Grundzüge der Wirtschaftsinformatik
Introduction to Business Information Systems

Prof. Dr. Martin Hepp
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mhepp@computer.org

http://www.heppnetz.de/teaching/gwi/

Language of Instruction

- Lecture and slides in English
- Tutorial (Übung) in German
- Exam in German or English at your choice

About the instructor: Martin Hepp

- Professor of computer science and head of the research unit „Semantics in Business Information Systems“ at DERI, University of Innsbruck.
- Ph.D. in Management Information Systems, Bayerische Julius-Maximilians-Universität, Würzburg, Germany (2003); M.B.A., ditto, Würzburg, Germany (1999)

See **http://www.heppnetz.de** for current papers and presentations.

Learning Goal

- Learn to use Computer Technology effectively and efficiently for business purposes.
- Understand the transformation of the business world currently in progress and look behind the buzzwords.
- Be well prepared for a career in the dynamic, global economy.

Logistics

- **Lecture**
  - Tuesdays, 13:15 - 14:45, Auditorium Maximum (Building 33)
- **Tutorial and Exercises (Begin: October 17)**
  - Wednesdays, 11:30 – 13:00, Building 33 Room 2401
  - Thursdays, 09:45 - 11:15, Building 43 Room 4/126
  - Thursdays, 15:00 - 16:30, Building 33 Room 2216
  - Thursdays, 16:45 - 18:15, Building 33 Room 2116
- **Exam: At the end of the trimester**
  - To be announced

Office Hours and Contact

Prof. Dr. Martin Hepp

- By appointment only (Tuesdays 15:00 – 16:00)
- Building 36, Room 2204
- Phone
  - +49 (89) 6004-4217
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- mhepp@computer.org

Alexander Richter

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- Phone: +49 (89) 6004-4218
- a.richter@unibw.de

Learning Resources

- Strongly recommended textbooks
  - Hansen/Neumann: Wirtschaftsinformatik 1
  - Hansen/Neumann: Wirtschaftsinformatik 2
  - Wigand/Mertens/Bodendorf /König/Picot/Schumann: „Introduction to Business Information Systems“ Springer, 2003

Learning Resources (2)

- Course Web page
  - http://www.heppnetz.de/teaching/gwi/
  - **Not yet online**, but within this week
- All slides will be put on-line *after* the lecture
- Some materials may be password protected
  - User: unibw
  - Password: unibw2007

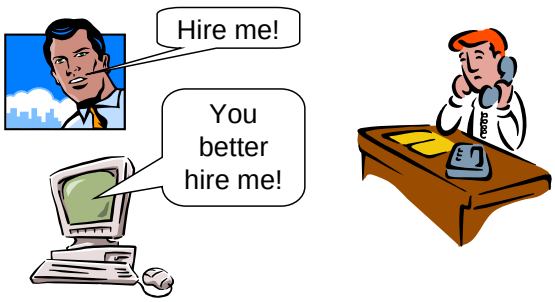
Structure of the Lecture

- **Unit 1:** Introduction
- **Unit 2:** Central Processing Units
- **Unit 3:** Storage and Data Structures
- **Unit 4:** Input and Output Devices
- **Unit 5:** Software
- **Unit 6:** Networks, Data Interchange, and the Internet
- **Unit 7:** Design, Development, Deployment, and Operations of Information Systems
- **Unit 8:** Office Applications
- **Unit 9:** Enterprise Applications
- **Unit 10:** Supply Chain Applications and E-Business
- **Unit 11:** Management Support Systems
- **Unit 12:** Exam Review

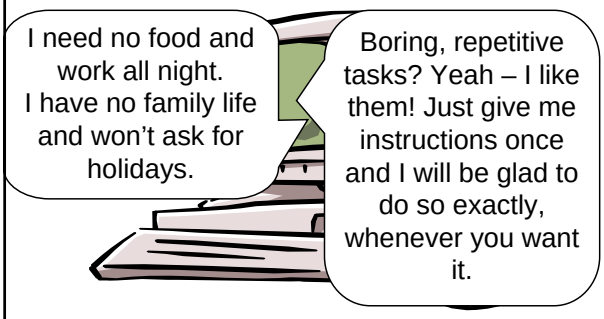
Adminstrative Questions and Suggestions?

…why it is good that you are sitting here ☺

The Future Labor Market: **General**

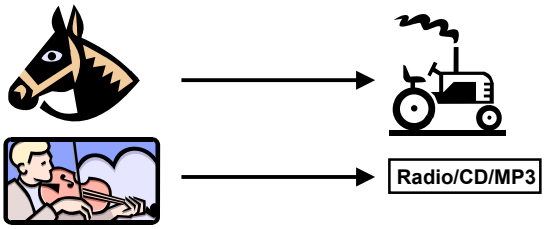


My Competitive Advantages…



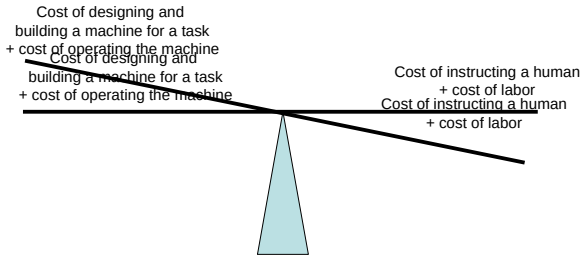
The Future Labor Market: Global Sourcing

The History of Automation



Whenever it was feasible to delegate human labor to machines, it soon became cheaper to do so, and human labor has been substituted by investment in machinery.

Man or Machine



Human Vs. Computational Intelligence

Based on a talk by Luis von Ahn, Carnegie Mellon University

Dead and Semi-Dead Professions

- Bank Clerk
- Yellow Pages
- Music Store Sales Manager
- Tax Consultant?
- Financial Analyst?
- Etc.

The fully automated bookstore

Pittsburgh or Philadelphia airport; I don't remember it anymore ☺

Semi-automated Tax Consulting

Parking

1970s 1980s 2000

What Are Our Competitive Advantages?

Computer (so far) can't

- design,
- create,
- organize,
- maintain, or
- improve

computers and their usage.

A Great Chance for Your Career

- There is constant need for individuals who invent new ways to use computers for business purposes.
- This is an interdisciplinary challenge, requiring skills in both business and computer technology.

Computer Skills + Management Skills ≠
Computer Information Systems Skills

Information Systems: Understanding and Exploiting Mutual Effects

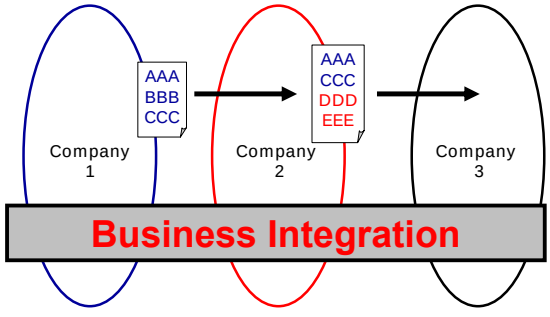
- IT
- Organization

Typical Challenges

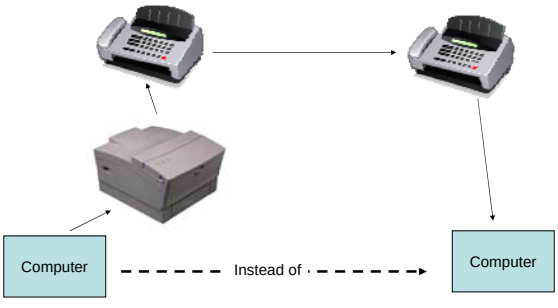
- Programming vs. COTS
- Human vs. Computational Intelligence
- Integrated Information Flow in Value Chains

What is it all about?

Key Goal in Information Systems:



Media Break



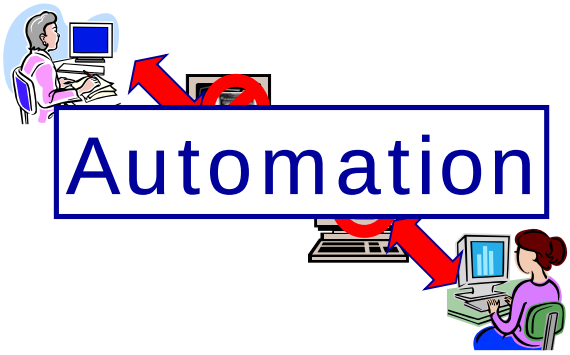
Eliminate Manual Data Entry

Automatic propagation of information along the value chain without any media break.

Three Reasons and Their Ranks

Automatic propagation of information along the value chain without any media break.

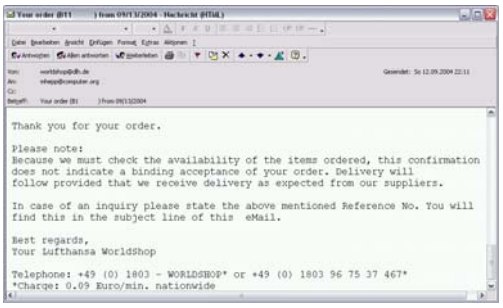
True Goal



Integrated vs. Fragmented Processes

Integrated Value Chains

Fragmented Value Chain



Thank you for your order.

Please note:
Because we must check the availability of the items ordered, this confirmation does not indicate a binding acceptance of your order. Delivery will follow provided that we receive delivery as expected from our suppliers.

In case of an inquiry please state the above mentioned Reference No. You will find this in the subject line of this eMail.

Best regards,
Your Lufthansa Worldshop

Telephone: +49 (0) 1803 - WORLDSHOP* or +49 (0) 1803 96 75 37 467*
*Charge: 0.09 Euro/min. nationwide

What's that?

Automated Data Capture

+ Integration with other data

Better Business Decisions

Example 1: Auto-ID Revisited

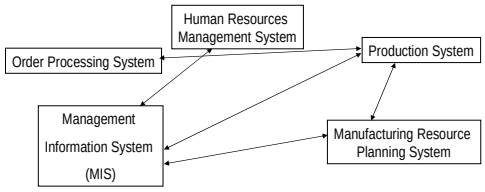
Example 1: Auto-ID Revisited

Paper Media Integration

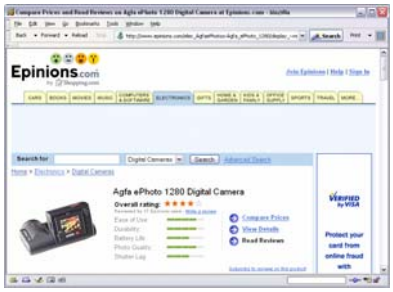
Example 2: Ticketing

Integrated / Integration

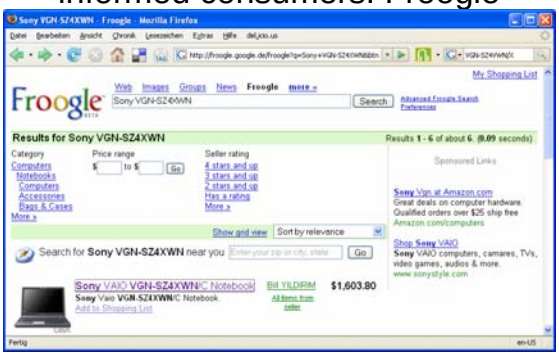
- The key term is „Integrated Information Systems"
- Integrated basically means „putting together parts that belong together".
- Integrating Systems is a prerequisite for automation and a core activity in the context of Business Information Systems.



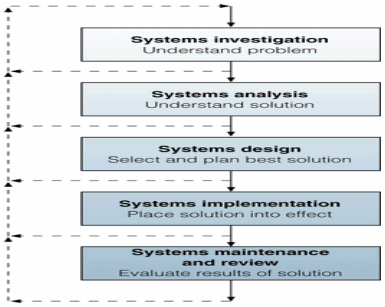
Living on the Fast Track: Shorter Feedback Cycles



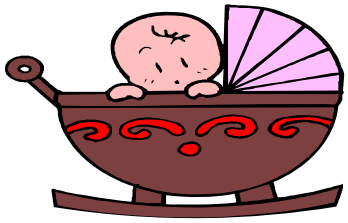
No shop can survice just on badly informed consumers: Froogle



Traditional Systems Development



The Cradle Building Problem



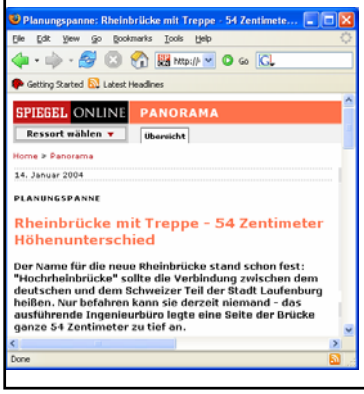
Not from Scratch / Legacy

- There exist systems in the environment that cannot be simply replaced, for technical or economic reasons
- Those systems are often badly documented and running on outdated platforms using outdated programming languages etc.

Moving Target / The Shepherd's Problem

- Systems have an individual path of evolution
  - data formats
  - internal representation
  - business logics

Status Quo: Lack of Formal Semantics



Errors in Control Software for the Ariane Rocket

CH: Altitude relative to the **sea level of the Mediterranean Sea.**
D: Altitude relative to the **sea level of the North Sea.**
Gap: 27 cm
27 - (-27) = 54 ☺

Assignment for Next Week

- Get the books
- Review the slides
- Read the following paper

  Leonard E. Read: "*I, Pencil. My Family Tree as told to Leonard E. Read*", Dec. 1958

  http://www.econlib.org/library/Essays/rdPncl1.html,

  PDF version:
  http://www.fee.org/pdf/books/I.%20Pencil%202006.pdf

Thank you!

The slides and additional materials will be available at
http://www.heppnetz.de/teaching/qwi/
shortly.

Don't forget: Tutorials will not start until Oct 17!