1. What are Information Systems?

2. Course Outline

3. Organizational stuff
The company J.C. Penney sells shirts through a network of local warehouses.

Formerly, it replenished sold items by stocking:

- Each warehouse stocks shirts for up to 3 months.
- Warehouses are supplied from regional storehouses that stock shirts for up to 6 months.

Nowadays, replenishing works completely different:

- At checkout each transaction is reported electronically to TAL Apparel Ltd. in Hongkong.
- TAL produces a new shirt like the one just bought and ships it directly to the local warehouse.
- TAL's application system uses the demand on different shirts in the past to predict the number of shirts needed in each store.
- TAL assigns article numbers and bar codes for easy identification of different shirts.
- TAL offers information about which shirts have been sent, when, and where they are right now.
The new method for replenishing has side effects, e.g., for development and testing of new shirts:

- TAL produces a lot of variants (colors, sizes, shapes, etc.) and sends them directly to the warehouses.

- Penney can base their choices for new shirts on sales figures of the test shirts.

[LLS06]
Unter einem Informationssystem [wird] ein System verstanden, das Informationen verarbeitet, d.h., erfasst, überträgt, transformiert, speichert und bereitstellt"[FS06, p.]

1. What are Information Systems?

**Application Systems vs. Information Systems**

**An Application System** is a set of interoperating
- software programs,
- IT infrastructure and
- data
that supports a specific business domain.

**An Information System** is an application system plus its business context, i.e., the organisation, people, etc. that use the system.

Application systems are **technical systems**, information systems **socio-technical systems**.

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“Unter einem Informationssystem [wird] ein System verstanden, das Informationen verarbeitet, d.h., erfasst, überträgt, transformiert, speichert und bereitstellt” [FS06, p. 1].

“A computer is a machine which manipulates data according to a list of instructions” [English Wikipedia, “Computer”, 23.10.2007].

Aspects of Business Information Systems [LLS06]

Software usually not considered to be Part of an Information System

1. **office software**
   — but, companies started to collect all their documents in document warehouses and index them by knowledge bases.

2. **embedded software to operate a machine**
   — but, in many scenarios machines generate some output that may be of further interest and thus should be managed by an information system.

3. **educational software**
   — but, some modern educational software no longer is a monolithic isolated stand-alone piece of software, but connects learners and teachers through an online platform.

4. **entertainment software**
1. **Basics:**

   subdisciplines; relation to business management; law; behavioral sciences; computer industry.

2. **Information and Communication Technology:**

   computer architecture; hardware, software, middleware and development platforms; networks; communication.

3. **Information Management:**

   information as agent of production; information supply; information networks; security; information system architectures.

4. **Business Information Systems / E-Commerce & E-Business:**

   information systems oriented at economics sectors; information systems oriented at processes and functions; integration; electronic market places.

5. **Application System Development:**

   analysis, design, implementation, deployment; web-based systems; choice, customization and deployment of standard software; system integration.

6. **Data and Knowledge:**

   data models and data bases; data warehouse; knowledge representation and engineering.

7. **Disposition and Decision Support:**

   mathematical and statistical models and methods; operations research; artificial intelligence; methods of strategic management.
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</shippingOrder>
Information Systems 2 / 2. Course Outline

Distributed Information Systems / Remote Invocation

![Client and Server Diagram]

Figure 11: Service oriented architecture [Haa03].
IT Management

- IT strategy
- IT organisation
- IT controlling

Business Process Modelling / Process Models

Figure 6: A Petri net for the processing of complaints.

Figure 12: A workflow modeled as Petri net [vdA98].
Figure 13: An example business process [Jurar].
Business Intelligence & Data Mining

Data warehouses might be implemented on standard or extended relational DBMSs, called Relational OLAP.

![Diagram of Data Warehouse Architecture](CD97)

**Figure 15:** Data Warehouse-Architektur [CD97].

E-Commerce & E-Business

![Graph of Retail E-Commerce Sales](SKK08)

**Figure 16:** Quaterly Retail E-Commerce Sales (in percent of total retail sales) [SKK08].
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Exercises and tutorials

- There will be a weekly sheet with two exercises handed out each Thursday on the webpage. 1st sheet will be handed out Thur. 19.4.

- Solutions to the exercises can be submitted until next Wednesday 8 am via email, 1st sheet is due Wed. 25.4.

- Exercises will be corrected.

- Tutorials each Wednesday 16–18, 1st tutorial at Wed. 18.4.

- Successful participation in the tutorial gives up to 10% bonus points for the exam.
Exam and credit points

- There will be a written exam at end of term (3h, 5 problems).

- The exam covers only this course (IS2), (In the past, it also covered IS1; this is a separate exam now.)

- The IS2 course gives 6 ECTS (2+2 SWS).
  - ECTS = European Credit Transfer System
  - 1 ECTS $\approx$ 30h workload (for the students)
  - 180h: 14 weeks $\times$ 1.5 h lecture: 21 h
  - 14 weeks $\times$ 1.5 h tutorial: 21 h
  - $\times$ 5 h solving exercises: 70 h
  - $\times$ 4 h post preparation: 56 h
  - once 16h exam preparation: 16 h
  - total work load: 184 h

Text books


Slides will be available online at the course webpage:

http://www.ismll.uni-hildesheim.de/lehre/is2-12s/