



# An Overview of the Irish Biotechnology Sector & its Position within the Atlantic Area

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# Presentation Overview

- Introduction to the Biotech Sector
- Needs and Barriers within the Biotech sector
- Overview of Share Biotech Project
- Results



NUI Galway  
OÉ Gaillimh

Networks as Knowledge - Biotechnology  
Networks in the Atlantic Area, August 25,  
2011





# Overview

- Biotechnology - broad sector
- Offers 'technological solutions for many of the health and resource-based problems facing the world
- Application of biotechnology to primary production, health and industry - "bioeconomy"
  - biotechnology contributes to a significant share of economic output
- Targeted by many regions and nations - industry with the highest potential in the twenty-first century
- Bioeconomy to emerge - understand the needs & barriers to the growth & development of biotech activities



# Needs & Barriers to R&D – An OECD Perspective

- Needs (OECD, 2009):
  - Creation of new biotechnology companies & academic spin-offs invest highly in R&D and IPR
  - Technology convergence - the increased use of biotech within established industries
- Barriers (OECD, 2009):
  - Financial & human capital burden for companies engaging in the constant R&D process required to remain commercially viable
  - The difficulty in accessing state of the art technology
  - Lack of management knowledge (inherent in all young industries)
  - Difficulties in working with more established industries in bringing products through the R&D pipeline.





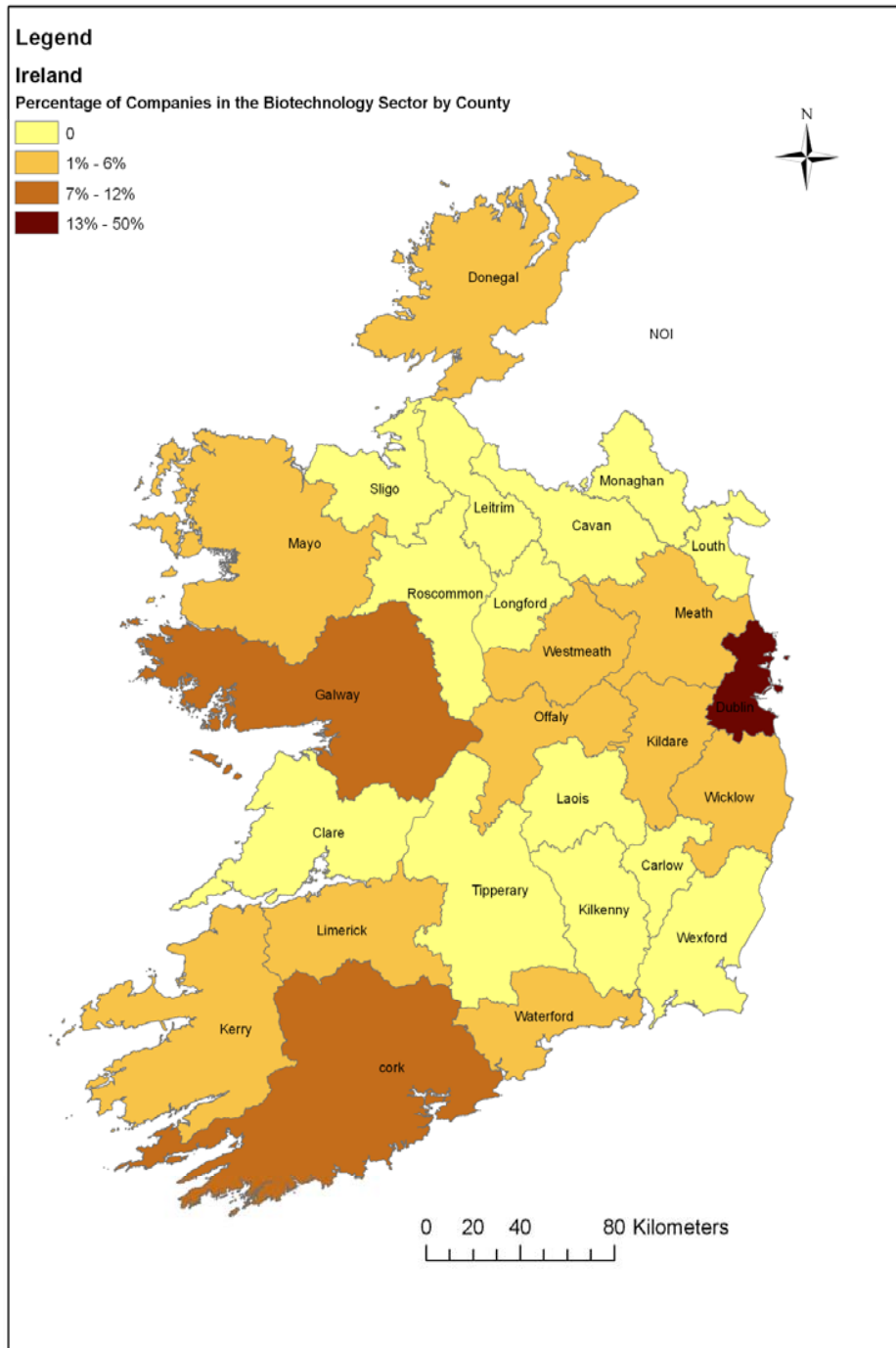
# Share Biotech Project

- ShareBiotech – Atlantic Area cooperation project to promote transnational networks of innovation and entrepreneurship within the biotechnology sector
- Aims:
  - The establishment of a network of public /private scientific infrastructures to increase technical and knowledge transfer in the sector
  - Giving access to technologies by providing aggregated services in terms of infrastructures and competencies – Technology Core Facilities
  - Engaging public/private scientific enterprises in collaborative research
- Establishment of this network
  - Strengthen the contribution of the biotechnology sector across the regional economies in the Atlantic Area and;
  - Help overcome some of the identified needs and barriers to R&D within the sector.



# SBT Project

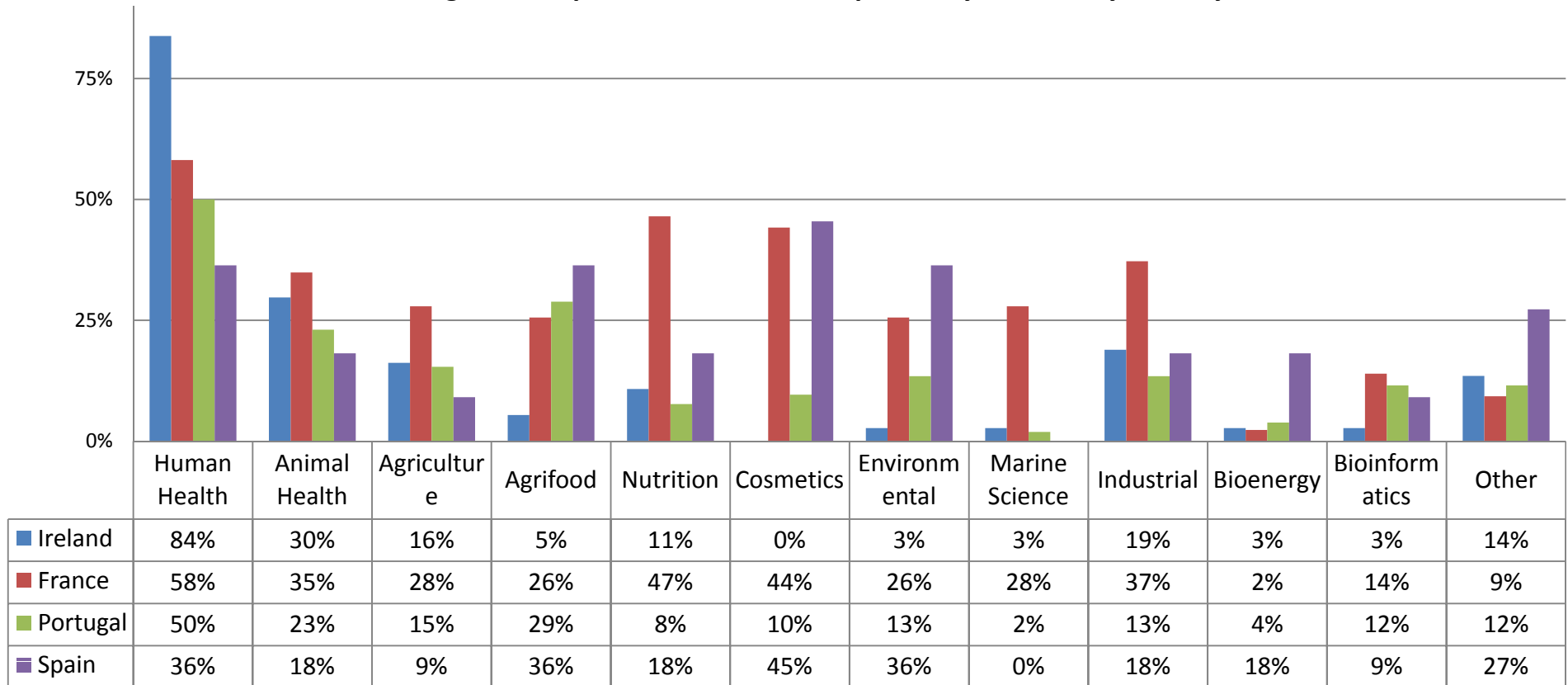
- Four Partner Countries:
  - Ireland, France, Spain & Portugal
- Initial task - assess whether the competencies and infrastructures demands of both research groups & firms are currently being met
- A survey was developed & administrated
- 143 biotechnology companies were surveyed.
  - 43 French companies, 37 Irish companies, 52 Portuguese companies and 11 Spanish companies.
- This presentation presents a profile of the Irish biotech sector & it's position within the Atlantic area



## Spatial Distribution of Biotech Sector in Ireland

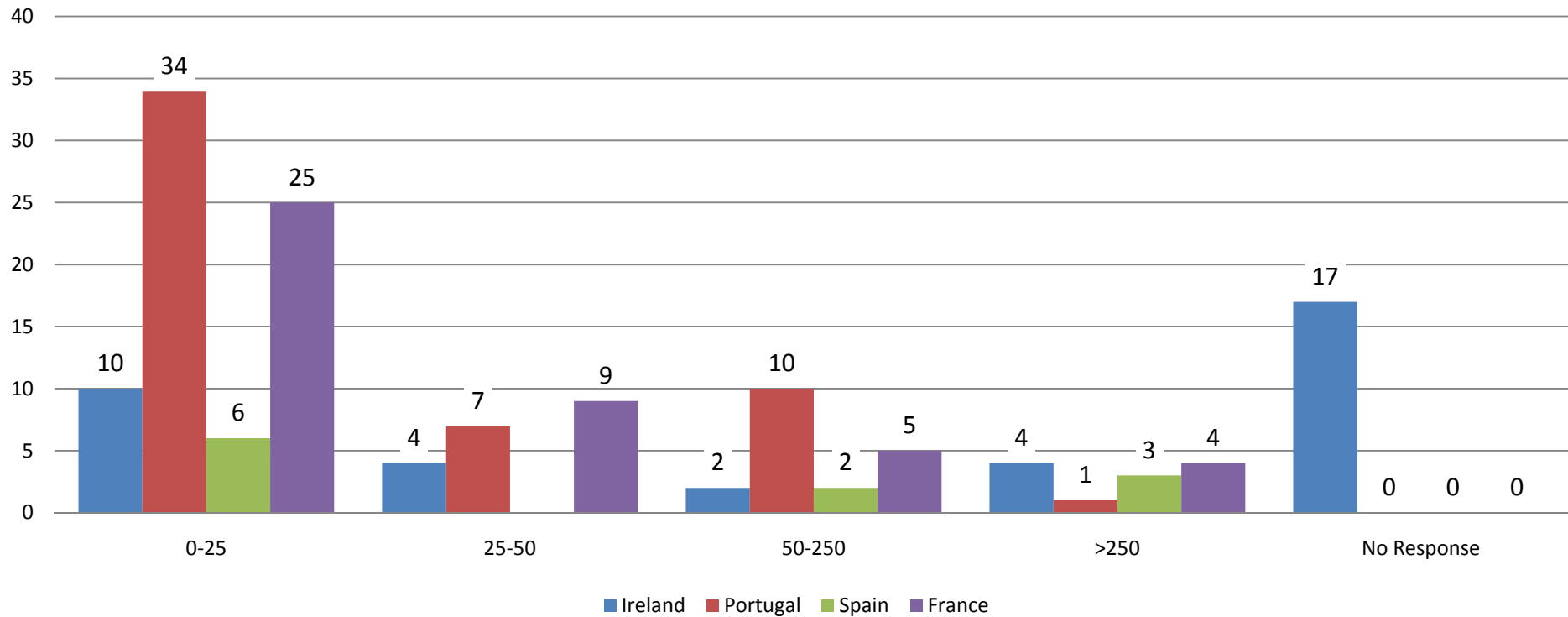
- 50% of Sector is located in Dublin
- Urban Dominance – Cork & Galway

Percentage of Companies of Biotech companies by Domain by country



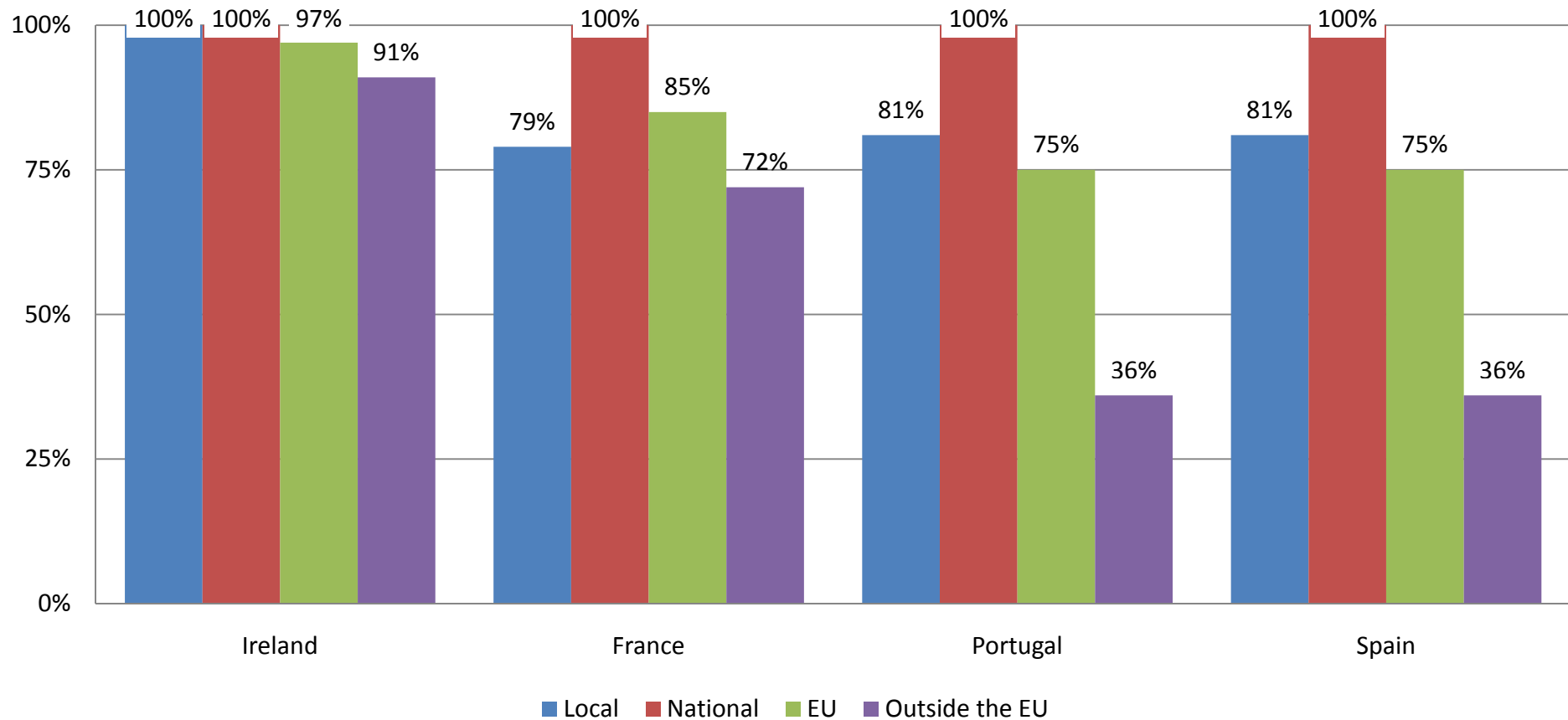
- Both in Ireland & across the SBT partnership the greatest number of biotech companies are involved in the health domain.
- OECD 2030 (2009) foresight document – potential economic contribution is greatest in the industrial sector (39%), with agriculture and health providing 36% and 25%, respectively.
- Mismatch between current biotech activity & R&D
- Costs of accessing R&D, regulatory issues, public perception????

## Number of Companies by Employment Size by Country



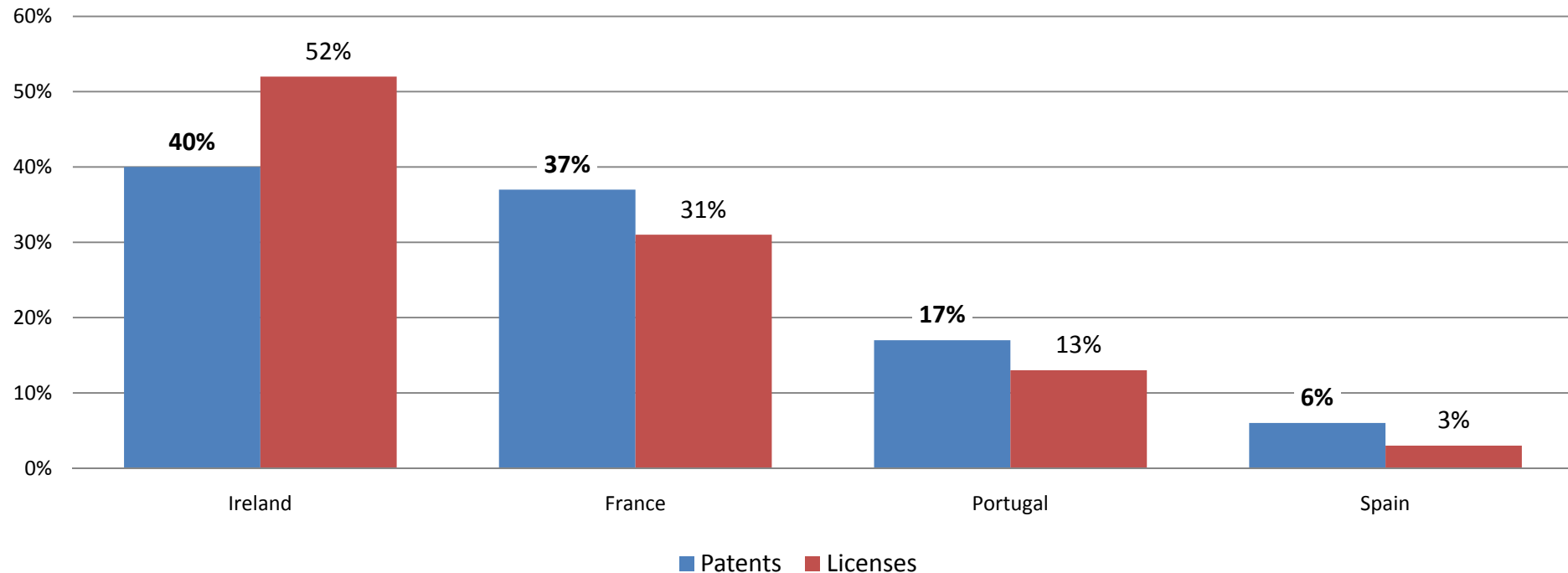
- Most Irish Biotech companies – SMEs (less than 25 employees)
- Similar pattern across SBT projects
- Ireland - High percentage in 250+ category – pharma industry

## Market Orientation



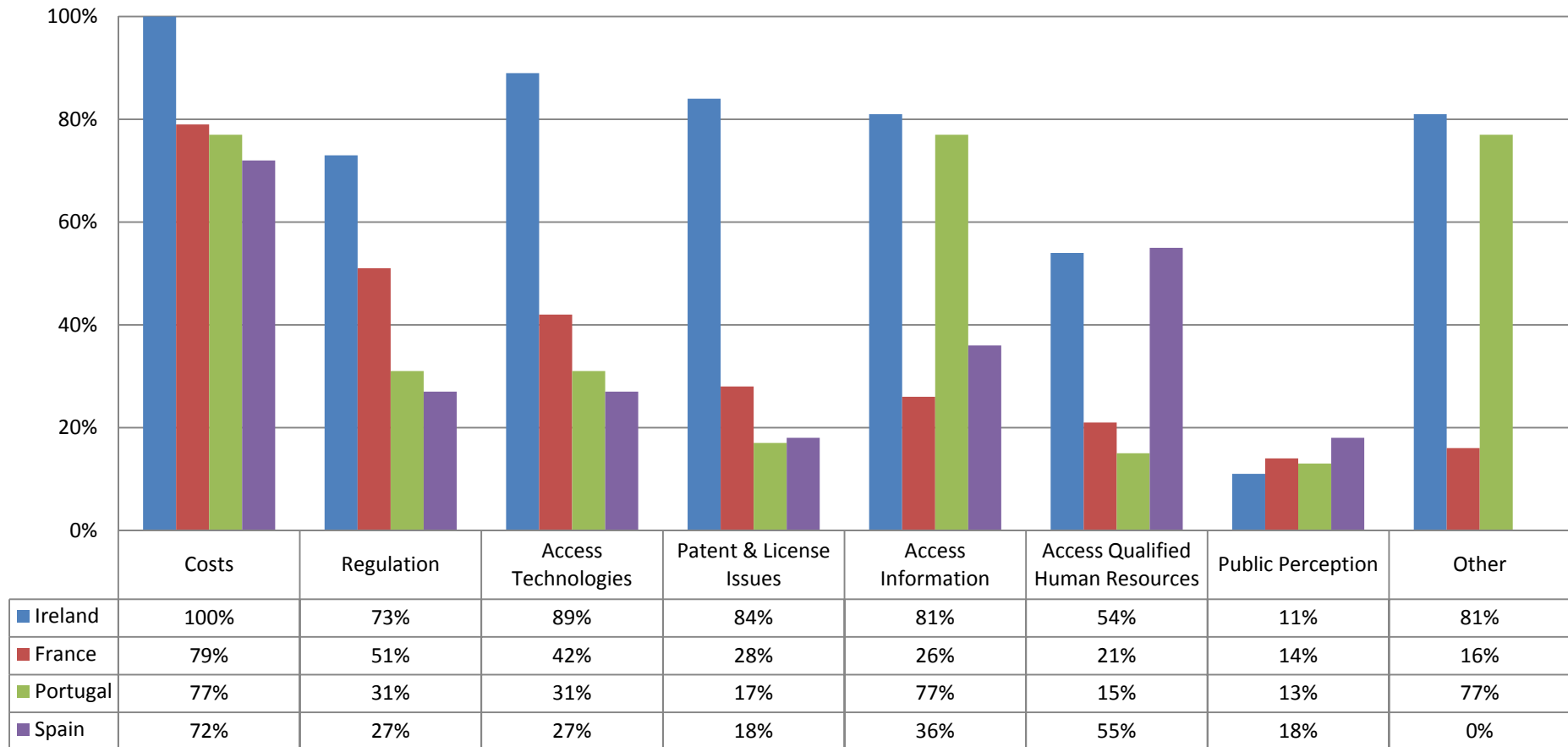
- Studies on SMEs operating in high tech markets have indicated that foreign market knowledge is of critical importance to the viability of a high tech sector
- Ireland small, open economy – historically high levels of exports
- Of the 4 SBT countries Ireland has the highest percentage of external trade
- Knowledge transfer between sectors??? Role of Government Agencies???

## Percentage Share of Patents & Licenses across the SBT Region



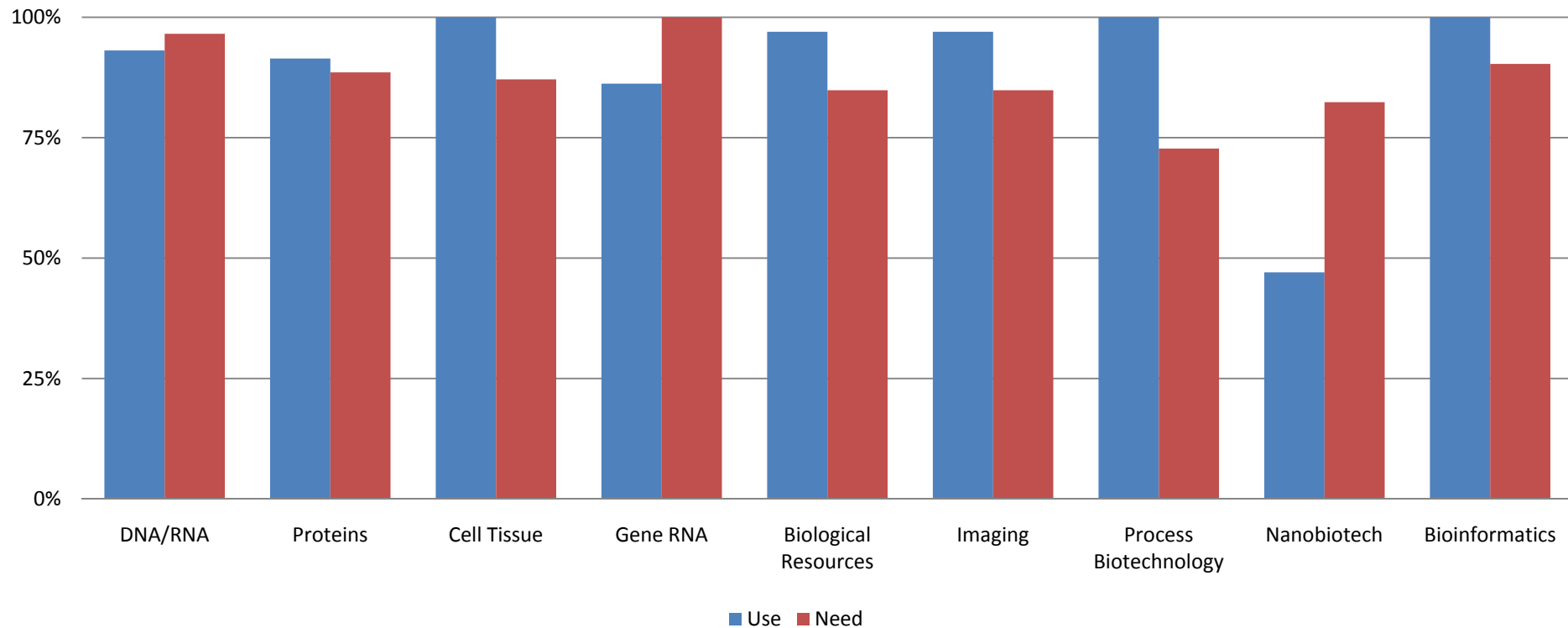
- Patents – indicator of innovation - ‘Patent and Prosper’
- Ireland has the highest percentage share of patents and licenses across the four SBT countries
- Stated resource constraints may hinder patent/license applications
- Potential for patent pools and research consortia

## Stated Barriers to R&D Activity in the Biotech Sector



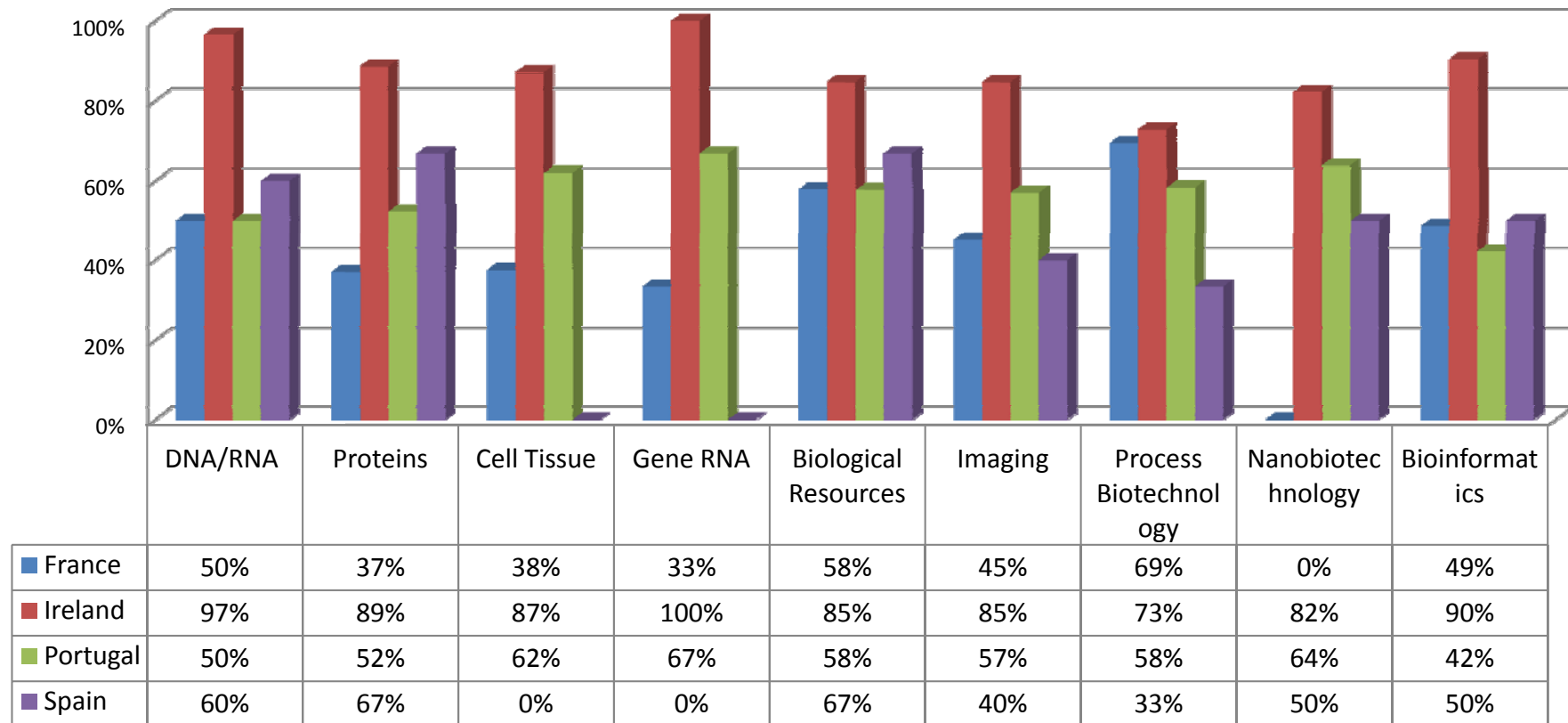
- 100% of Irish Biotech companies stated that the costs of accessing R&D is the greatest barrier to R&D
  - Similar to SBT partners
- Irish companies – highest stated barriers in all sectors except HR & public perception
- Other factors, access to technologies and information, plus regulation

Percentage of Companies that Use/Need Biotech Techniques in Ireland

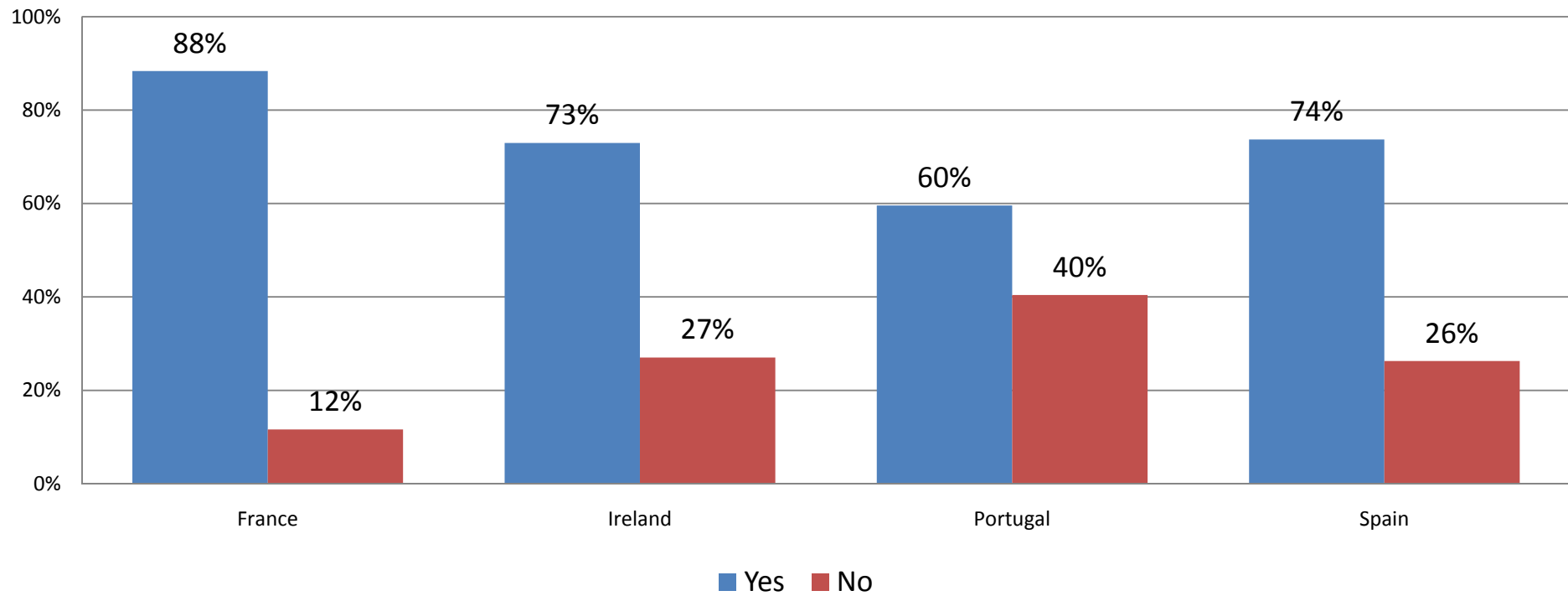


- These barriers have led to stated needs across a number of techniques in which Irish biotech firms are active
  - DNA/RNA
  - Gene RNA
  - Nanobiotechnology

## Biotechnology Technique Needs by Country



- Within the context of the SBT project, Irish companies have the highest stated needs across all biotech techniques.



- Studies indicate that firms in high tech sectors use networks to overcome resource constraints
- Irish companies have the second lowest level of network participation across the SBT project
- Given the importance of networks in overcoming barriers to resource limitations in the biotech sector and the Irish companies high level of stated barriers
- Incentive for increased role of networks
  - Public infrastructures - making network based funding and specialized network coordinators available.



# Conclusions

- In terms of market orientation & IPR Irish companies are 'market leaders' within the Atlantic area
- Irish biotech companies indicated that the cost of conducting R&D combined with accessing technology & the current regulatory environment – barriers to R&D
- Irish companies also have the highest stated needs across all techniques across the project partners
- Network participation – a critical means of over-coming resource constraints - is lower than in France & Portugal
- SBT project - play a clear role in developing network participation & providing access to technology through collaboration & TCFs to help overcome current needs within the within the Irish Biotech sector

