European Software Association

euroTICS 2006

European Computer Science Summit

Zurich

17th October 2006

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The Voice of the European Software Community

Challenges for the European Software Industry

The Competition for Graduate Skills from an ICT perspective

Jeremy Roche
Chairman of the European Software Association
CEO of CODA Group

The Competition for Skills

- Introduction
  - The European Software Association
    - An association of packaged software developers with R&D facilities in Europe
    - Active involvement of CEOs or equivalent
    - Based in Brussels – members across Europe
    - Founded October 2005 with active encouragement from the European Commission
    - To provide a single point of contact at European level for the software development industry
    - Fragmented, diverse industry that impacts on several commissions, each of which needs to work with authorative industry representatives

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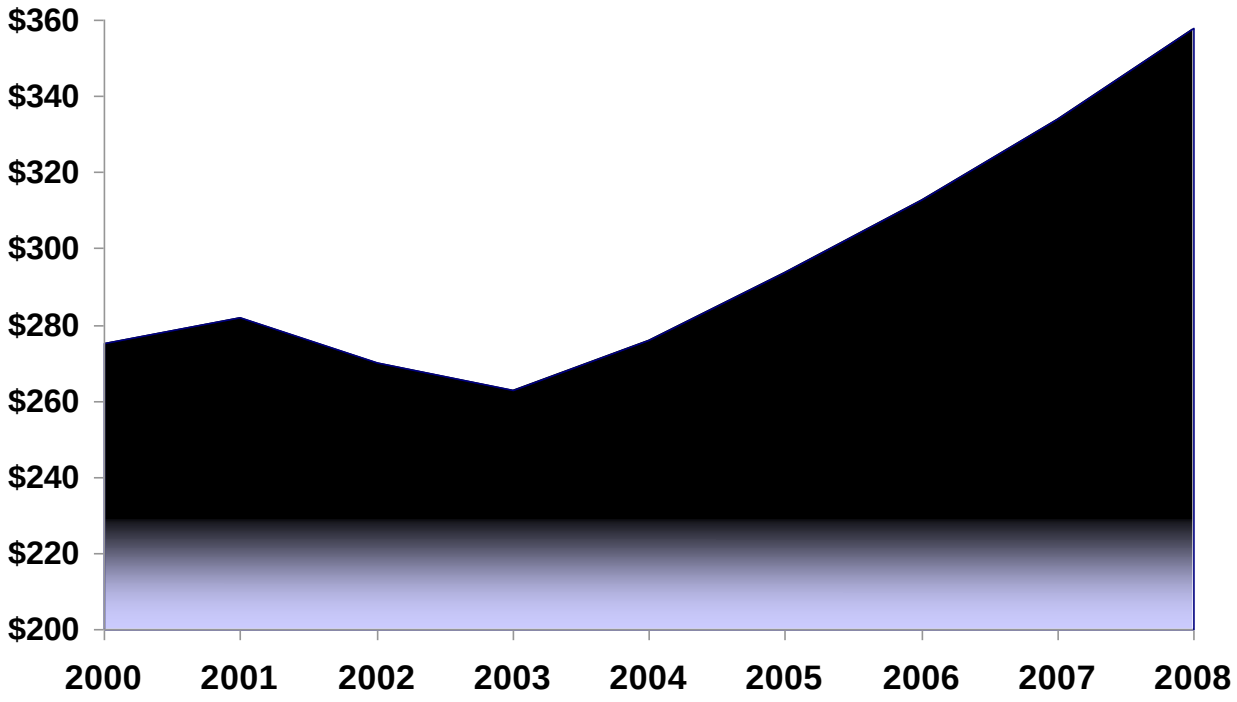
- Economic strategy
  - The European Commission has identified ICT and particularly Software as a strategic economic growth segment
    - The Industry itself
    - Support for innovation within other industries
  - i2010 sets out a framework for requirements and results
  - Europe can only supply finite levels of skilled resources
  - All indications suggest a serious shortfall
    - Quantitative and qualitative evidence

IT Spending in EMEA

Billions
(Constant 2003 Dollars)



Austria
Denmark
France
Germany
Ireland
Italy
Netherlands
Portugal
Spain
UK
Czech Republic
Estonia
Hungary
Lithuania
Russia
Poland
Israel
South Africa
Turkey

Source: IDC IT Economic Impact Study, 19 EMEA Countries

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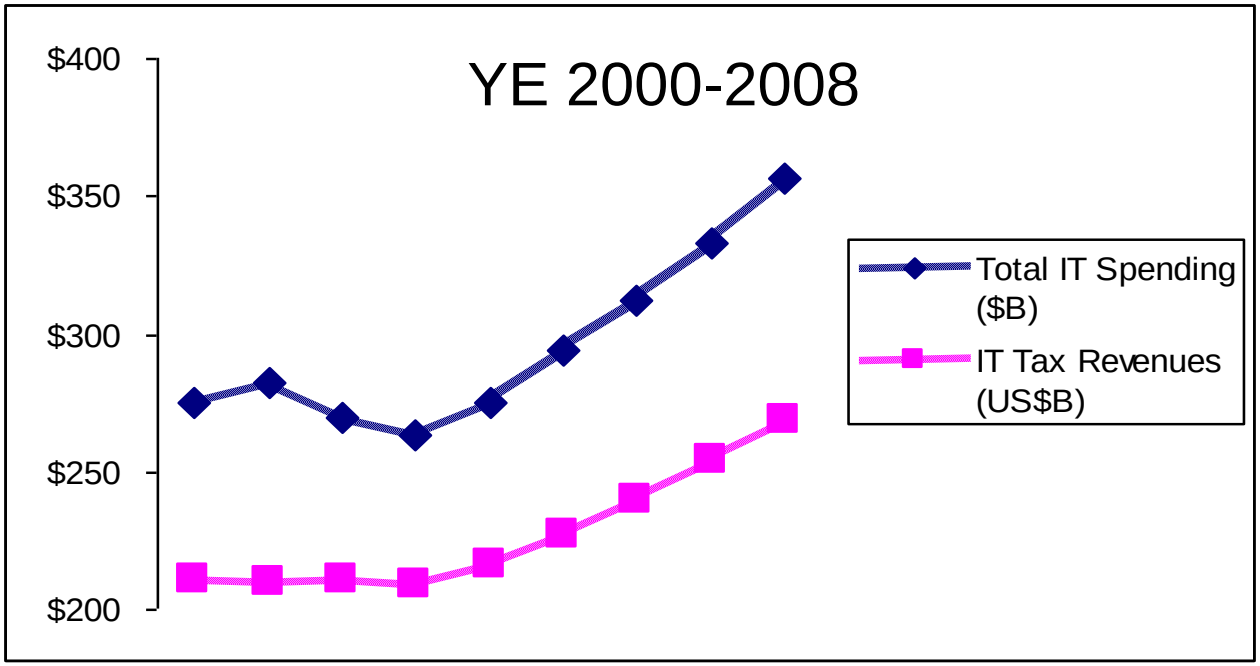
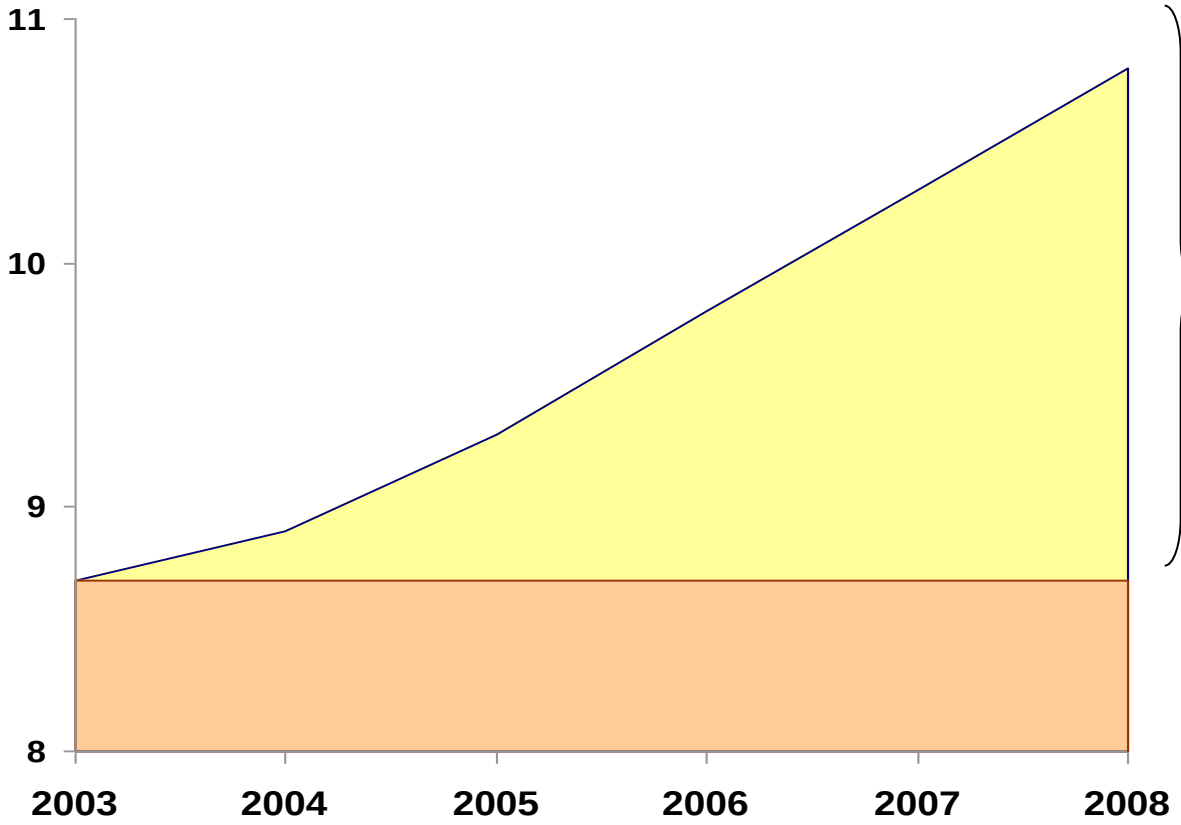
IT as a % of GDP

2000	2001	2002	2003	2004	2005	2006	2007	2008
3.37%	3.40%	3.21%	3.08%	3.15%	3.27%	3.39%	3.53%	3.69%



Source: IDC IT Economic Impact Study, 19 EMEA Countries

IT-Related Employment



2.1 million new jobs from the end of 2003

Czech Republic
Estonia
Hungary
Lithuania
Russia
Poland
Israel
South Africa
Turkey

Austria
Denmark
France
Germany
Ireland
Italy
Netherlands
Portugal
Spain
UK

Source: IDC IT Economic Impact Study, 19 Countries

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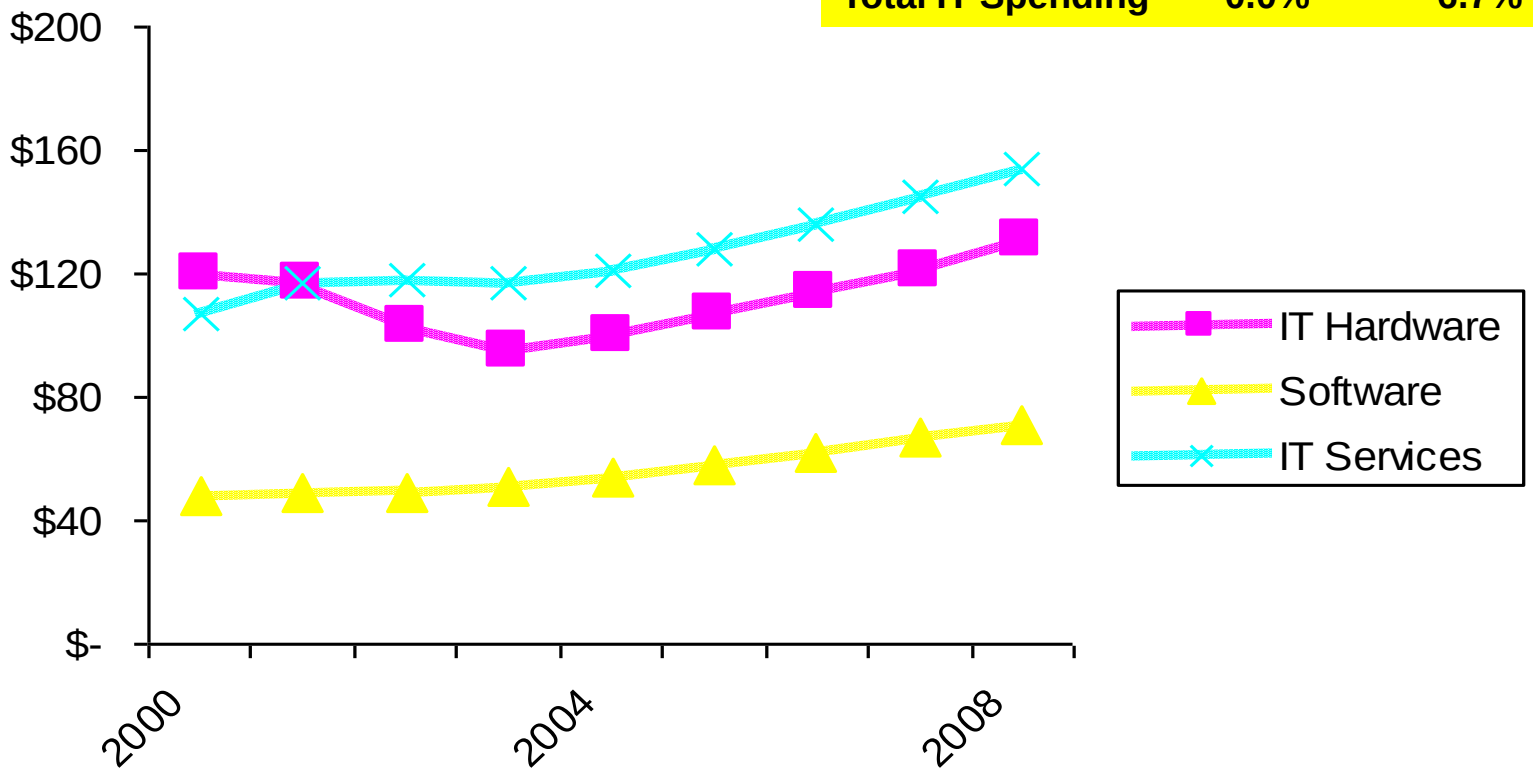
	CAGR	CAGR
Software	**3.0%**	**7.3%**
Total IT Spending	**0.0%**	**6.7%**

EMEA IT Spending ($B), 2000-2008*



Source: IDC IT Economic Impact Study, 2004, 19 Countries

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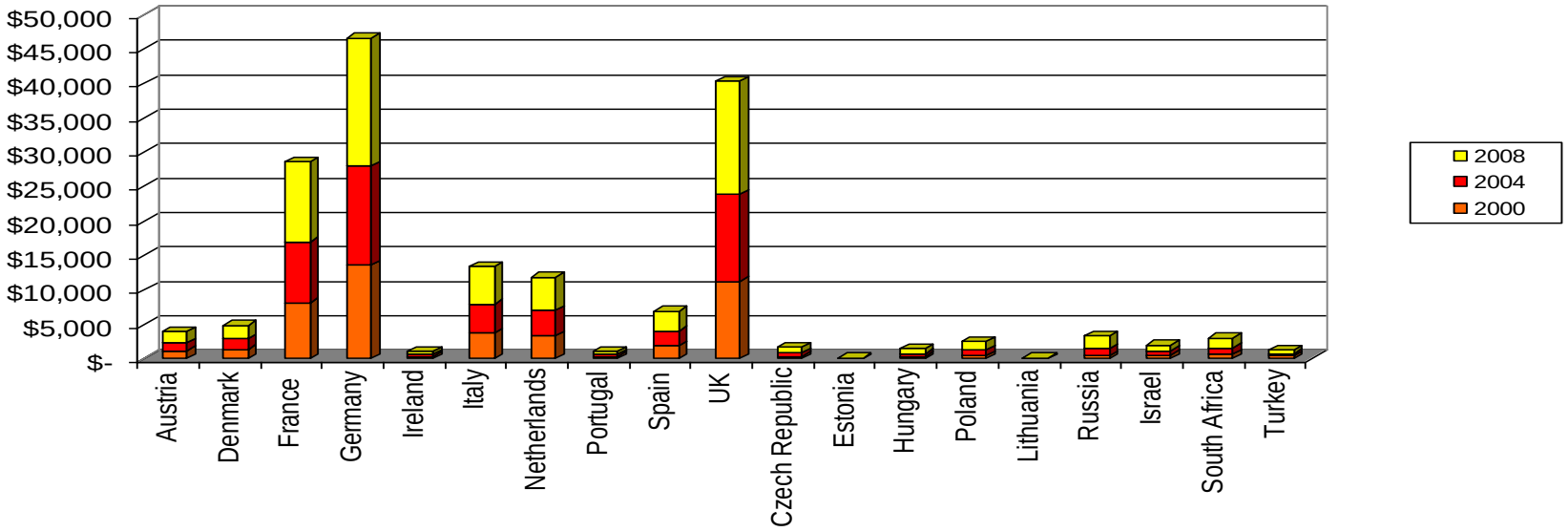
Software Spending 2000-2008



- Software investment experienced a 3.0% CAGR between 2000 and 2004
- Over the next four years, the market is forecast to grow at a 7.3% CAGR
- Turkey, Russia and Poland will have the most aggressive growth with all countries exceeding a four year CAGR of 13%

Source: IDC IT Economic Impact Study, 2004, 19 EMEA Countries

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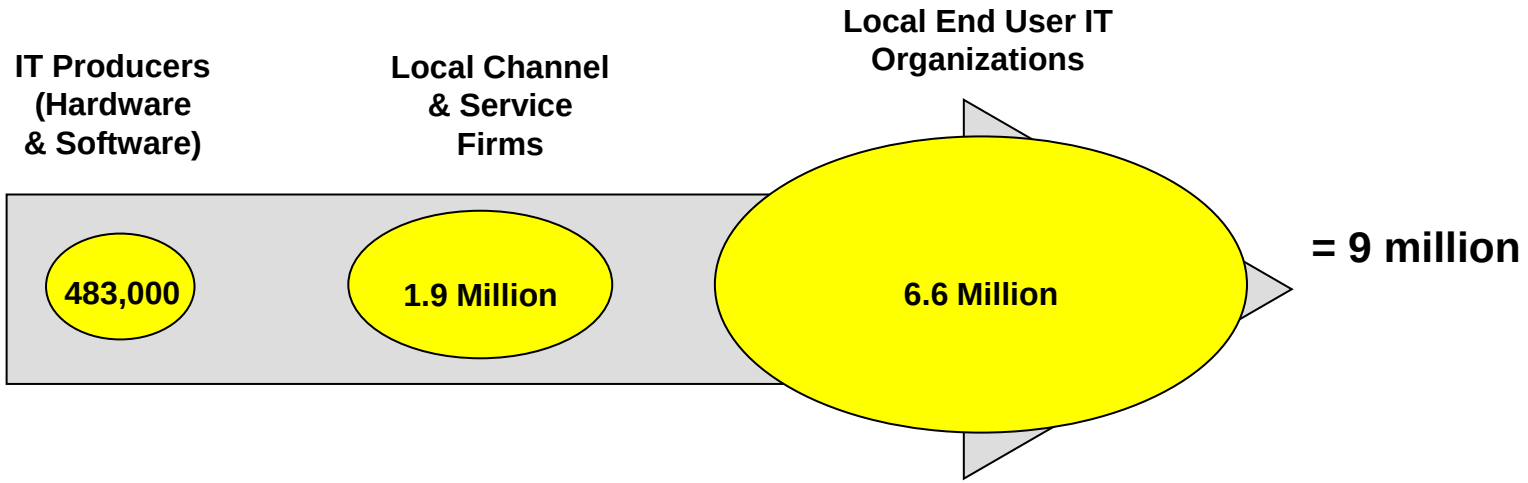
2004 IT Employment by Sector



- Approximately 9 million people are employed in IT related functions in the 19 study countries
- Over the next four years, even modest IT growth will drive an additional 2 million jobs
- While software represents only 20% of total IT spending, it drives over 50% of employment

Source: IDC IT Economic Impact Study, 2004, 19 Countries

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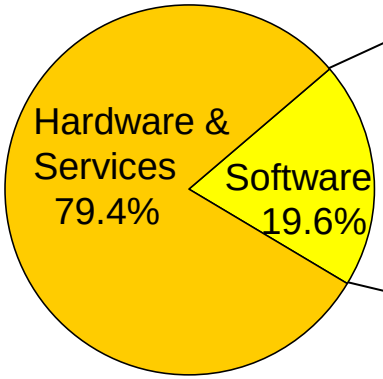
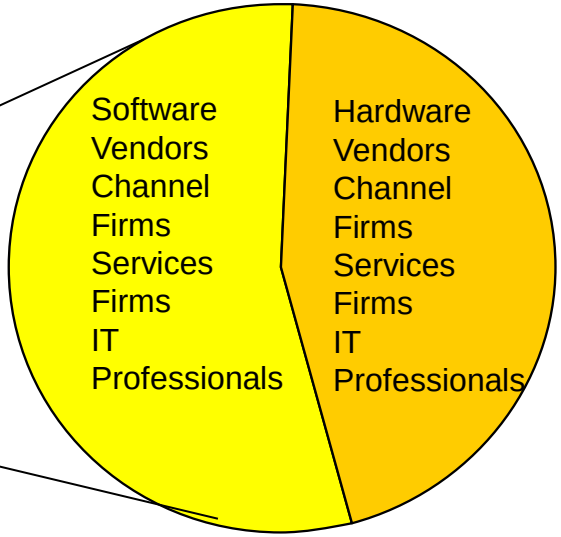
Software's Influence will Continue to Increase

IT Spending, 2004



$275 Billion

Employment, 2004



8.9 Million

Source: IDC IT Economic Impact Study, 2004, 19 Countries

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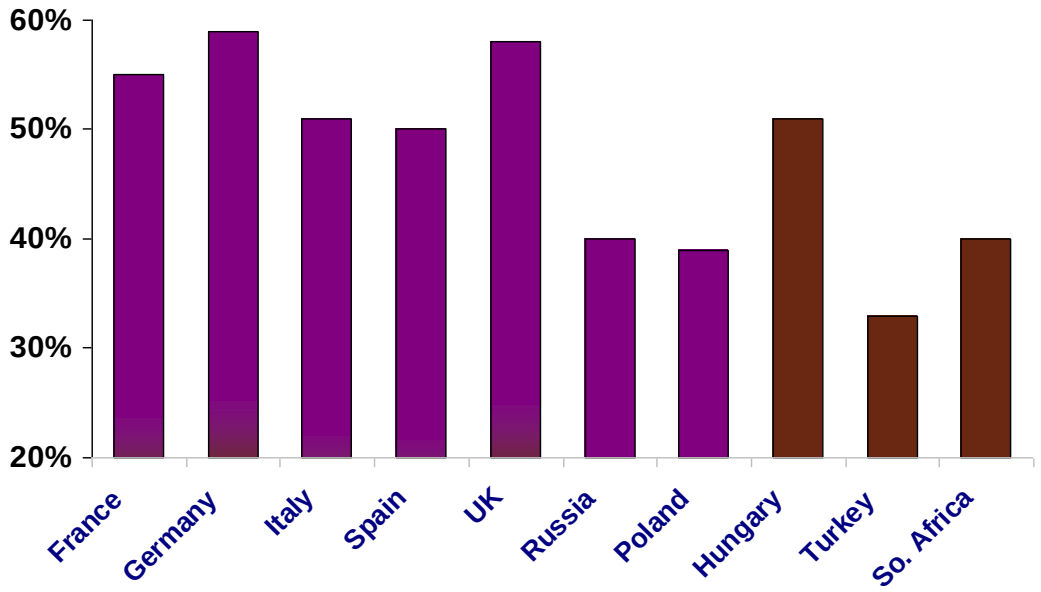
Software % of ICT Employment



Software-Related* Employment

** Includes software vendor employees, channel and services employees focusing on software, and a percent of end user IT professionals concentrating on software*

Source: IDC IT Economic Impact Study, 2004, 19 EMEA Countries

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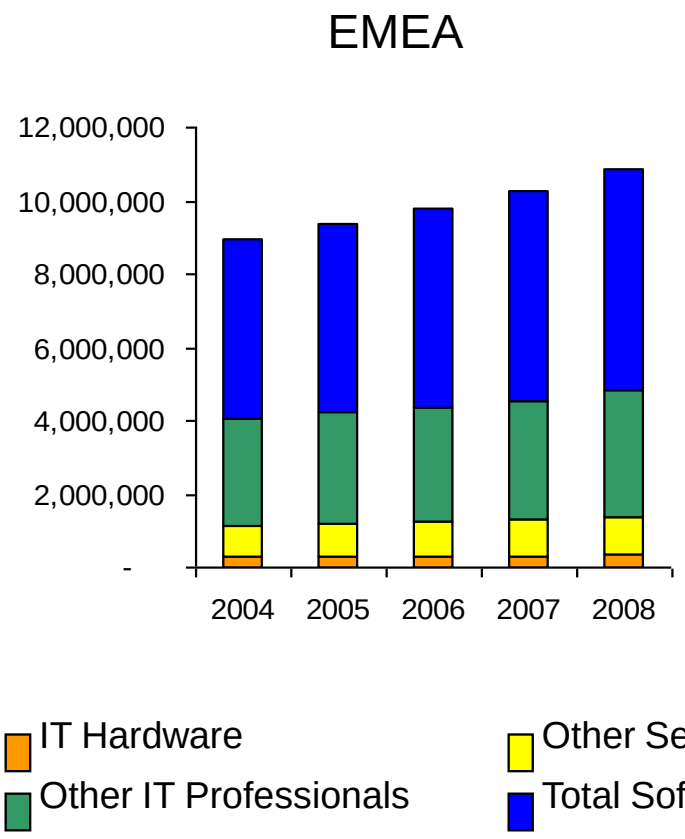

IT Growth Creates Employment Opportunities

- **General IT employee opportunity will increase from 8.9M jobs today to almost 11M jobs in 2008**
- **Over half of these jobs will be software or software related employment**

**Total Software Employees include Software Vendors, Software-related Services and Channels and Software-related IT Professionals*

Source: IDC IT Economic Impact Study, 2004, 19 EMEA Countries

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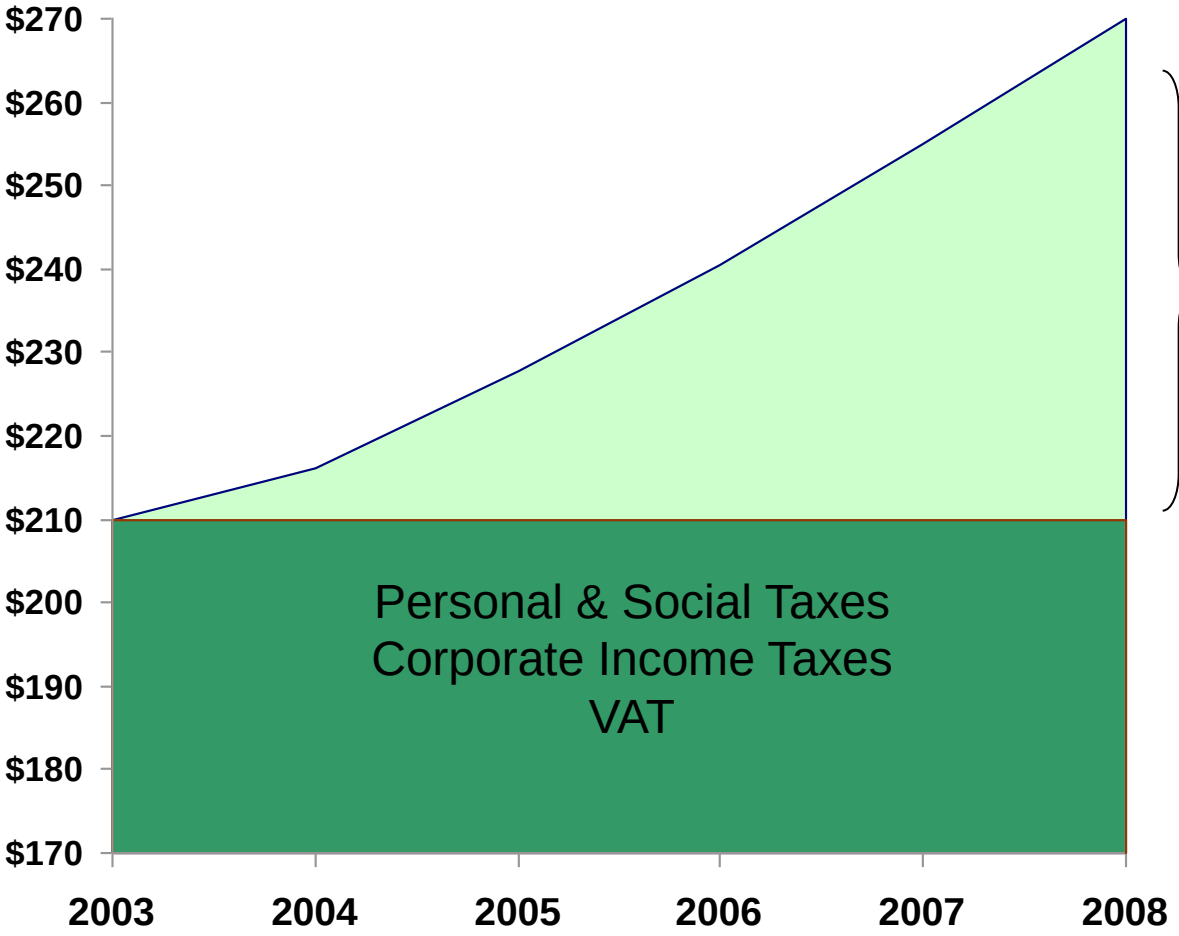
IT-Related Tax Revenues



$160 billion in new tax revenues 2003-2008

Czech Republic
Estonia
Hungary
Lithuania
Russia
Poland
Israel
South Africa
Turkey

Austria
Denmark
France
Germany
Ireland
Italy
Netherlands
Portugal
Spain
UK

Source: IDC IT Economic Impact Study, 2004, 19 Countries

The Competition for Skills

- Economic strategy – a prediction
  - IT spending in the region should hit 6% per year through 2009
  - In the next four years, 2006 through 2009, the IT sector will generate over 1.5 million new jobs;
    - 60% will be software-related
  - In 2009 IT-related taxes will be $72 billion higher than in 2005
  - Over the next four years, 2006 through 2009, the IT sector will drive a total of $179 billion in *incremental* tax revenues

Source: IDC EU+3 Economic Impact Study, 2006

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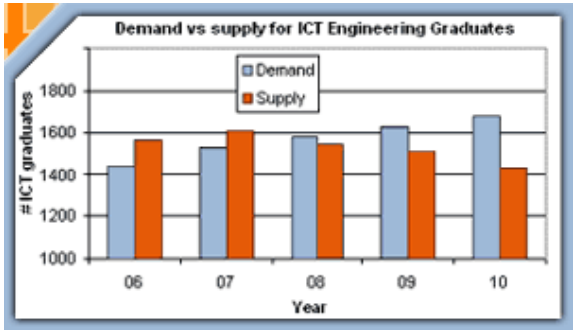
- IT & Software companies and end user Companies all require resources!
  - The business community demands innovative ICT to support efficiency and growth
  - Education policy in several EU countries (notably the UK) is shifting graduates away from sciences to humanities and arts
  - The EU sees software as a growth economic segment on both demand and supply sides
  - Software development demands:
    - Technical skills
    - Business domain skills
  - So does almost every other economic segment
    - Efficiency through greater automation
    - Effectiveness through greater sophistication



Source: www.electronic.ie/demand.php

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- The software industry is therefore facing a two dimensional skills shortfall:
  - dimension 1°
    - staffing within the software development industry
  - dimension 2°
    - skills within the general population and user community to ensure successful uptake and use of ICT technologies

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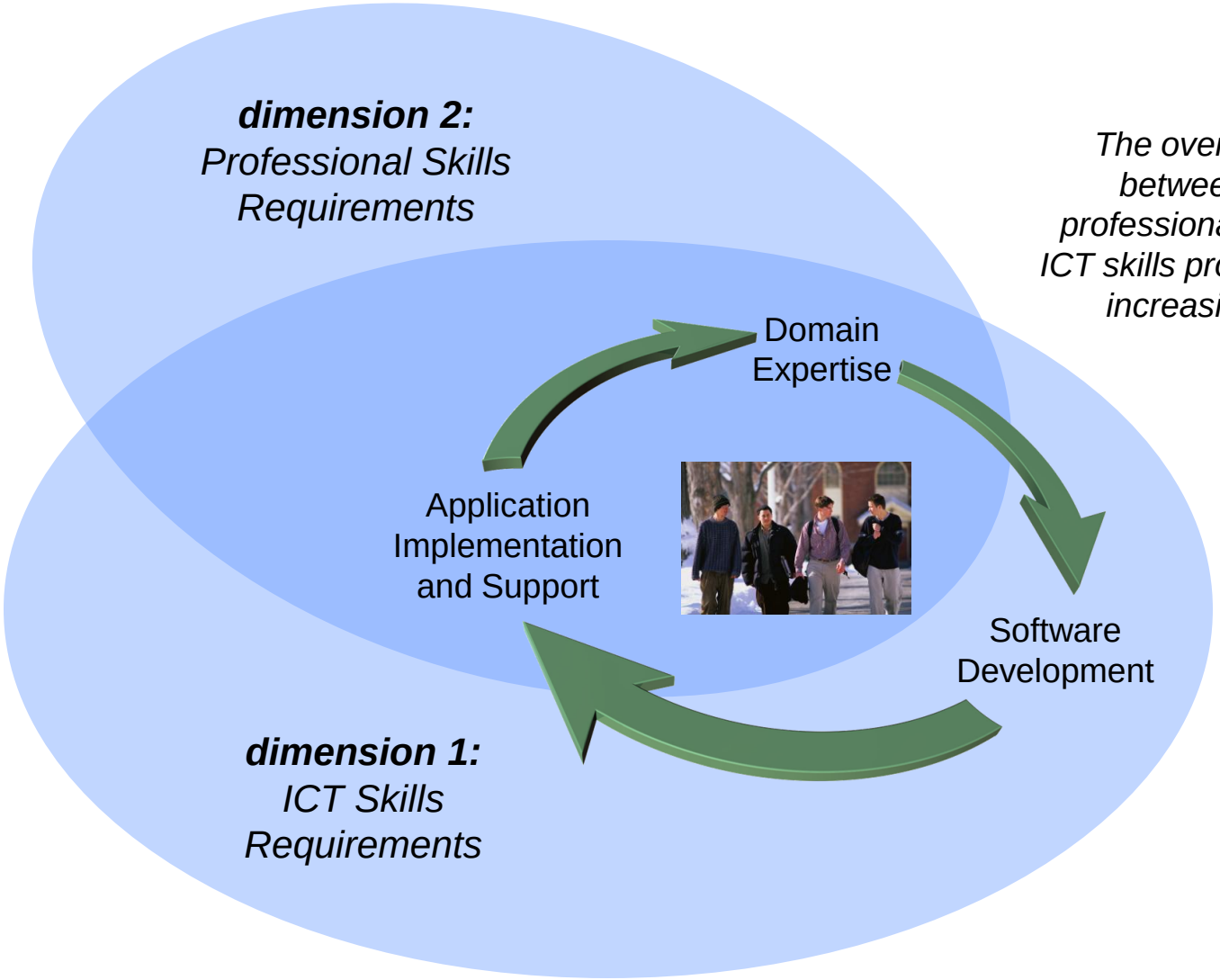

The overlap between professional and ICT skills profiles is increasing

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- Is Off-shoring the answer?
  - European Software Association Members say that primary driver for off-shoring is lack of skilled resources
    - Cost is NOT the prime driver
    - Increased management and design costs offset against savings
  - India produces over 100,000 graduates in software related disciplines each year
  - Norway for example produces about 200 in sof

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- Is Offshoring the answer?
  - India and Asia now starting to have their own skills shortages (Predicted 600,000+ to 2009)
  - Quality may be falling
  - Wages are rising
  - Infrastructure is under pressure
- There is a place for offshoring – but is not a complete solution
  - Combining on-Europe and off-shore
  - Development centres in emerging European countries can be better than off-shoring

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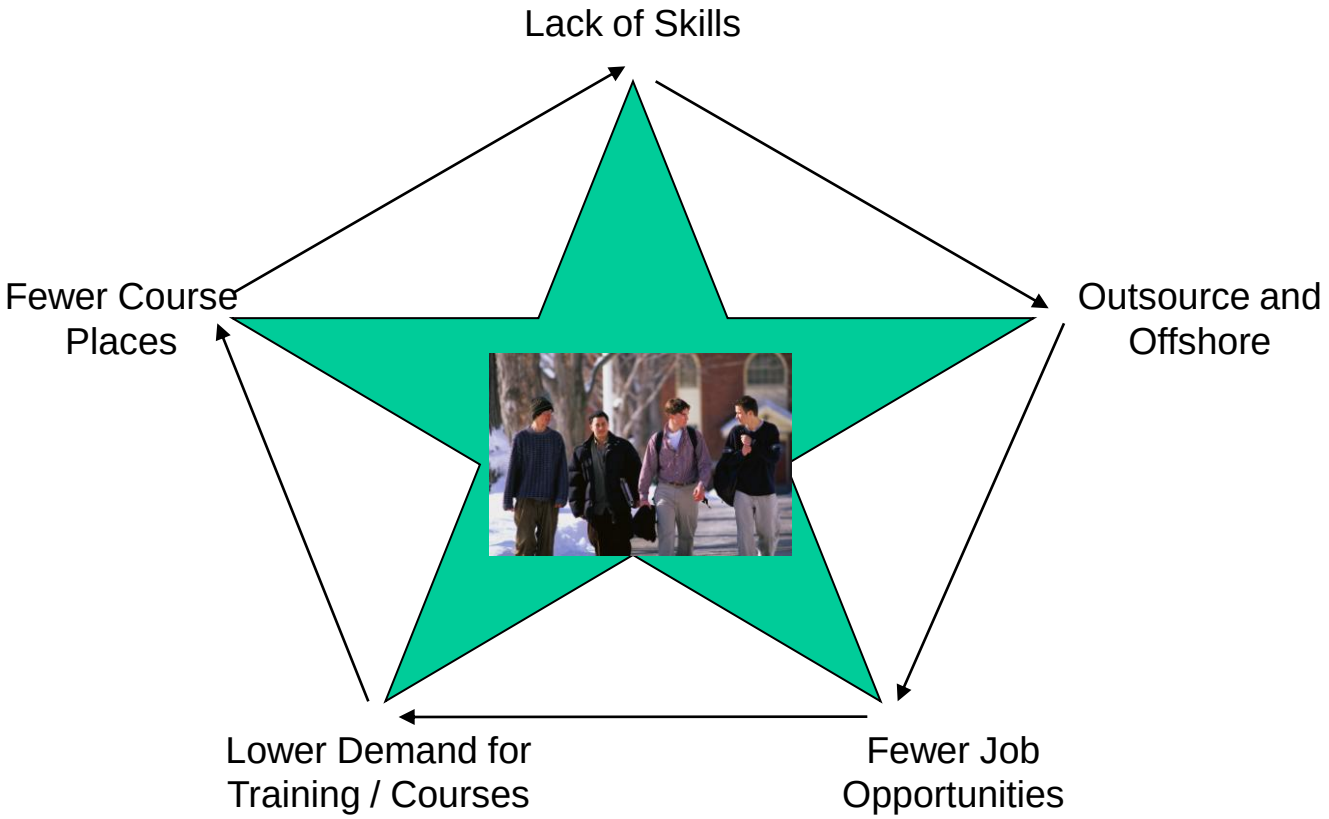

The Off-shoring/Outsourcing Cycle

The Competition for Skills

- dimension 1 - What could be done:
  - Education
    - a multidisciplinary academic approach needed
      - mixed curricula
      - specialized in a particular field, for example Software or nano technologies or gaming
      - at the same time generalists (finance, engineering, legal, etc.)
    - engage in projects with industry during education
    - include in curricula skills needed for tomorrow
    - teach students how to manage a life-long learning experience
    - Recognise the roll of the SME as well as the mutinaitonal
  - Skills mobility
    - Create the conditions needed for a true European labor market
    - Harmonization of labor laws and tax regimes
    - Proper alignment of social legislation with international trading policies

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- dimension 1 - What could be done:
  - Market Led
    - Training
      - Greater commitment from a far wider range of businesses to the internship concept
        - » graduates or students receive a standard internship program across in different functions and countries
        - » This could help SMEs in particular to attract and engage quality graduates
      - Develop high-quality on-line courses to reduce cost of training
      - Offer these courses to schools and colleges across Europe for inclusion in their curricula
    - Information
      - Better quality, more independent market information needed
        - » Impossible to plan on the patchwork of mixed quality research and advice currently available
      - The industry should take some responsibility promote software development studies
        - » software is everywhere - in media, gaming, communication
        - » actively help universities to encourage students to gain hands-on industry experience
        - » actively engage students and pupils at schools and colleges
    - Career structures
      - create transparency
        - » More uniform job titles for the same capabilities across EU
        - » Will make cross-European hiring processes easier, especially for SMEs

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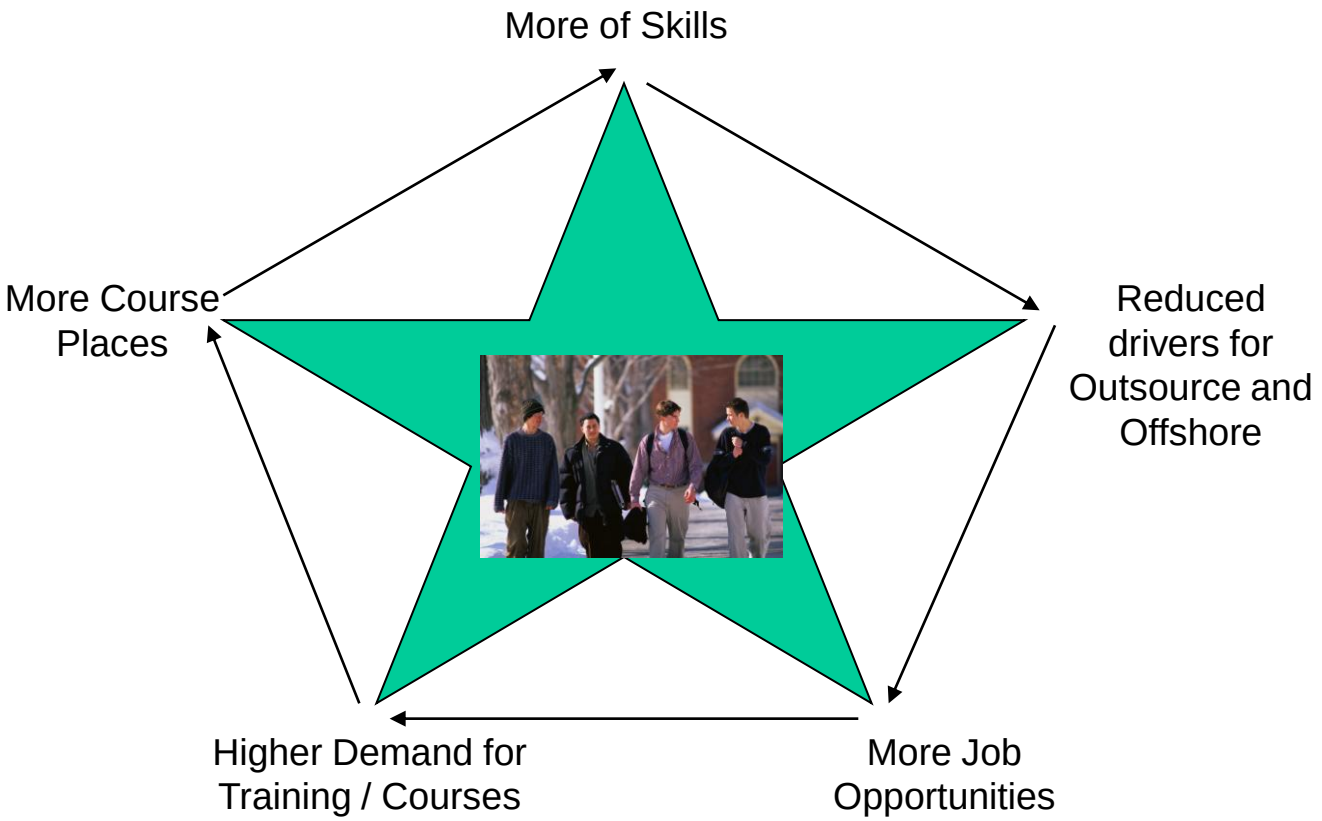

The Skills Development Cycle

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- dimension 2 – What could be done:
  - Software systems are more diverse and ICT more pervasive than ever
    - More need for a wider range of skilled users
    - Software technology should be more flexible to the needs of the users
      - Software development should evolve to become a ‘services science’
  - Better information and training on IT capabilities for senior managers
    - Industry needs to establish independent information resources
    - Analysts need to be more European focused and ‘professional’

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- Action today
  - The Software industry and the academics must engage with European Commission on eSkills
    - produce a balanced skills pool
    - We are stronger together
  - Exchange best practice between governmental levels
    - local, national, European, maybe even global
  - Our industry needs to engage with you as educators:
    - Tell you what we need
    - Tell you where it is needed
    - You need to explain to us hw to engage
  - The European Software Association
    - Is ready to engage with you
    - Will communicate with software companies throughout Europe
    - Through our members and our Network Partners (local associations)

Examples of skills required: CODA

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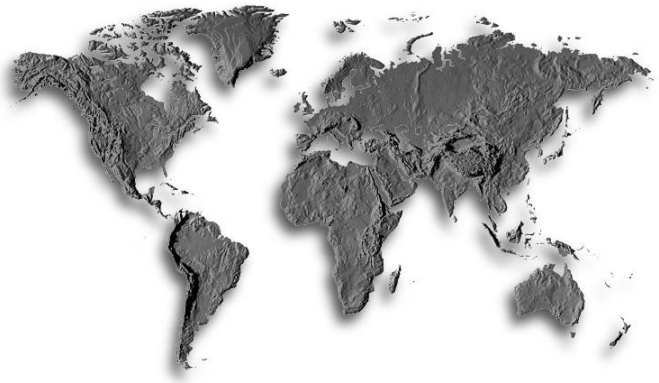
CODA
Count on it!

- 13 Countries
- 16 Offices
- 550 Employees (170 in R&D Direct)
- 2500 customers
- Quoted Company (London AIM: CODA)



Examples of skills required: CODA

- Architects
- Analysts
- Developers
- Testers (Manual and Automated)
- Documentation
- Benchmarking and Technical Specialists
- Quality
- Sales/Pre-sales
- Consultants
  - Application
  - Technical
- Trainers
- Support Analysts

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- Example - ICT Ireland
  - Research shows trainee programs are more popular with large companies
  - The “Trainee Concept" aimed at making it possible for all companies to offer trainee programs
  - Joint meetings between a range of companies of different profiles
    - general speakers
    - blue book on recruitment
    - information on traineeship procedure
    - cost per company is 5,000 euros

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- Example – Dassault Systemes
  - Skills: communication between HR & business development essential
    - engage in discussion to create curricula for graduates
    - shopping list of skills
      - Complexity of ICT means that there are core skill requirements and business specifics
      - Association members have different business products and therefore need different skills
    - to cooperate with universities who are developing talent
      - innovation - R&D is key
  - Review experiences of HR-contacts
  - Maintain and develop relations between business & academics
  - Understand the needs of trainees vis-à-vis relations with students/academics
  - We must develop the skills we need to be maintained in Europe
    - if we do not there is no other solution than to outsource and offshore

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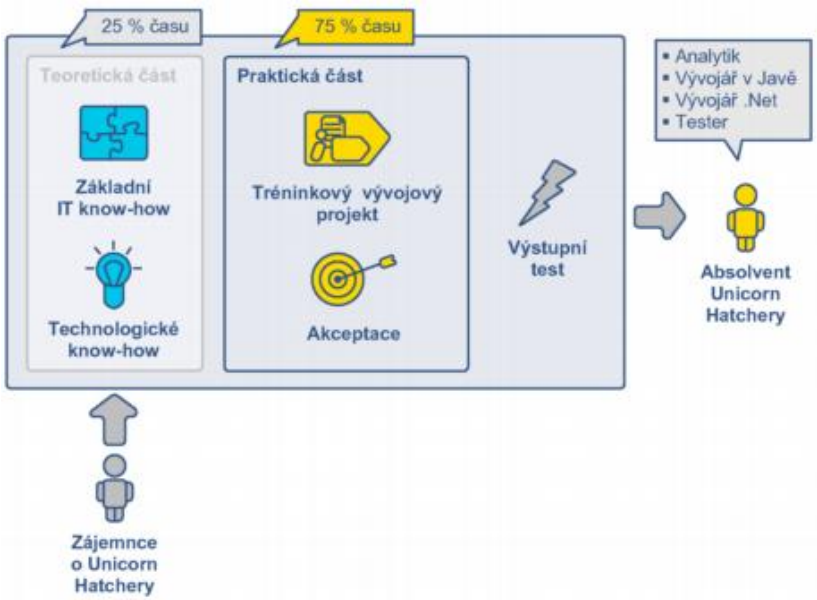

- Example – Unicorn
  - The Unicorn Hatchery
    - Courses for new graduates and undergraduates
    - 25% theory
    - 75% practical content
    - Delivers outcomes focused on skills needed for specific roles

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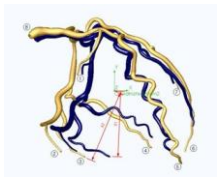
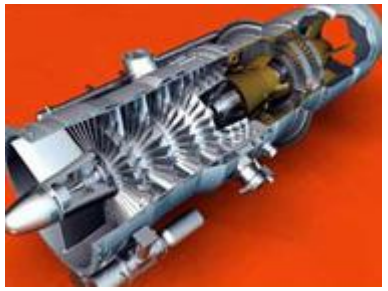
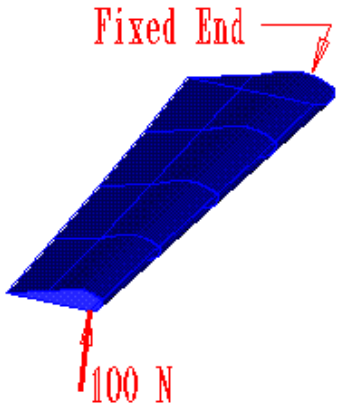
- **Example – CAD/CAM/CAE vendors**







  - Active competition amongst vendors to have their software used by engineering students
  - Pool of young designers already familiar with that product
  - Reduces industry's in-house training costs
  - Influences future buying decisions as graduates take-on future responsibilities
  - Constantly reminding both engineering and IT students that 3D-CAD software is *uber-cool*

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- Example – Accounting Software vendors
  - Rarely communicating with academia
  - Focusing on running a business
  - Need to explain that accounting software is just as cool as the next Lara Croft game!
    - Sponsorship of Extreme-Accounting.com
    - Budapest University – modern accounting systems

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- **The Challenge is therefore**
  - Embrace the opportunity and reduce the threats huge threat!
  - We need to ask and answer some fundamental questions about our economy, society and culture
    - Do we want to maintain a competitive software industry in Europe?
    - Or shall we let it gradually off-shore
  - Shipping it to India is not a sustainable option
    - India predicts a 600,000 FTE shortfall in ICT skills in the same time-frame
    - Market forces will hit here soon
  - It's everybody's problem
    - If we are to meet the predicted 300,000 FTE shortfall in skilled ICT resources by 2010 we must all act now

- **Conclusions**
  - We need to speak to a far wider base within the academic world
    - More universities
    - More faculties within each university
    - Education policy makers
  - We need to be proactive
    - Imaginative ways to get involved in curricula
      - IT side (electronic engineering, telecoms, software development)
      - Application side (engineering and design, accountancy, business studies)
      - Mix the two
  - We must apply a wider commitment to training roles
    - Internships and 'Apprenticeships'
    - Internationally accepted 'professional' training
  - We need a better understanding of how we can do this
    - Academia needs to help us find the right people to talk to
    - The EU and Governments need to find the right level of intervention

Thank you for your attention

Challenges for the European Software Industry

The Competition for Graduate Skills

from an ICT perspective

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