. While the identified national-level activities directly boost the UK's reputation, the organisational-level activities in aggregation collectively lead to building the UK's reputation. However, we also see that national-level initiatives not only enhance the UK's reputation, but also further support organisational-level international R&I. These four categories of international R&I at different levels including individual, organisational, local, regional and national thus interact to enhance the UK's reputation.

Engagement in international R&I by UK companies and research organisations enhances their reputations. For instance, UK companies are seen as innovative, financially strong, scientifically capable, and trustworthy. UK research organisations are recognised as world-leading experts in research, knowledge, and impact generation. Collectively, these organizational activities and national level investment and enablements bolster the UK's reputation as a leading, attractive, resourceful, impactful, and supportive destination for international research and innovation. **Chapters 2-5** of this report discuss how these organisational and national level activities generate reputational impacts together with case study examples.

The national reputation established through international research and innovation (R&I) activities generates a wide range of valuable *impacts*, including financial gains, strengthened relationships, enhanced resources, advancements in research and innovation, political influence, social benefits, and positive environmental impacts. **Chapter 1** of this report discusses the impacts of reputation developed through international R&I. These impacts generated through the reputation built from international R&I further justify the need to better understand, capture and measure reputation. As highlighted in Figure II the relationship between activities and reputational impacts is non-linear, involving several feedback loops.

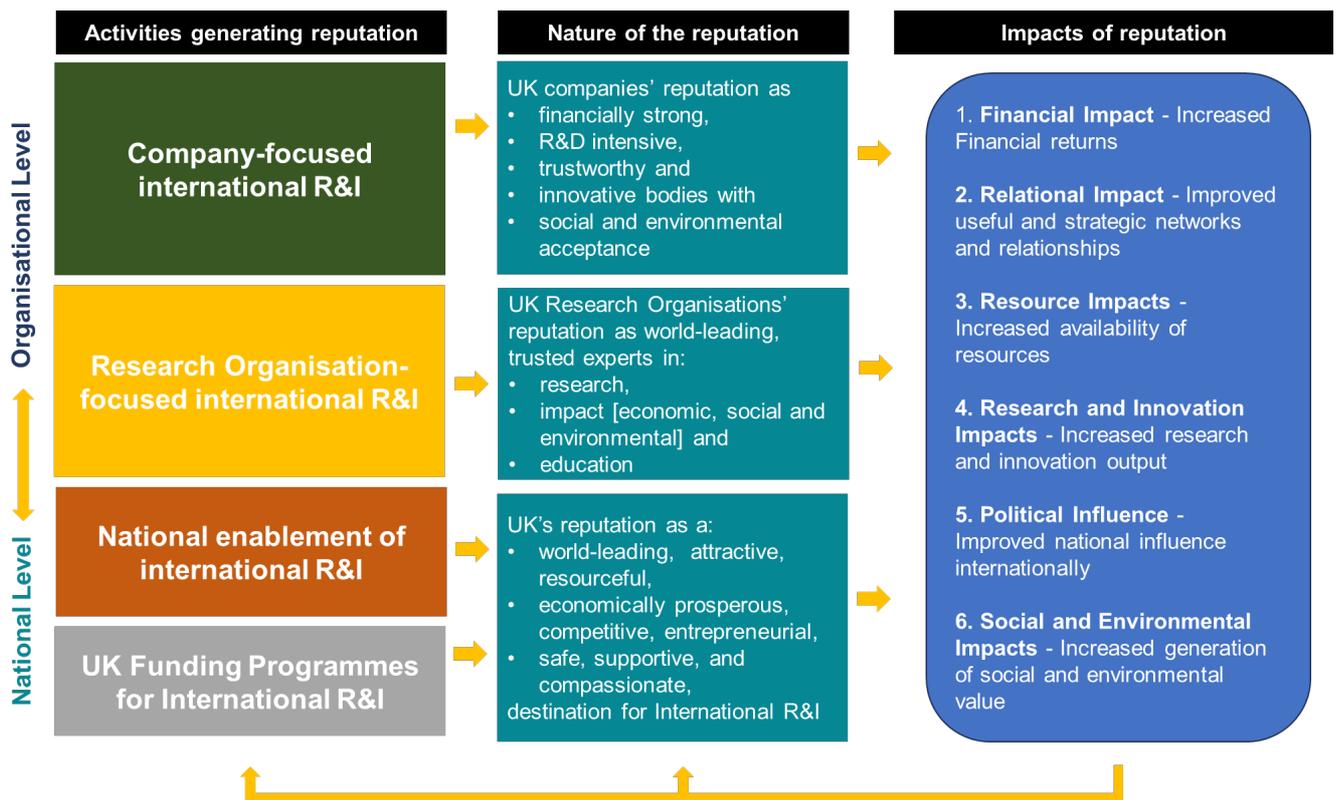


Figure II: Reputational Impacts of International R&I: Conceptual Summary

It is evident that comprehending these nuanced pathways for generating reputational impacts is essential for making key decisions that support international R&I. This understanding also provides a robust foundation for developing methods to capture and measure reputation. The following sections briefly present the reputational impacts generated through each category of international R&I.

Category 1: Company-focused reputational impacts

- » At the organisational level, *company-focused international R&I* includes collaborative R&D projects, knowledge-sharing engagements, strategic learning alliances, innovation in knowledge-intensive business services, and collaboration to address grand challenges such as climate change. It can involve collaboration with many other different actors in the ecosystem.
- » These engagements could boost *UK firms' reputation* as financially strong, R&D intensive, trustworthy, innovative, learning-focused, and socially and environmentally conscious organisations. The aggregation of international R&I activities conducted by many companies in a specific geographical location or sector could develop the UK's reputation as having competitive advantage.
- » Such positive reputational building would result in generating financial, relational, resource, research and innovation, social and environmental *impacts* [Figure III].

» **Chapter 2** of this report discusses how each of the company-focused international R&I activities generates reputational impacts together with relevant case study examples.

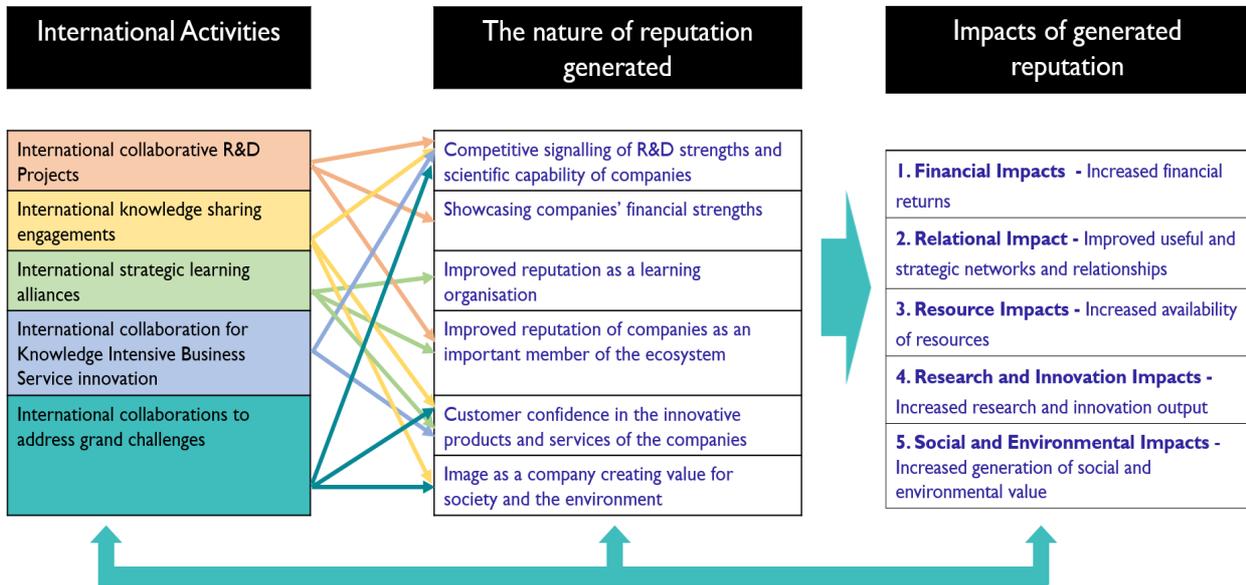


Figure III: Company-focused international R&I generating reputational impacts

Category 2: Research Organisation-focused reputational impacts

- » Research Organisation-focused *international R&I* includes universities and other public research organisations conducting research in collaboration with the international ecosystem. They engage in knowledge transfer, exchange, and co-creation with international ecosystem actors, and participate in international research networks. International ranking systems, such as those of universities, sit slightly differently from the other activities in this category but are also included due to their ability to generate reputation at organisational and national levels.
- » These engagements enhance the UK Research Organisations' *reputation* as world-leading, neutral, trusted experts in research, impact and education, and influencers of the direction of the global research and higher education sector.
- » Positive reputation results in increased financial, relational, research, innovation, social and environmental *impacts* [Figure IV].
- » **Chapter 3** of this report discusses how each of the research organisation-focused international R&I activities generates reputational impacts together with relevant case study examples.

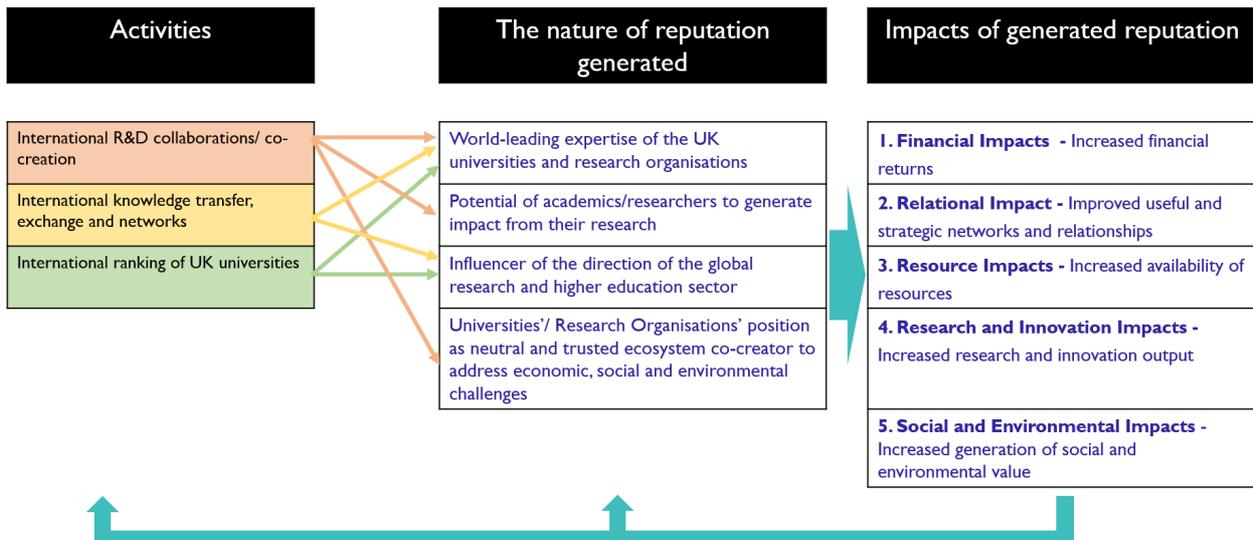


Figure IV: Research Organisation-focused international R&I generating reputational impacts

Category 3: National enablement of international R&I generating reputational impacts

- » National enablement of *international R&I collaborations* includes policies, regulations, large infrastructure, and interactions with global bodies that support international R&I collaborations. Additionally, the UK’s ranking in global R&I indices, which is influenced by organisational and national level engagements, also generates reputational impacts for the UK.
- » These national enablement’s are reported to enhance the *UK’s reputation* as a safe, transparent, fair, trustworthy, attractive, resourceful, supportive, and competitive destination for international R&I. These activities also generate the reputation of the UK as an R&I destination that offers coherent policy and regulatory frameworks to address the evolving needs of stakeholders, which makes the UK a thought leader, influencer and committed member in the global R&I community.
- » This positive reputation could lead to increased financial, relational, resource, research, innovation, political, social, and environmental *impacts* [Figure V].
- » **Chapter 4** of this report discusses how each national enablement activities generates reputational impacts together with relevant case study examples.

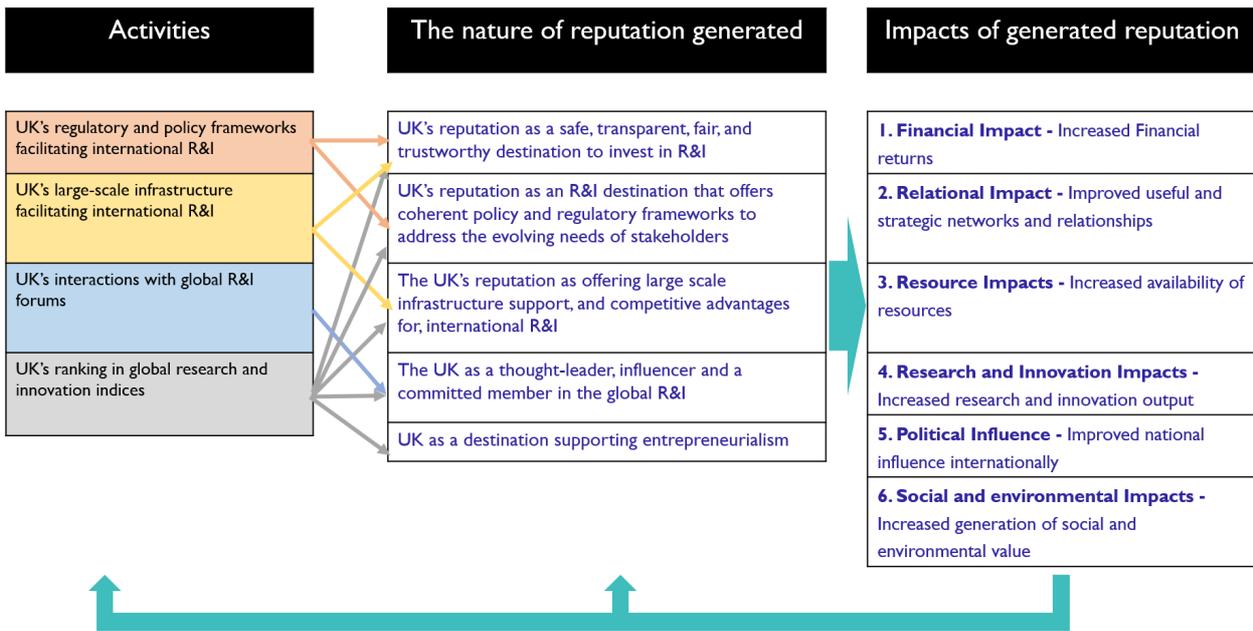


Figure V: National enablement of international R&I generating reputational impacts

Category 4: UK Funding Programmes for International R&I generating reputational impacts

- » UK Funding Programmes for *international R&I* include bilateral, multilateral, international development, and unilateral funding.
- » These investments are reported to enhance the *UK's reputation* as a global leader that generates research, innovation, social, economic, and environmental outcomes across national, European Union, and international levels. These grants also enhance the UK's reputation as an attractive destination to conduct international R&I and as a global leader in directing the international funding landscape, cross-country collaboration, policy, and practice.
- » Such reputational building could lead to improved financial, relational, research and innovation, resource, political, social and environmental *impacts* [Figure VI].
- » **Chapter 5** of this report discusses how each funding programme supporting international R&I generates reputational impacts together with relevant case study examples.

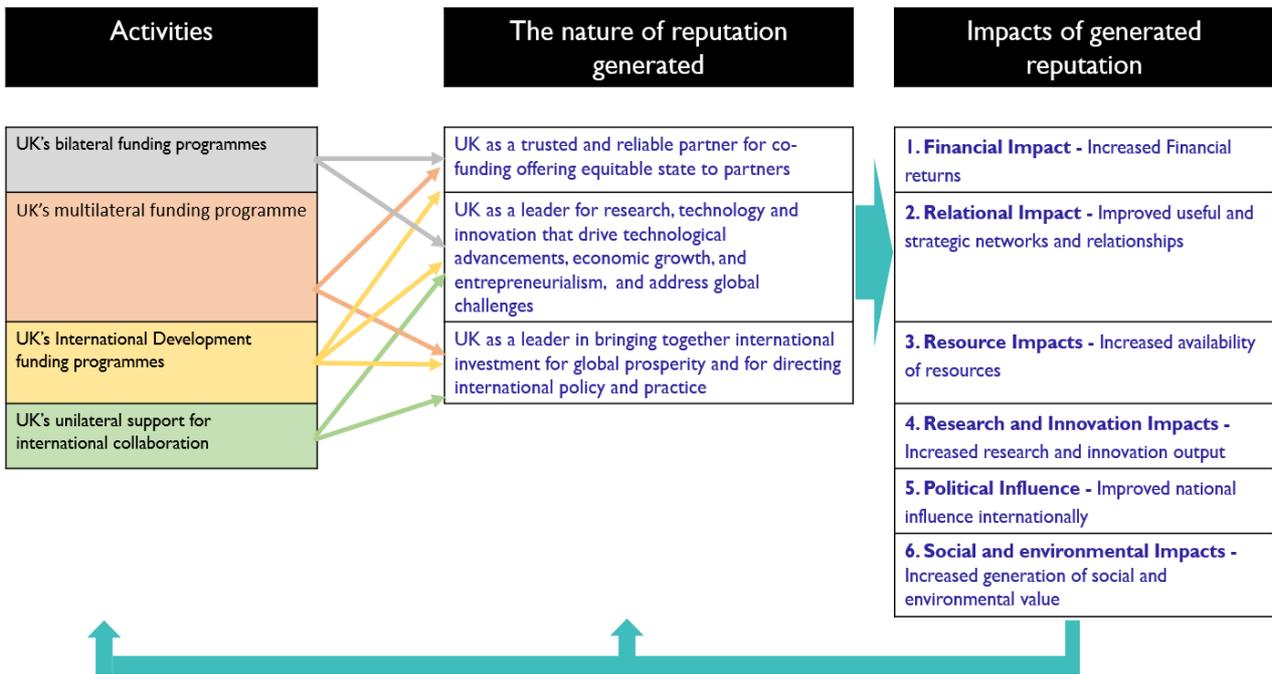


Figure VI: UK Funding Programmes for International R&I

Limitations in rigorously tracking and measuring reputational impacts of international R&I

Tracking and measuring the reputational impacts of international R&I presents several challenges. Firstly, there is a notable lack of explicit literature addressing this specific area, making it difficult to draw direct conclusions. Additionally, the inherent complexities of reputation as a psychological and perceptual construct further complicate the measurement process, especially in the context of international activities with broad and varied impacts. The following sections of the executive summary briefly present these limitations in rigorously tracking and measuring the reputational impacts of international R&I.

» **Lack of explicit literature:** It has to be noted that the review hasn't identified literature that has explicitly discussed the reputational impacts of international R&I even though there were a handful of papers that have discussed 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 measures the perception of nations without necessarily linking to R&I (British Council 2024). Therefore, the report is based on analysing a wide array of benefits/impacts outlined in the literature about each type of international R&I. These benefits are then used to conceptually derive reputational impacts.

- >> **Difficulties in capturing the scope of a psychological construct:** The lack of literature that discusses the reputational benefits of international R&I is mainly due to inherent difficulties associated with tracking and measuring reputation. Since reputation is a psychological, perceptual, and subjective construct, it is difficult to measure reputation and derive explicit causalities of reputation building. Yet, some attempts have been made to measure the perception of different countries. One example is the survey conducted by the British Council in 2021 of 37,158 young people from across 36 countries on the perception of countries (British Council 2024). While it is possible to measure perception in such a large-scale survey, it is difficult to rigorously derive the causality of the factors that may have led to the building of this perception.
- >> **Reputation in the context of international R&I is particularly complex:** Especially in the context of international R&I, the difficulty of tracking and measuring reputation is further complicated due to 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 the direct reputational effects may arise from specific investments and associated international R&I activities, the spillover effects could include unintended reputation building over the long term, resulting from these activities and their direct impact. Yet, it is impossible to track and measure whose individual and collective perception would be influenced by the international R&I activities, leading to the generation of national reputation. Also, it is difficult to differentiate between the reputation of a nation built through international R&I compared to other international activities such as trade, tourism. Therefore, these conceptually derived associations should be considered with caution. In order to minimise errors in conceptualisation, we have discussed exemplar cases for each type.
- >> **Interaction between types of international R&I activities when generating reputational impacts:** It should also be noted that even though the types of engagements leading to reputational impacts are presented independently, some of these may interact as well as overlap. For example, research organisations and companies are likely to interact with each other in many international R&I initiatives and are supported by national enablement and international grants. However, reputational impacts of each type of interaction are discussed separately to outline some unique benefits. It is also believed that presenting different categories/types will support decision-makers in understanding which activities are more likely to result in generating specific reputational impacts. Yet, it is important to consider that each type of activity is likely to be influenced by other types when generating reputational impacts.
- >> **Complex feedback loops:** As presented in the diagrams, there are complex feedback loops concerning the generation of reputational impacts, which could then influence engagement in certain activities. Due to the conceptual nature of these derivations, in some instances, it was

impossible to clearly outline some complexities. The perceptual nature of the reputation as a construct makes it further difficult to empirically measure and identify complex and dynamic interactions between activities and reputational impacts.

Report Outline

The first chapter of this report examines the impacts of reputation gained through international Research and Innovation (R&I), encompassing financial, relational, resource-based, research and innovation, political, environmental, and social impacts. This chapter thus offers a justification as to why we need to better understand reputation generated through international R&I. **Chapters 2 to 5** delve into how each category of international R&I generates reputational impacts, supported by case studies. Discussing the categories separately is aimed at helping decision-makers understand which activities need to be undertaken to generate specific reputational impacts. Appendix 1 offers a detailed account of the methodology used in this study.

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