Re-thinking ICT: The Train Has Left the Station

A Development of ICT Industry: Trends & Stages

B The Digital Planet – and a Digital Gap
Professions, labor market: the „C” generation

C Challenges for Researchers and Professionals

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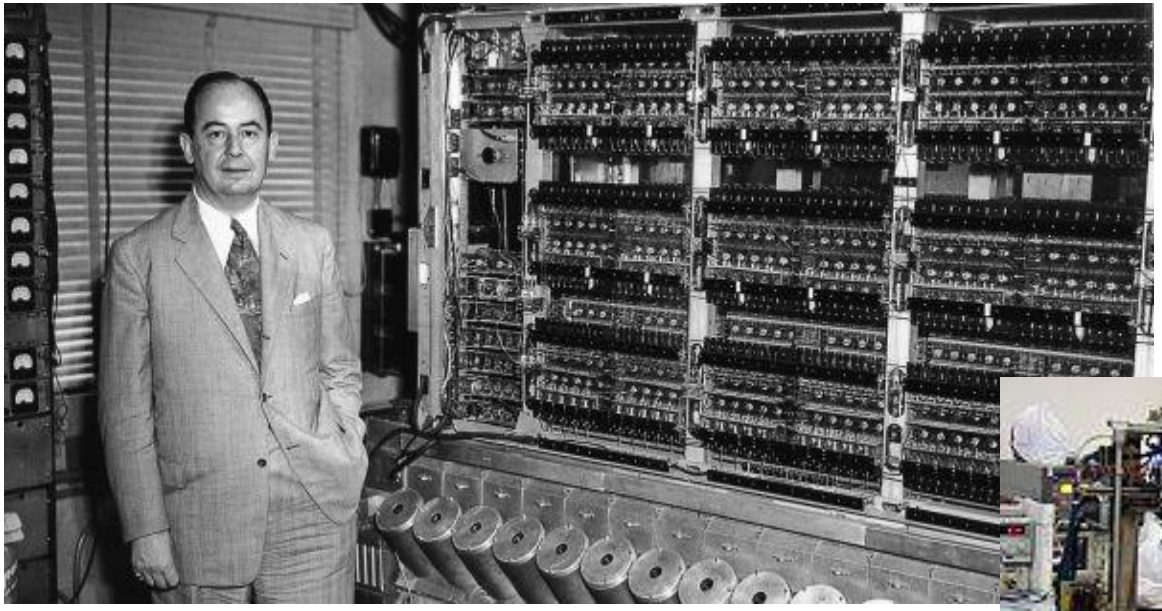
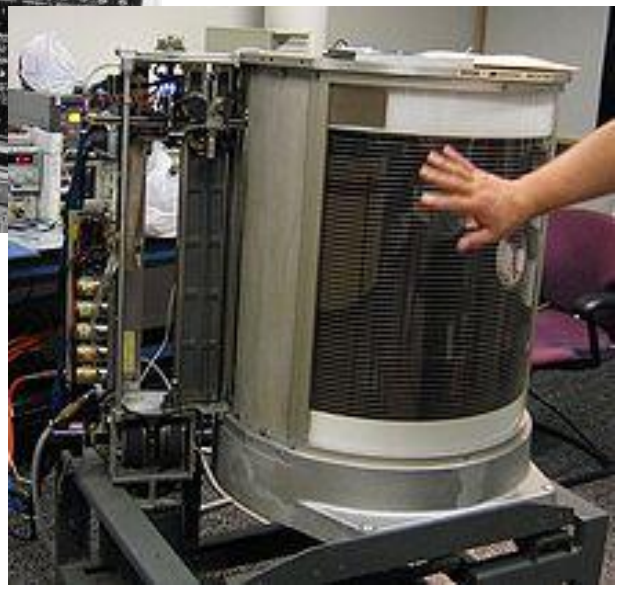
A/ Development of ICT Industry: Where did we come from?



Neumann János and the MANIAC, Princeton, 1952



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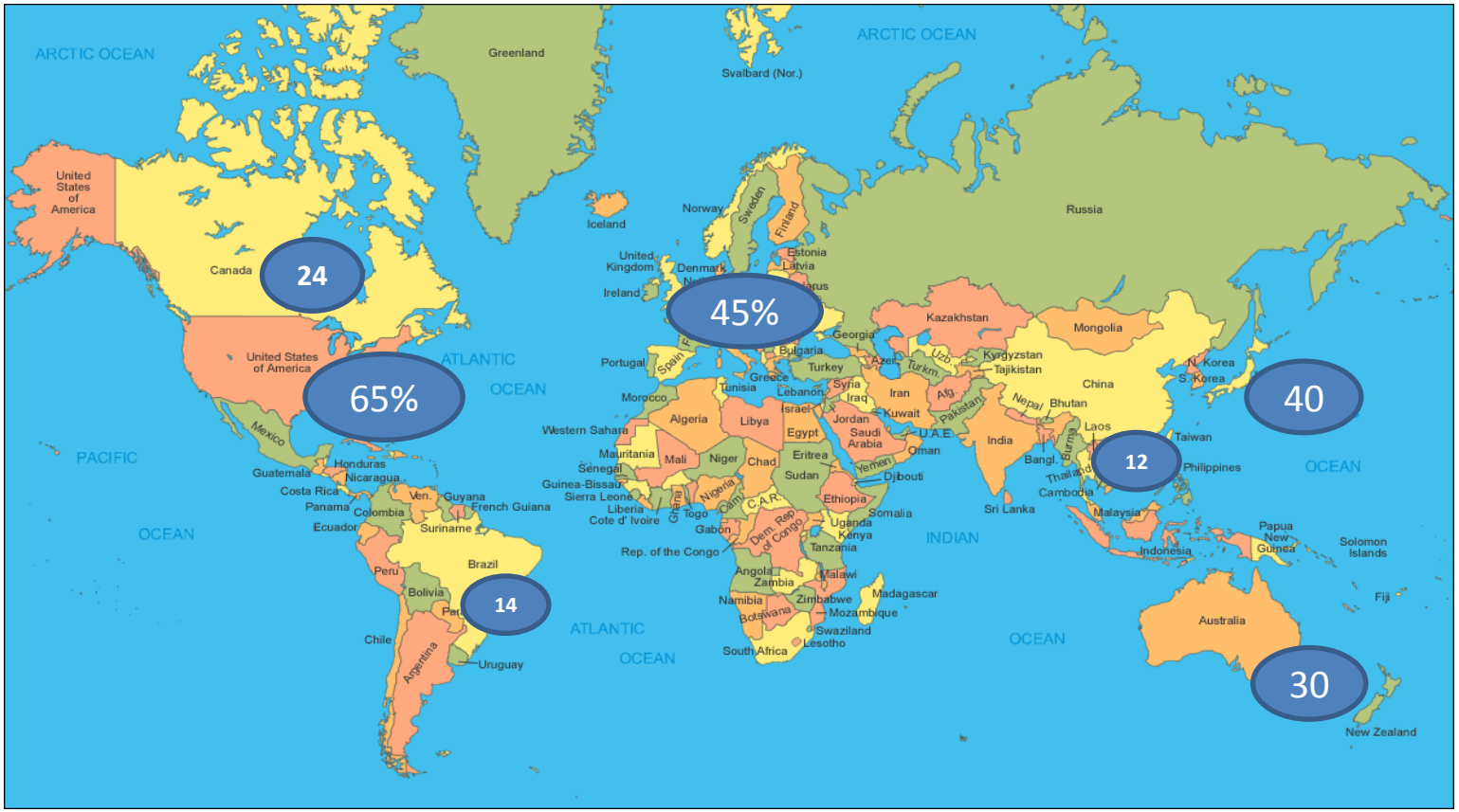
RAMAC, the first IBM hard drive,
50 platters, 3.75 MB, 1956, 74.800.-USD

What can ICT do with us today?
An example: high frequency trading (hft) on exchanges



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The „hft" or „algo"-trading

- **is a full-computer-generated process, named „algorithmic trading"**
- **transactions run in 0,0000001 sec period – generating high turnover**
- **very small „keep times"**

… and where we are staying now?

- appr. 3 million Hungarian adults (of years 18-49) spend 3 hours 9 minutes a day on the Internet, online, as an average
- The Facebook has appr. a billion registered users.
  Day by day appr. 5-600 thousands of Hungarians visit the site.

GfK Hungária, Digital Connected Consumers 2011

- European Council, Lisbon, March 2000:

  „…The basic idea is to enable EU to become competitive and dynamic **knowledge-based economy** capable of sustainable economic growth with more and better jobs and greater social cohesion."

- ICT industry & applications have become the main drivers to support
  - The globalization of economy: enhanced supply chains, global customer base
  - The technological development and innovation: new products and services
  - The economic growth through higher effectivity and efficiency
  - Better life, sustainability, environmental management, etc.

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- Cons:
  - ICT is a skill-intensive, ever-changing industry: an educational and economical challenge
  - The EU workforce is not prepared for ICT-intensive workplaces
  - General dependence on ICT architectures is threatening

C

The most valuable brands of the World

	Brandz	Mrd dollár	Interbrand	Mrd dollár	Brand Finance	Mrd dollár
1	Apple	153,285	Coca-Cola	71,861	Google	48,278
2	Google	111,498	IBM	69,905	Apple	39,301
3	IBM	100,849	Microsoft	59,087	Microsoft	39,005
4	McDonald's	81,016	Google	55,317	IBM	35,981
5	Microsoft	78,243	General Electric	42,808	Wal-Mart	34,997
6	Coca-Cola	73,752	McDonald's	35,593	Vodafone	30,74
7	AT&T	69,916	Intel	35,217	General Electric	29,06
8	Marlboro	67,522	Apple	33,492	Toyota	28
9	China Mobile	57,326	Disney	29,018	AT&T	28,354
10	General Electric	50,318	Hewlett-Packard	28,479	HSBC	27,1

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Computerworld , 2011. október 11., 09:20

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„Values of world brands lost appr. 6,300 billion USD at this crisis.
Even top brands lost 1-2% - but the brand value of ICT industries grew:
in electronics with 12%, in Internet and software industry with 2%."

(Brand Finance , 2012)

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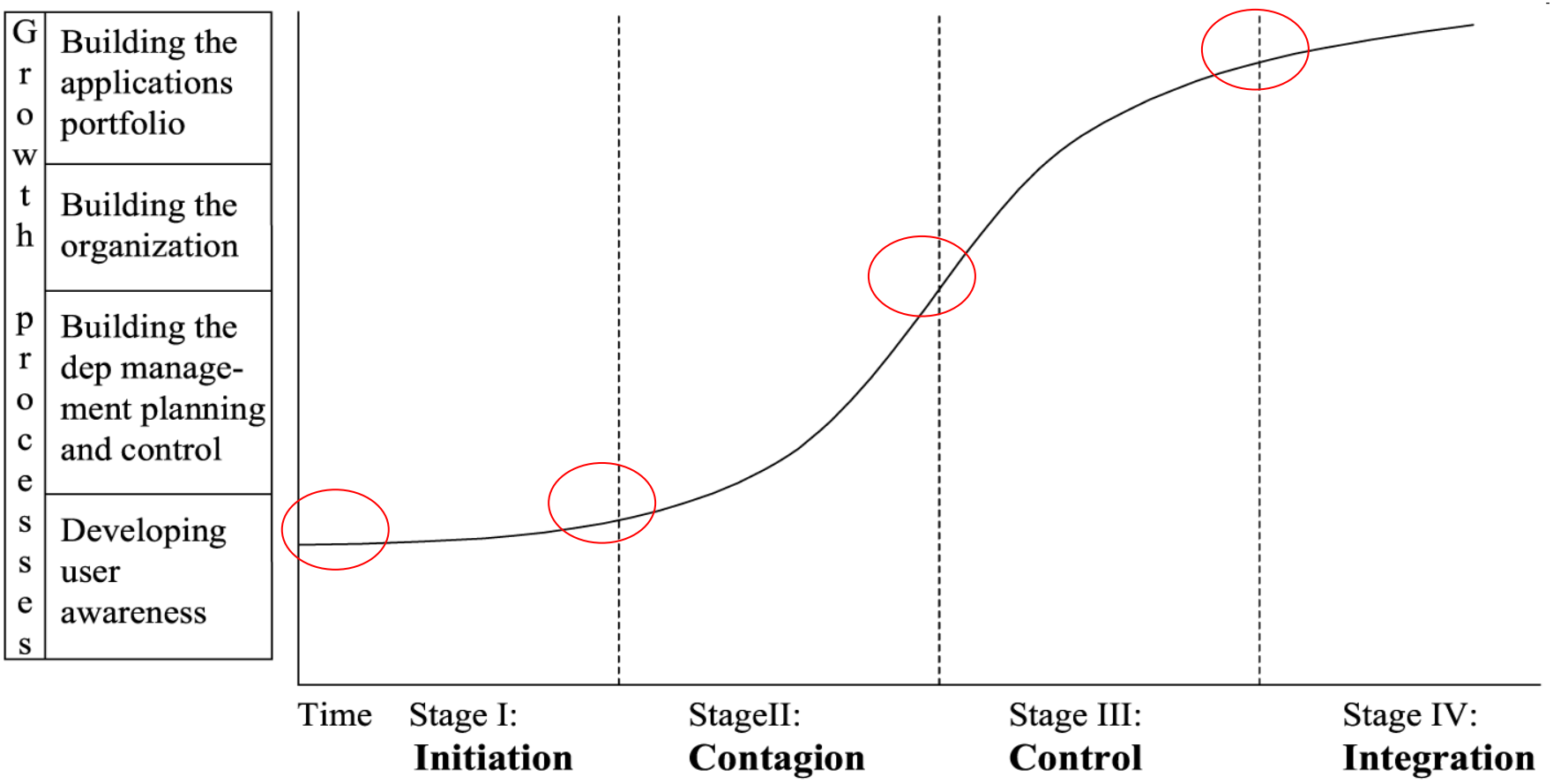
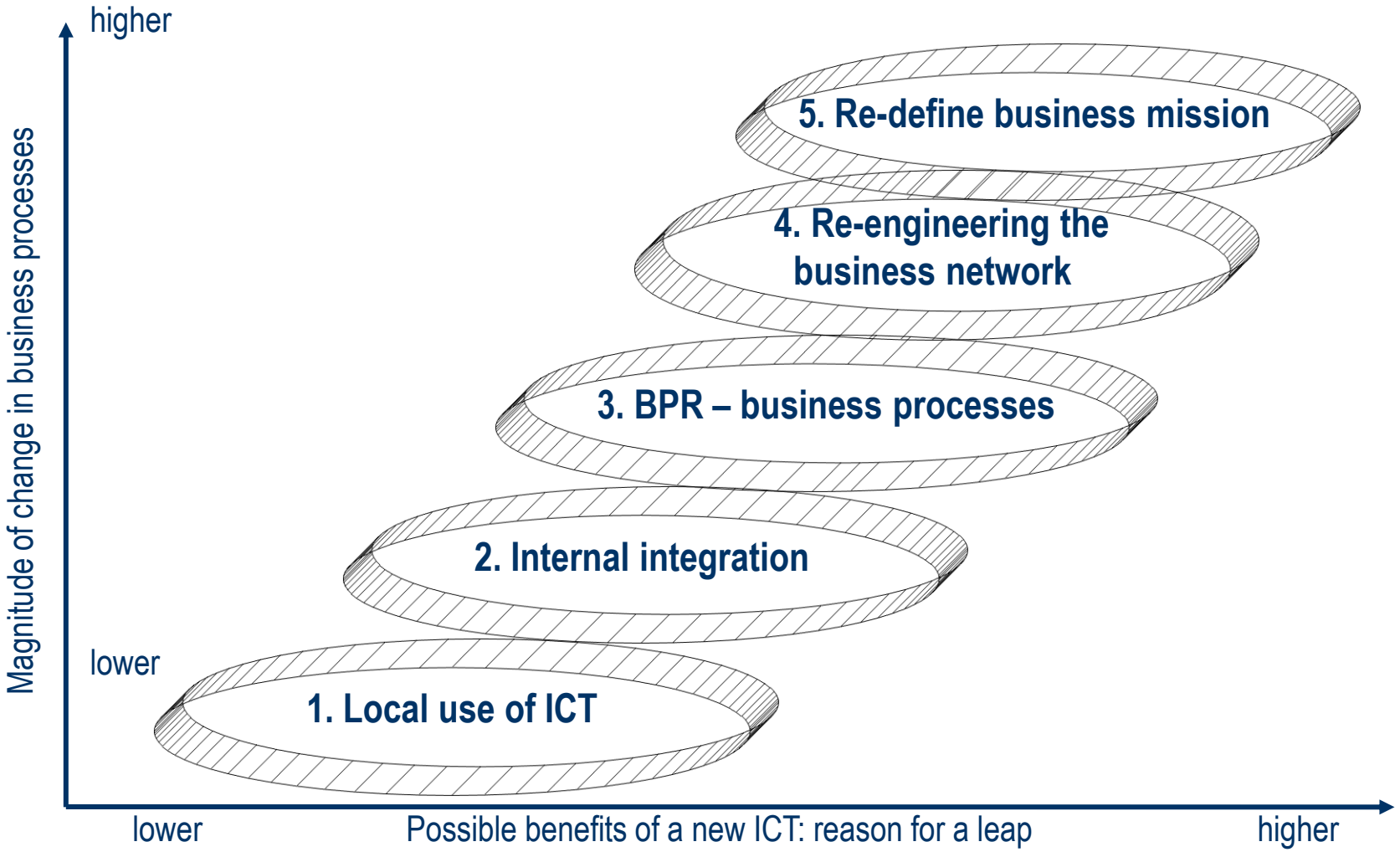
Why Business Information Systems develop in „stages”: change in objectives, in volume, in info-demands

An early model of R. Nolan (1973):
„IT and DP diffuse into business processes through ‚stages’ ”



Source: **Business Process Management Journal, Vol. 11 Iss: 4, pp.418 - 430**

The Venkatraman-model: ICT applications are renewed with leaps



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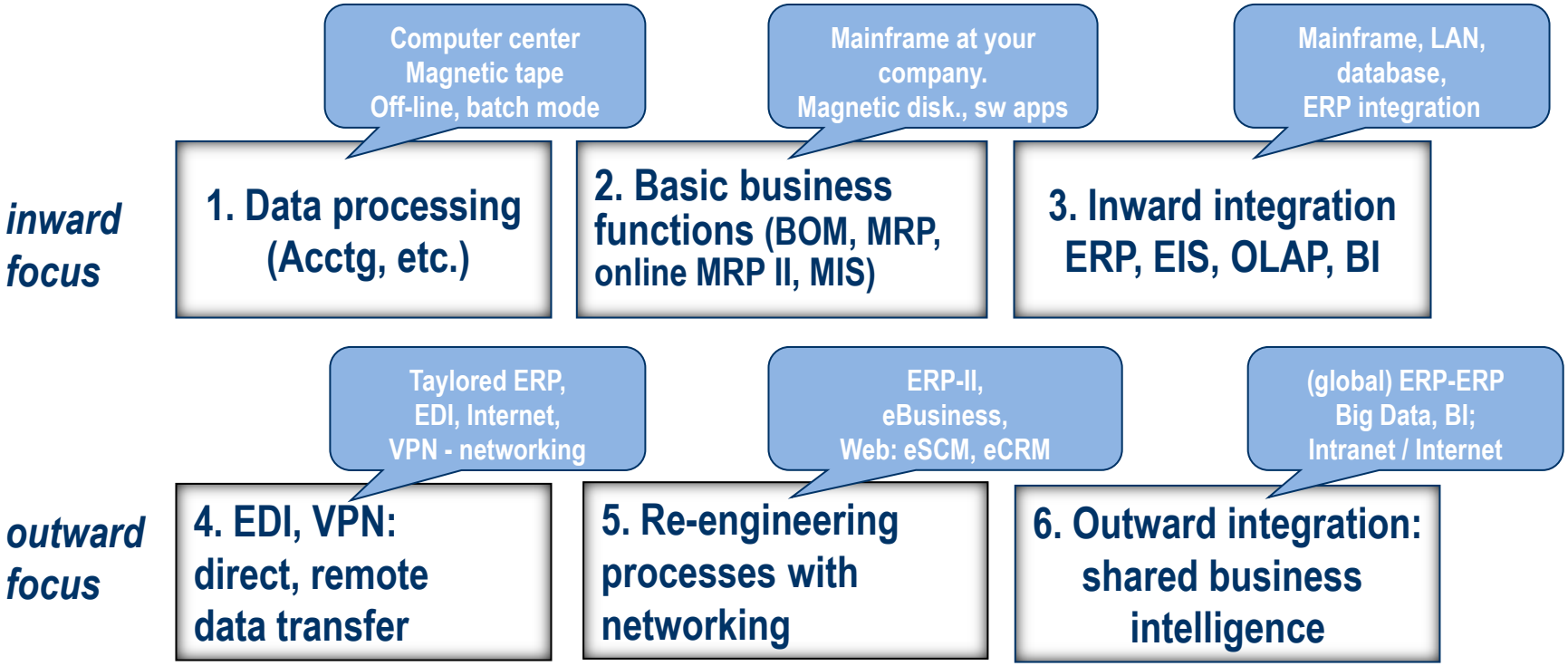
From: [Benkőné, 2008]

Strassman/Edwards Model: inward/outward Business IS develops in a „wing-beat" process

Demands for IS and ICT architecture innovations move together:



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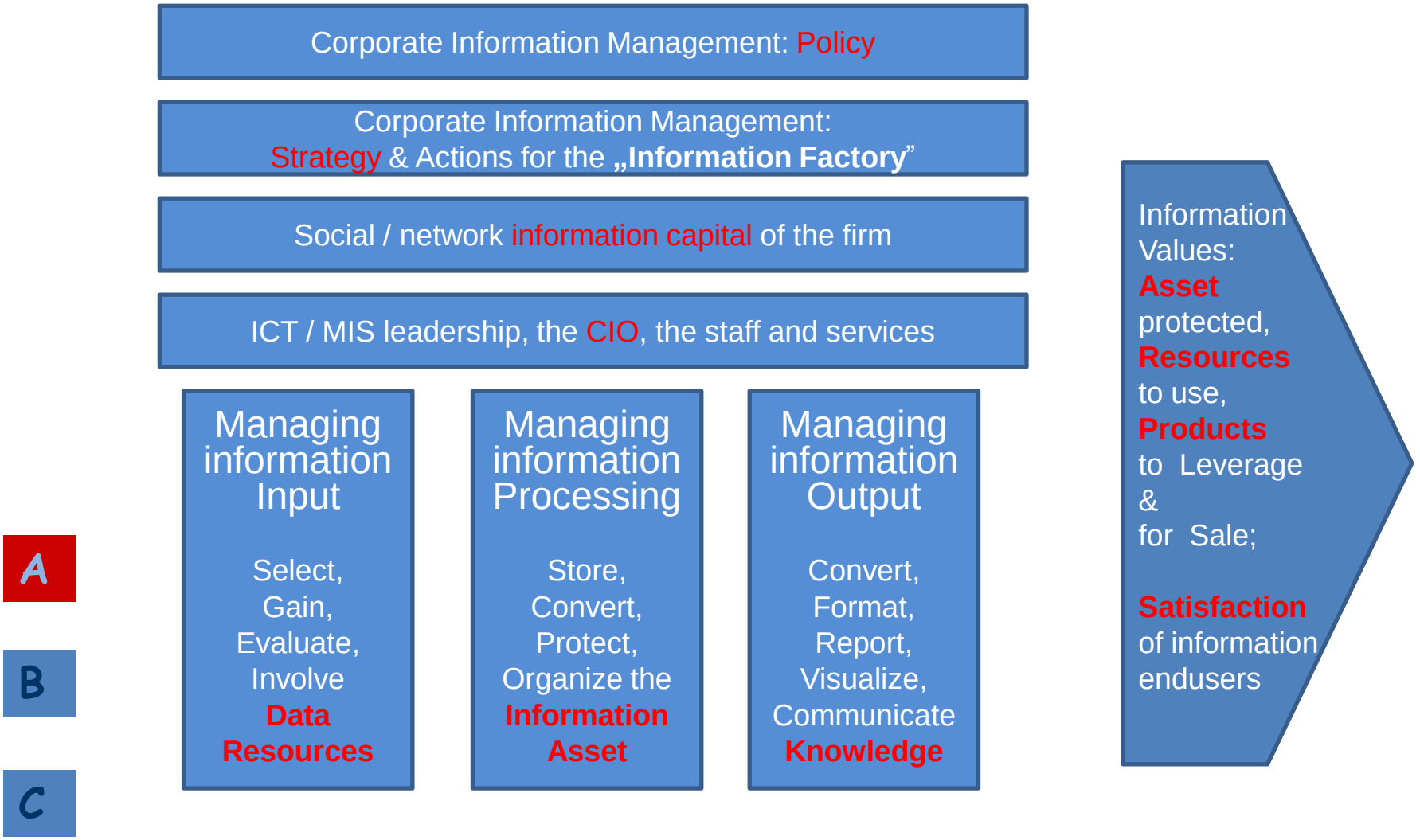
When the IM / IA „harmony" is disrupted (avg.: in a 10-15 years period), a „**wing-beat**", a new ICT / IM **strategy** is needed.

Strassmann: The Information Payoff

The Information Management Value Chain



The „value" created can be „pure ICT/IS value", it can be „more business value" and can be a „blended solution": scope and role of decision makers differ!

Some research challenges:

- How can we **identify** these cycles in
  business demand –
  technology-application –
  innovation „wing-beat” process?

- Which type of **parameter-portfolio**, and which type of weighting structure should be included when the CIO, the Board takes the **decision** of change?

- At which level of **business demand** are these decision made: on Knowledge-Management, on Information Management, or at Information Architecture? Can all be included?

- If a decision is made on change: Can we build a „Networked Economy”, an „Enterprise 2.0” with **labor** available today?

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B/ The Digital Planet – a Networked Economy

- 1998 - 2000: The Internet boom era; very short time-to-market
- 2000 – 2002: The dot-com crash era
- 2002 – 2010: cheap storages, new processors, the Web 2.0, broadband, smartphones, tablets & social media, and Google
- 2011: The shock of clouding:
  - Do we need a proprietary ICT architecture?
  - Do we need ICT staff of our own?
  - Do we have to care ICT research, if we use all the above as a service?
- Challenges from 2012 on:
  - The fall of Nokia, rise of Apple, Samsung, Huawei
  - „Asia" and/or BRIC countries are coming
  - A move from hardware-based systems to software- and „solution-based" models: e.g. the BI, or the Big Data Analysis area
  - Lack of eSkills, lack of professional ICT labor: a Digital Gap

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The New Labor: The „C” generation

- The workforce of the next decade is
  - Growing up with broadband, wireless and mobile tools
  - They do learning, shopping, consuming and sharing personal data through digital communication
  - They will be the „early adopters” of any new ICT innovation
- *Can „C” mean China?*
  - *Having more Internet-users, than the US population – and growing!*
  - *The baido.com earns more then eBay*
- Therefore our brave, new „Digital Planet” will have
  - ***Digital residents,*** who understand, are capable and motivated to use and innovate digital technologies, „leading the way”
  - ***Digital visitors,*** who have some competences to cope with rapid development in workplaces – leaders of today?
  - ***Digital losers,*** who will never catch this train…

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Challenges in the EU: lack of ICT competencies, lack of eSkills

- „ Between 1995-2005 appr. 1,7 million new ICT-related jobs emerged in the EU – appr. 5-6 million people are employed as ICT professionals” JRC EU Report 2010
- „Appr. 37% of EU adult citizens have no any ICT skills, though appr. 65% should use developed digital services in his/her work.”

  EUROSTAT Report, 2007
- „…the social and economical costs and losses thanks to lack of eSkills (call it *cost of IT ignorance*) can be estimated as 19 billion EUR in Italy”

  A Bocconi University (Italy) project, 2007
- Some results from the Bocconi Report:
  - A plain ECDL training causes appr. 20% growth in performance
  - In qualified hospital jobs lack of eSkills causes 4,000 EUR loss per annum per capita
  - In the financial sector lack of competences within people working before a display causes appr. 350 million EUR loss (in time & errors)
  - In public administration the loss is about 1,500 EUR/year
  - Within all Italians working with ICT systems 50% have no any certification on computing

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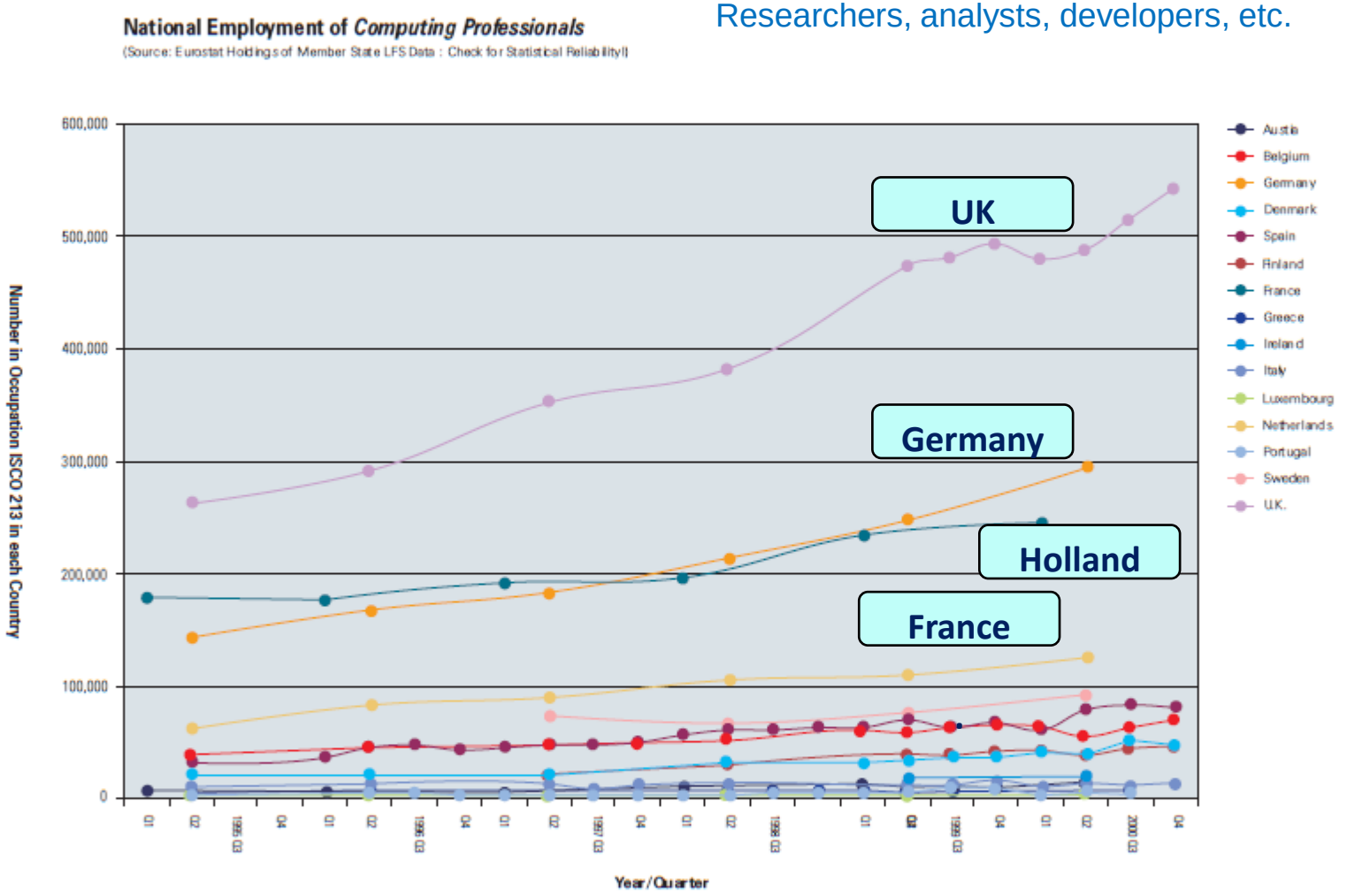
Number of „professionals” in ICT, EU-15, 1995 - 2000 (CEPIS Report, ISCO 213)

Researchers, analysts, developers, etc.



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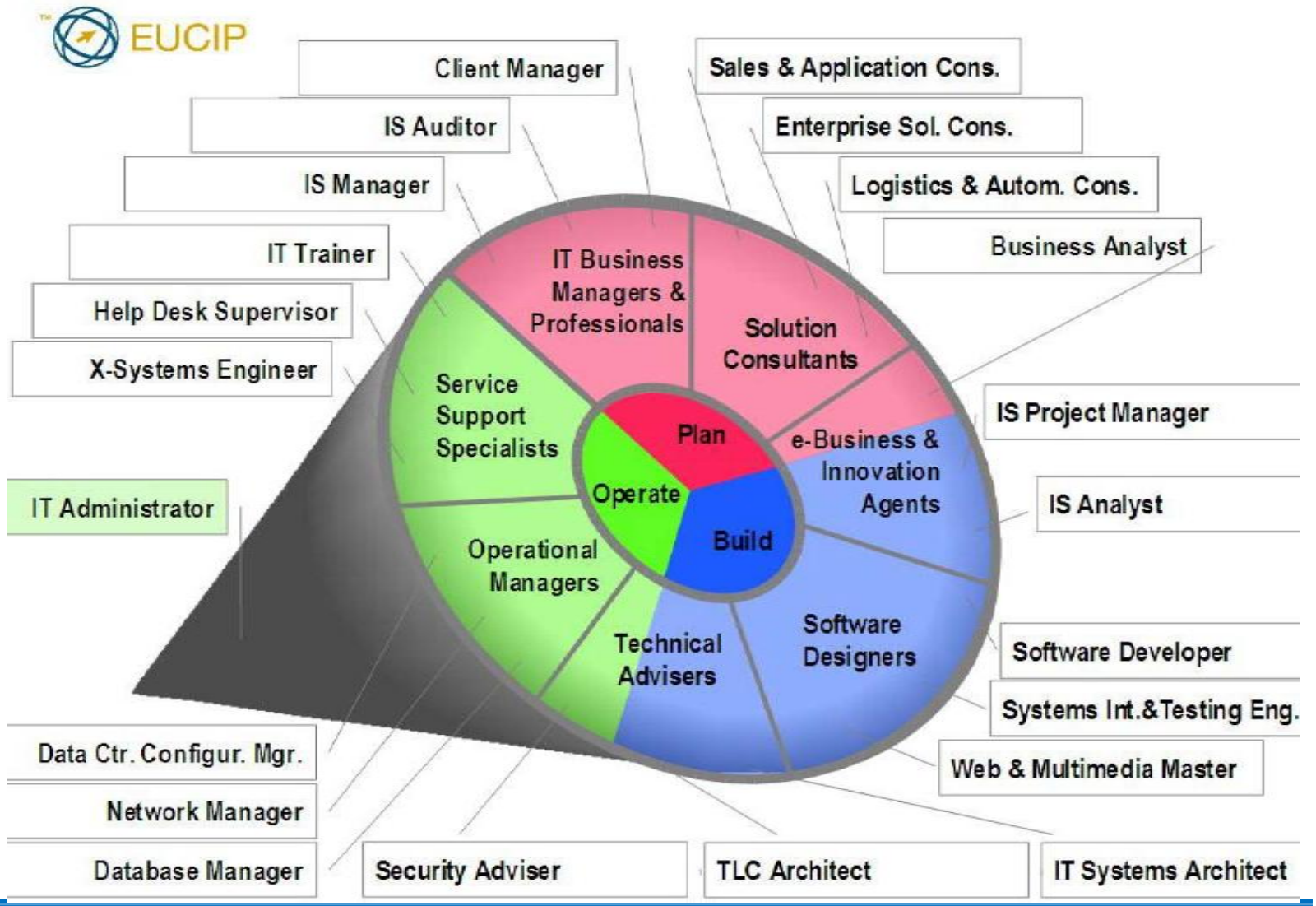
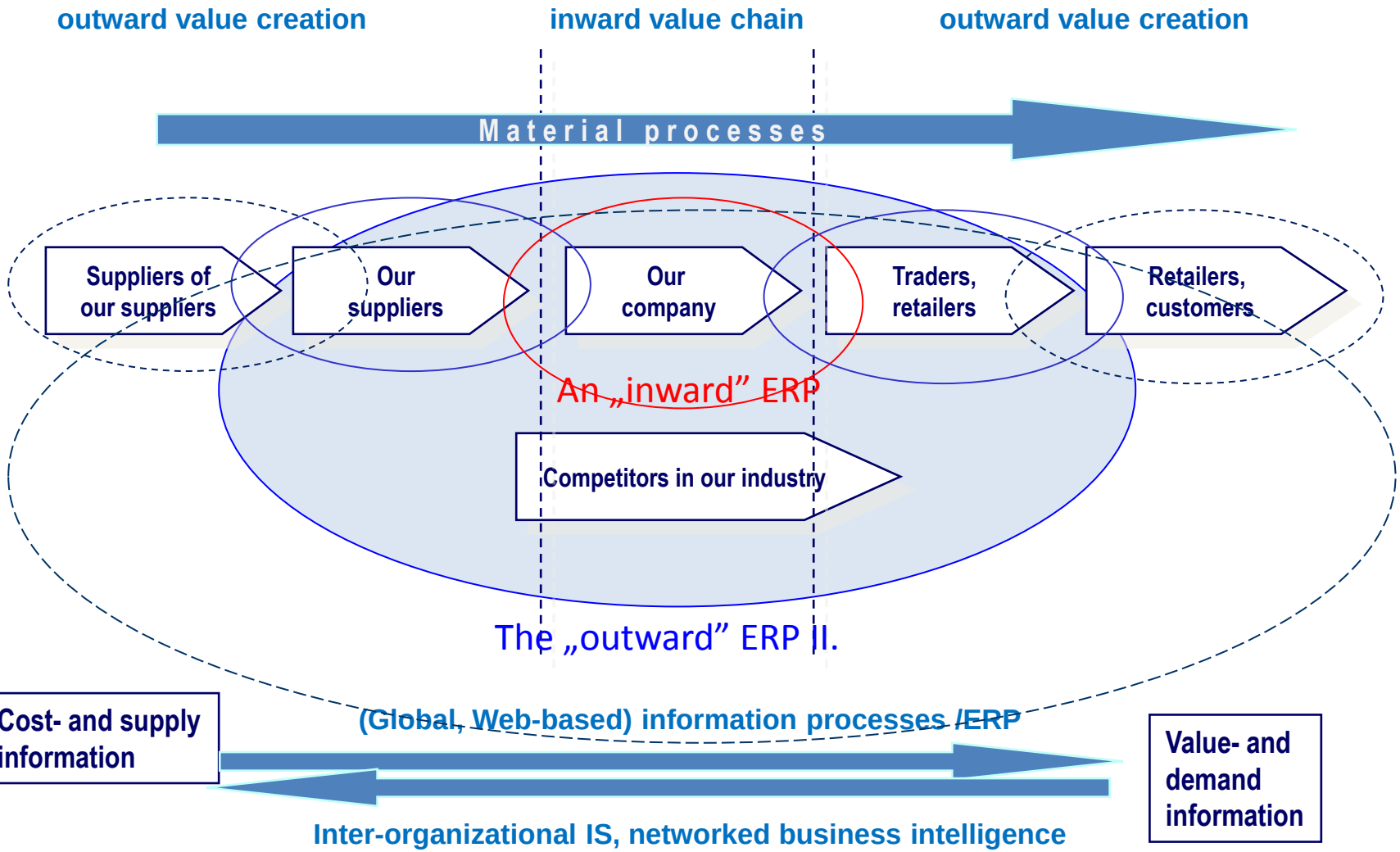
A New Labor: Competence Profiles of EUCIP



C/ Challenges for Researchers and Professionals:
The augmented information system



What the ICT industry could give us:

ICT today equals

- OPENNESS & COLLABORATION
  as technology (e.g. social media) has opened borders, data- and knowledge-bases, the Internet serves as a world-library for all, and companies become to be „virtual”
- TRANSPARENCY
  nothing remains hidden in business, in society – in civil life; everyone can search for info and „control” any information
- ACCESSIBILITY
  as you can have access to any information, fast and cheap
- SHARING & EMPOWERMENT
  as we share all of our knowledge on the Internet; and as nearly all innovations are ICT-related: empower your business projects with ICT!

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Has the train left the station for Hungary?
We use US technology, China-made tools,
we have jobs at Japanese, German, South-Korean support centers.
Can we change it somehow in the near future?

C

Can We Catch Up The Train?

- **YESTERDAY** the Internet was a platform to present content –
  TODAY this is the arena of competition
- **YESTERDAY** „collaboration" meant organizing a meeting and being happy the chairman offered 5 minutes
  TODAY collaboration is spaceless, timeless, borderless and „*ubiquotious*"
- **YESTERDAY** young ones learnt from elders how to live and make business
  TODAY we learn from Net Generation kids how to use new tools
- **YESTERDAY** everybody was a „digital immigrant" who had to learn the language of computing
  TODAY the new generation is a „digital native" – and they call „immigrants" as losers
- **YESTERDAY** „change" was a rare exception
  TODAY „change" is constant and is a must to response to

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- **YESTERDAY** education was based on 100-500 years old, stable content
  TODAY we have to learn new ICT content day by day and also have to use all tools to jump onto The Train of the Networked Economy.

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Nothing less will do.

Thanks for your kind attention.

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