Types of E-Business

- B2B (Logistics control, E-communication)
- B2C (e-auctioning, e-advertising, e-service)
- C2C (e-markets, e-auctioning)

E-Business

- Physical Goods
- Digital Goods (information,music)
- Services
- Hybrid objects (combination of above)

Organisational aspects of E-Business

- Business goals
  - Models (direct selling,cross selling, multichanneling)
  - Structures (dynamic coöperation, virtual enterprises)
  - Internationalization
  - Economic and legal aspects
  - innovation management
- Organisation (adaptation)
  - Structure
  - Change
  - Communication
- Architecture (infrastructure)
  - Software
  - Platform
  - Information
  - Reference
- Technology (ICT-components)
  - Electronic catalogs (databases)
  - EDI
  - Data mining for CRM
  - Electronic payment systems
  - Workflow management systems

Stages of applications

- Task-oriënted
- Functional oriënted
- Integrated Cross-functional

CRM and ERP linked through

- Business Intelligence BI (datamining, data analysis)
- Enterprise Application Integration EAI (connectors, distributors)

File organization: Sequential (tape oriented) ; Direct (Disk oriented)

Filing Methods

- Indexed Sequential Access Method (ISAM)
  - Each record identified by key
  - grouped in blocks and cylinders
  - keys in index
- Heap (no organization)
- Binary storage (key value, binary large object (picture))
- Direct File Access Method
  - each record has key field
  - keyfield fed into transform algorithm
  - Algorithm generates physical storage location of record

Components of DBMS

- Data Definition Language
- Data Manipulation Language (SQL)
- Data Dictionary

Conceptual scheme

- entity level (table, 50)
- entity type level (part, price)
- associations (supplier delivers parts)

ER-scheme (Entity-Relational-scheme)

Hierarchical Data Model

- Rules
  - 1:N relationships
  - easy to model
  - one entity-type as root
  - N:M relationships should be modelled as 1:N
- Disadvantages
  - Difference in access entity-types
  - Redundancy
  - Insertions might give problems

Tuple = record bij een relational model

Normalisation to prevent

- redundancy
- functional dependencies other than with key

Primary key: uniqueness and minimal (suppliernumber)

Candidate key: key that is not chosen as primary (supplier + adress; one supplier per adress)

Foreign key: local coherence an referential integrity (Partnumber is foreign key in S#;P#)

Normal forms:

- 1NF (attributes are atomic)
- 2NF (1NF and non-key attributes are fully dependent on primary key)
- 3NF (no redundancy)

Operations

- Join (select suppliers that deliver a table)
- Selection (SELECT * FROM part WHERE price=70)
- Projection (SELECT P#,Pname FROM Part)
- Union (SELECT * FROM Part WHERE (price=70 or Price=120))

HTML: statisch, inhoud en vorm in één

XML: dynamisch, inhoud en vorm/opmaak gescheiden dmv document type definition (DTD)

Advantage of E-learning technologies

- communicative tools on a wider (flexible) scale
- Search-engines

het kennispotentieel in een bedrijf zit hem in de combinatie van het bij elkaar brengen van individuele mentale modellen

Probleem van kennismanagement: Je weet pas wat je niet weet als je het nodig hebt.

Hoe werkt een neuraal netwerk: Leningtoekenning op basis van knopen, door iteratief proces wordt het systeem zelflerend. input, afwijkingen terug in het systeem brengen totdat de goede output

Agenten theorie: genoeg simpele agenten in een netwerk leveren een complex gedrag

Artificial intelligence: machines laten leren uit ervaring

- Product school (goal=same product as experts)
- Process school (goal=programs that behave like humans)

Artificial Intelligence subjects

- Natural Language Processing
- Robotics
- Machine Learning
- Logic
- (Subjective) Probability Theory

Artificial Intelligence subjects Business interests

- Preserve expertise
- create or enhance knowledge base
- eliminate routine jobs
- mechanism not subject to feelings, fatique, worry or crisis

Modus Ponens: wanneer een conclusie dwingend volgt uit de premissen (a=b, b=c dan a=c)

Non-Monotonic-Reasoning

- we need to jump to conclusions in order to plan and, more basically, survive.
    - we cannot anticipate all possible outcomes of our plan.
    - we must make assumptions about things we do not specifically know about

Knowledge elicitation

- Protocol analysys (experts are asked to solve a case in front of knowledge engineer)
- interviews
- literature

Knowledge modelling

- Rules based models (expert systems) consist of a set of "if condition then action1 else action2"
    - Inference Engines (search through rule base)
    - Forward chaining (Match op condities, uses input, searches for answer; if girl then wooow)
    - Backward Chaining (Match op conclusies, seeks until hypothesis is accepted or rejected; if wooow then ask her out)
- Knowledge frames (object is described by relevant characteristics; folder with (technical) specifications)
- case-based model (database of cases)
    - User describes problem
    - system searches database for similar cases
    - system asks more questions
    - finds vlosest fit
    - modifies if required

Artificial Intelligence techniques

- Genetic Algorithms (inspired by evolution theory; aandelen portefeuille)
  geen mooie oplossingsruimte; eerst lokaal zoeken, dan indien geen bevredigende oplossing overstappen naar andere regio
    - A genetic description of the possible models
    - Genetic operators
    - A fitness function
- Neural network (attempts to simulate brain processes)
- Fuzzy Logic (inexact reasoning tool; translates inexact notions into quantitative measures)
  Fuzzy logic, past zichzelf aan (je bent niet groot en klein maar groot of klein)
  Fuzzy logic en neurale netwerken hebben de toekomst

Oplossingsruimte: verzameling van mogelijke oplossingen

Abduction: medical diagnoses

Induction: Learning from examples

Deduction:

Data cleaning: updaten database

Data integrating: data uit meerdere databases

Data enrichment: useful data from outside

Datawarehouse: 1 (kopie) datamodel die iedereen kan benaderen

Knowledge Descovery in Databases (KDD)

- Formulate mining question
- data selection
- Data cleaning (removal of noise)
- Data mining (extract actual patterns)
- evaluation (presentation of patterns)

Knowledge and Information Technology

- Create knowledge (software ; knowledge work systems)
- Capture knowledge (databases ; Artificial Intelligence systems)
- Share knowledge (networks ; Group collaboration systems)
- Distribute knowledge (processors ; Office automation systems)

Decision Support System (DSS): Management level computersystem combines data, models user-friendly software for semiostructured & unstructured decisionmaking for non-routine decisions

- Model driven (formula,what if)
- Data driven (database)

DSS

- **Datamining:** Technology for finding relationships in large databases
- **DSS Software System** (tools for data analysis; statistical and probability models)
- **Sensitivity analysis** (What if questions)
- **GIS** (Software to display digital maps)

Electronic Meeting System (EMS)
Collaborative GDSS that uses information technology to make group meetings more productive and facilitates communication and decision making

Benefits of GDSS

- Improved pre-planning
- increased participation
- open, collaborative atmosphere

Executive Support Systems (ESS)
strategic information system designed for unstructured decision making through advanced graphics and communications

- Drill down (ability to move from summary to lower levels of detail)
- Designed for specific needs of CEO
- Extensive support staff
- Executive has 24 hours per day ability to examine, control progress throughout organization

Benefits ESS

- Flexibility
- Ability to analyse, compare, highlight trends
- graphic help explore situation
- monitor performance
- timeliness, availability of data allows prompt action

Confidence: in alle gevallen waarin een pen werd verkocht vrkocht men in 75% van de gevallen ook inkt

Conjunction (and) ; **Disjunction** (or)

Varela

- The embodied mind (Je kennis zit niet in je hoofd maar is een combinatie van hoofd, lichaam en zintuigen)
- Enacted cognition (action en shaping), vb acteren

individueel leren:

- Observe
- assess
- design (creativiteit)
- implement (er gebeurt er wat in de buitenwereld)

Je kunt niets onderwijzen, omdat je studenten niet kunt dwingen tot assessment

je gebruikt je assessment tov je mentaal model (creerend referentiekader)

Individual learning => individual mental model => shared mental model

Knowledge Infrastructure

- Culture
- Learning platform (search engine)
    - Explicit knowledge (database)
    - Implicit knowledge (case base)
    - Learned knowledge (case base)
- Content

Semantiek: beschrijving van alle inputs en outputs

(CRM): Integratie van Sales,Service en Marketing

(ERP) Integratie van Logistics,Production,Distribution

Componenten internet database

- Web server
- Web browser
- U(universal) R(resource) L(locator)

Common Gateway Interface

communicatie tussen proces en webserver

Twee redenen voor logging:

- Marketing purposes
- Performance improvement

XMLvoordelen

- semantiek van data (vb <name>, <person>
- entity references
- DTD (document type declations)
- insertion of comments

	Data retrieval	Informationretrieval
matching	exact	Partial
query language	artificial	natural
query specific	complete	incomplete
error	sensitive	insensitive
items wanted	matching	relevant
model	deterministic	probabilistic
inference	deduction	induction

E-Business Architecturen

ICT-databases-internet

- verwerken internet queries
- keyword type of queries
- standard queries