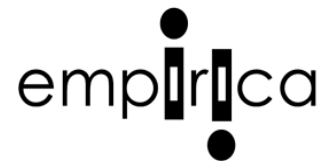




ICT and e-Business in the Chemical, Rubber and Plastics Industry

Hannes Selhofer
empirica GmbH, Bonn





Agenda



- Study objectives & approach
- ICT & e-business adoption 2003 – 2007
- ICT impact (on productivity growth, innovation, competition)
- Implications for industrial policy



Why is policy interested in ICT & e-business?



- Assumptions (the 'paradigm')
 - ICT contribute to productivity growth
 - ICT enable innovation
 - ICT usage matter for the competitiveness of firms
- Policy objective
 - Accelerate ICT uptake and promote optimal ICT usage among EU companies, notably SMEs
- Challenges
 - ICT & e-Business as "fast-moving objects"
 - Complexity of issues – sectoral differences

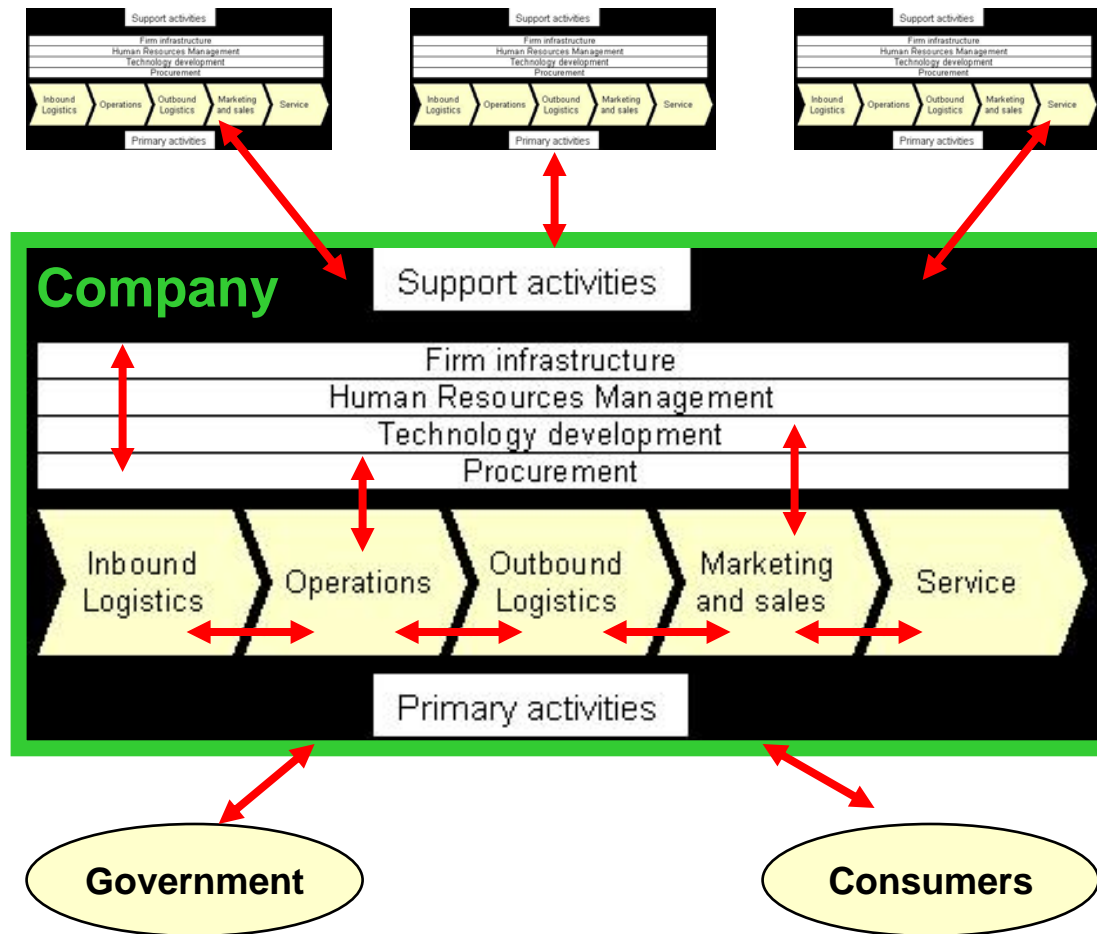
Study objectives

- Study the state-of-play in e-business activity
- Assess dynamics in adoption
 - comparison with study of 2003/04
- Identify drivers and barriers
- ICT impact (firm / industry level)
- Identify policy implications



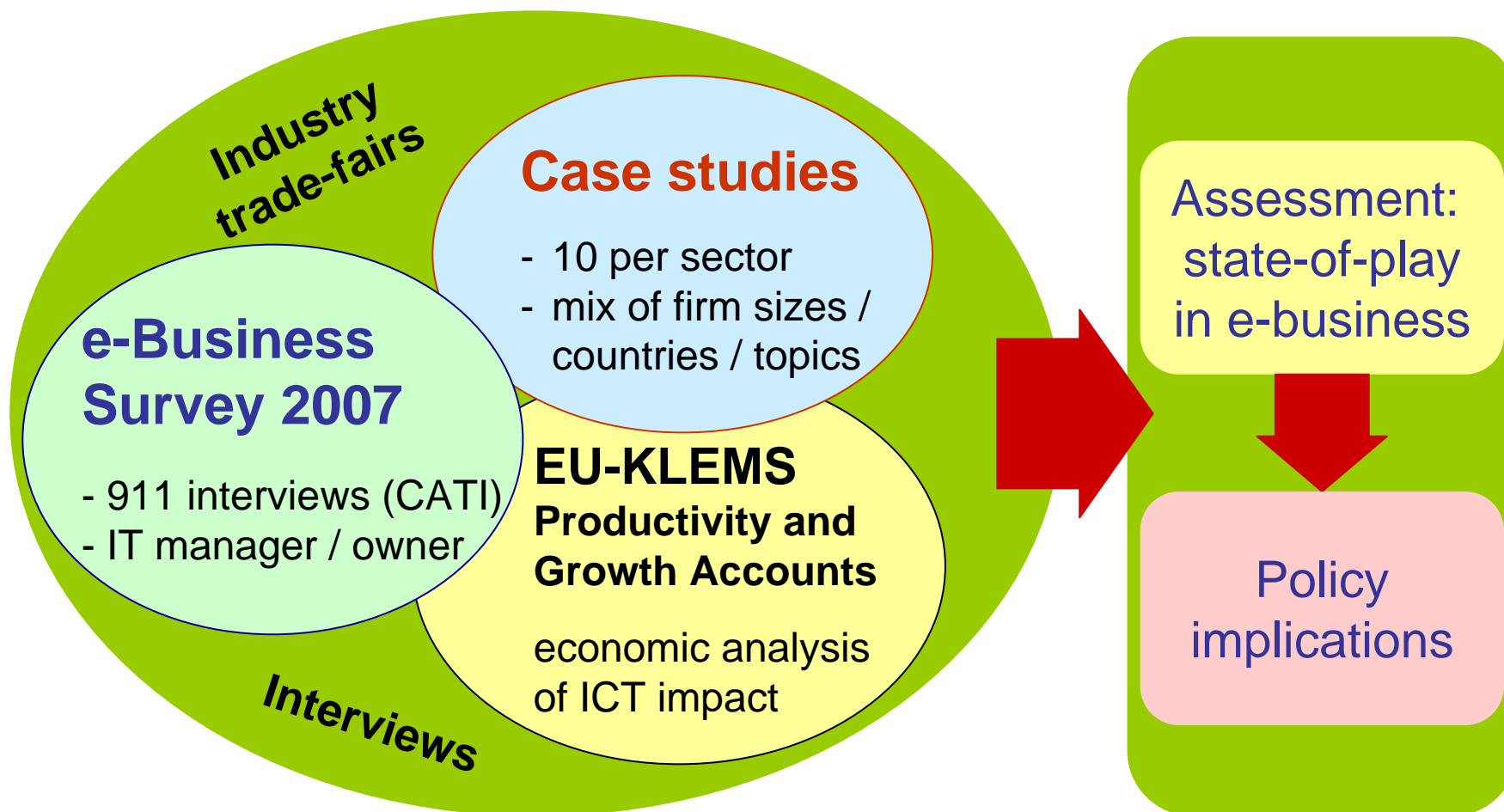
to enable informed policy decisions

Study methodology: Conceptual framework



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

Study methodology: Data sources



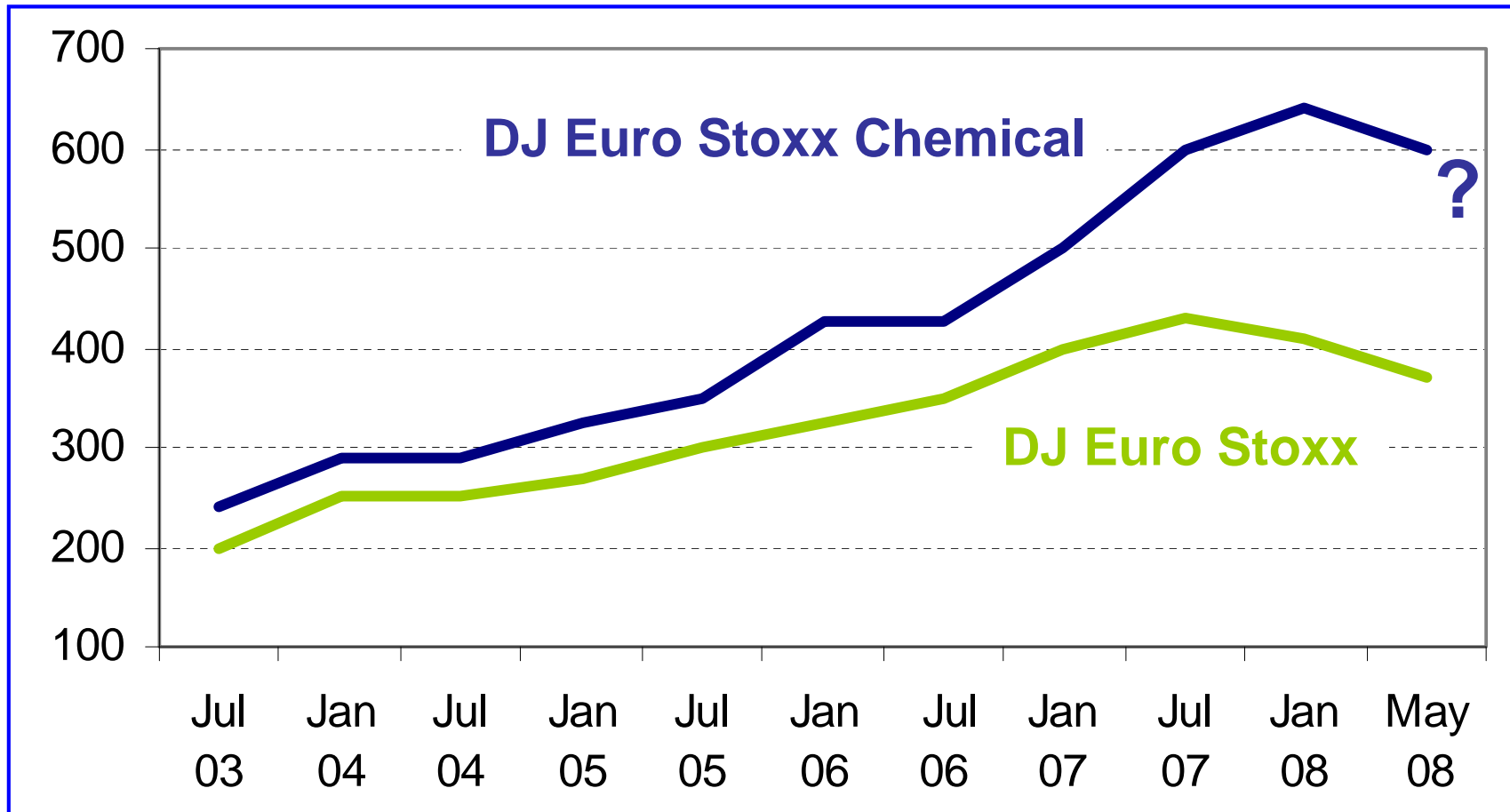


The chemical, rubber and plastics industry



- Industries covered
 - NACE Rev. 2 20: Chemicals & chemical products
 - NACE Rev. 2 22: Rubber & plastics products
- Approx. 3 million people employed in EU
 - more than 60% in large firms (250+ empl.)
 - labour productivity higher than industrial average
- Value added of ~ 110 billion euros
- EU with positive trade balance
 - trade surplus has increased since late 1990s

A 'bull market' (2004-07)





- Compliance with environmental & safety objectives
 - REACH regulation
 - CO₂ emissions
- Rising costs of energy and raw materials ("feed stock")
- Globalisation
 - increasing competition from emerging economies



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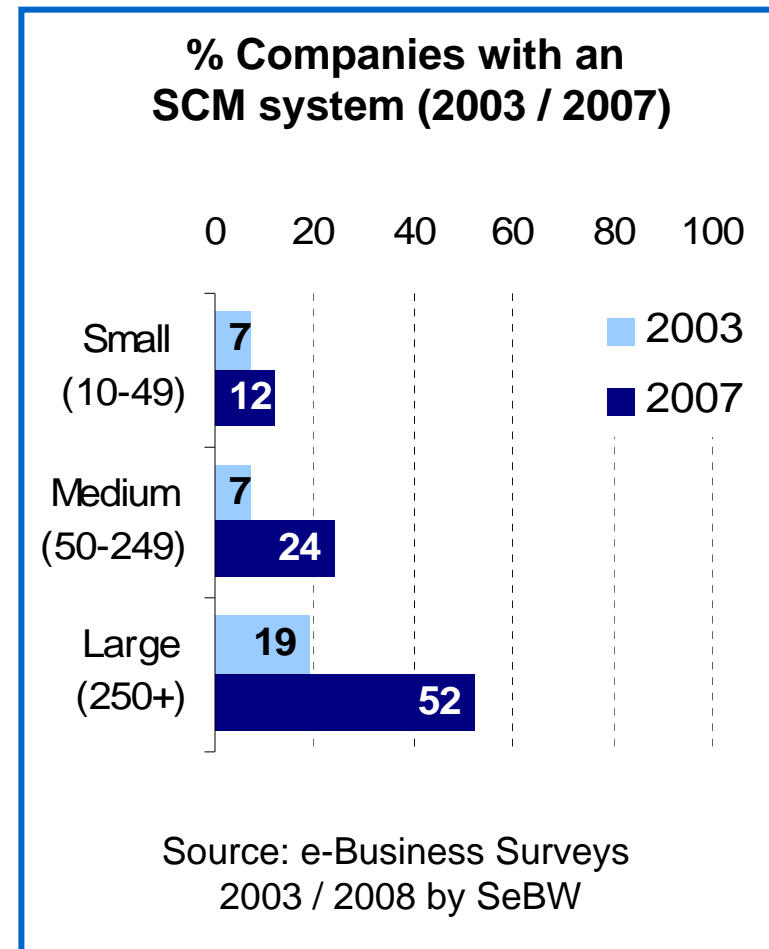
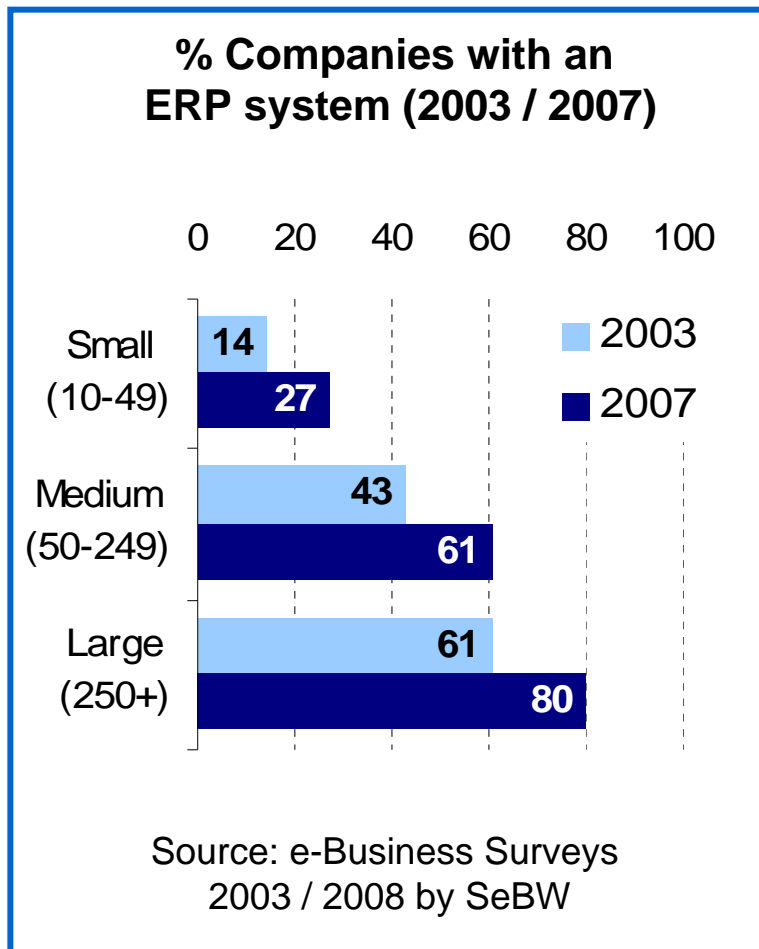


Key findings: ICT & e-business adoption



- Improved "e-readiness" of enterprises
 - compared to situation in 2003
- ICT is a major enabler of process efficiency
- Increasing focus on e-Business for marketing and customer service
- "Digital divide" between small and large firms in advanced forms of data exchange
- e-Business as a "must"
 - but variations according to business models

Improved "e-readiness": dynamic ICT adoption





Case study: ERP adoption at Zachem, Poland



- **Challenge**

- Transformation of a former state-owned company
- Improving information management
- Linking & integrating data from 60 buildings

- **e-Business Solution**

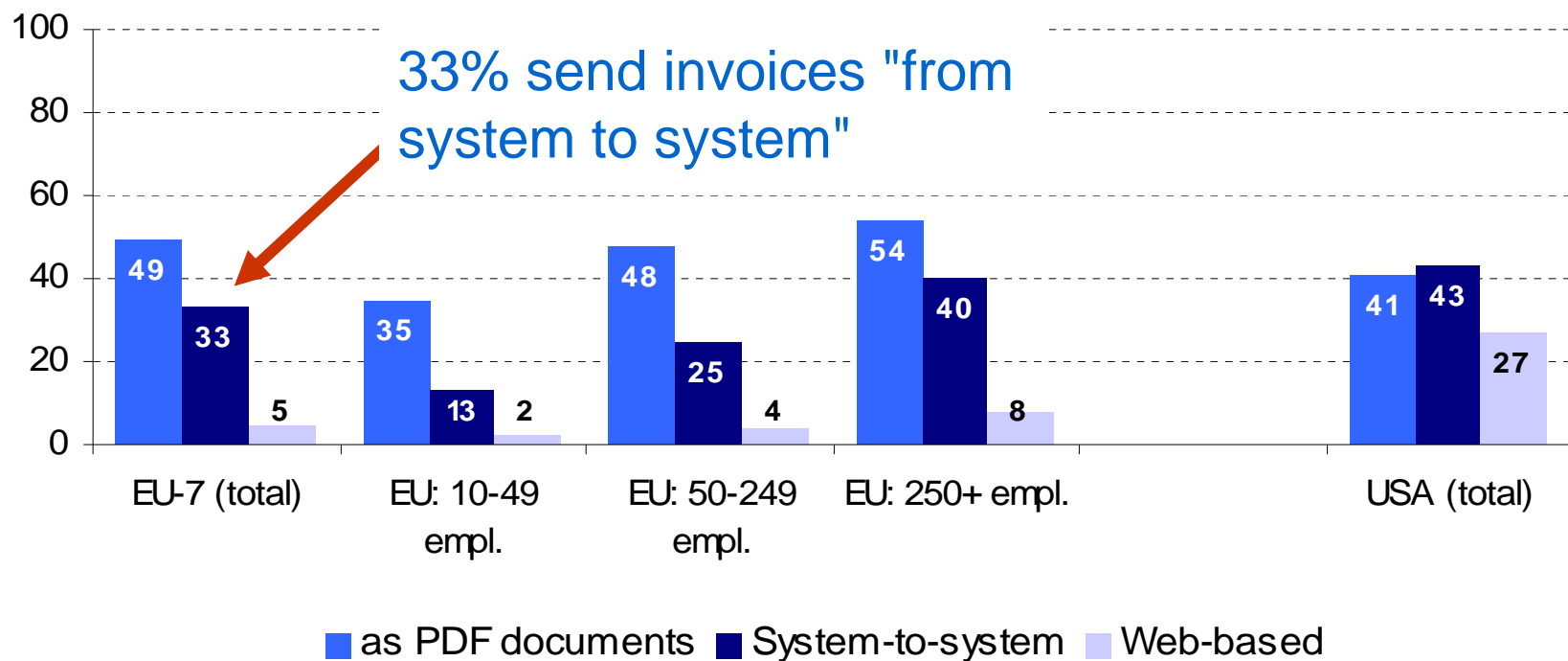
- ERP (SAP solution)

- **Results**

- Transformation of company's information culture
- Significant substitution of paper-based processes

ICT enables gains in process efficiency

% Companies sending e-Invoices (different methods)



Source: e-Business Survey 2007 by SeBW



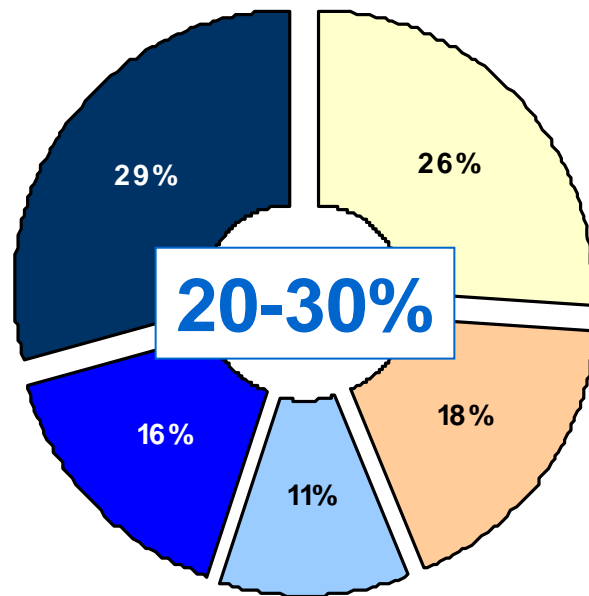
ICT to support process efficiency – specific aspects



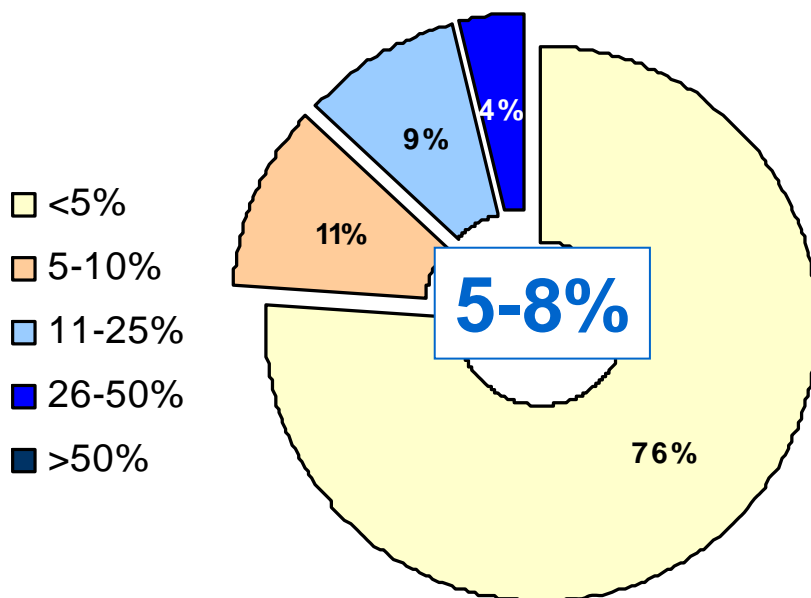
- Chem eStandards by CIDX
- Outsourcing of specific processes to 'B2B connectivity hubs'
 - e.g. e-invoicing (specialised service providers)
 - Elemica (supports broad range of B2B exchanges)
- Huge impact on quality management and transparency of internal processes

Increase in e-commerce transactions

Average % of orders received online (2007)



Average % of products sold online (2003)



Source: e-Business Surveys 2003 / 2007 by SeBW

Case study: CRM usage at Toly Products, Malta

- **Challenge / objective**
 - Managing order requests from sales offices in different countries and time zones
 - Effective processing of customer complaints
- **e-Business Solution**
 - Establishment of a central CRM system to share data between manufacturing and sales offices
- **Results**
 - Improved central reporting with reduction of paper files to store data
 - Toly can process 5 times more orders than 10 y. ago

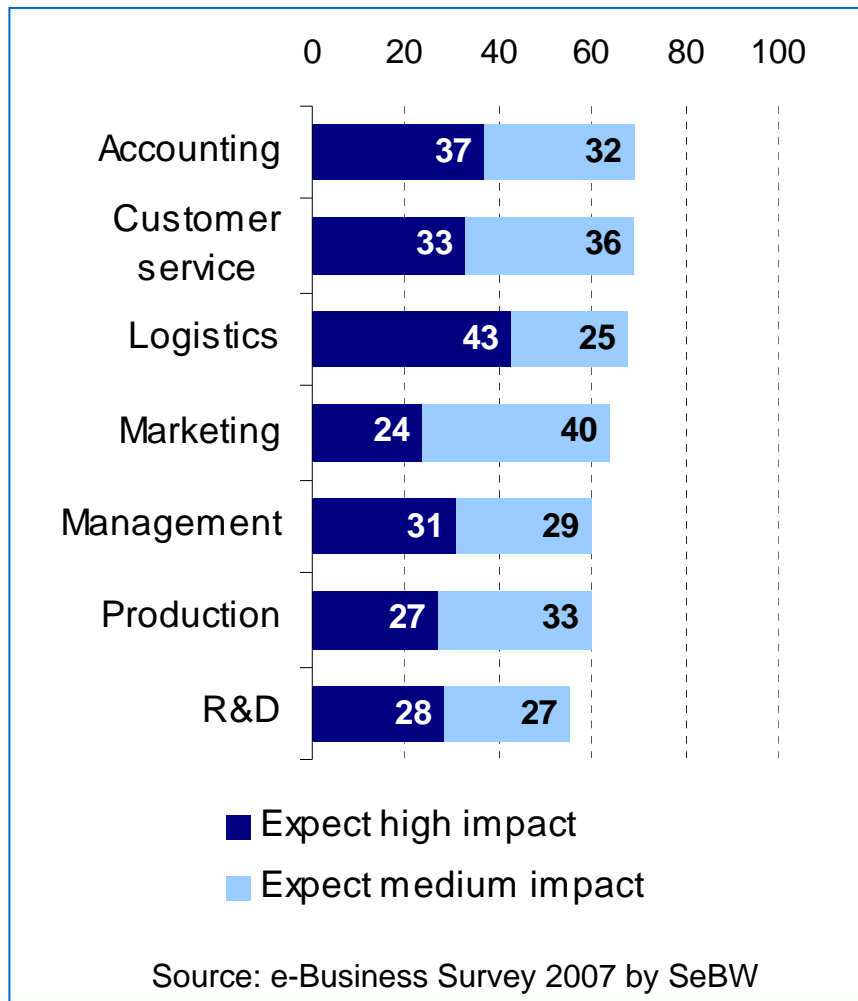


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ICT – a general purpose technology



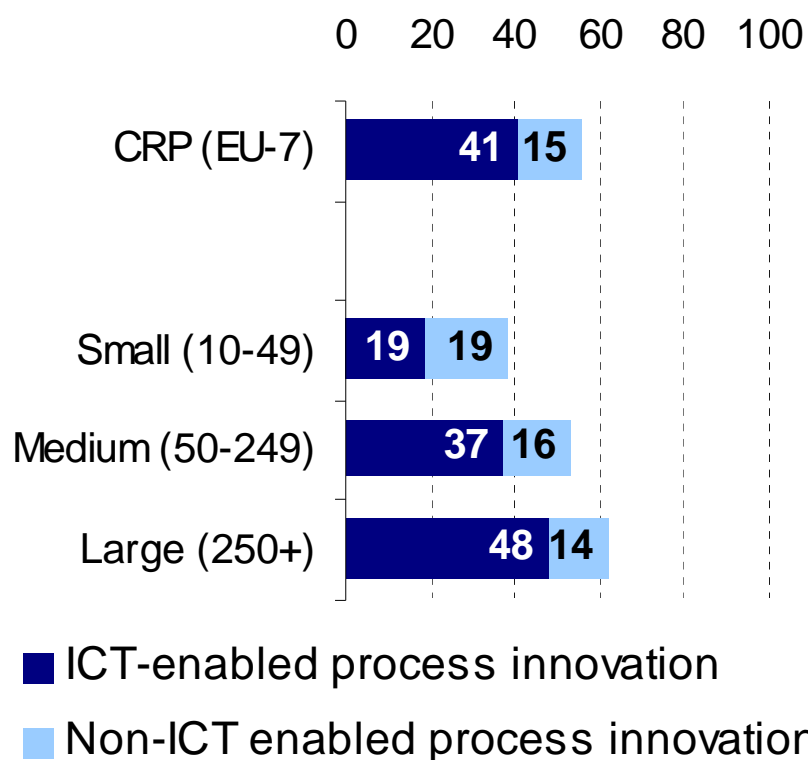
Chemical, rubber and plastics industry:

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

ICT impact on value added & productivity growth (macro)

- Growth accounting (using EU-KLEMS)
 - Non-ICT-capital investment contributed more to value added growth than ICT-capital
 - However: "embedded ICT" difficult to account for
- Impact on labour productivity growth
 - Intermediate inputs intensity (materials, energy, services) is the key driver
 - Only a moderate impact of ICT-capital investment
- Complementary upgrading of skills needed
 - quality change from low to medium/high skills

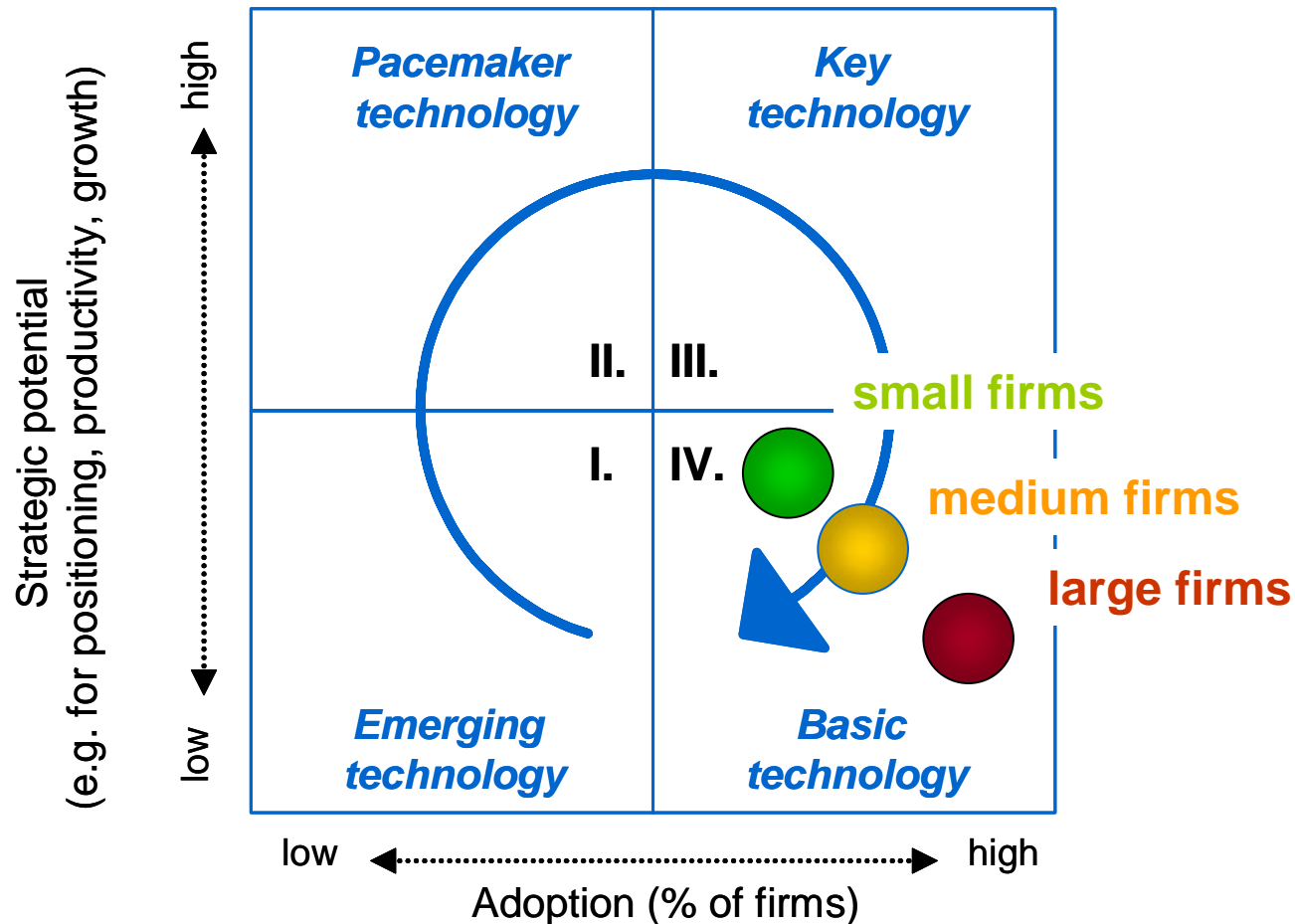
% companies having introduced new processes in past 12 months



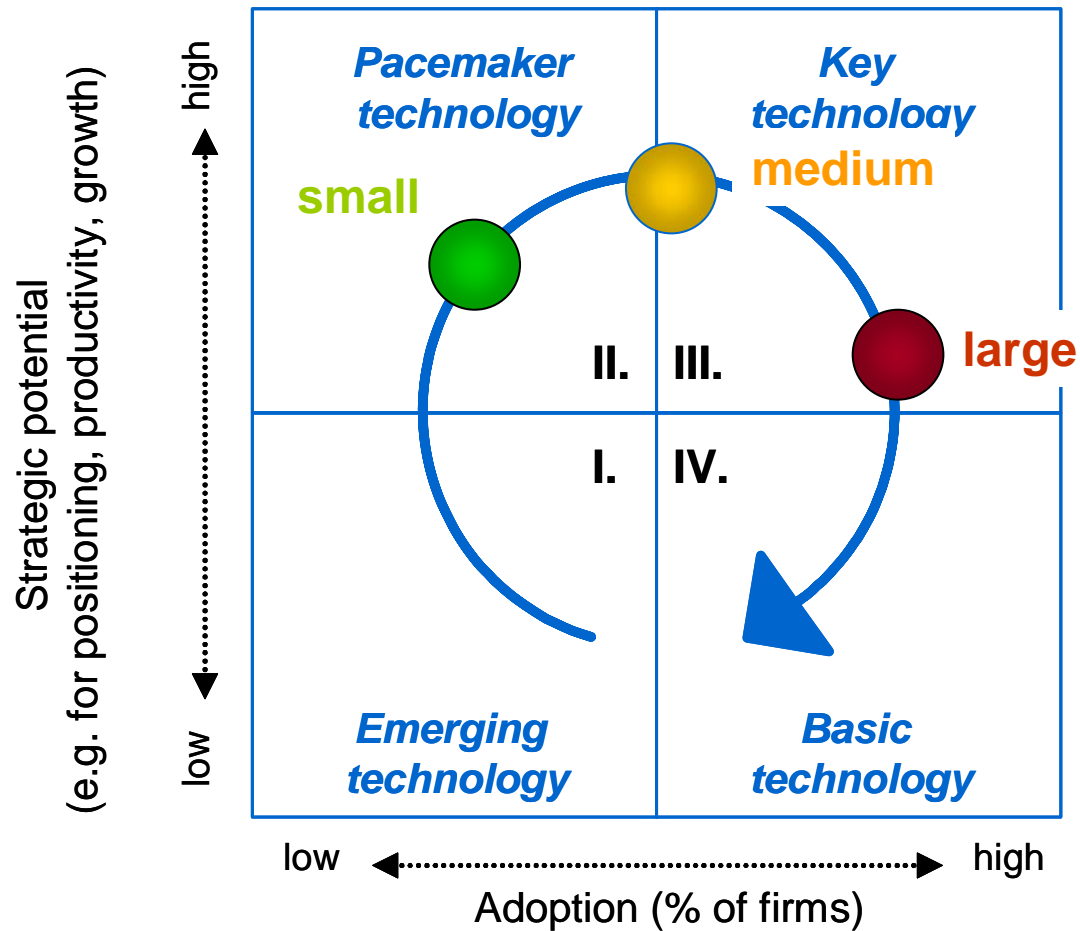
Source: e-Business Survey 2007 by SeBW

- About 70% of process innovations are ICT-enabled
- ICT usage implies organisational changes:
 - confirmed for software systems (e.g. ERP, CRM)
 - but not for basic ICT infrastructure and hardware equipment

Basic ICT adoption in a life-cycle perspective



Advanced e-Business in a life-cycle perspective





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Industrial policy implications for the sector



- EC HLG on competitiveness of the chem. ind.
- ICT & e-business are not a top priority
 - Still ICT & e-business matter
- Objectives:
 - to accelerate adoption of advanced e-business practices among smaller companies
 - to facilitate creating comparative advantage for the sector in Europe
- Process architectures and e-standards are available – they need to be used!

Objectives and possible measures

Strengthen the e-business skills base

Promote entrepreneurial understanding of e-business (small firms)



- Documentation of SME "best practice" examples
- Grant schemes for projects
- Peer-to-peer exchanges

Improve supply of ICT & e-business professionals (large firms)



- → *Afternoon Session on "e-Skills"*

Objectives and possible measures

Further improvement of framework conditions

Remove legal uncertainty & complications related to cross-border exchanges



- Harmonisation of tax requirements for e-invoicing

Specific issues

Explore opportunities to use ICT for facilitating REACH compliance



- Specify interfaces
- Cooperate with ICT vendors
- Make recommendations to SMEs



**Full study report (forthcoming)
and further information:**

www.ebusiness-watch.org

**Hannes Selhofer
empirica GmbH, Bonn**

