

Research Paper No. 118

EXECUTIVE SUMMARY

October 2025

(full paper link: <http://enterpriseresearch.ac.uk/publications/erc-research-papers/>)

The impact of R&D and exporting on advanced technology adoption among UK SMEs

Jorge Velez-Ospina

National Centre for Universities and Business (NCUB)

jorge.velez-ospina@ncub.co.uk

Michael Breslin

National Centre for Universities and Business (NCUB)

michael.breslin@ncub.co.uk

The Enterprise Research Centre is an independent research centre which focusses on SME growth and productivity. ERC is a partnership between Warwick Business School, Aston Business School, Queen's University School of Management, Leeds University Business School and University College Cork. The Centre is funded by the Economic and Social Research Council (ESRC); Department for Business and Trade (DBT); Department for Science, Innovation and Technology (DSIT), Innovate UK, the British Business Bank and the Intellectual Property Office. The support of the funders is acknowledged. The views expressed in this report are those of the authors and do not necessarily represent those of the funders.

Published by Enterprise Research Centre (ERC)

© The Enterprise Research Centre 2024

EXECUTIVE SUMMARY

This paper examines the impact of simultaneous engagement in research and development (R&D) and exporting—termed dual engagement—on the adoption of advanced and emerging technologies (AET) among UK small and medium-sized enterprises (SMEs). The analysis is guided by three research questions: whether dually engaged firms are more likely to adopt AET than those engaged in neither activity; whether R&D or exporting contributes more strongly to adoption; and whether dual engagement delivers a synergistic effect beyond the sum of its parts. A further aim is to examine how these relationships vary over time and across firm characteristics such as size, sector, and growth orientation.

To address these questions, the study draws on 7,336 firm-year observations from the Department for Business and Trade's Longitudinal Small Business Survey. The empirical approach combines propensity score weighting to reduce selection bias with a control function strategy to account for endogeneity and reverse causality. Robustness checks are carried out using alternative weighting schemes, time-limited samples, and synthetic data created with machine learning.

Our findings show that dual engagement has a distinct and meaningful impact on AET adoption. Overall, being dually engaged increases the probability of adoption by 11 percentage points. This effect strengthened over time, reaching its peak in 2022, the final year of analysis. In 2022, we find that dual engagement increases the probability of adoption by 39 points. 2022 is also when the diffusion of generative AI technologies such as ChatGPT brought AET adoption into mainstream business practice.

The impact of dual engagement is unevenly distributed across the SME population. It is particularly pronounced among very small firms with 2–3 employees, larger SMEs with 60–250 employees, and businesses in high- and medium-technology manufacturing sectors. Growth-oriented firms and those receiving advanced external advice also benefit more strongly, underscoring the importance of absorptive capacity and organisational capability.

When the two components of dual engagement are considered separately, WR&D emerges as the primary driver of adoption, increasing likelihood of adoption by 26.5 percentage points. Exporting contributes more modestly, increasing likelihood of adoption by only 4 points. Additionally, we do not find evidence of a synergistic effect beyond the additive contributions of each activity. Instead, the results highlight that while exporting can provide access to new

markets and knowledge, it is R&D capability that equips firms with the absorptive capacity to integrate and exploit new technologies.

Overall, the study contributes new UK evidence on the joint role of R&D and exporting in shaping technology adoption. It demonstrates that R&D capability is the critical lever, with exporting acting as a complementary but secondary factor. These findings have clear policy implications. Strengthening SME R&D capacity through tax credits, grants, and collaborative networks, embedding technology adoption goals into R&D support, and complementing financial incentives with managerial and advisory support would provide the most effective means of accelerating AET adoption across the UK SME base.