



Innovation in the ICT sector - results of the Innovation Watch study

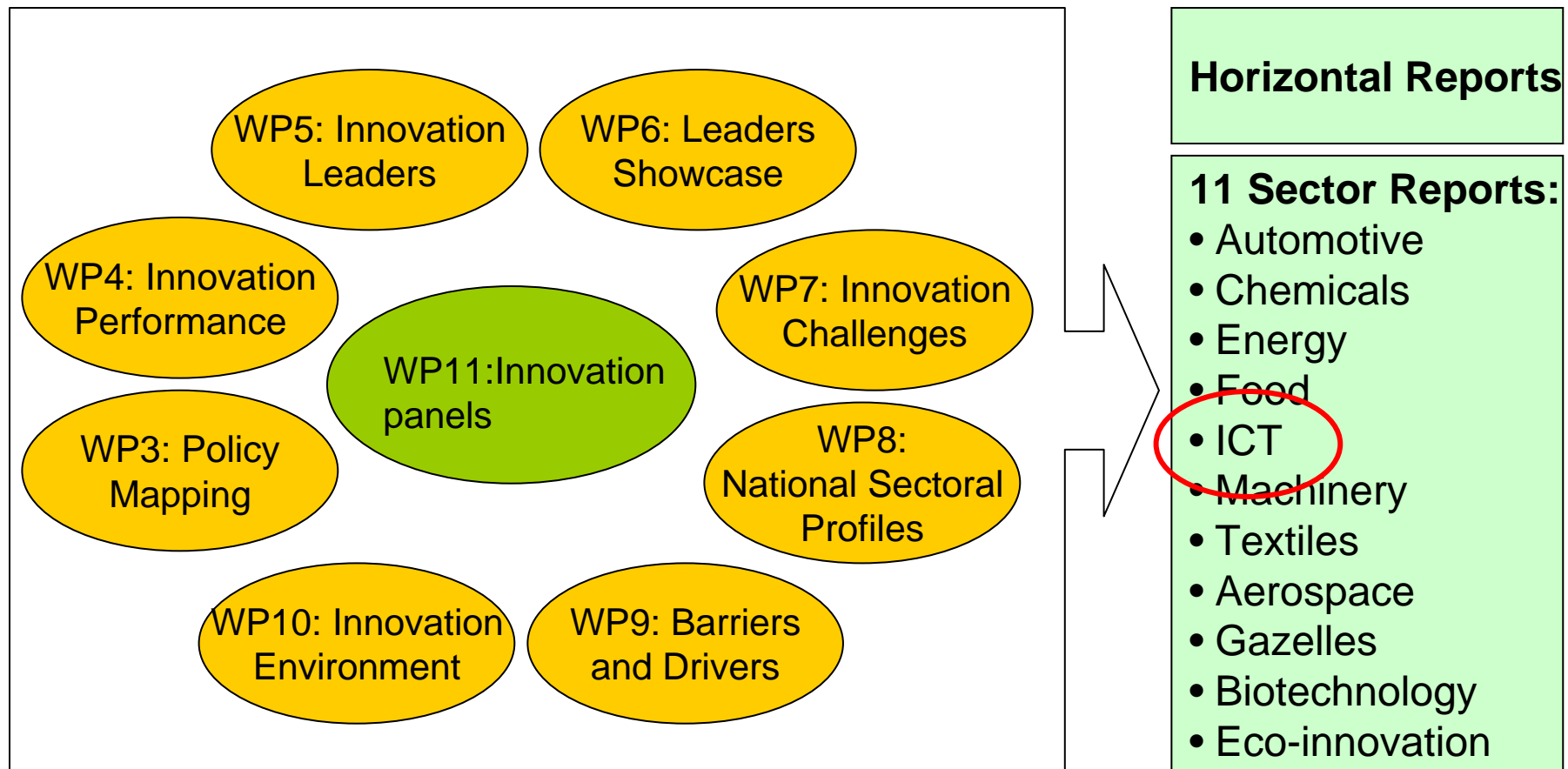
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Innovation Watch – The Systematic Consortium



Innovation Watch – innovation in 11 sectors



Definition ICT sector

Narrow definition (NACE codes)

ICT Manufacturing of

- **office machinery** and computers **30**
- insulated wire and cable
- radio, television & **communication equipment** **32**
- instruments and appliances for measuring, checking, testing, navigating
- industrial process control equipment

ICT Services

- Wholesale of machinery, equipment and supplies
- **Telecommunications** **64**
- **Computer & related activities (Services & Software)** **72**



Sector specific characteristics of EU ICT sector



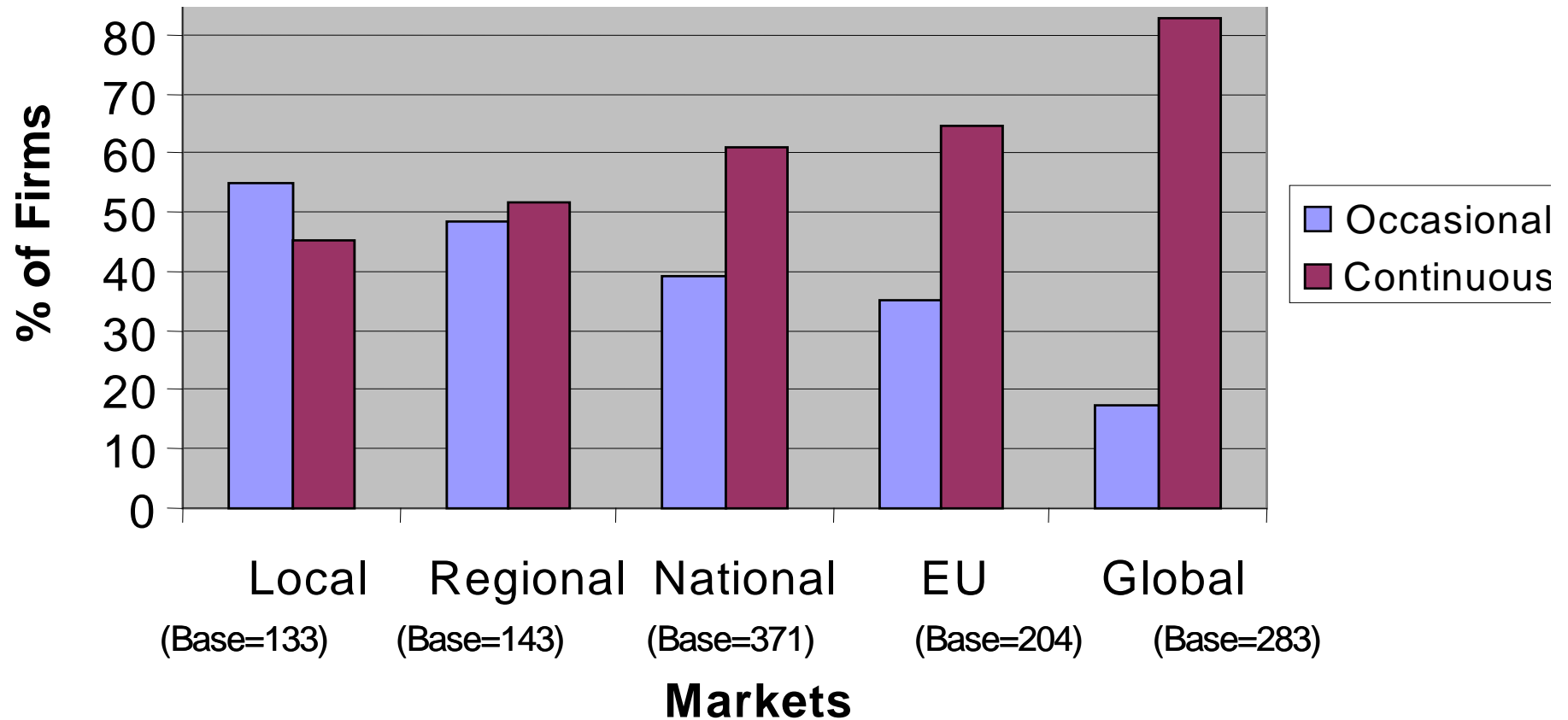
- Pervasive, general purpose technology (ICT innovations are important in all sectors);
- High degree of globalisation;
- Most innovative EU sector;
- Very short product life-cycle;
- EU Sector growth shifted from manufacturing towards ICT software and services;
- Importance of networking, clustering;
- Importance of innovative SMEs.

ICT trade of EU25- with Rest of the world

	1995	2004
Export of ICT goods		
Volume	100	184
Unit value	100	112
Import of ICT goods		
Volume	100	205
Unit value	100	53

Source: Eurostat

Continuous R&D for global markets: a must for many ICT SMEs





ICT: the most innovative EU sector



	ALL SECTORS	ICT		
		Computer Mnf. (NACE 30)	Communication Mnf. (NACE 32)	Services & Software (NACE 72)
-% higher educated empl.	13	18	25	51
-% firms innovating in-house	35	59	57	58
-%of firms co-operating with others	6	13	16	15
-% sales from new-to-market products	6	26	25	13
-% of firms that patent	8	19	20	9
-% of firms that use trademarks	12	30	16	23



ICT services vs. ICT manufacturing industries



On average ICT **service and software** firms:

- Are smaller but higher employment growth;
- Less oriented on international markets, but higher export growth;
- Higher share of high educated employees;
- Higher own R&D intensity;
- less applying for patents;
- Less often receive public funding for research and innovation.

Info- sources for innovation

	Share of all innovative companies	Share of innovative ICT companies?
- Own enterprise	85	89
- Other firms within group	20	25
- Clients	75	83
- Suppliers	76	75
- Trade fairs, exhibitions	74	79
- Universities	28	40
- Research institutes	21	23

Source: CIS-3



National indicators leading to innovation performance of ICT sectors in EU



Impact on national ICT sector innovation performance

	ICT R&D	Skills in ICT sector	Small average size ICT firms	Inter- national orien- tation ICT firms	Venture capital for ICT
- <u>Level</u> of innovation performance	***	***	**	**	***
- <u>Growth</u> of innovation performance	**			**	***

Innovation barriers and drivers

	Drivers for innovation	Barriers to innovation
Internal	<ul style="list-style-type: none"> 1- management /leadership 2- in-house R&D 3- special knowledge 4- capacity for building partnerships 	<ul style="list-style-type: none"> 1- resources for testing new ideas 2- organisational structures 3- IP management
External	<ul style="list-style-type: none"> 1- customer involvement in R&D 2- international partnerships with firms 3- cooperation with research institutes 	<ul style="list-style-type: none"> 1- appropriate regulation at EU level 2- access to top-HR 3- Innovation culture for ICT in EU



Policy implications 1

More and more specific innovation support for the ICT sector, Why:



- ICT sector is the most innovative EU sector, but ‘Loosing Momentum’ in a Global perspective;
- Promoting innovation in the ICT sector of the EU is a remedy to off-shoring and a major contribution to the Lisbon Agenda;
- Enhancing innovation in the ICT sector is at the benefit of innovation in all sectors in Europe;
- ICT firms innovate in a different way;
- This calls for more sector specific R&D and innovation policy support;
- For many years the policy focus in Europe was on diffusion: e.g.: by promoting the uptake of ICT in SMEs in other sectors;
- It is time to invest more in knowledge creation and innovation of the ICT sector itself.



Policy implications 2

More and more specific innovation support for the ICT sector, How:



- Systemic, networked forms of innovation governance are most relevant for the ICT sector (ICT clusters, platforms, Lead Market Initiatives, Joint Technology Initiatives, Open Innovation, etc.)
- The four most important innovation policy issues for the ICT sector are: 1) Research, 2) Human Resources, 3) European integration, and 4) Funding.
- Furthermore:
 - Speed-up EU ICT standardisation processes,
 - Address the trends in dealing with Intellectual Property (trademarks, shared IP, Open Source), too much policy focus on patents only;
 - public support for innovation in ICT service sector,
 - Importance of innovative ICT SMEs.



Policy recommendation 1 from ICT panel:



1) Better valorisation of ICT research (Make more use of public funded R&D results)

- Foster an entrepreneurial culture at universities through student companies, spin-off programmes and mobility programmes;
- Foster demand-driven public-funded research through focused thematic platforms;
- Access to non-utilised results from public funded collaborative large-scale R&D projects.



Policy recommendation 2 from ICT panel:



2) Create the future ICT competences for EU

- Provide appealing science and technology educational programs;
- Promote cross-disciplinary programmes.
- Promote the effective use of (ICT) technologies to provide flexible-, and life-long-learning;
- Harmonise diploma levels, include mandatory international training;



Policy recommendation 3 from ICT panel:



3) "One Europe", more harmonisation, less regulatory incoherence

- Create one EU market, a true single market for ICT;
- Develop one Research Area; more coordinated EU ICT research;
- Improve speed of ICT standardisation processes in EU;
- Speak with one voice, holistic EU policy approach to grand challenges (healthcare, energy efficiency, security, etc.), involving all relevant EC DG's;
- More innovative public procurement.



Policy recommendation 4 from ICT panel:



4) Improve the Financial Support Mechanisms, increase business R&D (major ICT contribution to Lisbon Agenda)

- Develop and implement fiscal mechanisms to support and encourage investment in innovation, including Angel investors R&D tax credit;
- Develop funding mechanisms to encourage early stage investment funding, e.g. new seed-funds linked to business incubators;
- Address the cultural bias and fear vis-à-vis failure/bankruptcy.



Contact details



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- Reports from Innovation Watch project available at:
 - <http://www.europe-innova.org/>