



Innovation in the Irish Agri-food Sector: The role of external knowledge sources

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Agenda



- Agri-food innovation in the national agenda
 - How are we doing?
 - What are we doing to improve it?
 - Conclusions
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- Why is this relevant to you?

RDI in the agri-food sector high on Irish agenda

FoodWise 2025

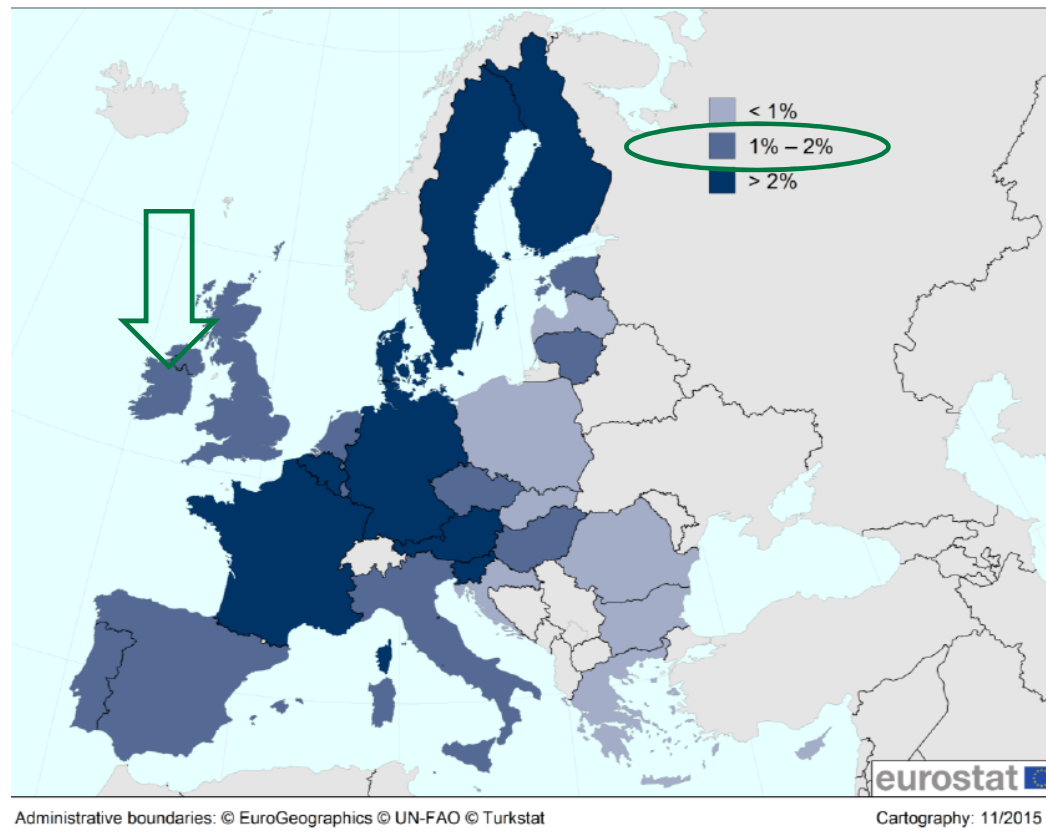


SHARP

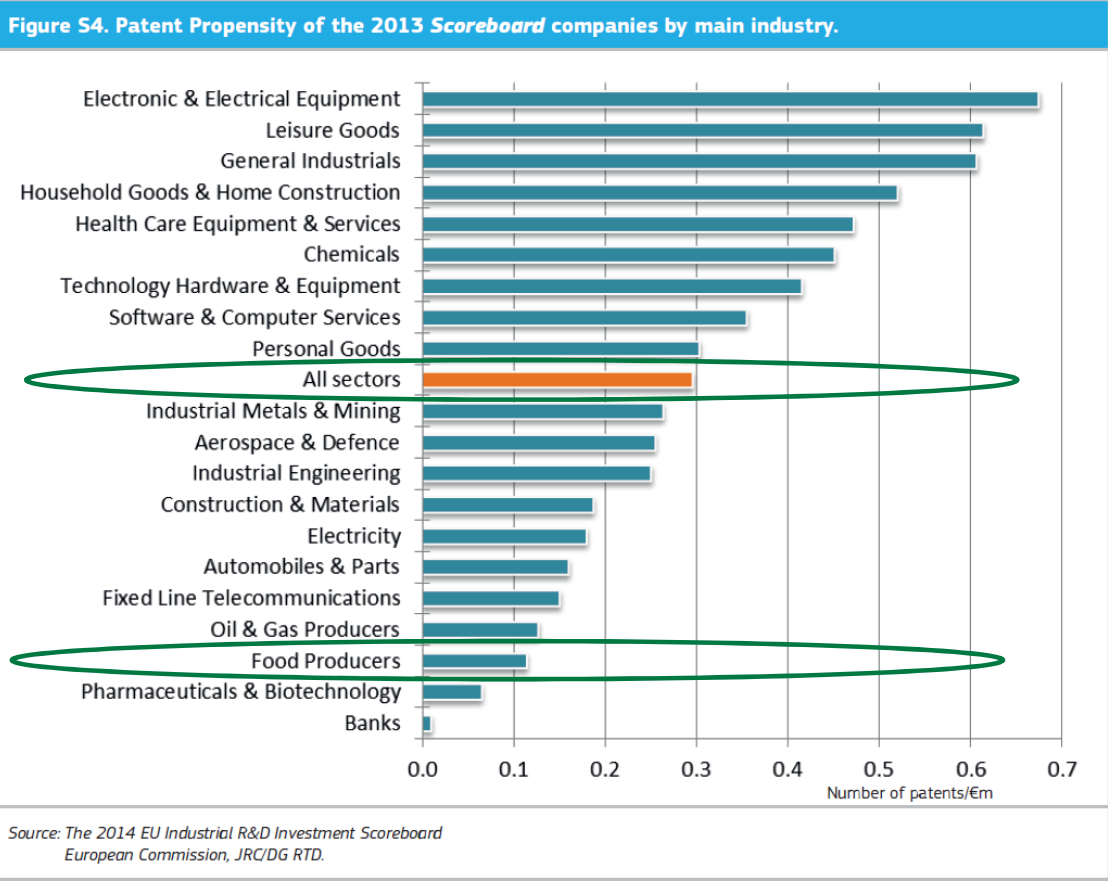


How are we currently performing?

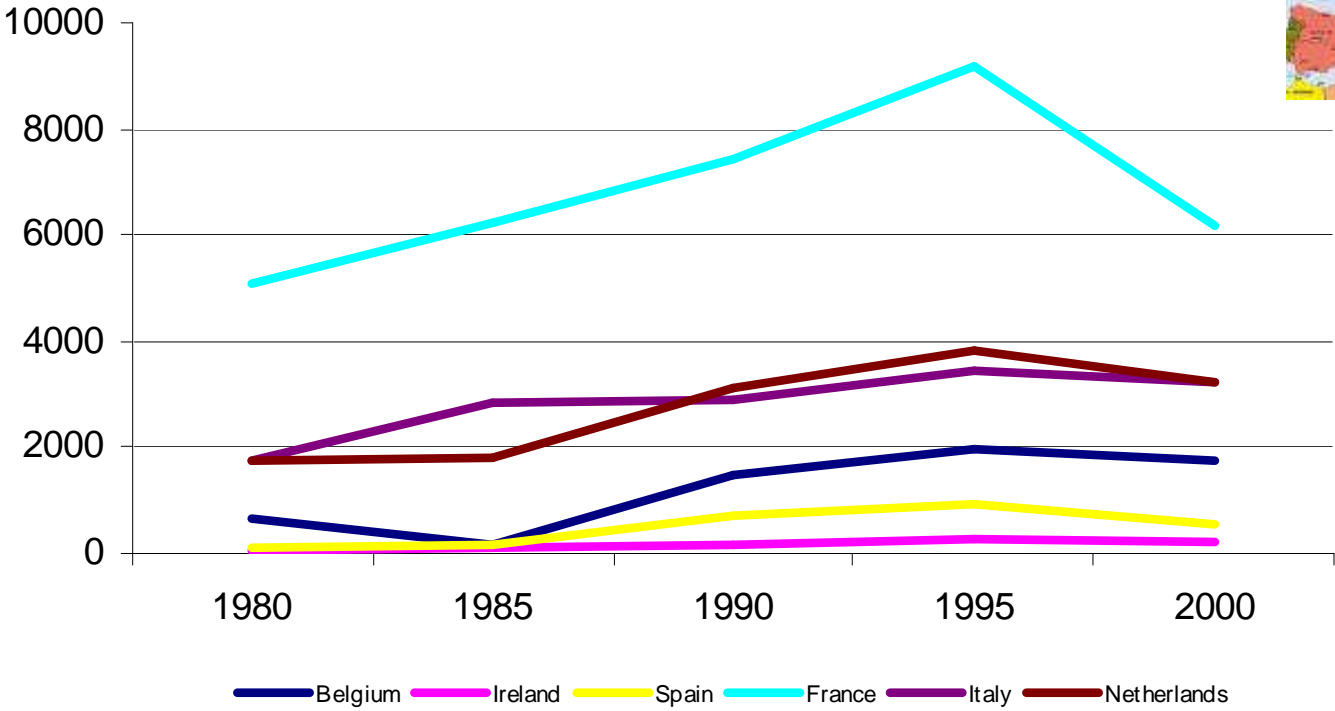
R&D intensity in the EU Member States, 2014



Food vs other sectors



Food patents in Europe



Traditional measures

- Easy to measure, and internationally harmonised
- Do not consider **outputs** or whether original innovation objective achieved
- Spending more on R&D can produce more patents, BUT more patents **does not necessarily mean more growth or profitability**
- Exclude other innovation inputs**, i.e. R&D investment is not the only expenditure contributing to innovation in the food sector
- May result in **unfair comparisons across sectors**
- May not take account of the **types of innovations that contribute most directly to the real performance** of the sector



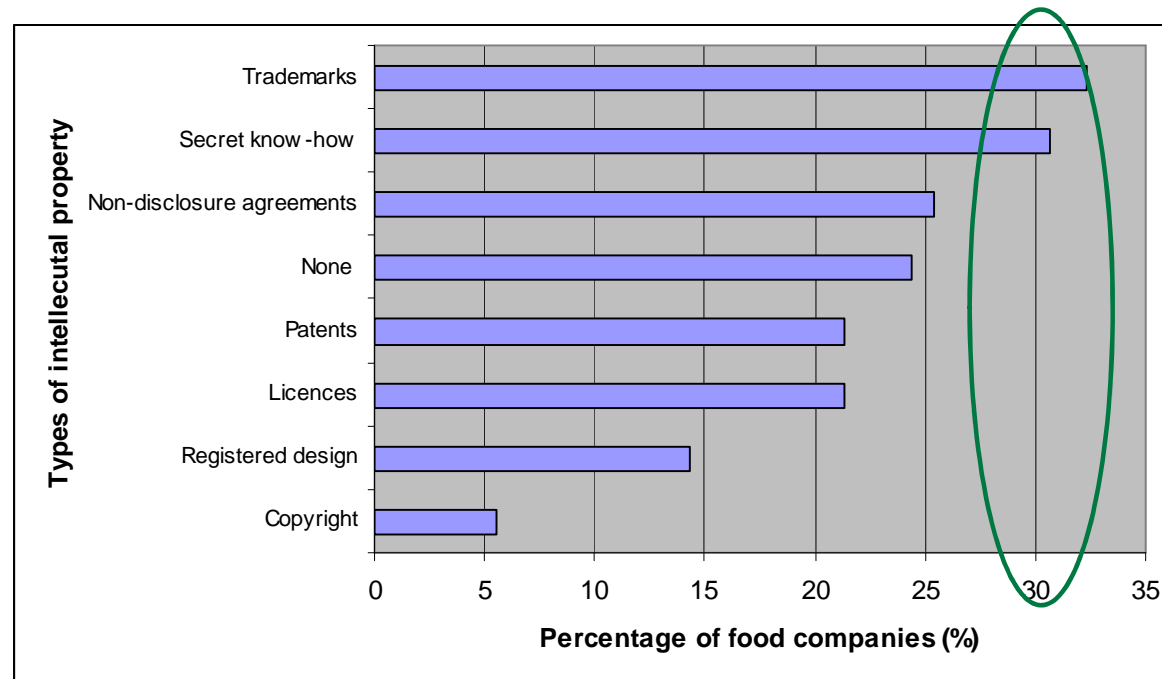
What other measures could be used?

- Use measures focused on outputs
- Broader scope of measures, e.g. include measures of organisational innovation
- Consider other input measures, e.g. equipment and capital goods investment
- What measures contribute most to performance in YOUR sector?



Traditional measures of innovation...

IP counts in Irish food companies

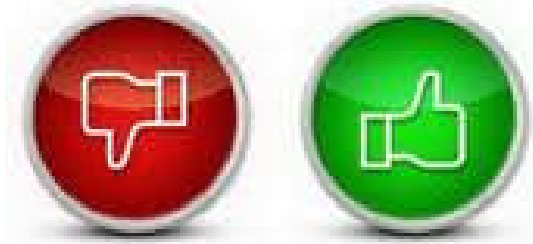


Source: Kavanagh, Henchion and Williams, in press

Measures focused on outputs of innovation

	<i>n</i> (%)	New to company <i>n</i> (%)	New to industry <i>n</i> (%)
Product Innovation	99 (78.0)	87 (68.5)	53 (41.7)
Process Innovation	67 (53.8)	61 (48.0)	19 (15.0)
Packaging Innovation	72 (56.7)	63 (49.6)	26 (20.5)
Marketing Innovation	53 (41.7)		
Distribution Innovation	34 (26.8)		
Raw material supply Innovation	53 (41.7)		
Organisation Structure Innovation	60 (47.2)		
Work Practice Innovation	70 (55.1)		

Is the Irish Agri-Food Industry Innovative?



What are we doing to become more innovative?



What we are doing

- ❑ Leveraging strategies to access knowledge externally, i.e. open innovation strategies
 - ❑ Licensing in
 - ❑ Outsourcing R&D
 - ❑ Inter-organisational cooperation
 - ❑ Corporate venture capital investments

- ❑ Implies developing relationships with different types of organisations which may be **firms** (suppliers, customers, competitors, etc.) or **non-firm entities** such as universities, schools and government ministries as well as not-for profit organisations



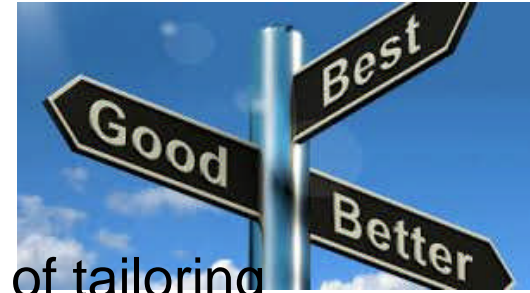
Novel, emerging strategies



❑ Crowdsourcing

- ❑ Collective brainstorming
- ❑ Using collective knowledge of a crowd to develop an Smartfood Smartphone app in Univ. Ulster study
- ❑ EFSA 2016 issued tender for external contractor to undertake a scoping exercise on food and feed risk assessment using crowd sourcing tools
- ❑ Quality and validity issues as well as time etc. required to sift through ideas and concepts

Issues to consider



- ❑ Nature of knowledge, exclusivity, level of tailoring
- ❑ Time frame/time to market
- ❑ Level of investment/cost
- ❑ Rate of development of technology/stage of innovation
- ❑ Impact on core competency/innovation strategies
- ❑ IP issues
- ❑ Culture and cultural differences
- ❑ Impact on short and long term innovation performance

€20m Investment Creates New Dairy Hub in Middle East and Africa



Research and Technology Centres

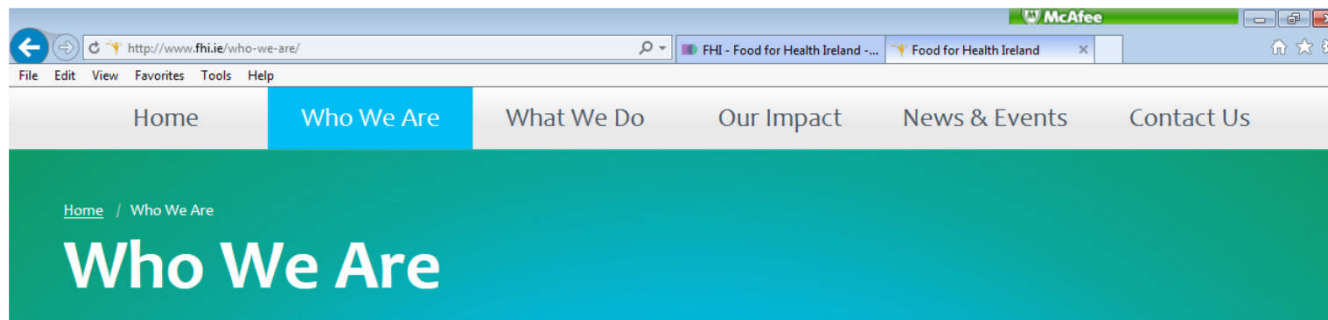
- ❑ Partnerships between knowledge providers and industry
 - ❑ follow industry-driven research agenda, supported by national funding
 - ❑ 6 themes
 - ❑ ICT
 - ❑ Health and medical technology
 - ❑ Sustainable Food
 - ❑ Energy
 - ❑ Manufacturing and materials
 - ❑ Innovation in services and business processes
 - ❑ 33 centres
 - ❑ FHI (Food for Health Ireland)
 - ❑ DPTC (Dairy Processing Technology Centre)
- http://www.knowledgetransferireland.com/Research_in_Ireland/Director-y-of-Research-Centres-and-Technology-Centres/



Food for Health Ireland (FHI)



- ❑ “Food for Health Ireland (FHI) unites world-class science and industry expertise to improve health through innovation in food. Its purpose is to identify novel ingredients coming from milk to develop functional food ingredients that will offer health benefits to consumers”.
- ❑ The FHI approach is to work with Irish food industry partners and in close connection with scientists. FHI has built a unique bridge between high-class research organisations and industry needs.
- ❑ FHI also provides a contract research facility for small and large global food companies utilising our competencies, resources and technologies. This service provides a gateway to academic research in Ireland and supports open innovation. FHI has completed over 30 projects of this kind since 2008.



Who We Are
Our Story
Our Process
Meet the Team
Work With Us
Our Partners
Our Target Health Areas

Who We Are

Established in 2008, Food for Health Ireland (FHI) is one of the biggest technology centres in Ireland and its purpose is to identify novel ingredients coming from milk to develop functional food ingredients which will offer health benefits to consumers. The research is focusing on infant nutrition, healthy cheese, appetite modulation, performance nutrition and healthy ageing as well as products that can be used to manage elevated glucose levels.

Our Vision

To be a leading global innovation centre for the development of nutritional functional ingredients for improved health, wellness and quality of life.

FHI is about

- Excellence in science to improve health, wellness and quality of life
- Successful commercialisation of scientific results
- Promotion of Ireland Inc to the global food industry

FHI Team and Funding

FHI has a multidisciplinary team of 75 scientists. This includes experts in 7 major Irish public research organisations (UCD, UL, DCU, UCC, NUI Maynooth, NUI Galway and Teagasc), and a management team based in University College Dublin. FHI entered its second phase of research in September 2013 and through Enterprise Ireland €16M will be invested, with the remaining €5M being provided by the companies involved in the research centre; Carbery, Dairygold, Glanbia, the Kerry Group, and Ormua.

Dairy Processing Technology Centre



- ❑ The Dairy Processing Technology Centre (DPTC) is an industry–academic collaborative research centre, hosted by the University of Limerick, with a research agenda driven by the long-term growth opportunities for the dairy sector created by the removal of milk quotas in 2015.
- ❑ The foundation of the DPTC is a strong, long-term industry–academic collaborative partnership that will develop, build and translate the knowledge and capabilities in dairy processing that are needed today and for the long-term growth development of the sector.
- ❑ The Dairy Processing Technology Centre (DPTC) is an industry–academic collaborative research centre, hosted by the University of Limerick, with a research agenda driven by the long-term growth opportunities for the dairy sector. The centre is funded by Enterprise Ireland and the Dairy Industry Partners.

DPTC

- 9 Research Performing Partners
- 8 Dairy Industry Partners



Two ministers, a company chairman and a CEO.....



Some challenges

- Agreeing an research agenda
- Devising a way to work together
- Determining allocation of rewards
- Agreeing appropriate contributions
- Intellectual property ownership
- Cultural issues



But significant benefits from national to individual level

- Radical innovation
- Improved research commercialisation
- Reduced risk
- Reduced cost
- USP
- Reputation



Conclusion



- The agrifood sector is important to Ireland
- Innovation is seen as fundamental to its ongoing competitiveness and regardless of how measured we want to improve
- Significant commitment by government and industry
- Lot of ground work to develop trust and open channels of communication
- Leveraging of synergies and embracing of open innovation
- All the expertise is not in-house... so an evolving story!
 - Moving beyond the food sector
 - ICT, Big Data, Smart agriculture, IoFT
 - E-health and personalised nutrition and health

- Advantage of being a small country...?

- What type of innovation is important/relevant for you/your sector?
- Can you do it alone? How can you work with others to achieve it?

Céad míle fáilte agus bain taitneamh as bhúr gcúirt!

