



The Road Ahead: Exploring "e-Business 3.0"

Results of an e-Business Watch
sector study

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Presentation outline

- **Introduction**
 - about empirica & "e-Business Watch"
- **The macro-perspective**
 - ICT and productivity / industry growth
 - ICT and energy consumption
- **The micro-perspective**
 - e-Commerce – thinking beyond transactions
- **The road ahead**
 - ICT in times of uncertainty / economic crisis
 - A technology life-cycle perspective

1. Introduction


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The Sectoral e-Business Watch

■ Research & consulting company

- Since 1998, about 35 people (25 fixed staff)
- Clients in public and private sector

■ Main fields of business:

- e-Health
 - e-Business
 - e-Inclusion
 - e-Work / e-Skills
 - ICT & regional development
- 
- Market research
 - Socio-economic research
 - Policy evaluation and guidance
 - Pilot projects

About "e-Business Watch"



■ Background

- **Study programme of the EC, DG Enterprise & Industry, initially launched in 2002**
- **Framework service contract (until end 2010)**

■ Objectives

- **Monitor ICT adoption & e-business trends in different sectors**
- **Analyse ICT impact (firm / industry level)**
- **Identify policy implications**
- **Provide forum for debate**

e-Business Watch: Work programme of 2007/08



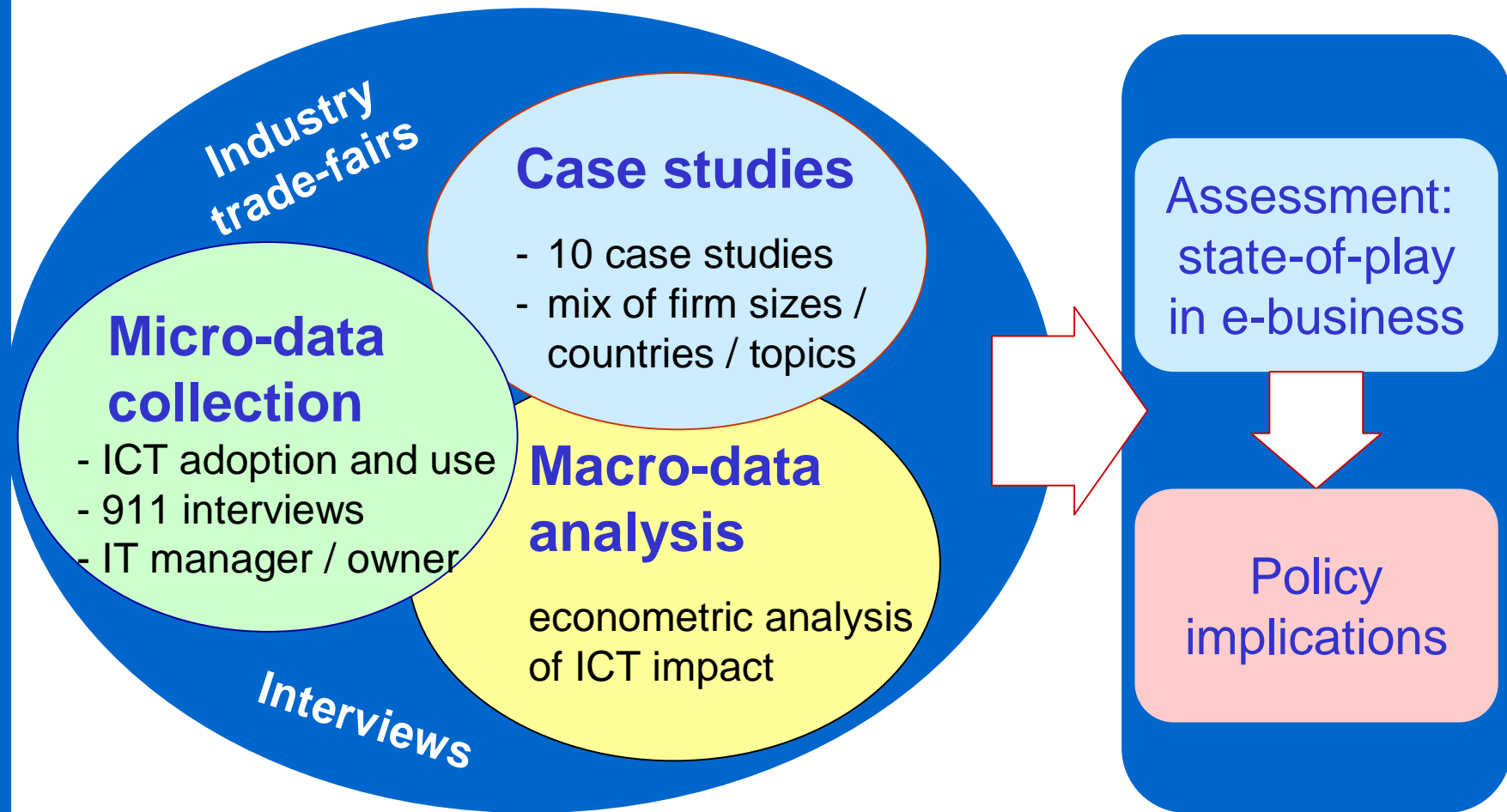
Sector-specific e-business studies

- **Chemical, rubber and plastics**
- **Steel**
- **Furniture**
- **Retail**
- **Transport and logistics services**
- **Banking**

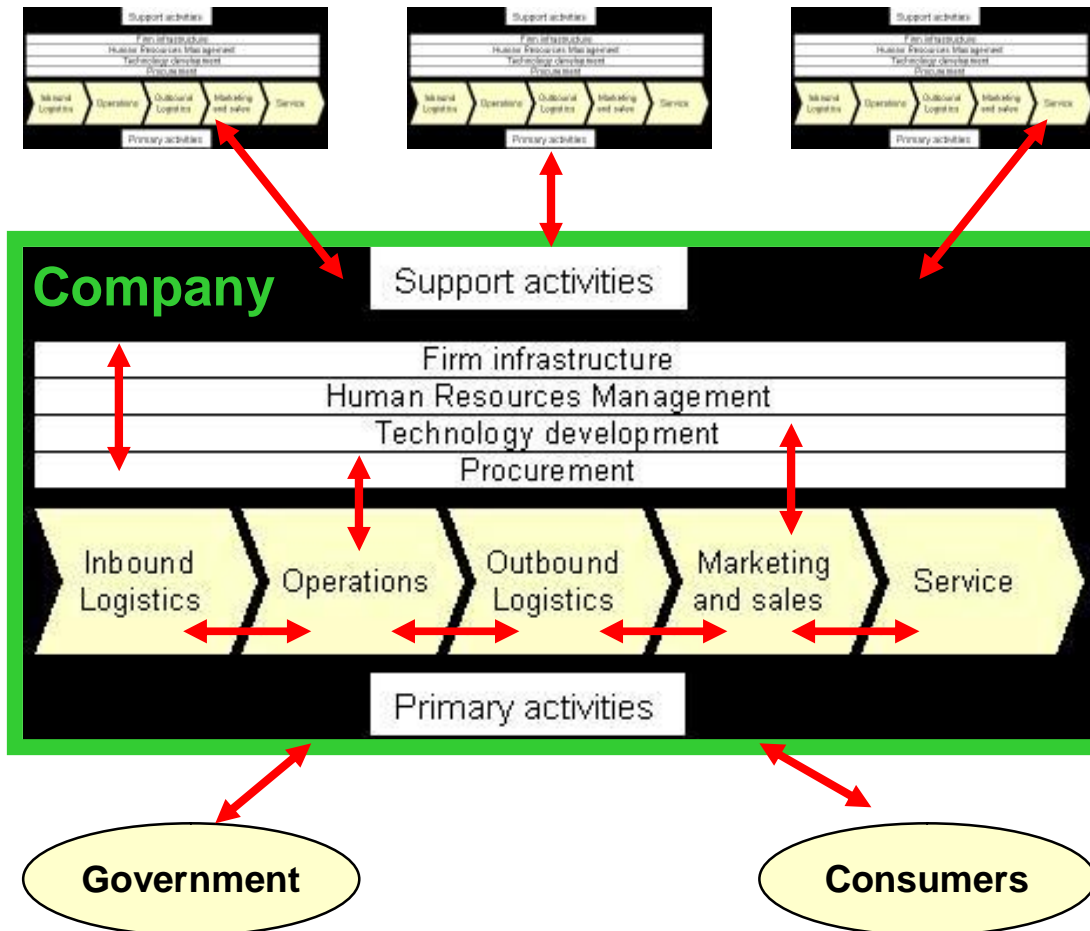
Cross-sectoral ICT studies

- **RFID adoption and implications**
- **IPR for ICT-SMEs**
- **ICT implications on energy consumption**
- **An economic assessment of ICT adoption**

Study on the chemical industry: Methodological approach



Conceptual framework



e-Business definition:
"Automated business processes (intra- and inter-firm) over computer-mediated networks"
 (OECD)

2. The Macro-Perspective

The evolution of e-business
The economic impact on sectors

Impact of ICT investment at the industry level

■ The productivity paradox:

- “Computers are everywhere but in the productivity numbers” (Robert Solow, 1987)



■ Mixed evidence in research since

■ e-Business Watch sector study of 2008:

- only moderate contribution of ICT capital to productivity and value added growth
 - Period analysed: 1995-2004
 - based on data for 9 EU countries

1) Impact of ICT investment on industry growth

■ Method

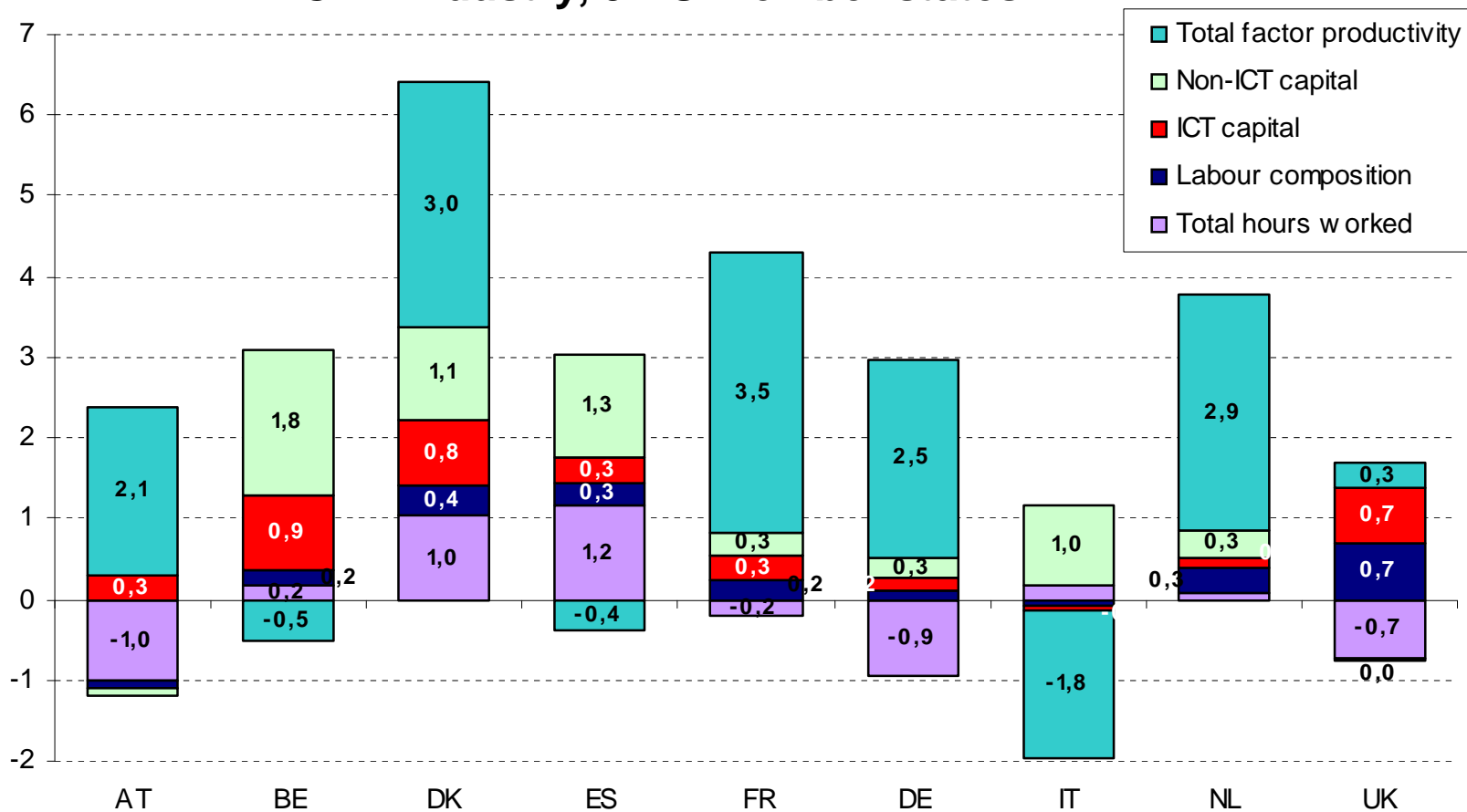
- Growth accounting of value added growth
- Data source: EU KLEMS
- 9 EU member states

■ Main results

- **ICT capital** contributed positively to growth, but only moderate effects (0.3% - 0.5%)
- **Non-ICT-capital** contributed to a higher extent
- Main contributor was **total factor productivity (TFP) growth**

Growth accounts for gross value added (1995-2004)

CRP industry, 9 EU member states



Source: EU KLEMS database, calculation by DIW Berlin

2) Impact of ICT investment on labour productivity growth

■ Method

- Data from EU KLEMS (1995-2004, 16 EU member states)
- Estimation of a a stochastic possibility frontier

■ Main results

- Only moderate impact of ICT capital
- Impact of non-ICT capital found in growth accounting was not confirmed
- Key driver was found to be: intermediate inputs intensity
 - à outsourcing !

3) Impact of ICT investment on energy efficiency

■ Method

- **Econometric pilot study**

- 3 sectors: chemicals, metals, transport services

■ Main results

- **CT (communications technology) has a positive impact on electricity efficiency;**
- **IT (computers and software) have an insignificant influence;**
- **Transport equipment has a negative influence.**

The economic impact of ICT: aspects to be considered

- **Embedded ICT**
 - **technical components in plants or other equipment possibly not fully accounted for in available data**
- **Effects of outsourcing**
- **ICT capital vs. business processes**
 - **"IT doesn't matter" – business processes do!**
- **Productivity is only one aspect of ICT use**
 - **market reach, linking with business partners**

3. The Micro-Perspective

How companies use ICT today
**How e-business matters for different
types of companies**

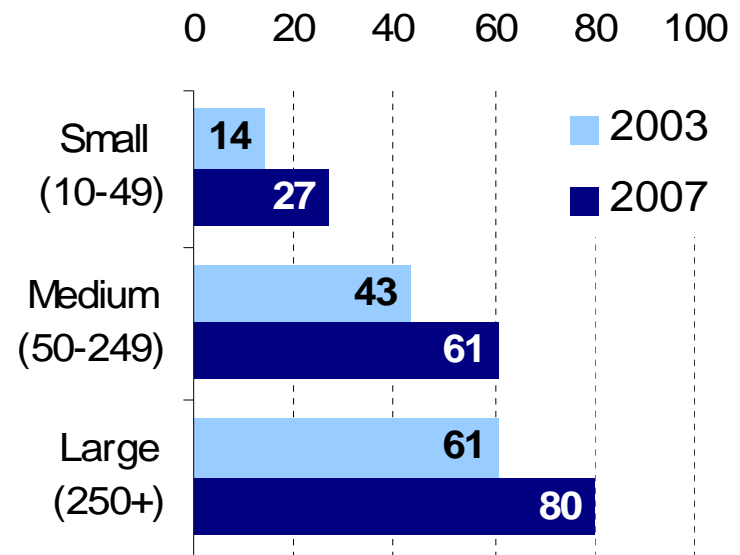
Generic e-business objectives

- **To reduce costs**
 - **increasing the efficiency of business processes**
- **To better serve the customer**
 - **improving the supply-chain – faster delivery**
 - **providing after-sales-services**
- **To facilitate market growth**
 - **facilitate access to new markets through e-commerce**
 - **attract new customers in the existing market**

"e-Maturity" has improved

- **Quality of ICT infrastructure in companies has improved**
 - **broadband adoption**
 - **software systems**
- **Companies are better prepared for "real" e-business activity**

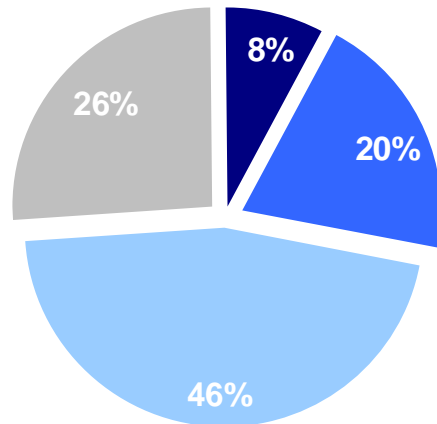
% of companies with an ERP system (chemical industry)



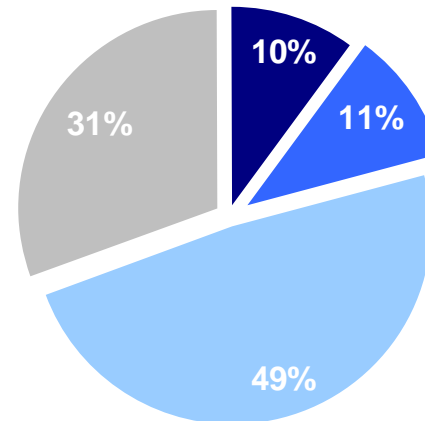
Base: 811 interviews, 7 EU countries.
Source: e-Business Survey 2007
by the Sectoral e-Business Watch

Share of processes conducted electronically (2007)

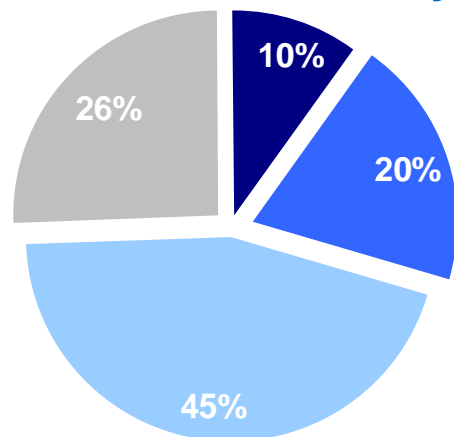
Chemical industry



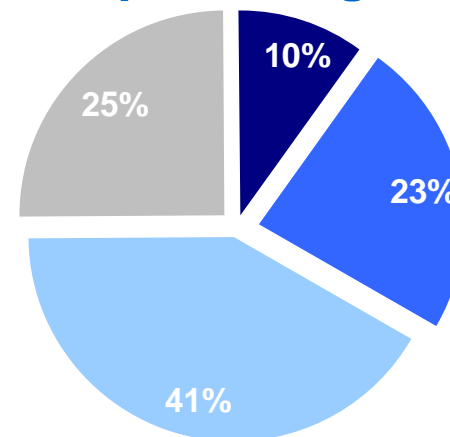
Steel industry



Furniture industry



Transport & logistics



% of companies* saying they conduct ...

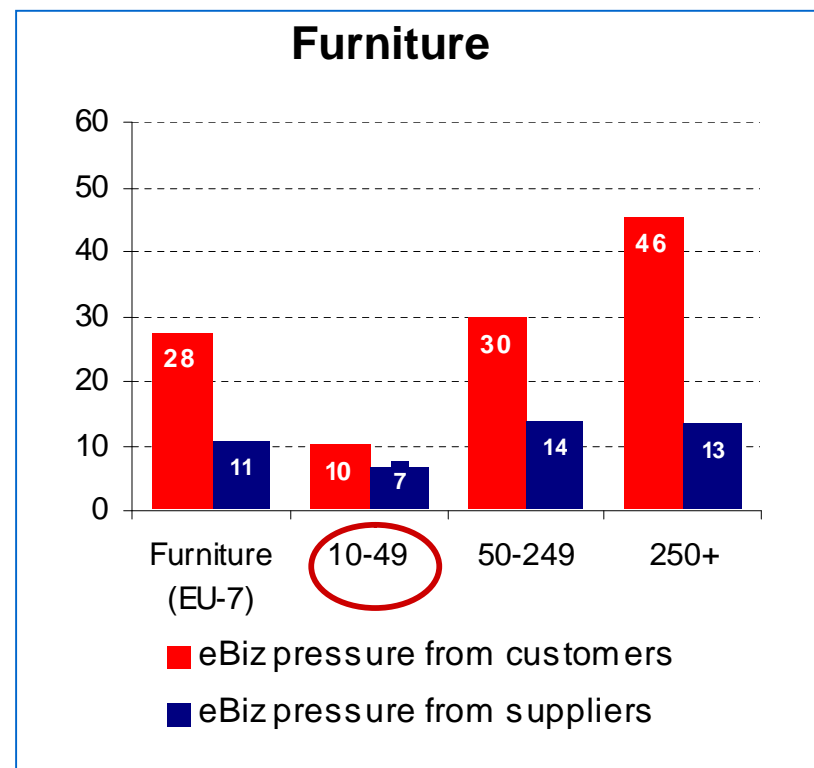
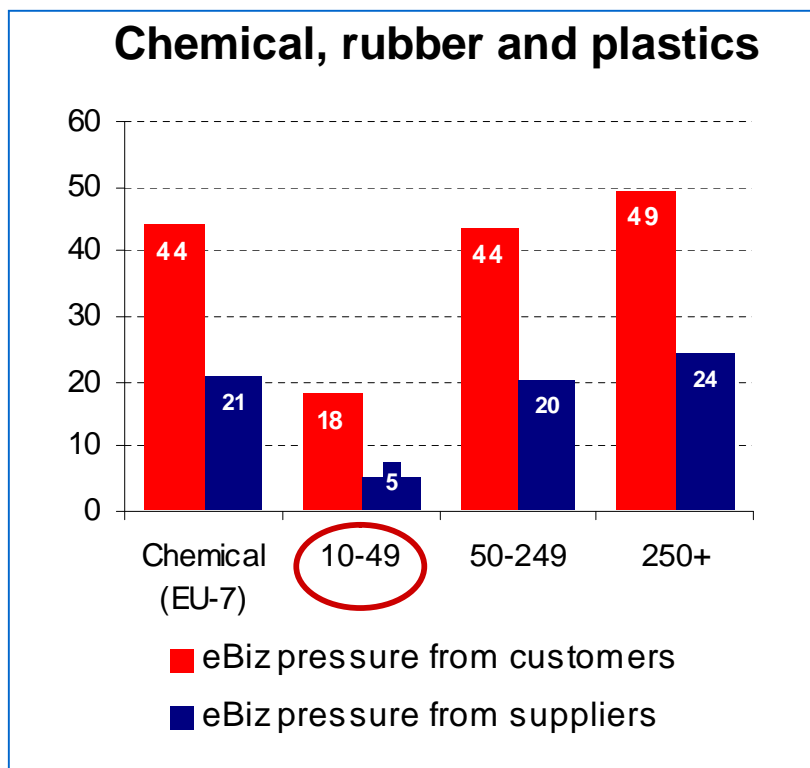
-  "most"
-  "a good deal"
-  "some"
-  "none"

of their business processes electronically.

* by their share of employment

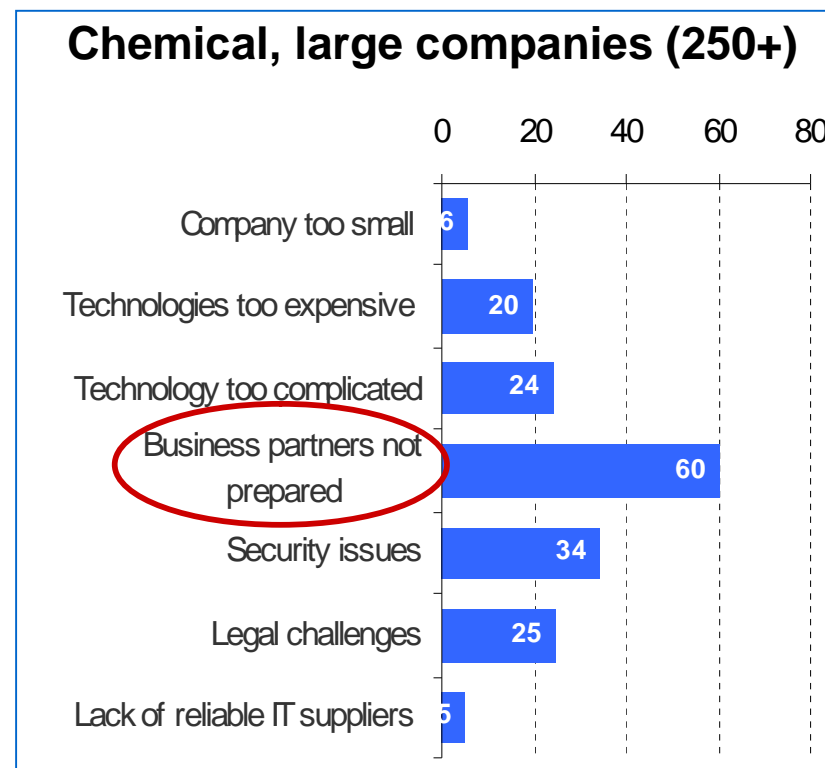
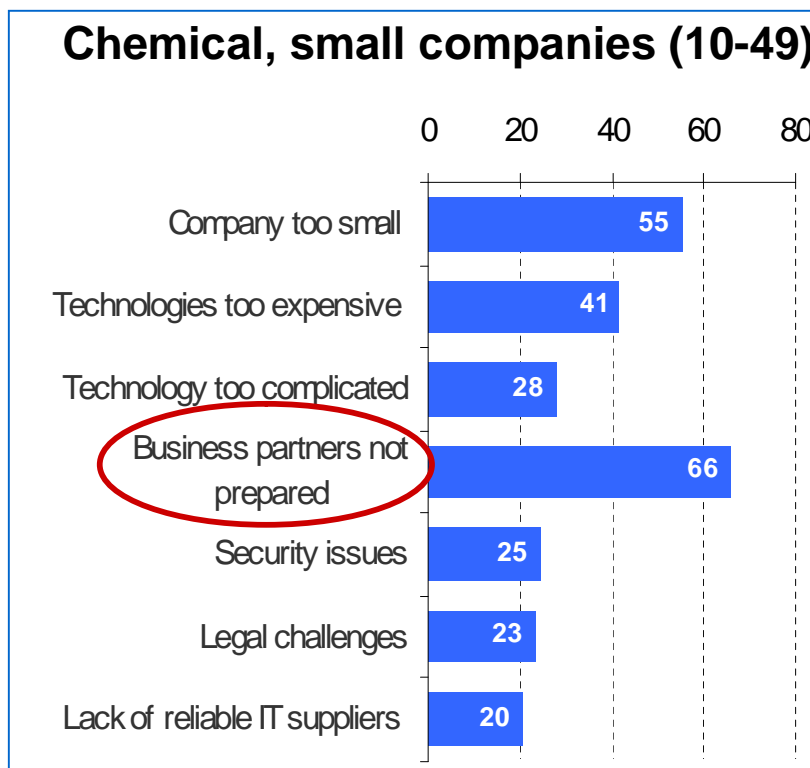
Customer requirements drive e-business adoption

"Has your company ever experienced pressure from customers / suppliers that your ICT solutions or data exchange formats should be adapted to comply with their requirements?"



The hen-and-egg problem

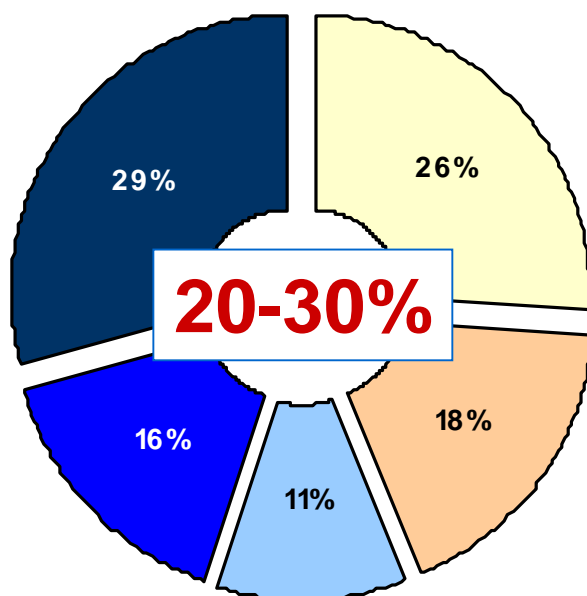
"Please tell me if you think this is an important reason why your company does not use e-business more intensively."



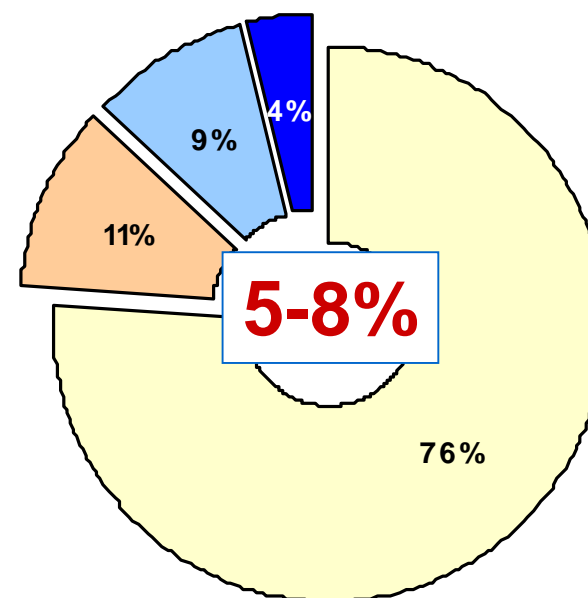
Increased share of e-commerce as % of total sales

Chemical, rubber and plastics industry

Average % of orders received online (2007)



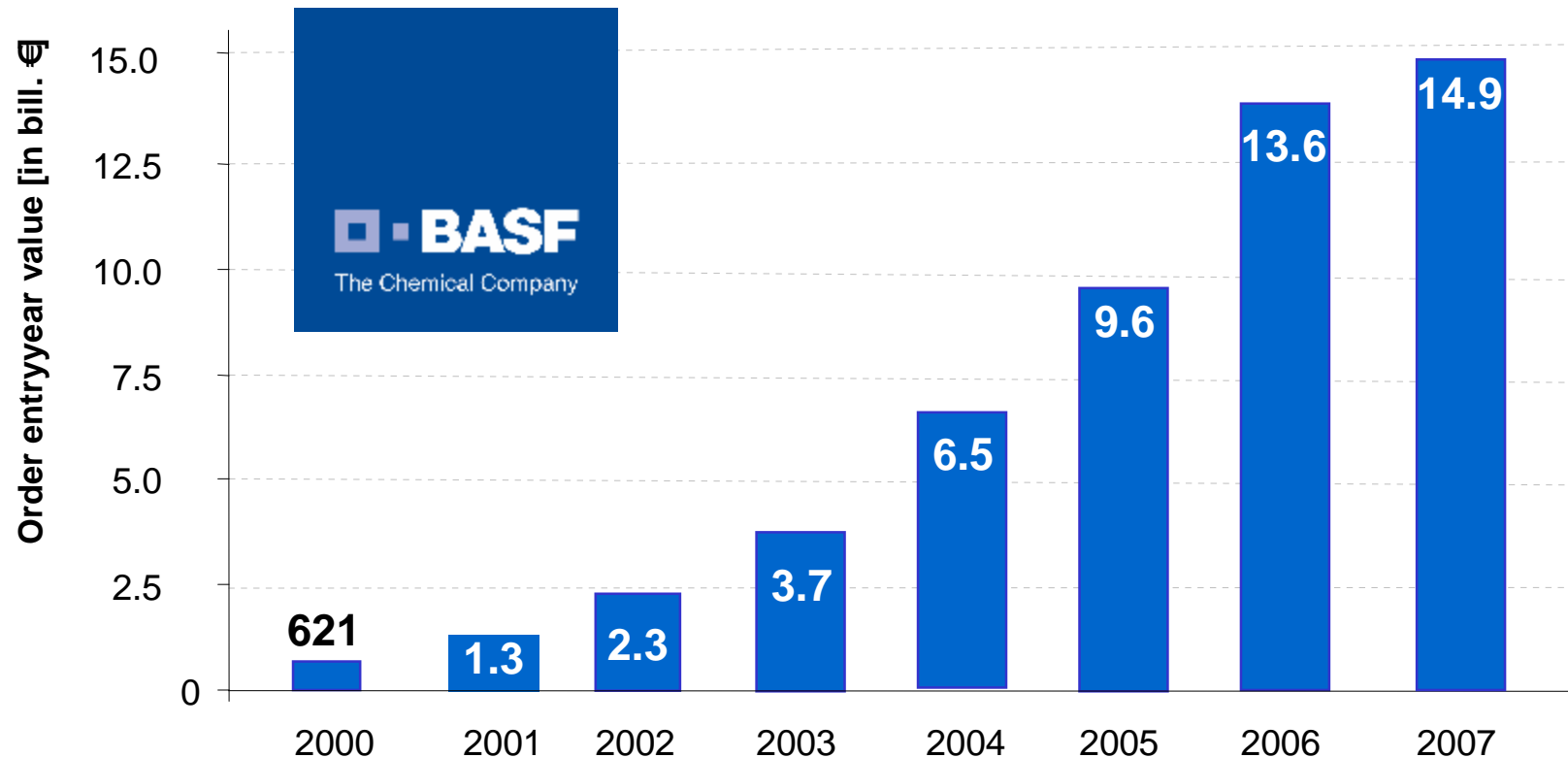
Average % of products sold online (2003)



- <5%
- 5-10%
- 11-25%
- 26-50%
- >50%

Source: e-Business Surveys 2003 / 2007 by SeBW

BASF: Global development of e-business order entry value



Source: BASF

"e-Commerce" is more than accomplishing transactions

2000



Orders

Orders
Order Mgmt
Order Information



Orders
Order Mgmt
Order Information
Product information

Source: BASF
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2008

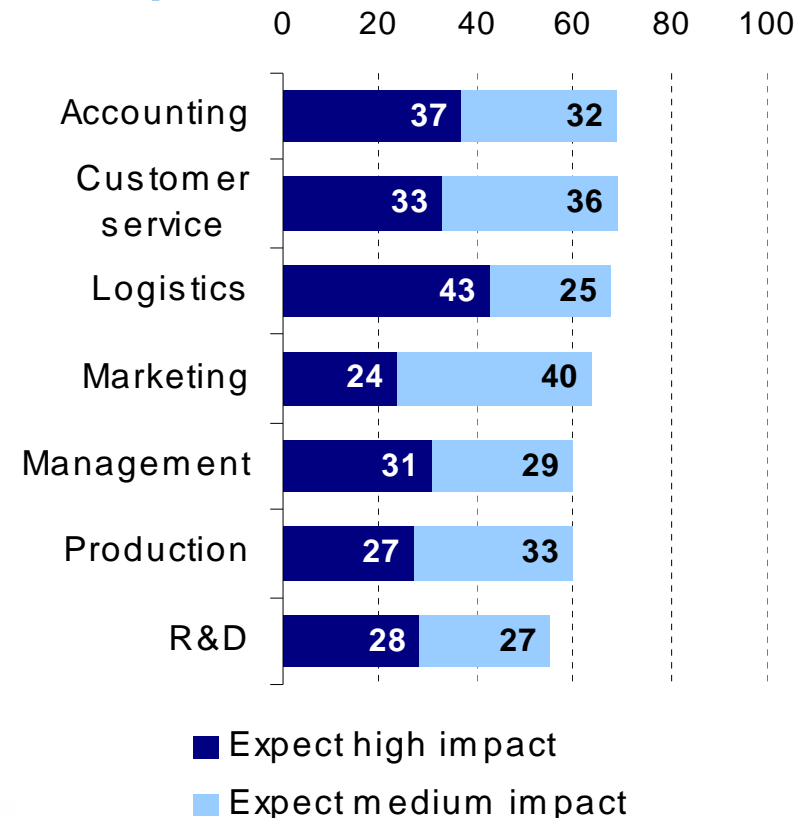


Orders
Order Mgmt
Order Information
Product information
Supply Chain, Logistics
Customer Collaboration
e-Marketing
e-Invoicing
Automated fax orders

The e-strategy – a vital part of the overall company strategy

- ICT as a "general purpose technology"
- Companies expect ICT to have an impact on all business functions in the future
- Marketing and customer service highly relevant – both in manufacturing and services

% of companies expecting that ICT will have a high/medium impact on ... in the future



■ **Micro-data analysis:**

- **Significant links between e-business activity and the likelihood of conducting innovations**
 - Endowment with e-business software matters
 - No correlation, however, with ICT hardware
- **Firms with a higher incidence of ICT-enabled innovation activity à more likely to report turnover increase**
- **Perceived degree of rivalry in the market is not correlated with ICT intensity**

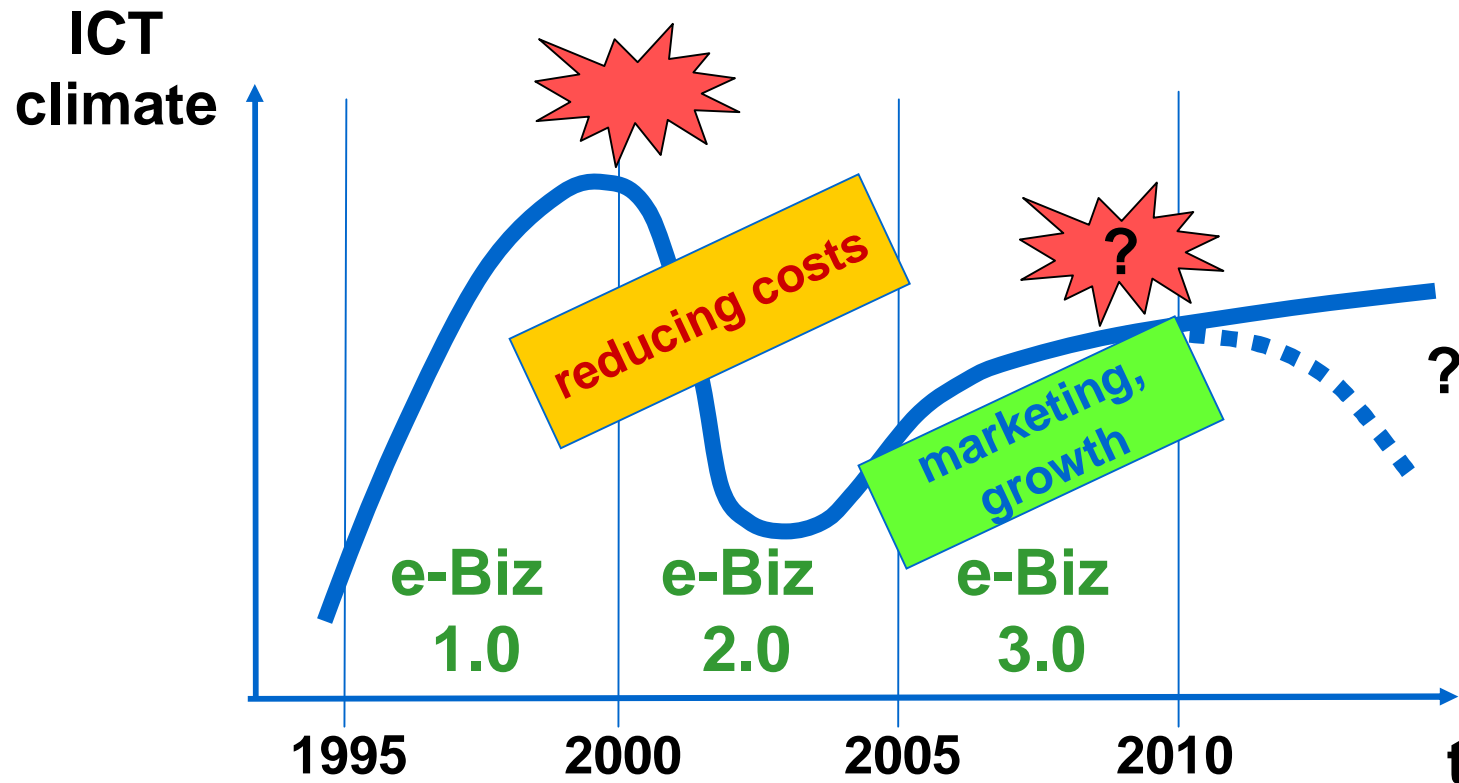
In summary: dynamic development of e-business

- **Improved ICT infrastructure as a basis for more advanced e-applications**
- **Dynamic growth of e-commerce**
 - not only for accomplishing transactions
 - also: service function!
- **Improving process efficiency remains an important objective**
 - Improved work-flows through improved transparency
 - **Faster decision taking**

4. The Road Ahead

Scenarios for the near future
**The right strategy in times of
uncertainty and economic crisis**

ICT & e-Business cycles: paradigm changes

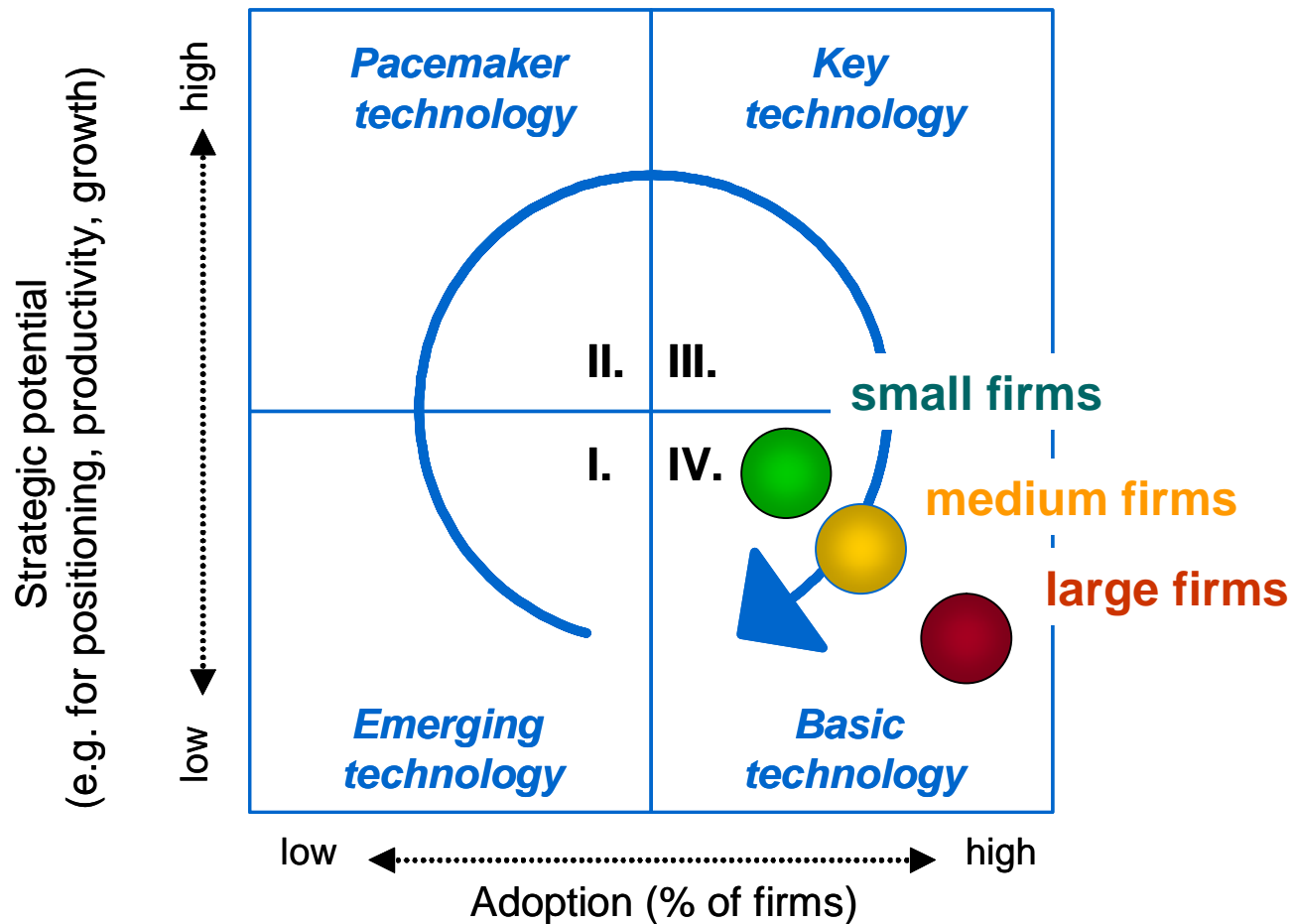


- **Reactive response by business**
- **Back to "e-Business 2.0"**
 - **Recession / downswing will lead to reduced ICT investments**
 - **Reducing company costs as the single most important objective**
 - **Innovative projects on hold / scaled down**
- **Impact**
 - **may pay off in the short term**
 - **but risk of losing comparative advantages**

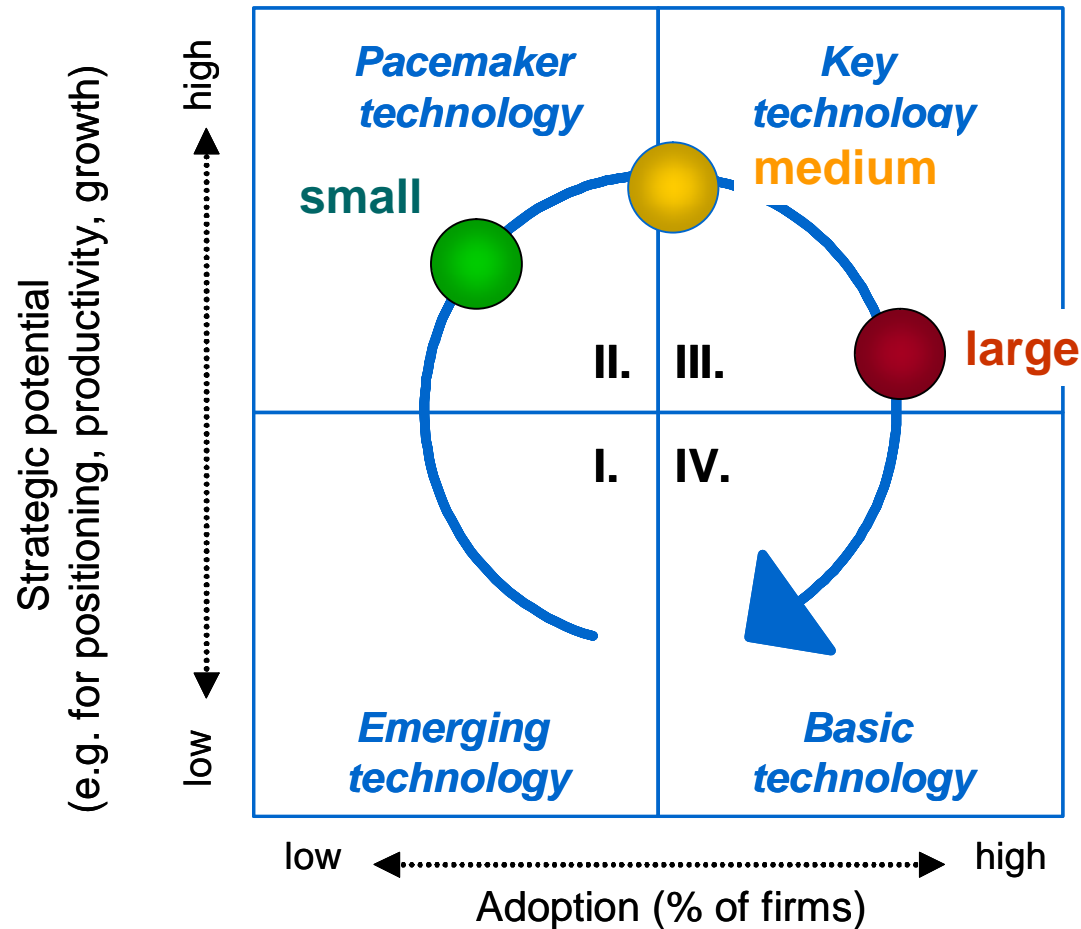
Contra-cyclical scenario

- **Pro-active response by business**
- **Continue the "e-Business 3.0" approach**
 - **e-Business as a means to sustain business in a difficult market environment**
 - **Focus on supporting marketing and customer service, not just reducing costs**
 - **Innovative projects supported**
- **Impact**
 - **investment risk**
 - **but also high strategic potential**

Basic ICT infrastructure – a commodity



Advanced e-business practices – the digital divide



Recommendations for businesses

■ Strategic approach:

- consider your "e-strategy" as a support of your overall strategy and business model
- take a critical look at your value chain – what could be improved?

■ Focus on your customers:

- What is important for YOUR customers?
- Think about how to use e-commerce as a service for your customers
 - and not just as a means to accomplish transactions

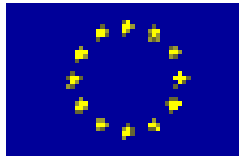
Recommendations for innovation and industry policy

- **Support the development of e-skills:**
 - **ICT skills of employees**
 - **Sufficient supply of ICT practitioners**
 - **Managerial understanding of e-business**
- **Further improve the legal framework**
 - **e.g. uncertainties in cross-border e-invoicing**
- **Support digital integration in value chains**
 - **pilot projects, stakeholder co-ordination**
- **Support ICT potential to facilitate REACH implementation & compliance**

More information

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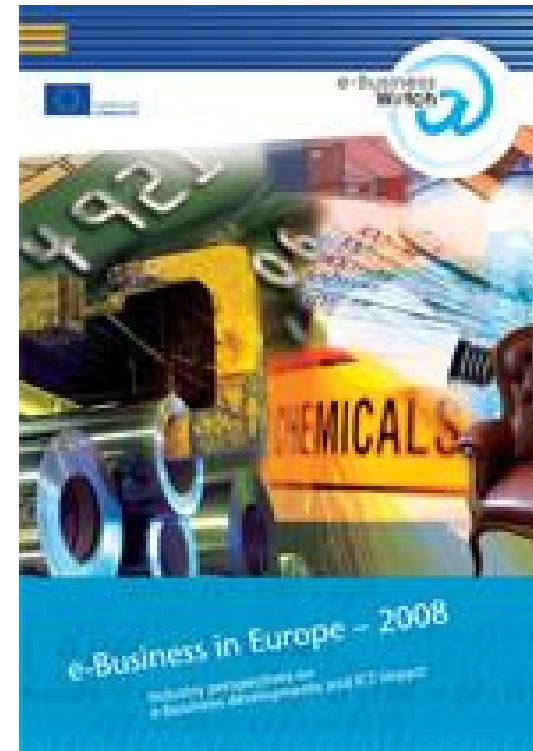


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