

REPUTATIONAL IMPACTS OF INTERNATIONAL RESEARCH AND INNOVATION

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4.1: UK’s regulatory and policy framework facilitating international R&I

The activities performed by the UK’s regulatory and policy frameworks in support of international R&I include developing and enforcing regulations and policies to protect foreign investment in, and continuously improving these frameworks with a stable commitment towards, international R&I. Additionally, enhancing the alignment and synergy among local, regional, national, and international policy and funding frameworks is essential. Raising awareness of the UK’s technology ecosystem and its associated strengths further solidifies its position on the global stage. These activities enhance the UK’s reputation as a safe, transparent, fair, and trustworthy destination for investing in R&I. Additionally, the UK is recognized for offering coherent policy and regulatory frameworks that effectively address the evolving needs of stakeholders, further enhancing its appeal as a premier R&I destination. These dimensions of the reputation generate financial, relational, research and innovation impacts [Figure 4.1].

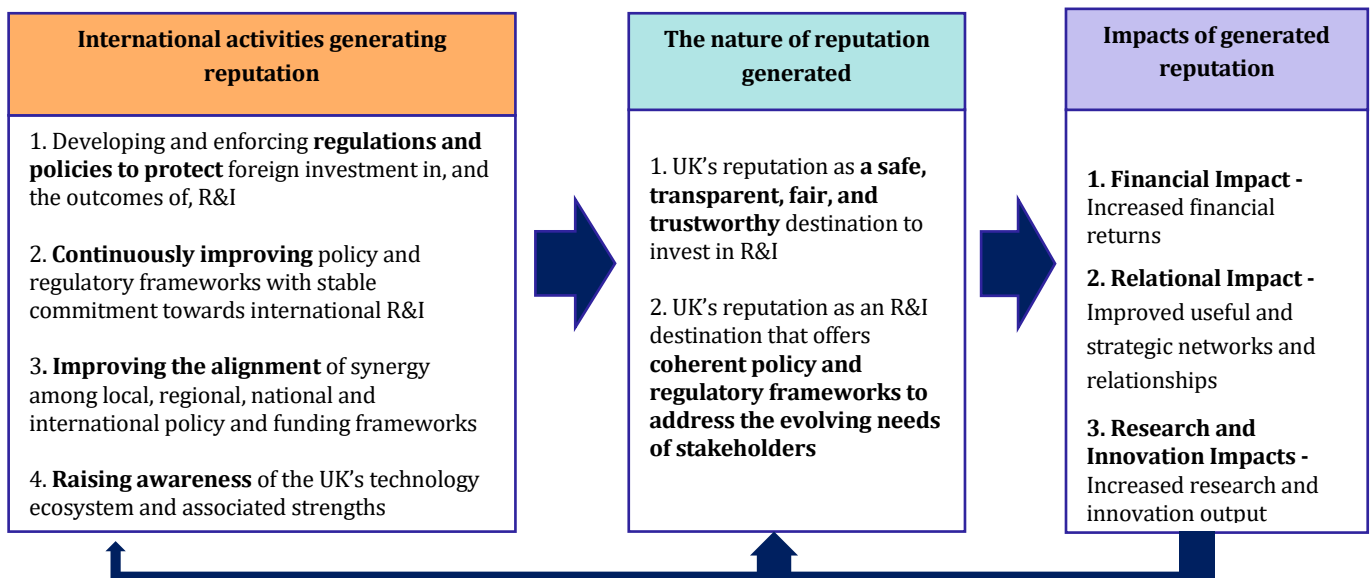


Figure 4.1: UK’s regulatory and policy framework facilitating international R&I generating reputational impacts

4.1.1 International activities



Developing and enforcing regulations and policies to protect foreign investment in, and the outcomes of, R&I

The UK government has implemented measures through regulations and policies to protect foreign investment in, and outcomes of, R&I from potential abuse and threats. A key UK government initiative is the development of "[Trusted research](#)", which involves safeguarding the UK's intellectual property, sensitive research, people, and infrastructure from potential threats like theft or exploitation by hostile actors. Trusted Research guidance, jointly published by [National Protective Security Authority](#) (NPSA) and The [National Cyber Security Centre](#) (NCSC), offers advice and guidance to uphold the integrity of international research collaborations. Developed in collaboration with the sector, it provides researchers, university staff, and funding organizations with guidance to protect sensitive research and intellectual property from theft, misuse, or exploitation. In this context, UK Research and Innovation (UKRI) launched its [Trusted Research and Innovation](#) (TR&I) programme to provide guidance and support for safe and secure collaborations. This programme endeavours to minimise the risks associated with operating within the global research ecosystem while maximising opportunities for international R&I, by collaborating with partners to align policies and coordinate approaches across the sector. [National Protective Security Authority](#) (NPSA) and the [National Cyber Security Centre](#) (NCSC) also collaborate with government, police, industry and academia to reduce the vulnerability of the national infrastructure, secure innovation, and mitigate cyber security threats.



Continuously improving policy and regulatory frameworks with stable commitment towards international R&I

Establishing transparency and stability in long-term policy frameworks (BIO-TIC, 2015), by also addressing the evolving needs of the international R&I, that create clear, consistent, and predictable guidelines for R&I is important. It reassures investors, collaborators, and other stakeholders that the UK's R&I environment remains steady, allowing them to plan and invest with confidence. For instance, the [Integrated Review Refresh 2023](#), which sets the UK government's foreign policy priorities, has mentioned that strengthening science and technology is one of four key priority areas. Such strong statements offer clear signalling of the government's stable commitment to international R&I collaborations. Similarly, the [UK Science and Technology Framework](#) emphasises international collaboration as one of the ten pillars underpinning the future of UK science and technology strength. The [UKRI International Strategic Framework](#), that strongly signals the significance of global engagement, is an example of funder-level strategic support for international R&I. Having coherence among different government initiatives and the UK funding landscape towards supporting and

encouraging international R&I enhances the UK's reputation as a welcoming and conducive nation for engaging in international R&I.

» Improving the alignment of synergy among local, regional, national and international policy and funding frameworks

The alignment and synergy among local, regional, national, and international policy and funding frameworks are important to enable international R&I. Mission-oriented policy framework suggests the need to achieve such alignment (Kattel and Mazzucato 2018). Especially considering the UK is a small landscape, the UK has the unique advantage of having a coherent policy landscape that further encourages international R&I. The success of the BIO (NISP) (the case study below) in the UK, the world's first national industrial symbiosis programme exemplifies this. NISP's nationally coordinated yet locally delivered structure allowed it to adapt to specific regional economic and environmental agendas effectively. This alignment enabled NISP to identify mutually beneficial transactions between companies, bringing underused resources into productive use, and involving a wide range of participants from SMEs to multinationals across various industry sectors. Such coordination not only maximises resource efficiency but also showcases the UK's ability to implement comprehensive and impactful environmental and economic policies supporting international R&I (Hodgson, et al. 2016).

» Raising awareness of the UK's technology ecosystem and associated strengths

Targeted marketing initiatives such as "Unicorn Kingdom", launched in March 2023, aimed at improving perceptions of the UK and of its strengths in order to attract international investment. The campaign addressed investor awareness of the UK's technology ecosystem and empowered stakeholder strategy, which in turn improved perception of the UK and fuels investment, thereby securing the UK's future as a global science and technology leader. The UK's reputation as an attractive destination for international R&I, a hub for large-scale research support, and a leader in key sectors with competitive advantages has significantly increased its attractiveness for international stakeholders to collaborate with UK companies and research organizations.

4.1.2 The nature of reputation generated

» UK's reputation as a safe, transparent, fair, and trustworthy destination to invest in R&I

The reliability and predictability of the UK regulations reduce uncertainty and perceived risks associated with investment in the UK. The UK's transparent and stable policy framework gives

investors the confidence needed to view the UK as a potentially attractive and safe destination for R&I investments. The consistent emphasis on transparency and long-term policy stability reassures stakeholders about the UK’s commitment to supporting R&I, thus building a robust and trustworthy reputation. The UK’s proactive stance on supporting key enabling technologies, commercialisation, and providing business support further enhances its attractiveness for international R&I. These highlight the UK’s dedication to supporting technological advancement and business growth, which act as magnets for international researchers and businesses looking for a conducive environment for innovation and commercialization.

» UK’s reputation as an R&I destination that offers coherent policy and regulatory frameworks to address the evolving needs of stakeholders

Constantly improving regulatory and policy frameworks by addressing the needs of investors and R&I stakeholders improves the UK’s reputation as a destination that offers relevant support to address the evolving needs of stakeholders. The UK’s ability to develop coherent, long-term, and aligned policies sets it apart from other international destinations (Taylor 2022). Programs like NISP, which integrate regional and national agendas, showcase the UK’s strength in policy coordination and resource utilization. Clear coherence among different policy frameworks - such as the UK government’s foreign policy priorities, the UK Science and Technology framework, and the UKRI International strategic framework - gives the UK a comparative advantage that potentially increases the attractiveness of the UK R&I environment for international researchers and investors.

4.1.3 Impacts of generated reputation

Table 4.1: Impacts of reputation generated through UK’s regulatory and policy framework facilitating international R&I

Types of Impact	Specific Impacts
1. Financial Impact - Increased Financial returns	Improved access to international finance and investment
2. Relational Impact - Improved useful and strategic networks and relationships	Improved local, regional, national, and international sectoral networks, leading to the exchange of good practices, knowledge, resources, research, and innovation
3. Research and Innovation Impacts - Increased research and innovation output	Increased international collaborative R&I

Case Study: The National Industrial Symbiosis Programme (NISP)

The National Industrial Symbiosis Programme (NISP), the world's first national industrial symbiosis programme, is a pioneering initiative aimed at promoting resource efficiency through the collaborative use of materials, energy, and water among different industries.



International R&I activities:

NISP began as three pilot schemes in Scotland, the West Midlands, and Yorkshire & Humberside in 2003. Their success provided robust evidence to the Department for Environment and Rural Affairs (Defra), which in 2005 awarded International Synergies £27 million over three years to expand the programme across all nine English regions. Similar initiatives were also launched in Wales, Northern Ireland, and Scotland (SISP). A key factor in the programme's overwhelming success was its management and delivery. The programme operated with a nationally coordinated operational focus, supported by a local delivery structure. The NISP team's knowledge and insight into specific regional economic and environmental agendas enabled the program to have a substantial positive impact across the UK

International R&I activities supported by NISP include:

1. **Global Partnerships:** NISP collaborates with international organizations and governments to promote industrial symbiosis practices worldwide.
2. **Knowledge Transfer:** The programme facilitates the exchange of best practices, technologies, and methodologies between countries to enhance resource efficiency and sustainability.
3. **Joint Research Projects:** NISP participates in and supports international research projects aimed at developing new technologies and approaches for industrial symbiosis.
4. **Capacity Building:** The programme offers training and capacity-building initiatives to help other countries implement and benefit from industrial symbiosis.



The nature of reputational impacts generated:

To date, the model has been replicated in 20 countries at either national or regional levels. The programme's demonstrated success and the UK's stable policy framework have increased confidence among international investors. The substantial funding from Defra and involvement of over 10,000 companies, including 80% SMEs, and the creation of numerous sustainable business opportunities underscore its impact.

The NISP model has been successful due to its transparent and stable policy framework, that has attracted a wide range of participants, including SMEs and multinational corporations. NISP operates through 12 regional offices across the UK, each acting as a hub for local businesses to engage in industrial symbiosis. These centres facilitate the commercialization of technology and promote business growth by connecting researchers, businesses, and investors. NISP exemplifies the UK's ability to align policies and funding frameworks across various levels. The programme's nationally coordinated but locally delivered structure allowed it to adapt to specific regional agendas, maximizing resource efficiency and demonstrating the UK's ability to implement comprehensive policies. NISP's approach of integrating local, regional, national, and international networks has fostered a cohesive and stable R&I ecosystem, ensuring the exchange of best practices and resources. This has strengthened the UK's position as a leader in collaborative R&I and the global bioeconomy sector.

NISP as the world's first national industrial symbiosis initiative has received global acknowledgements including:

- Recognized by the European Commission as an Exemplar of Eco-Innovation through its Environmental Technologies Action Plan (ETAP) in 2007.
- Identified as a 'Best Practice' example in the European Union's Waste Framework Directive (2008).
- Featured as one of the 20 Worldwide Green Game Changing Innovations in a 2010 report commissioned by the World Wide Fund for Nature (WWF).
- Awarded the Best Carbon Reduction Project at the edie.net Awards for Environmental Excellence in 2010, and subsequently entered into the European Business Awards for the Environment in 2012.

Source: <https://international-synergies.com/ourprojects/nisp/>; Bio-TIC 2015; Hodgson, et al. (2016)

References

- BIO-TIC. (2015). The Bioeconomy Enabled: A roadmap to a thriving industrial biotechnology sector in Europe. Available at: www.industrialbiotech-europe.eu.
- Hodgson, E., Ruiz-Molina, M.-E., Marazza, D., Pogrebnyakova, E., Burns, C., Higson, A., Rehberger, M., Hiete, M., Gyalai-Korpos, M., Di Lucia, L., Noël, Y., Woods, J. and Gallagher, J. (2016). Horizon scanning the European bio-based economy: A novel approach to the identification of barriers and key policy interventions from stakeholders in multiple sectors and regions. *Biofuels, Bioproducts and Biorefining*, 10(4), 508-522. <https://doi.org/10.1002/bbb.1665>
- Integrated Review Refresh. (2023). Responding to a more contested and volatile world. Available at: Integrated Review Refresh 2023: Responding to a more contested and volatile world - GOV.UK (www.gov.uk)
- Kattel, R. and Mazzucato, M. (2018). Mission-oriented innovation policy and dynamic capabilities in the public sector, *Industrial and Corporate Change*, 27(5), pp.787-801
- UKRIAI cock, A. (1994). Insider Dealing: How Did We Get Here? *Company Lawyer*, Vol. 67.
- Ashe, M. and Counsell, L. (1990). Insider Trading, Fourmat Publishing (London), at 5 (1990).
- The Bioeconomy Enabled: A roadmap to a thriving industrial biotechnology sector in Europe (2015). Available at: www.industrialbiotech-europe.eu.
- Brazier, G. (1996). Insider Dealing: Law & Regulation, Cavendish Publishing Limited (London).
- Davies, H. (2001). Law and Regulation, *Journal of International Strategic Framework*. (2022). Available at: UKRI International Strategic Framework, *Financial Markets*, Vol. 171.
- De Silva, M., Paunovi, C., Planes-Satorra, S. and Peñalosa, P. (2023). Unlocking co-creation for green innovation: an exploration of the diverse contributions of universities. OECD.
- De Silva, M., Gokhberg, L., Meissner, D. and Russo, M. (2021). Addressing societal challenges through the simultaneous generation of social and business values: a conceptual framework for science-based co-creation, *Technovation*, 104, pp. 102268.
- Gov (2024) Available at: <https://www.gov.uk/government/news/nissan-triples-investment-in-electric-vehicle-production-in-the-uk>.
- Integrated Review Refresh. (2023). Responding to a more contested and volatile world. Available at: <https://www.gov.uk/government/publications/integrated-review-refresh-2023-responding-to-a-more-contested-and-volatile-world>
- Laybourn, P. and Morrissey, M. (2009). National Industrial Symbiosis Programme: A pathway to low carbon sustainable economy.
- UK Science and Technology Framework. (2024). Available at: <https://www.gov.uk/government/publications/uk-science-and-technology-framework> UK Science and Technology Framework - GOV.UK (www.gov.uk)
- UKRI International Strategic Framework. Available at: [Our international strategic framework – UKRI](#)
- Weiwei, Z. (2017). New Challenges and Undertakings for Administrative and Regulatory Reform: A Global Watch with Chinese Perspective an Examination of Legal Regulations for Insider Dealing In The Uk and The Lessons For China, *Frontiers Of Law In China*, 12(4).
- Tylor, A. (2022). Other countries have made progress in levelling up – here’s how the UK’s plan compares. Available at: <https://theconversation.com/other-countries-have-made-progress-in-levelling-up-heres-how-the-uks-plan-compares-176405>

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About the Innovation and Research Caucus

The IRC 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 system. 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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