

Improving Technology Transfer and Research Commercialisation in the Irish Food Innovation System



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Summary:

The process by which knowledge generated by publicly-funded research is transferred to industry – technology transfer – has been criticised as being inefficient and having limited success. Through extensive research, the process of technology transfer in the food sector is explored. Five key challenges were identified as important to improving the technology transfer process including: communication, industry capabilities, research capabilities, strategic management and socialisation.

Research Context

The scope of the project was developed through a series of focus groups with key stakeholders in the Irish food innovation system. The research explored various aspects of technology transfer between researchers and industry. These included (i) the level, nature and extent of interaction between academic researchers and industry, (ii) the motivation of researchers and industry towards involvement in technology transfer (iii) the barriers to technology transfer and (iv) measures of effective technology transfer.

324 academic researchers and 267 companies were invited to participate in a survey of technology transfer activity. A response rate of 46% was obtained from the academic researchers, equivalent to 149 completed surveys and a response rate of 25% was obtained for businesses, 67 surveys. Complementing these surveys, an additional 20 case studies of publicly-funded research projects were undertaken for the purpose of obtaining a greater understanding of the micro-level factors that affected and influenced transfer of technology from the publicly-funded arena to the commercial sector.

Key Findings

(i) Level, nature and extent of interaction

Companies use a variety of external organisations to provide them with knowledge for their innovation activities. However, these organisations are more likely to be other companies such as suppliers, customers or consultants rather than public research providers. This is significant because, while public research is important and has attracted considerable public sector funding in recent years, perception of the potential importance of this as a source of knowledge is quite low.

Researchers with previous technology transfer experience are more likely to have relationships with industry. Further, these researchers regard researcher-industry relationships as being long-term with high levels of interaction, typically complimented by good personal relationships.

(ii) Motivation of researchers and industry towards involvement in technology transfer

Industry professionals interact with researchers mainly to access new ideas and technologies, achieve technical development of their own staff, and access government funding for company R&D activities. As such, industry regards public research as a strategic resource.

The main reasons researchers interacted with industry included gaining insight into scientific research, promoting the diffusion of research findings and securing funds for future research. Personal financial incentives were not important but instead 'personal satisfaction' and seeing an 'end commercial product' were primary motivators for those who had achieved technology transfer previously. Additionally, they were motivated by building 'links with industry' and believed the work to be

'interesting' while also feeling a 'sense of commitment' to the research itself.

(iii) Barriers to technology transfer

For industry professionals, the main barriers to engaging with public science researchers were perceived high levels of R&D budget required for collaboration, the perceived limited commercial application of publicly-funded research, and limited commercial awareness of researchers.

For researchers, the main barriers were: not enough time, lack of information regarding company research activities and low R&D budgets within industry. These barriers emphasise the need for researchers to play a more active role in their interaction with industry and to improve commercial awareness and develop skills amongst researchers.

(iv) Effective technology transfer

A number of factors were identified to influence the success of technology transfer. First, industry involvement throughout the research process increased the probability of successful technology transfer. Second, the biggest difference in responses between those who did and those who did not have successful technology transfer was in relation to research projects that arose from a market opportunity validated by industry. In this context, projects aimed at a specific end-user were much more likely to succeed. Projects based on generic research and applicable at the macro- or sector-levels had a slightly lower probability of success. Yet, these projects are potentially significant and it may be suggested that they require greater involvement and direction by industry and policy in the formulation of the research idea, the research process and particularly, at the technology transfer stage.

Recommendations

Five key challenges for effective technology transfer were identified in the context of the Irish food innovation system.

1. **Communication:** There is a need for increased and improved communication and interaction between researchers and industry.
2. **Industry capabilities:** Industry needs to develop capabilities to make strategic use of and leverage publicly-funded research while research organisations need to recognise the diversity of capabilities that exist within the industry.
3. **Enabling researchers:** There is a need to enhance organisational supports in public science providers to enable technology transfer and industry collaboration.
4. **Strategic management:** There is a need for increased strategic management of research project programmes.
5. **Socialisation:** The significant boundaries between the public researcher and food industry communities that inhibit knowledge sharing, collaboration and, ultimately, technology transfer, need to be reduced.

In addition to these recommendations a series of toolkits for researchers were developed to assist in management of research to achieve technology transfer (www.dit.ie/toolbox).

About us

The InterTradeIreland All-Island Innovation Programme - Community of Researchers is an initiative to bring together academics, postgraduate students, policy makers and business people who are interested in innovation in Ireland. We aim to 'create a virtual community to strengthen innovation studies research in Ireland and its contribution to strategy, practice and policy.' This research briefing series is one way of achieving this aim along with meetings, workshops and postgraduate research awards.

For more information about the InterTradeIreland All-Island Innovation Programme and the Community of Researchers visit www.intertradeireland/all-island-innovation-programme/ or you can contact Bernadette McGahon on 028 3083 4168 (048 from Ireland).



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