



Digital Enterprise Research Institute www.deri.org






# Business Information Systems

## Unit 1



Dr. Martin Hepp

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 1


 **Profile** 

Digital Enterprise Research Institute www.deri.org


2005 -	Senior Researcher, Digital Enterprise Research Institute (DERI), University of Innsbruck
2003-2005	Assistant Professor of Computer Information Systems, Florida Gulf Coast University, Fort Myers, Florida, USA
2000-2003	PhD in Management and Information Systems, University of Wuerzburg, Germany
1994-1999	Diplom-Kaufmann (M.B.A.), Business Administration and Management, University of Wuerzburg Majors: Information Systems, Operations Research, Law

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 2




# Logistics




Digital Enterprise Research Institute www.deri.org


- **Classes**
  - **Oct 3:** Unit 1
  - **Oct 10:** Unit 2
  - **Oct 17:** *needs to be rescheduled*
  - **Oct 24:** *needs to be rescheduled*
  - **Oct 31:** Unit 3 (13.00-15.00)
  - **Nov 7:** *needs to be rescheduled*
  - **Nov 14:** Unit 4
  - **Nov 21:** Unit 5
  - **Nov 28:** Unit 6
  - **Dec 5:** Unit 7
  - **Dec 12:** *needs to be rescheduled*
  - **Dec 19:** Unit 8+9; 13.00 – 17.00 (**make-up; no regular classes**)
  - **Jan 9:** Unit 10
  - **Jan 16:** Unit 11
  - **Jan 23:** Unit 12
  - **Jan 30:** Exam during class time (13.00-15.00)
- **Classroom:** HS 11
- **Office Hours:**
  - By appointment only
  - please contact me by e-mail, [martin.hepp@deri.org](mailto:martin.hepp@deri.org)



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 3

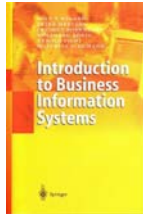


# Resources




Digital Enterprise Research Institute www.deri.org

- **Textbook**  
Wigand/Mertens/Bodendorf/König/Picot/Schumann:  
„Introduction to Business Information Systems“  
Springer, 2003
- **Additional Materials**  
Will be made available or announced in class
- **Course Web Page**  
<http://www.heppnetz.de/teaching/bis> (\*)  
<http://www.deri.at/teaching/lectures/winter06/bis.html>



Slides will be made available on the Web page **after (!)** the respective unit.

(\*) coming soon.



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 4



## What are „Business Information Systems?“



Digital Enterprise Research Institute

www.deri.org

- Business Information Systems as a discipline addresses the „**conceptualization, development, introduction, maintenance, and utilization of systems for computer-assisted information processing**“ [1] **in enterprises and in the public administration.**
- It is an **interdisciplinary** topic, combining
  - Management Science,
  - Economics,
  - Computer Science, and
  - Logistics.
- Common-of-the-Shelf (COTS) Software, especially large ERP packages like SAP myERP dominate the IT landscape in many organizations. Also, all design and implementation work is subject to cost and time constraints.
- A solid background in this domain is an important cornerstone for any IT professional and is a skill much wanted from employers.



[1] Wigand et al.: Introduction to Business Information Systems

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.

www.deri.at/teaching/

5



## Preliminary Syllabus



Digital Enterprise Research Institute

www.deri.org

- 1 Introduction to Business Information Systems
- 2 Economics for Computer Science Students
- 3 Business Management for Computer Science Students
- 4 Case Study (Materials available Oct 10, 2005)
- 5 Business Processes and Business Process Management
- 6 Electronic Commerce and Electronic Business
- 7 Enterprise Resource Planning (ERP) and Enterprise Application Integration (EAI)
- 8 Content Integration and Electronic Procurement
- 9 Supply Chain Management
- 10 Standards and Standardization, Numbering and Identification
- 11 Logistics for Computer Science Students
- 12 Course Review / Q&A for the Exam
- 13 Exam



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.

www.deri.at/teaching/

6



## Exam and Grading



Digital Enterprise Research Institute

www.deri.org

- **First and Official Exam**  
Date: January 30, 2006  
Time: 1.00-3.00 p.m.  
Room: HS 11
- **Alternative dates** as defined in the regulations  
please contact instructor



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.

www.deri.at/teaching/

7



## Attendance Policy



Digital Enterprise Research Institute

www.deri.org

- I need you ☺
- This is a graduate course; **exam topics will include material discussed in class**, not just what's on the slides or in the textbook!



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.

www.deri.at/teaching/

8

Digital Enterprise Research Institute www.deri.org

...why it is good that you are sitting here 😊



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 9

The Future Labor Market: **General** 

Digital Enterprise Research Institute www.deri.org




© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 10

My Competitive Advantages...

I need no food and work all night. I have no family live and won't ask for holidays.

Boring, repetitive tasks? Yeah – I like them! Just give me instructions once and I will be glad to do so exactly, whenever you want it.

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 11

You get the job!

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 12

# The History of Automation

Digital Enterprise Research Institute www.deri.org

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.

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 13

# The fully automated bookstore

Digital Enterprise Research Institute www.deri.org

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 14

**What Are Our Competitive Advantages?**

Digital Enterprise Research Institute www.deri.org

Computer (so far) can't

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

computers and their usage.

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 15

**The Future Labor Market for Computer Scientists: Global Sourcing**

Digital Enterprise Research Institute www.deri.org

Give me a UML diagram and we will code it for you!

Outsourcing

Meta-Outsourcing

Web Services

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 16





## The Future Labor Market for Computer Scientists: Global Sourcing



Digital Enterprise Research Institute

www.deri.org

- Once there is a formal representation of a problem, the implementation work to a solution can be done everywhere.
- The more you restrict yourselves to the abstract beauty of a problem, the more you are subject to global competition.
- Create local competitive advantage:
  - domain knowledge
  - develop solutions to real-world constraints
  - develop communication skills
- Two activities can hardly be outsourced on a global scale:
  - Local requirements analysis
  - Finding creative ways of computer applications that require local domain knowledge (e.g. billing systems for ski resorts)



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.

www.deri.at/teaching/

17



## A Great Chance for Your Career



Digital Enterprise Research Institute

www.deri.org

- 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.



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.

www.deri.at/teaching/

18

Digital Enterprise Research Institute www.deri.org

# What is it all about?

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 19


Key Goal in Information Systems: www.deri.org


```
graph LR; C1[Company 1] -- "AAA  
BBB  
CCC" --> C2[Company 2]; C2 -- "AAA  
CCC  
DDD  
EEE" --> C3[Company 3];
```

**Business Integration**


© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 20

Eliminate Manual Data Entry


Digital Enterprise Research Institute  www.deri.org




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

 © Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 21

Three Reasons and Their Ranks

Digital Enterprise Research Institute  www.deri.org




**1. Consistency**

**2. Timeliness**


**3. Cost Reduction**

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

 © Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 22

What's that?

Digital Enterprise Research Institute [www.deri.org](http://www.deri.org)



Automated Data Capture  
+ Integration with other data

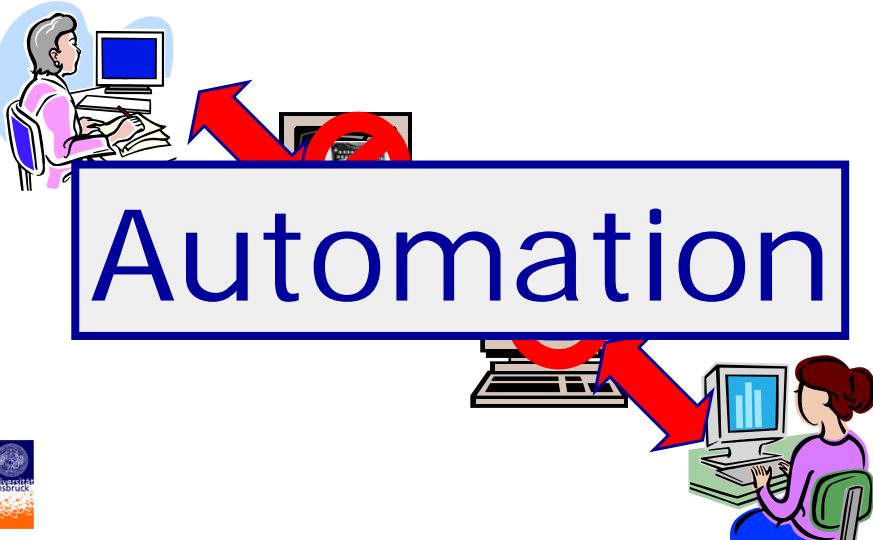
-----

Better Business Decisions

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. [www.deri.at/teaching/](http://www.deri.at/teaching/) 23

True Goal

Digital Enterprise Research Institute [www.deri.org](http://www.deri.org)



Automation

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. [www.deri.at/teaching/](http://www.deri.at/teaching/) 24

## Integrated / Integration

Digital Enterprise Research Institute
www.deri.org

- The key word 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.

```

graph TD
    MIS[Management Information System (MIS)] <--> OPS[Order Processing System]
    MIS <--> HRMS[Human Resources Management System]
    MIS <--> MRPS[Manufacturing Resource Planning System]
    HRMS <--> PS[Production System]
    MRPS <--> PS
    
```

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.
www.deri.at/teaching/
25

## Moving Target / The Shepherd's Problem

Digital Enterprise Research Institute
www.deri.org

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

© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.
www.deri.at/teaching/
26



## Not from Scratch / Legacy



Digital Enterprise Research Institute

www.deri.org

- 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.



© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.

www.deri.at/teaching/

27

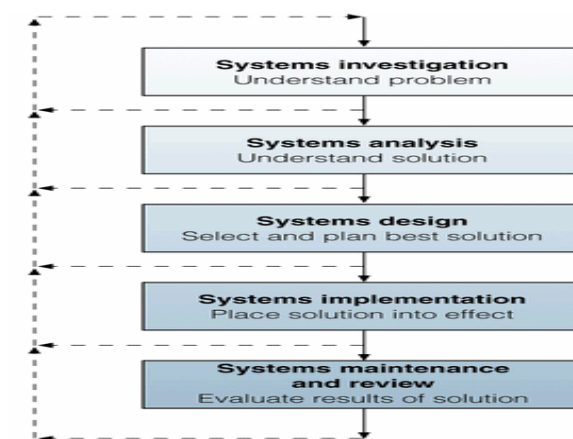


## Traditional Systems Development



Digital Enterprise Research Institute



www.deri.org



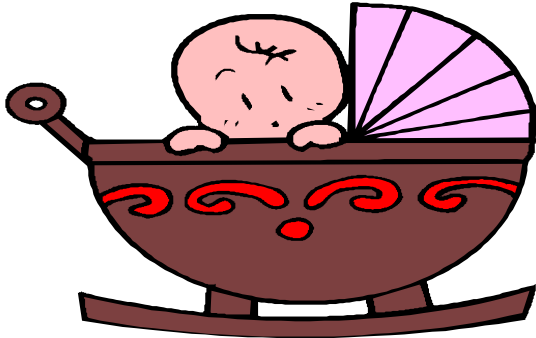
© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved.


www.deri.at/teaching/

28



 **The Cradle Building Problem** 

Digital Enterprise Research Institute www.deri.org







© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 29

 **Common-of-the-Shelf Software as Libraries of Best Practice** 

Digital Enterprise Research Institute www.deri.org





© Copyright 2005 Digital Enterprise Research Institute. The DERI Studio. All rights reserved. www.deri.at/teaching/ 30



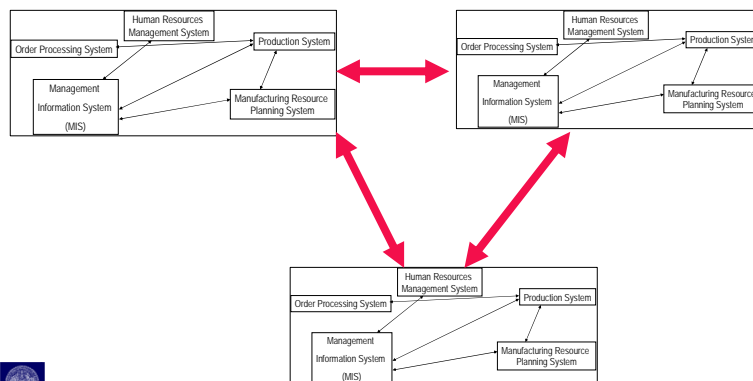
## Cost / Benefit Driven



- Solutions are decided upon based on measurable gain in productivity, not beauty of the solution
- TCO = Total Cost of Ownership
- Investment theory, interest, risk
- Operational and Strategic impact
- Vendor lock-in
- Decisions under uncertainty



## Supply Chain Management: A Herkulan Business Integration Task







Thank you!

The slides will be available on the internet at  
<http://www.heppnetz.de/teaching/bis>