

# UNDERSTANDING THE IMPACT OF INNOVATION POLICY ON UK SUPPLY CHAINS

IRC Report No: 037

## Executive Summary

This report investigates the impact of innovation policy on innovation diffusion along supply chains and on supply chain resilience in the United Kingdom, with a particular focus on the role of Innovate UK programmes in shaping inter-firm knowledge flows and supply network structures. Using a unique dataset that integrates Innovate UK award information with firm-level innovation outputs (patents) and supply chain relationships, the study provides comprehensive empirical assessments of how innovation policy influences both the direction of technological diffusion and the configuration of supply chain networks across the UK economy.

**Background and research gaps.** Innovation policy is increasingly recognised not only as a tool for stimulating firm-level R&D, but also as a lever for strengthening national and regional innovation systems and ensuring the resilience of critical supply chains. Yet, despite significant government investment through Innovate UK and related programmes, the mechanisms through which such policies shape supply chain-level innovation dynamics remain poorly understood. This study addresses that gap by examining:

- »» How innovation diffuses along UK supply chains;
- »» How innovation policy influences the direction and strength of this diffusion; and
- »» How policy-supported innovation affects firms' supply chain connectivity and resilience.

The analysis builds on a rich theoretical foundation integrating insights from Operations and Supply Chain Management (OSCM) research and the innovation studies literature. Our analytical framework highlights both the relational nature of learning in supply networks and the growing policy emphasis on technological sovereignty, regional development, and systemic resilience.

**Data and methodology.** We construct an integrated firm-level dataset spanning 2011–2022, combining data sources from Innovate UK on public innovation support with supply chain linkage data and firm characteristics from FAME and patent databases. Descriptive network analyses map the evolution of domestic and international supply relationships, revealing increasing regional diversification and interconnectivity over time. Empirical analyses employ fixed-effects panel regressions and entropy balancing to identify causal effects of policy support on innovation outcomes and network structure.

**Key findings.** First, we find that innovation diffusion is asymmetric but systematic. Innovation primarily diffuses from customers to suppliers, suggesting that downstream firms act as key initiators and transmitters of technological knowledge upstream the supply chain. Suppliers' innovation exerts weaker effects on their customers, indicating that learning within supply networks is directionally biased and shaped by buyer dominance.

Second, innovation policy alters the direction of diffusion. Innovate UK support significantly boosts firms' own innovation performance, confirming that public funding stimulates inventive activity. However, policy support to customers does not enhance spillovers to suppliers; instead, it may lead to “policy-induced insulation”, where subsidised firms internalise R&D and reduce collaborative engagement. In contrast, policy support to suppliers activates reverse diffusion—policy-supported suppliers are better able to influence customer innovation. Public funding thus empowers upstream supplier firms to become sources of technological renewal, transforming supply chains into two-way learning systems.

Third, we document that policy-supported firms become more central and connected. Firms receiving Innovate UK support exhibit higher degree, in-degree, and eigenvector centrality within supply chain networks, indicating increased embeddedness and influence. Policy-supported firms expand both their supplier and customer linkages, enhancing access to knowledge, partners, and markets. Higher network centrality reflects greater supply chain resilience: firms with more diversified and influential connections are better able to absorb shocks and reconfigure supply chain relationships when disruptions occur.

Finally, we find evidence that policy support shapes the geography of supply chain resilience. Supported firms maintain regionally concentrated customer bases but geographically diversified supplier networks. This configuration combines the benefits of local embeddedness (trust, collaboration) with wider supply diversification (redundancy, adaptability). As such,

innovation policy fosters relational and geographic resilience, strengthening regional clusters while enhancing systemic flexibility across the UK supply network.

**Implications.** Our findings highlight that innovation policy operates as a supply network-level mechanism rather than a firm-level intervention alone. By influencing how innovation and information flow across supply chains, policy support contributes to both the diffusion of technological capabilities and the resilience of national production and supply systems. For policymakers, this highlights the need for:

Supply chain–sensitive innovation design, targeting both upstream and downstream firms to enable balanced, bidirectional learning;

Network-oriented policy evaluation, extending beyond firm-level performance metrics to assess structural and relational outcomes at the supply chain level; and

Place-based innovation strategies that link regional industrial strengths to national supply chain resilience objectives.

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The Innovation & Research Caucus

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## Acknowledgements

This work was supported by Economic and Social Research Council (ESRC) grant ES/X010759/1 to the Innovation and Research Caucus (IRC) and was commissioned by the ESRC. The interpretations and opinions within this report are those of the authors and may not reflect the policy positions of ESRC.

We would also like to acknowledge and appreciate the efforts of the IRC Project Administration Team involved in proofreading and formatting, for their meticulous attention to detail and support.

## About the Innovation and Research Caucus

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