From Evidence Gaps to UK Evidence: Economic Benefits of International R&I Collaboration

We adopted a two-stage research process involving a review of the literature and evidence-based studies on the economic benefits of international R&I collaboration compared with domestic collaboration.

1 WHAT WERE THE KNOWN BENEFITS OF INTERNATIONAL R&I COLLABORATION? (full report available here)

1 Provide direct benefits to organisations

Better research outputs, talent development, improved innovation, sales/turnover and productivity outcomes.

2 Wider economic and spillover benefits

Knowledge spillovers, societal/reputational benefits, national competitiveness and growth.

3 More value than domestic collaboration

Access to specialised global knowledge, skills and infrastructure, amplified through collective problem-solving.

2 WHAT WERE THE EVIDENCE GAPS?

1 Additionality was under-researched

Few studies tested whether benefits differ by collaboration mode, innovation outcome or wider business outcome.

2 Mechanisms & capabilities were unclear

Limited evidence on which mechanisms matter most and which capabilities determine who creates and absorbs value.

3 Monetisation was limited

Few attempts to translate international R&I effects into monetary economic value.

3 HOW DID THE REPORTS ADDRESS THESE GAPS?

QUANTITATIVE REPORT 1 (available here)

- Compared international, domestic, and non-collaborating firms across Business-to-Business (B2B) and Business-to-University (B2U) modes.
- Tested additionality (i.e., whether funding generated benefits beyond what would have happened without it) for innovation outcomes (Report 1).

Data: 7 waves of UK Innovation Survey (UKIS) ≈66k firm-level observations & self-reported innovation outcomes.

Methodology: Econometric models estimated using Propensity Score Matching and Staggered Difference-in-Difference methods.

QUANTITATIVE REPORT 2 (available here)

- Comparing UKRI-supported International and Domestic R&I collaborations across R&I modes.
- Tested additionality (i.e., whether funding generated benefits beyond what would have happened without it) for Intellectual Property (IP) outputs and business outcomes.

Data: Matched Gateway to Research, Business Structure Database and Intellectual Property Organisation datasets ≈29k UKRI-funded projects & population–level IP outcomes + firm-level performance measures.

Methodology: Econometric models estimated using Propensity Score Matching and Staggered Difference-in-Difference methods.

QUALITATIVE REPORT (available here)

- Conducted 20 successful university-led international R&I cases across disciplines, funders, partner types and TRLs.
- Identified pathways, enablers and challenges through which UK economic value is created.
- Explained how specific mechanisms, capabilities, and funding strategies can maximise the economic value generated for the UK through university-led international R&I.
- Showed how funding design and lifecycle shape value delivery.

Scope: U2U + U2B cases – Projects that generated economic value for the UK involved businesses throughout the project lifecycle

THE TWO TYPES OF EVIDENCE ANSWER DIFFERENT QUESTIONS

QUANTITATIVE EVIDENCE shows WHERE effects occur while QUALITATIVE EVIDENCE explains HOW UK value is created, captured and sustained

4 WHAT DID THE QUANTITATIVE EVIDENCE SHOW?

THE IMPACTS ARE NOT THE SAME FOR ALL BUSINESSES OR COLLABORATION MODES

A. INNOVATION OUTCOMES

+13 pp

Process innovation

International B2B vs domestic-only B2B (N=5,879)

+7 pp

New-to-market product innovation

International B2B vs domestic-only B2B (N=2,300)

+11 pp

Process innovation

International B2U vs domestic-only B2U (N=5,666)

TAKEAWAY: Compared to domestic-only collaboration, international collaboration can generate additional innovation benefits.

B. BUSINESS PERFORMANCE

+13%

Turnover growth

Mature firms; business-led international R&I **vs.** those in domestic collaborations (N = 4,531).

+8.5%

Turnover growth

High-tech manufacturing & high-KIS; university-led international R&I (N = 3,991).

+7%

Employment growth

Micro firms; international business-led R&I **vs.** those in domestic collaborations (N = 5,584).

+5%

Productivity growth

Small firms; international university-led R&I **vs.** those in domestic collaborations (N = 8,075).

TAKEAWAY: Effects are concentrated in particular firm types, ages and contexts.

C. INTELLECTUAL PROPERTY

+13%

Patent application growth

High-tech manufacturing; business-led international R&I (N=2,245)

+11%

Patent application growth

Large firms; business-led international R&I **vs.** those in domestic collaborations (N = 2,401).

+10%

Patent application growth

International + domestic collaborators **vs.** substitution (N=2,357)

TAKEAWAY: IP gains are strongest in particular sectors, firm types and collaboration strategies.

KEY MESSAGES FROM QUANTITATIVE REPORT 1 & 2 (UK EVIDENCE)

Benefits depend on the firm, collaboration mode, outcome and complementarity between domestic and international collaboration partners.

KEY MESSAGES FROM NON-UK EVIDENCE IS MIXED

international collaboration can generate additional benefits, but some studies find equal or greater innovation and growth outcomes from domestic collaboration.

5 WHAT EXPLAINS THESE DIFFERENCES?

THE QUALITATIVE EVIDENCE SHOWS THAT INTERNATIONAL R&I CREATES OPPORTUNITIES FOR UK VALUE, BUT VALUE IS NOT AUTOMATIC.

1 **DISTINCTIVE VALUE**

International R&I generate globally distinctive knowledge, develops talent, enhances industry & policy outcomes, creates UK jobs, & accelerates commercialisation beyond that which domestic R&I alone can achieve.

2 **UK VALUE CAPTURE**

International R&I generate stronger economic value when they are anchored in UK needs, involve UK businesses, practitioners & adopters, establish clear intellectual property & commercialisation pathways, & include UK-based trials, demonstrations & diffusion activities

3 **CAPABILITIES**

Maximising UK economic value from international R&I requires capabilities to absorb knowledge, co-create solutions, bridge disciplines, translate research into practice, build effective networks, & commercialise & scale innovations in the UK.

4 **FUNDING DESIGN**

Fund international R&I where it offers clear additionality, embed UK value capture & diffusion in funding design, support the full pathway from discovery to domestic adoption & scale-up, & build the talent & capabilities needed to translate international outputs into UK economic value..

BRIDGING INSIGHT

International collaboration creates opportunities; UK value depends on the mechanisms, capabilities and funding that turn opportunities into outcomes.

6 CONCLUSIONS & POLICY IMPLICATIONS

1 **INTERNATIONAL R&I CAN CREATE VALUE BEYOND DOMESTIC COLLABORATION, BUT ADDITIONALITY VARIES BY FIRM, OUTCOME AND COLLABORATION MODE.**

RECOMMENDATION Target support by firm type, collaboration mode and outcome; ask applicants to demonstrate expected additionality.

2 **UK BENEFITS NEED DELIBERATE VALUE-CAPTURE MECHANISMS.**

RECOMMENDATION Make UK value capture an explicit funding criterion and support UK practitioner, adopter, beneficiary, multinational and subsidiary involvement.

3 **ABSORPTIVE, CO-CREATION, IMPLEMENTATION AND TRANSLATION CAPABILITIES SHAPE WHO BENEFITS.**

RECOMMENDATION Invest in capability-building for academic and non-academic actors, while sustaining support for high-capacity frontier firms.

4 **SCALE, CONTINUITY AND DURATION OF FUNDING SHAPE THE VALUE ULTIMATELY DELIVERED.**

RECOMMENDATION Use stage-gated and flexible funding, support iterative innovation, and address gaps between research, implementation and commercialisation.

International R&I creates opportunities for UK value, but policy needs to shape the conditions under which that value is realised and captured.

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