



## Addressing the Future Skills Needs of the Biopharma-Pharmachem Sector in Ireland

November 2010

# Study Objectives



## Objectives:

- Identify structural trends and drivers of change that will have greatest impact on numbers employed and skills requirements during 2010-2015
- Determine implications of those trends for employment, skills requirements, and industry demand
- Assess whether the current skills supply framework can satisfy those requirements.

Steering Group Members	
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Dave Shanahan, IDA	Anita Maguire, UCC
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John Nason, Bristol Myers Squibb	Ailish Forde, Forfás
Michael O'Brien, Pfizer	Aisling Penrose, Forfás
Matt Moran, PharmaChemical Ireland	
Michael Gillen, Irish Bioindustry Association	

# Sector Profile



- Exports: €42 billion (2009)
- Employment: 25,300 (2009)
- Indirect employment: 24,000 (2009)
- Corporation tax contribution: > €1 billion (2008)
- Highly skilled labour force – educational attainment levels higher than national average
- Workforce concentrated in 25-44 age group
- Greater proportion of males than females in labour force – 60% male, 40% female

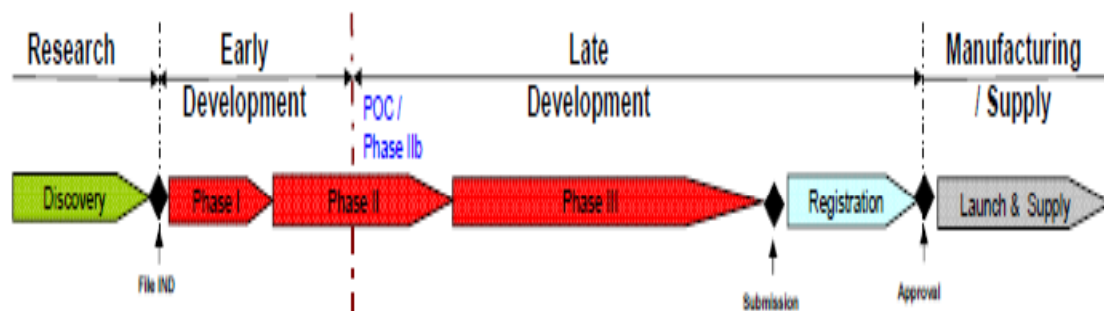
# Drivers of Change (industry interviews)



## Response to Changing Market (Industry Interviews)

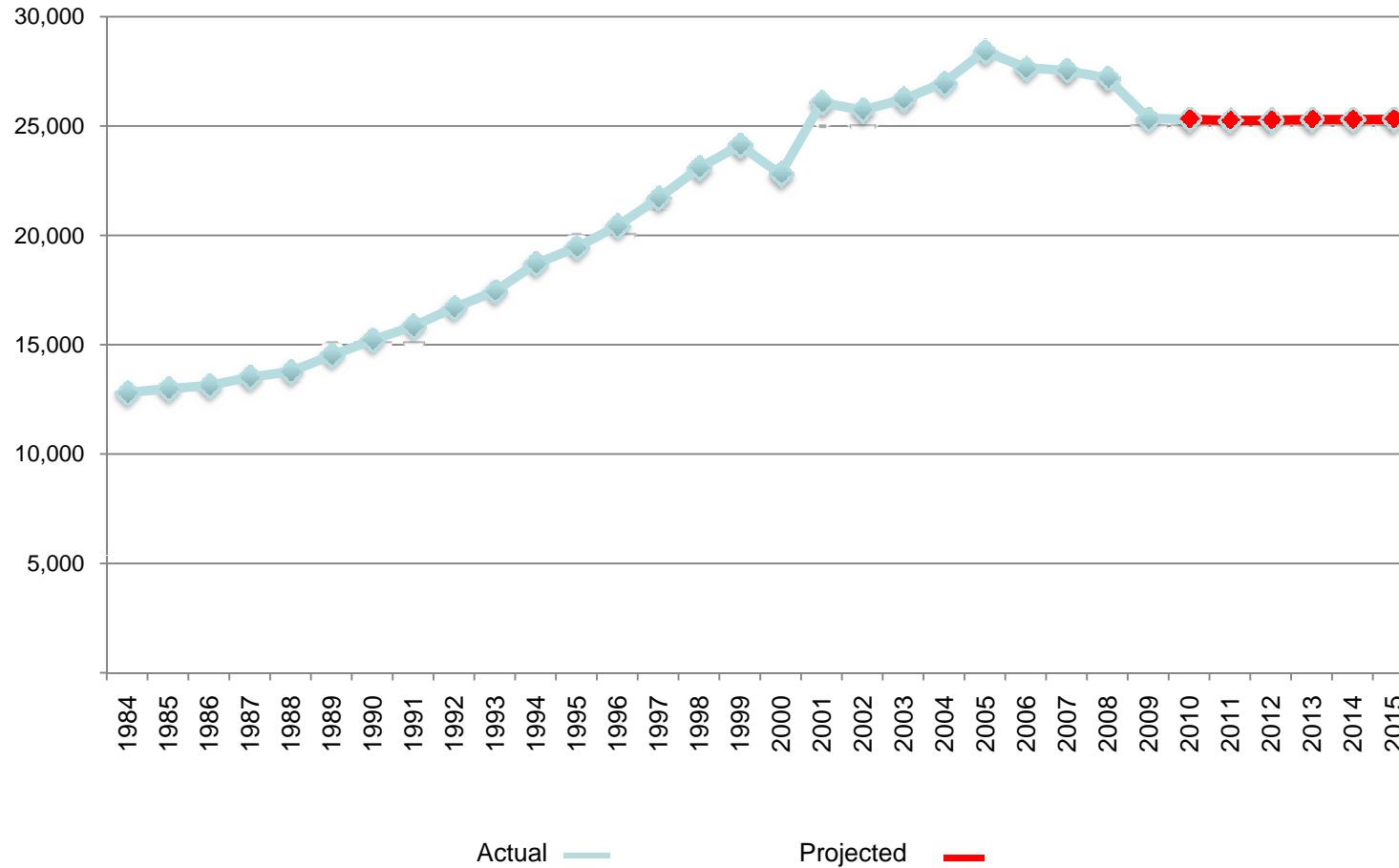


- **Traditional industry model of large volume manufacturing changing**



- **New model calls for innovation and diversification:**
  - Integrating late stage development (process optimisation, scaling-up of existing product, registration) with manufacturing and supply
  - Headquarter activities and commercial services
  - A partnership approach with health services
  - Clinical trials
  - Move to personalised medicine and niche products including biologics, OTC products
  - Innovation in delivery mechanisms such as self-injecting pens
  - Converging products – IT, medical devices
  - Contract research and manufacturing
  - Increased efficiency and speed to market

# Employment forecast 2010-2015

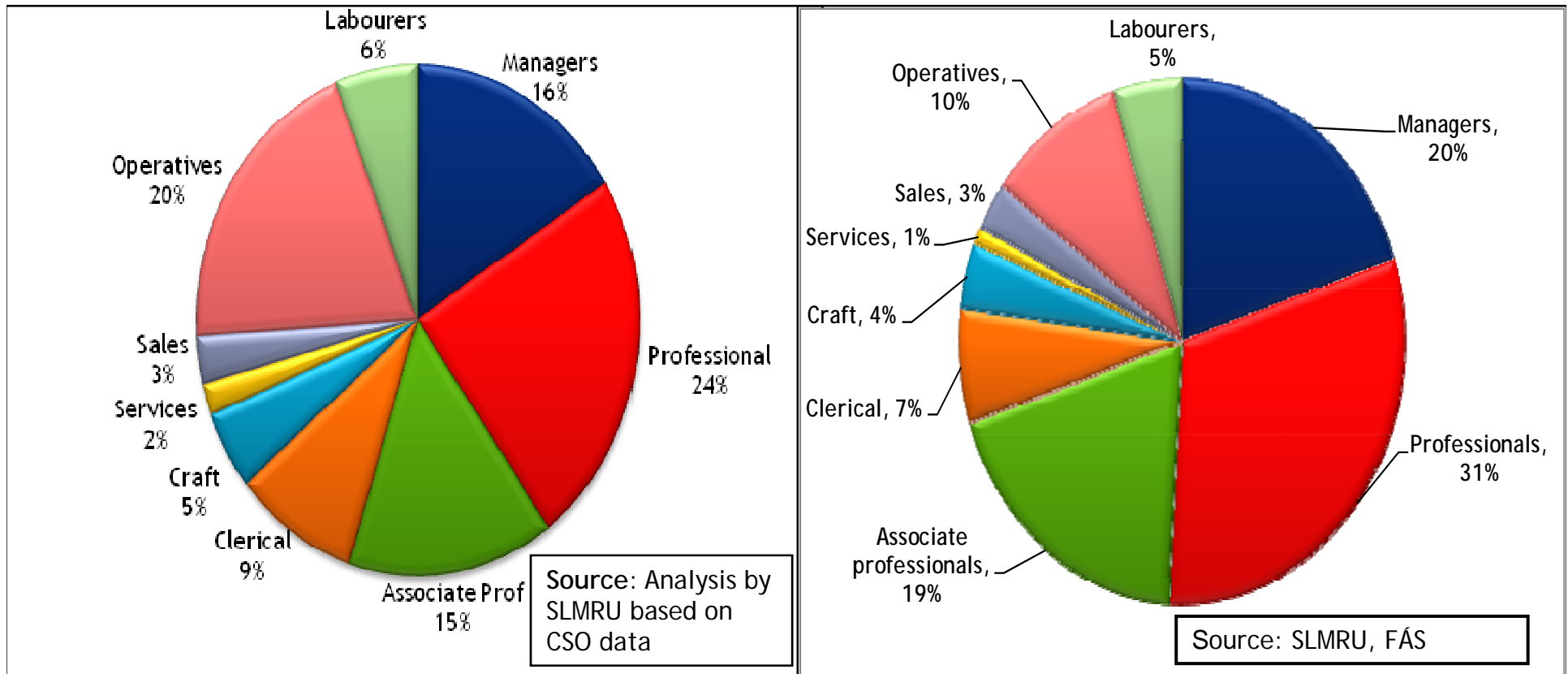


# Occupational Profile 2009 vs 2015



2009

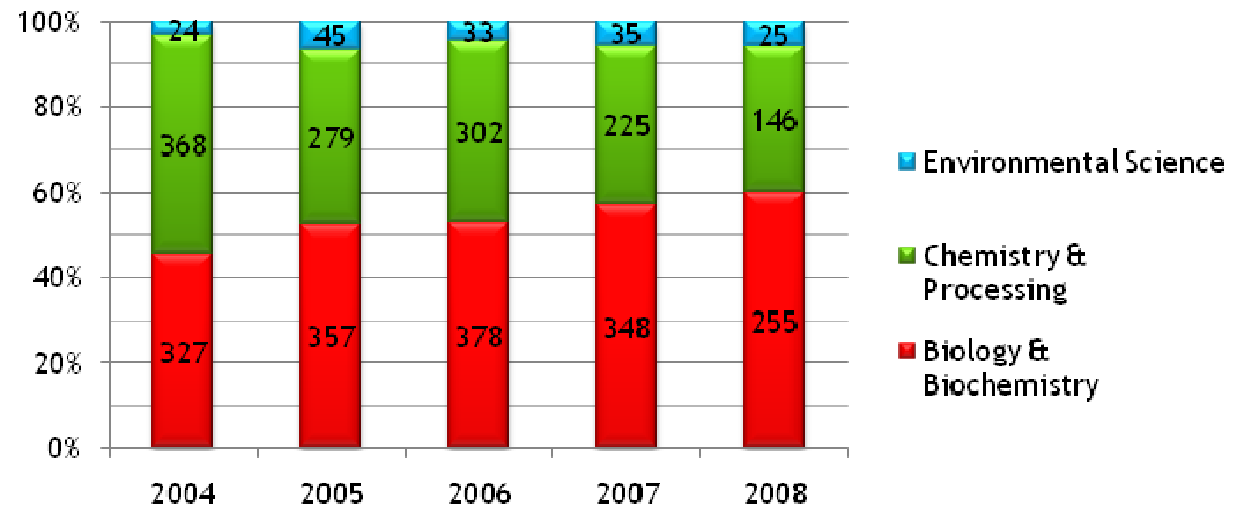
2015



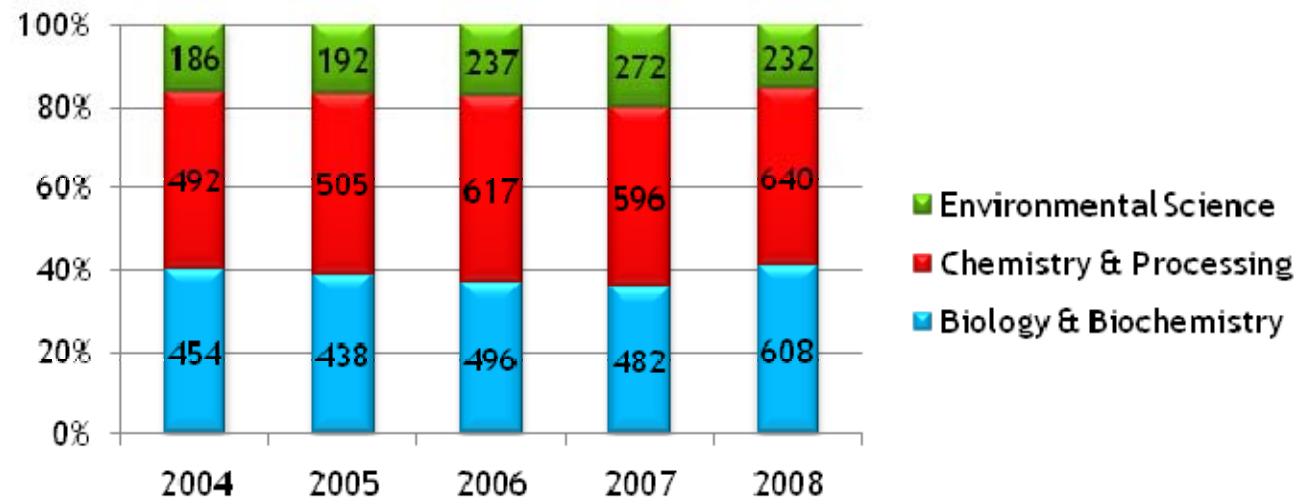
# Graduates in Biopharma-Pharmachem Subjects



Level 6/7 Graduates for Biopharma-Pharmachem Subjects, 2004-2008



Level 8 Graduates for Biopharma-Pharmachem Subjects, 2004-2008

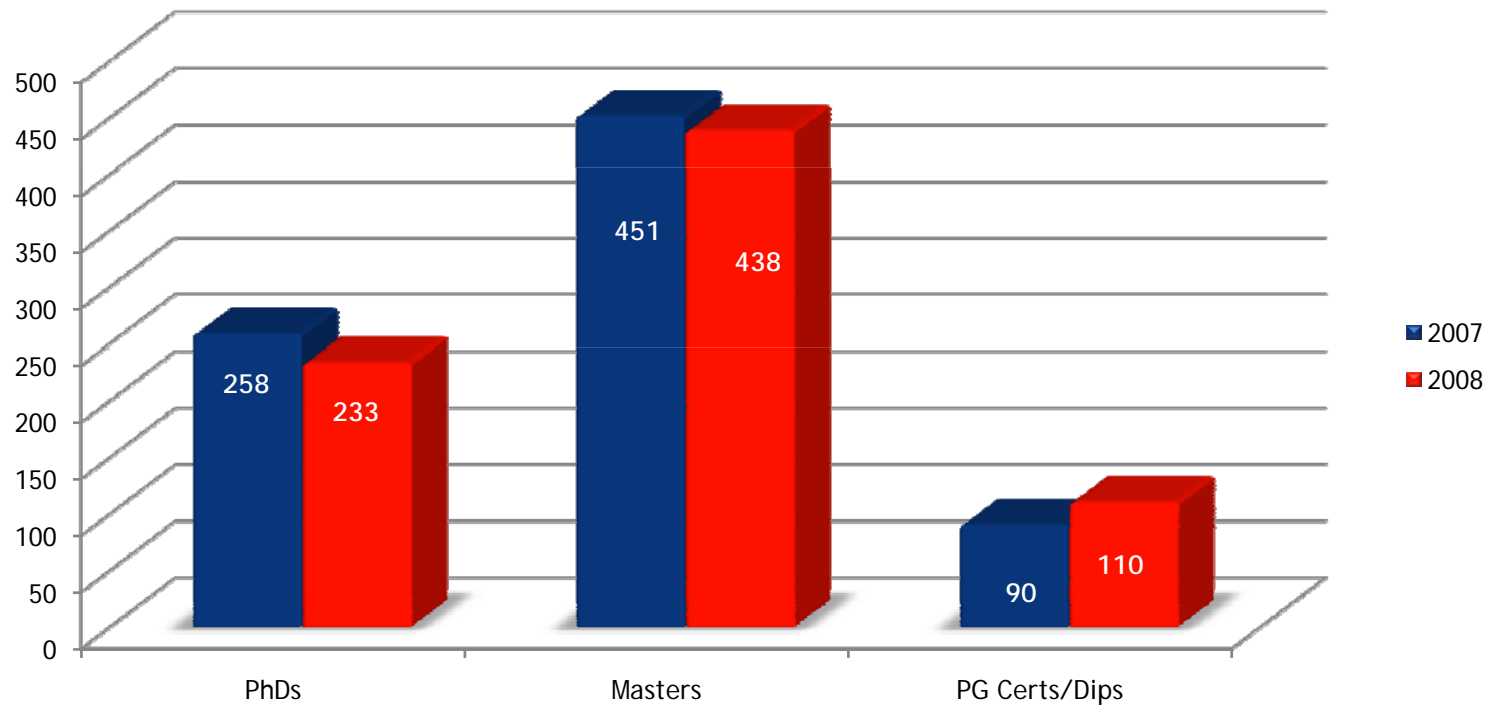




# Postgraduate Award Types Biopharma-Pharmachem Subjects 2007-2008



Postgraduate Award Types (Graduations) 2007-2008



# International Benchmarks – High level Findings



North Carolina



Switzerland



Singapore

➤ **Excellent industry-academia collaboration**

➤ **Academia highly responsive to industry through these links**

➤ **Informatics, business and soft skills embedded in S&T programmes and seen as critical future skills requirements**

➤ **PhD graduates play leadership roles within R&D and process development but few in manufacturing roles.**

# Skills challenges broad thematic areas



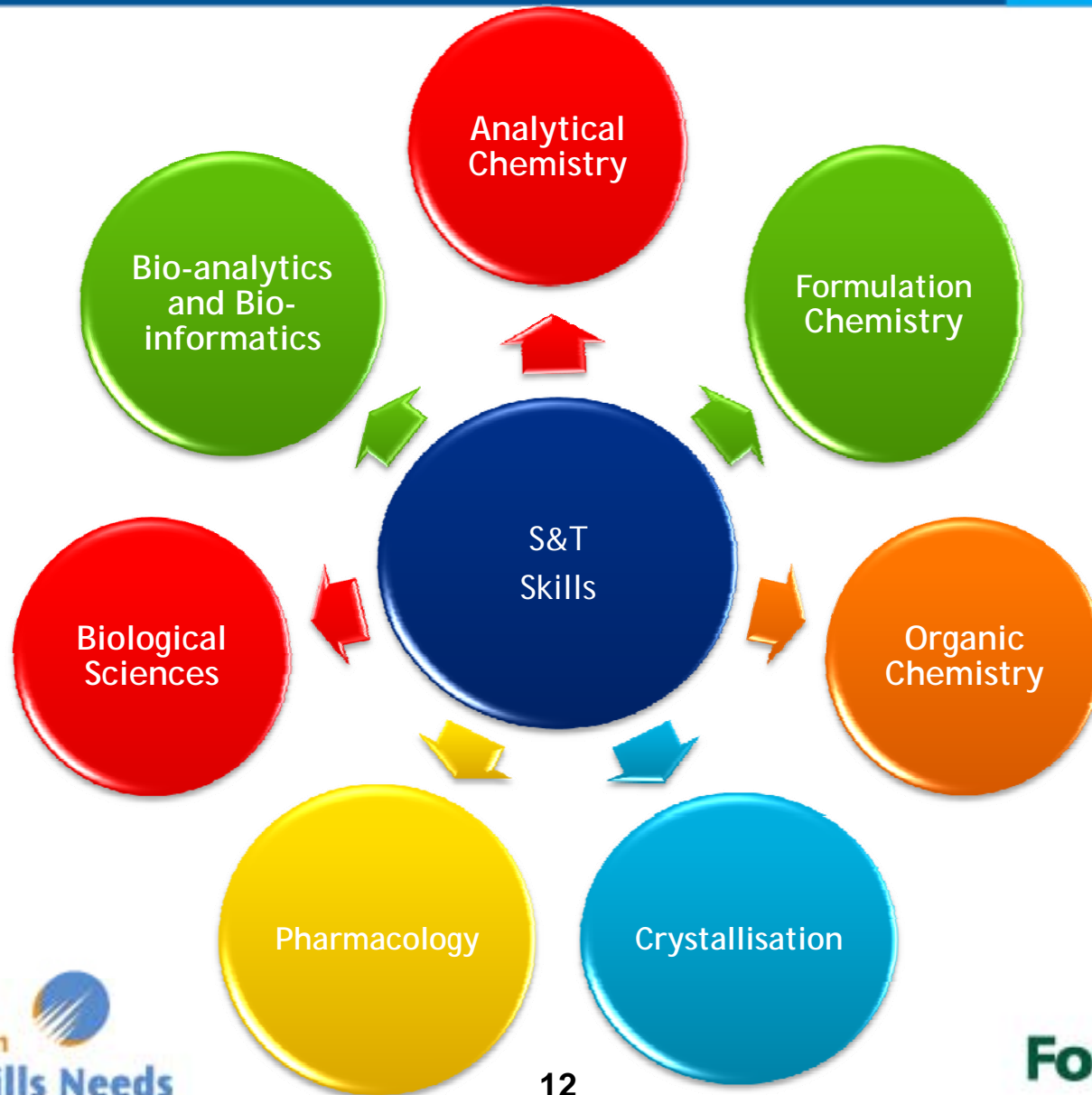
Science and Technology Skills

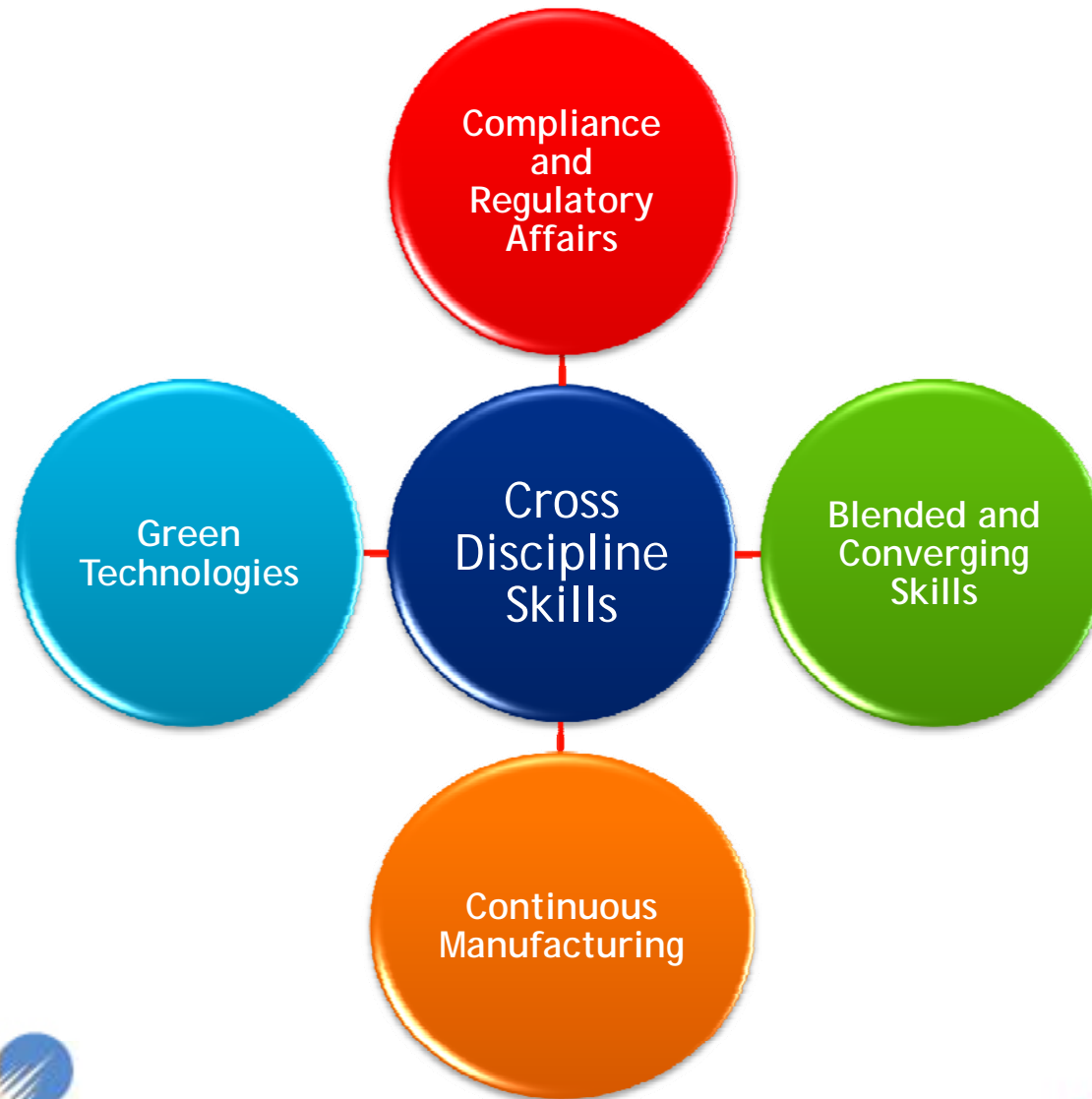
Cross Discipline Skills

Business Skills

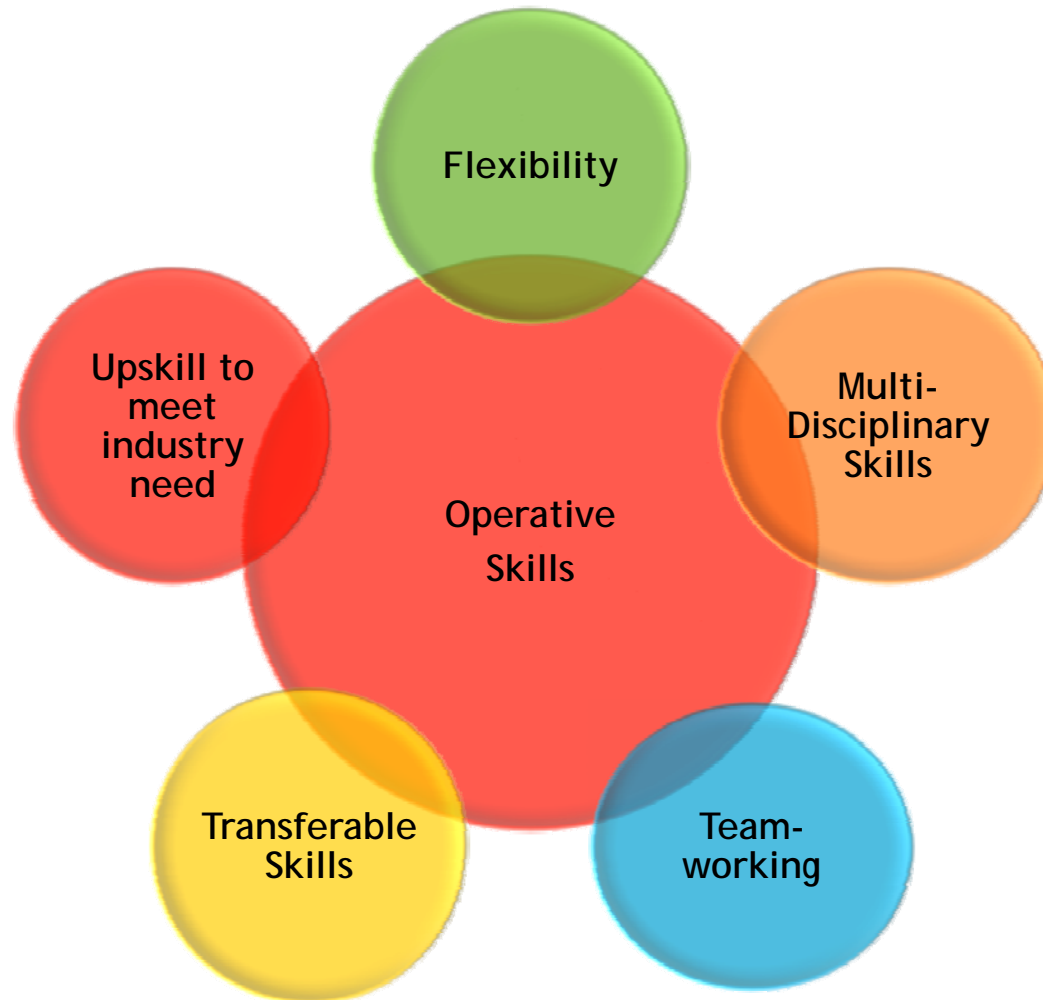
Operative Skills

# Science and Technology Skills Challenges









# Recommendations



Recommendation	Outcome
<p><b>1. Strengthen business skills</b></p> <ul style="list-style-type: none"> <li>-Embed in S&amp;T programmes</li> <li>-Student Work Placements</li> <li>-Senior Management Leadership Programmes</li> <li>-CPD to improve business skills in the workforce</li> </ul> <p>(Responsibility: HEA, HEIs, PCI, IBIA, EI, IDA, Skillnets)</p>	<p>Allow sector to develop and compete internationally</p>
<p><b>2. Align education and training provision with Industry requirements</b></p> <ul style="list-style-type: none"> <li>-Ensure provision reflects industry practice</li> <li>-Embed informatics, bioinformatics, business and generic skills in S&amp;T programmes</li> <li>-Ongoing CPD for the workforce</li> </ul> <p>(Responsibility: HEA, HEIs, PCI, IBIA, EI, IDA, FÁS, VECs, NIBRT, Skillnets)</p>	<p>Address new skills requirements of changing industry</p>
<p><b>3. Enhance industry-academia collaboration</b></p> <ul style="list-style-type: none"> <li>-Formal industry involvement in programme design, revision, delivery</li> <li>-Promotion of sabbaticals for HEI staff</li> <li>-Industry collaboration criterion for HEI programme funding</li> <li>-International collaboration</li> </ul> <p>(Responsibility: HEA, HEIs, NIBRT, SFI)</p>	<p>Ensure graduates are equipped with skills required by industry</p>
<p><b>4. Develop structured postgraduate programmes</b></p> <p>(Responsibility: HEA, HEIs)</p>	<p>Develop world-class researchers with good business acumen</p>
<p><b>5. Develop standardised student work placements</b></p> <p>(Responsibility: HEA, HEIs)</p>	<p>Develop workplace knowledge and areas where industry has expertise</p>



# Recommendations Cont'd



Recommendation	Outcome
<p><b>6. Provide the Pharmachem sector with dedicated research and training</b></p> <ul style="list-style-type: none"><li>-Horizon scanning of environment</li><li>-Research and training provision</li></ul> <p>(Responsibility: IDA, SFI, HEIs, HEA, PCI)</p>	<p>Address the strategic development of the Pharmachem sector</p>
<p><b>7. Develop an operative upskilling programme</b></p> <ul style="list-style-type: none"><li>-NFQ level 6/7 programmes</li><li>-Funding by industry, state agencies, HEA and individuals</li><li>-Flexible delivery modes</li></ul> <p>(Responsibility: Skillnets, FÁS, HEIs)</p>	<p>Align operative skills with industry requirements and enhance employability</p>