MANAGING KNOWLEDGE FOR GROWTH

Public research programmes for business and academia

COURSE 3
1. SMEs: WHY WORRY?

2. ROLE OF PUBLIC RESEARCH PRGMs

3. SMEs IN HORIZON 2020
1. SMEs: WHY WORRY?
SMEs are much more important in EU

THE SME CONTRIBUTION IN MAIN WORLD ECONOMIES

<table>
<thead>
<tr>
<th></th>
<th>EU (&lt;250)</th>
<th>US (&lt; 500)</th>
<th>Jap (&lt;300)</th>
<th>Chi (&lt;500)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprises</td>
<td>99.8%</td>
<td>96.0%</td>
<td>99.5%</td>
<td>95.0%</td>
</tr>
<tr>
<td>Manufacturing Enterprises</td>
<td>94%</td>
<td>92%</td>
<td>93%</td>
<td>90%</td>
</tr>
<tr>
<td>Employment</td>
<td>68%</td>
<td>58%</td>
<td>67%</td>
<td>55%</td>
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<tr>
<td>Employment Share 87-00</td>
<td>+9%</td>
<td>+11%</td>
<td>-3%</td>
<td>n.a.</td>
</tr>
<tr>
<td>GDP</td>
<td>61%</td>
<td>47%</td>
<td>53%</td>
<td>40%</td>
</tr>
<tr>
<td>Total Exports</td>
<td>40%</td>
<td>&lt;20%</td>
<td>&lt;15%</td>
<td>&lt; 10%</td>
</tr>
<tr>
<td>High-Tech Exports</td>
<td>8%</td>
<td>18%</td>
<td>8%</td>
<td>n.a.</td>
</tr>
<tr>
<td>Innovations</td>
<td>25-30%</td>
<td>35%</td>
<td>4%</td>
<td>n.a.</td>
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WRA : EXPORTING KNOWLEDGE

US : Electronics & telecom
EU : Pharmaceuticals
Chin : Computers & Office Mach.

Export of high-tech products : World market share

Export of high-tech products : High-tech trade balance
### ERA: STILL A LEADER IN MANUFACTURING

<table>
<thead>
<tr>
<th>World region – nr. of companies analysed (average R&amp;D intensity)</th>
<th>Group 1 High R&amp;D intensity (&gt; 5%)</th>
<th>Group 2 Medium R&amp;D intensity (2-5%)</th>
<th>Group 3 Low R&amp;D intensity (1-2 %)</th>
<th>Group 4 Very low R&amp;D intensity (&lt; 1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU 338 ($I_T = 2.9 %$)</td>
<td>35 % (12.4 %)†</td>
<td>51 % (4.3 %)</td>
<td>7 % (1.6 %)</td>
<td>6 % (0.4 %)</td>
</tr>
<tr>
<td>Japan 237 ($I_T = 3.7 %$)</td>
<td>40 % (6.0 %)</td>
<td>50 % (4.0 %)</td>
<td>6 % (1.6 %)</td>
<td>3 % (0.9 %)</td>
</tr>
<tr>
<td>US 587 ($I_T = 4.4 %$)</td>
<td>67 % (11.0 %)</td>
<td>29 % (3.0 %)</td>
<td>1 % (1.4 %)</td>
<td>2 % (0.3 %)</td>
</tr>
<tr>
<td>Rest of the World 176 ($I_T = 3.0 %$)</td>
<td>44 % (9.3 %)</td>
<td>42 % (3.5 %)</td>
<td>5 % (1.3 %)</td>
<td>8 % (0.7 %)</td>
</tr>
</tbody>
</table>

Proportion of Total R&D Investment in Each Group
2006 R&D industry scoreboard - % companies – (% investment)
SMEs are much more important in EU

Figure 2.3.11 Share of BERD performed by SMEs (%), 2002 (1)

- SMEs do most of EU RTD.
- RTD in France as much by big business as in the US!
SMEs are much more important in EU

Figure 2.3.13 Publicly funded R&D executed by SMEs in the business sector as % of total BERD, 2002 (1)

- Public research programmes support most EU SMEs.
- US Public programmes support SMEs more than 3 out of 4 major EU countries!
SMEs are much more important in EU

Figure 2.3.14 High-Tech venture capital by stage per 1000 GDP, 2003

◆ Private equity does not support most EU SMEs.
◆ Innovating EU countries support early investment but not expansion: is small really so beautiful?
EU SMEs - THEIR IMPORTANCE

**MOTOR OF EUROPE’S CHANGING ECONOMY**

**BY GENERATING NEW PRODUCTS & TECHNOLOGIES**

High tech SMEs create two-times more innovations per employee than large companies

**BY SUPPORTING THE COMPETITIVENESS OF LARGE COMPANIES**

50% of SMEs are subcontractors

**BY CREATING EMPLOYMENT**

SMEs and especially micro-firms are the main source of new jobs

April 2012 - 10

Uni TRENTO / Crash course on Research funding...
EU RTD PROGRAMMES: An OPPORTUNITY for SMEs

- Completion of Economic & Monetary Union
- Globalisation of Economy

SMEs NEED TO:
- Internationalise strategy
- Modernise their production systems and products
- Widen their networks of knowledge suppliers

Increasing technological content of products and services
Widening of the Knowledge base required for core business

EU RTD Programmes allow SMEs to simultaneously:
- improve their technological base
- develop new transnational partnerships
- widen their knowledge base
SMEs: RESEARCH NEEDS & CAPABILITIES

1. TECHNOLOGY DEVELOPERS (~3-5%)
   - Well established R&D capabilities
   - Mostly active in EU collaborative RTD
   - May need support to participate effectively in international R&D co-operation

   Basis: 2 Million manufacturing SMEs in EU-15 - 1999

2. LEADING TECHNOLOGY USERS (~10-15%)
   - Have R&D needs but limited or no R&D capability
     - Research is mainly carried out by third parties on their behalf
   - Although many can find adequate solutions at national/regional levels...
   - ...an increasing number is involved in EU RTD activities through CRAFT projects

3. TECHNOLOGY USERS - FOLLOWERS (~80%)
   - Absorption of new technologies through the purchase of equipment, etc.
   - Generally no need or interest in RTD projects
2. ROLE OF PUBLIC RESEARCH PROGRAMMES
THE OBJECTIVES

To Promote RTD
by SMEs and for SMEs

- Develop Technologies Adapted to the Needs of SMEs (especially traditional sectors)
- Increase Capability of SMEs to Absorb and Develop Technologies
- Foster European Networking between SMEs and Others
- Improve SME Participation In Research Projects as Leading or Major Partners
4. Economic & Technological Intelligence (FP5 + FP6)

3. Exploratory Awards (FP3 to FP5, H2020)

SME SPECIFIC MEASURES

Final proposal, one of the following categories:

5. Cooperative Research (CRAFT) (FP4 to FP7)
6. Collective Research (FP5 + FP6)
7. SME Instrument (H2020)
Other Instruments: - Eurostars II
- Risk Finance ...

Collaborative Project (All FPs)

8. Networks of Excellence (FP6 only)

NO SME Ghetto
3. SMEs in HORIZON 2020
SMEs in Horizon 2020

SME instrument

Concept & Feasibility Assessment
- Idea to concept, risk assessment, technological & commercial feasibility

Demonstration Market Replication R&D
- Demonstration, prototyping, testing, market replication, scaling up, miniaturisation, research

Commercialisation
- Quality label for successful projects, access to risk finance, indirect support

Pre-commercial procurement
- SME window EU financial facilities

IDEA continued support throughout the project MARKET