Enterprise Resource Planning

Introduction, project, solutions

– EFREI –
– ESTIA –
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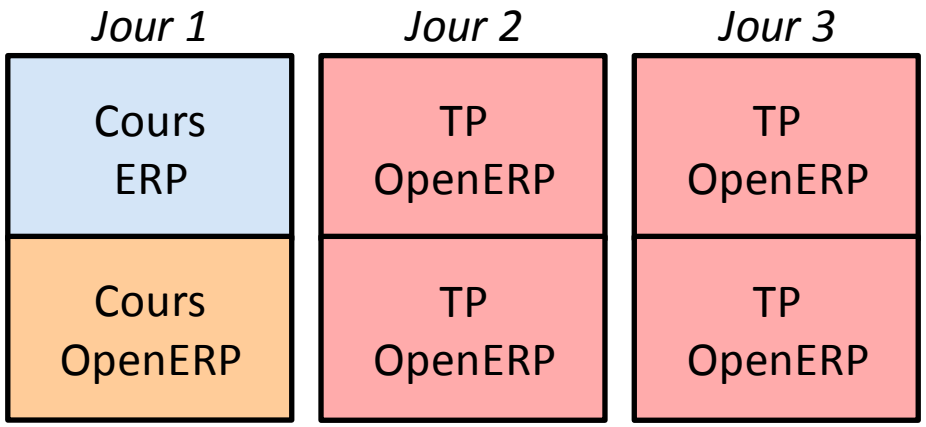
Last update: March 2018

Objectives of this course

- Learn what ERP software is
  - Be aware of the major actors
  - Be able to analyze and select ERP solutions
  - Be able to speak with editors and consultants
  - Be able to parameter ERP software
  - Be able to develop modules for ERP software

Schedule

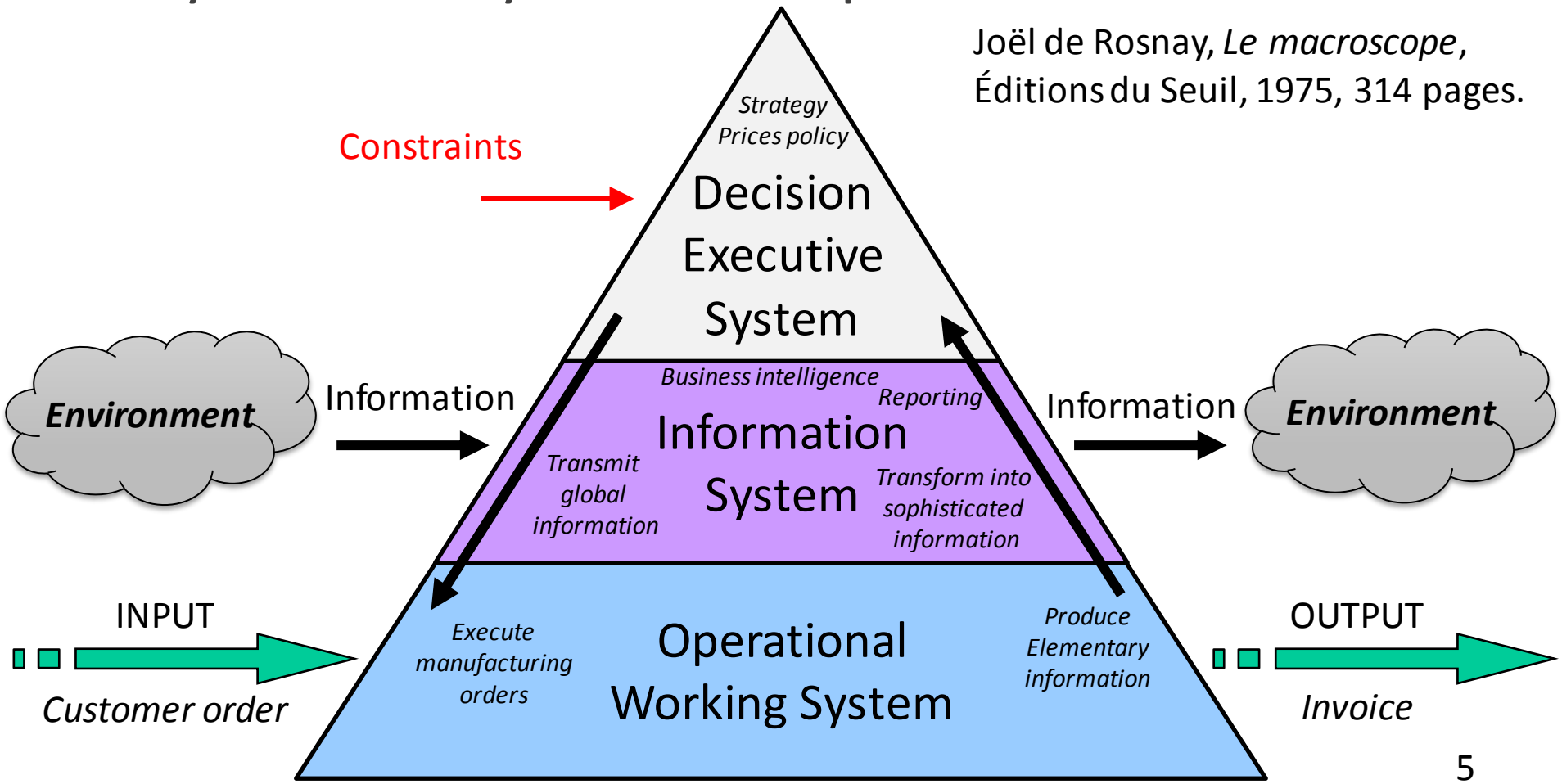
1. **ERP:** Introduction to basis principles (2h cours)
2. **ERP:** How to select software (2h cours)
3. **OpenERP:** Administration, Development (4h cours)
4. **OpenERP:** Installation and configuration (2h TP)
5. **OpenERP:** Follow a complete flow (4h TP)
6. **OpenERP:** Module programming + Webservice (10h TP)



Reminder

- System Analysis of Enterprises

Joël de Rosnay, *Le macroscope*, Éditions du Seuil, 1975, 314 pages.



Reminder

- Management Information Systems (MIS)

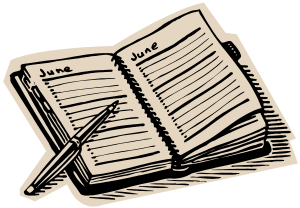
  « An information system is a set of **resources** (hardware, software, data, procedures, *humans*, …) **structured** to acquire, treat, store, *transmit and make available* information (shaped as data, text, sounds, pictures, images, …) inside and between organizations. »

  Robert Reix (1934-2006), *Systèmes d'information et management des organisations*, Éditions Vuibert, First edition in 1995, 367 pages. – Personal traduction –

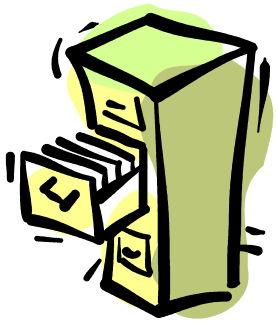
Reminder

- Are the following part of the information systems?
  - An order book (backlog)

  - A list of supplier

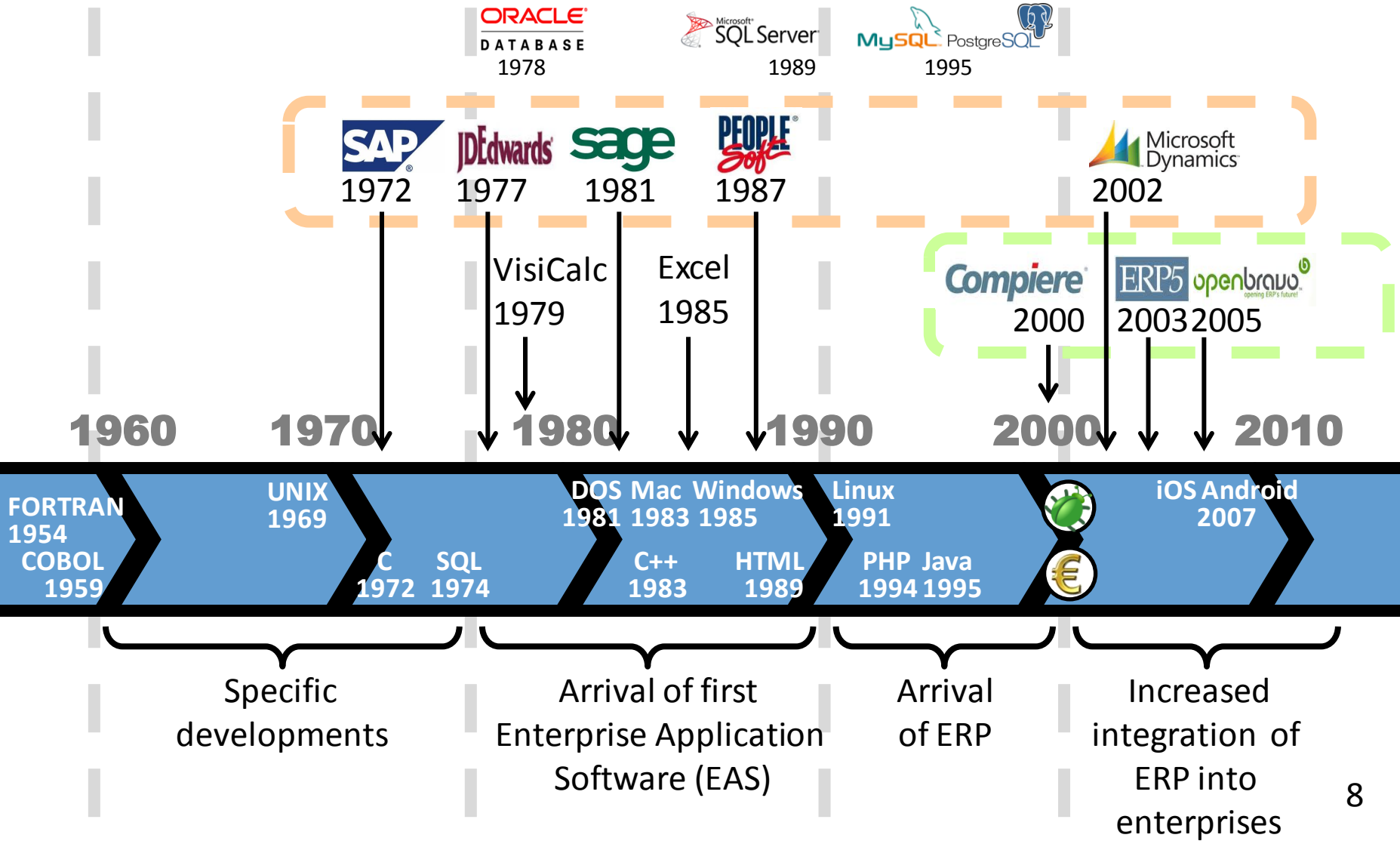


  - A file cabinet



informatique = ...

Summary of MIS chronology



Nowadays context

The evolution of MIS

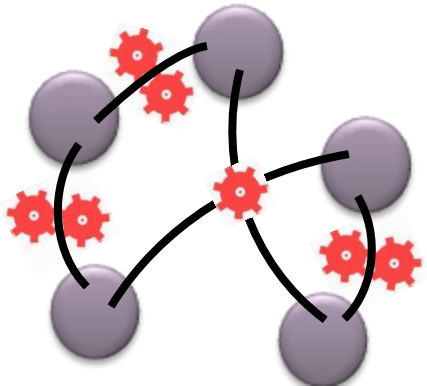
- Main factors of evolution
  - Technologies for information systems
    - Evolution of programming languages
    - Evolution of network capacities, of web technologies
  - The environment of enterprises
    - Globalization of the market
      - Internationalization: companies across several countries, customers over the world
      - Several currencies, laws
    - Needs of the market change very rapidly
    - Mergers and Acquisitions (M&A)

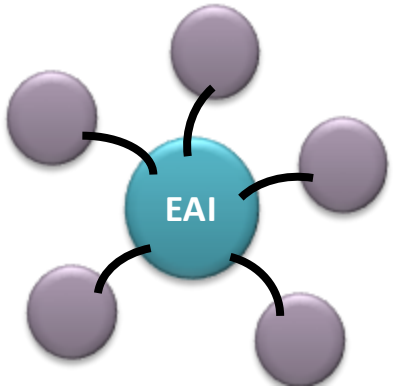
Building a MIS using IT

- Own software written by the enterprise
  - Needs high-level and up-to-date internal skills
  - External support/help is impossible
    - No externalization
  - Corrections must be done by the enterprise
  - Unfocusing from core business
  - Low compatibility with partners, customers, …

Building a MIS using IT

- Several EAS (Enterprise Application Software)
  - Many EAS exist for each function of a company
  - Some are known as best of their category
    - Usually called « Best-of-breed » software
  - Need to build bridges between programs
    - Activate / Synchronize data
    - Enterprise Application Integration (EAI)





Building a MIS using IT

- ERP software (Enterprise Resource Planning)
  - An ERP is a central EAS aiming to covers (nearly) all the functions of company
  - Written by an editor outside of the enterprise
  - Used by several companies
  - Easy to find external skills
    - Externalization
    - IT consulting
    - Focus on core business

The rise of ERP systems

- Started 25 years ago (early 1990's)
- The rise happened with the necessary evolution of MIS because of:
  1. The year 2000 problem 
     - 1960's: expensive memory and mass storage (1bit = $1)
     - Year coded as 2 digits (programs, databases, programming languages, windows 3.x file manager, etc.)
     - Announced since early 1980's
     - Really taken into account between 1995 and 1998
     - Next known "bug": January 19th, 2038 at 3:14:07 am POSIX 32 bits systems using a signed integer (2106 if not signed)

The rise of ERP systems

2. The Euro changeover €
   - January 1st, 1999: introduction to world financial markets as an accounting currency
   - January 1st, 2002: Euro coins and banknotes entered circulation

- Rather than starting corrections on existing programs (more or less old)
  - Migration of 60% of French large companies
    - Other 40%: migration already done or correction of existing programs

Mutation

- The management of information is changing
  - Adaptation to the constant evolution of markets
  - Mergers and Acquisitions (M&A)
  - Collaborative software solutions
  - Single currency in the European Union
  - Enlargement of the European Union
  - Growing global concurrency
- Call into question existing systems
  - Abandon of « tailor-made » existing solutions and adoption of « ready-to-install » ERP

Modern ERP software

3' – Sage ERP Solutions – 2011

OUTLINE

1. What is ERP? Why ERP?
   - Definition
   - Characteristics
2. Conduct an ERP project
   - Phases of the project
   - Criteria for selection
   - Steps of installation
3. Major actors of ERP market
   - Proprietary and open source solutions
   - IT consultants

Definition

- ERP is an EAS allowing to manage **all** the processes of an enterprise, by the integration of all the functions like:

Human resources management

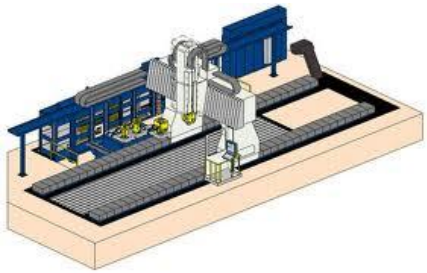
Supply chain management

Financial and analytic accounting

Purchasing

E-business

Customer relationship management



Production, manufacturing resource planning

Warehouse

Distribution

Properties

- Foundation basis of ERP
  1. Each software application to manage a function of the enterprise is built as an **independent module**
  2. These modules share a **single shared database**, allowing the application to exchange data
  3. A **workflow engine** spread any new information in all the modules needing it (according to a predetermined programing)

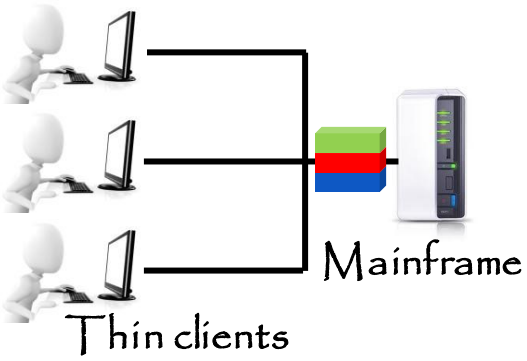
Characteristics

- From a **unique** creator
- A modification on a module causes a **direct update** on linked modules (1 DB, workflow engine)
- Ensure **uniqueness** of information (no redundancy)
- Easier **detection and solving** of potential dysfunction (the origin of each information is easy to identify)
- **Can be** sufficient to fully cover all needs (of MIS) of an enterprise, and the modular architecture permits a progressive installation according to the evolution of needs

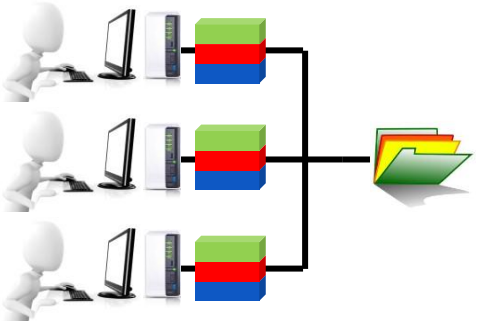
Reminder?

1960's-70's

1-tier architecture
Centralized



Decentralized

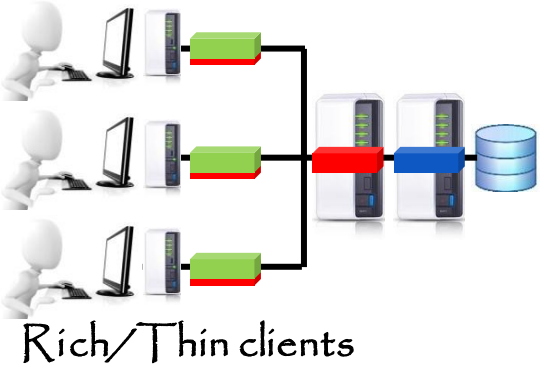


Client-Server model

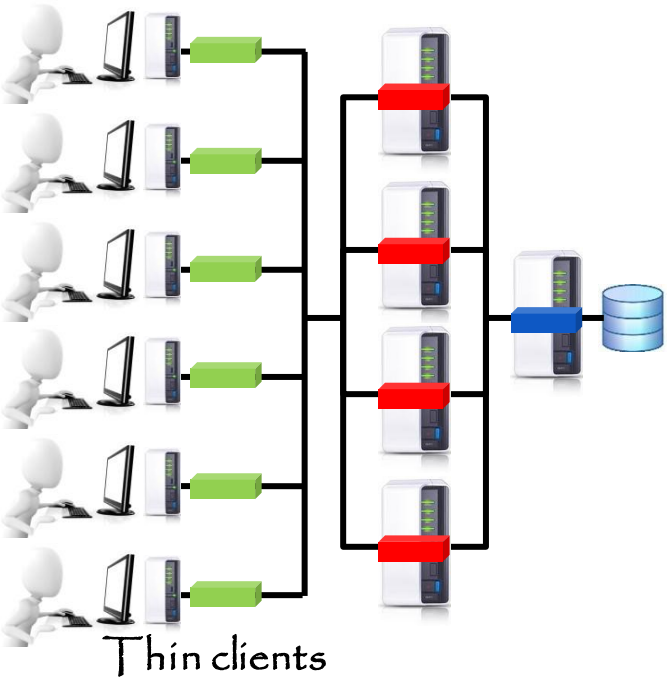
Presentation tier
Logic tier
Data tier

2-tier architecture 1980's

3-tier architecture 1990's

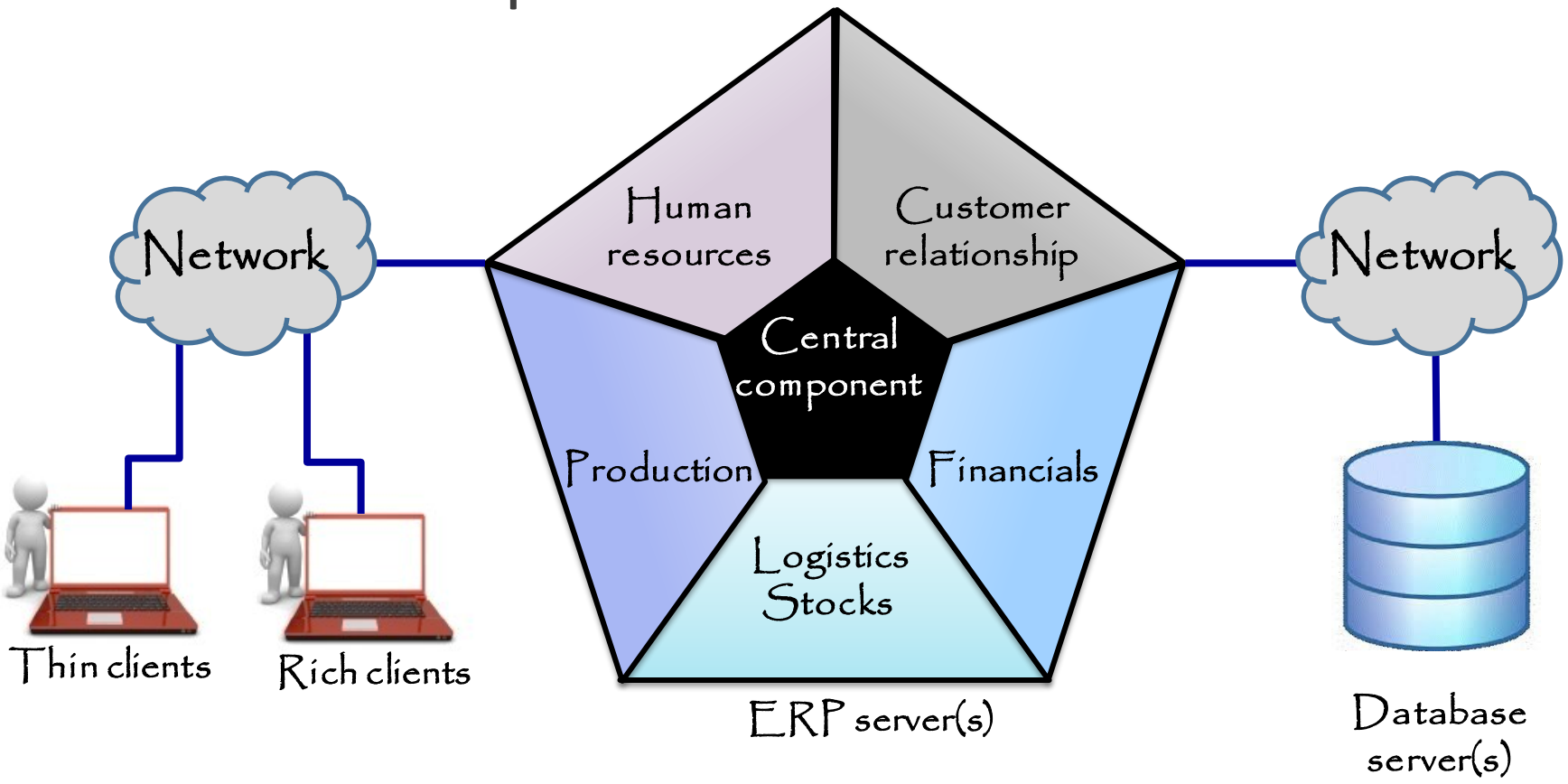


n-tier architecture 2000's



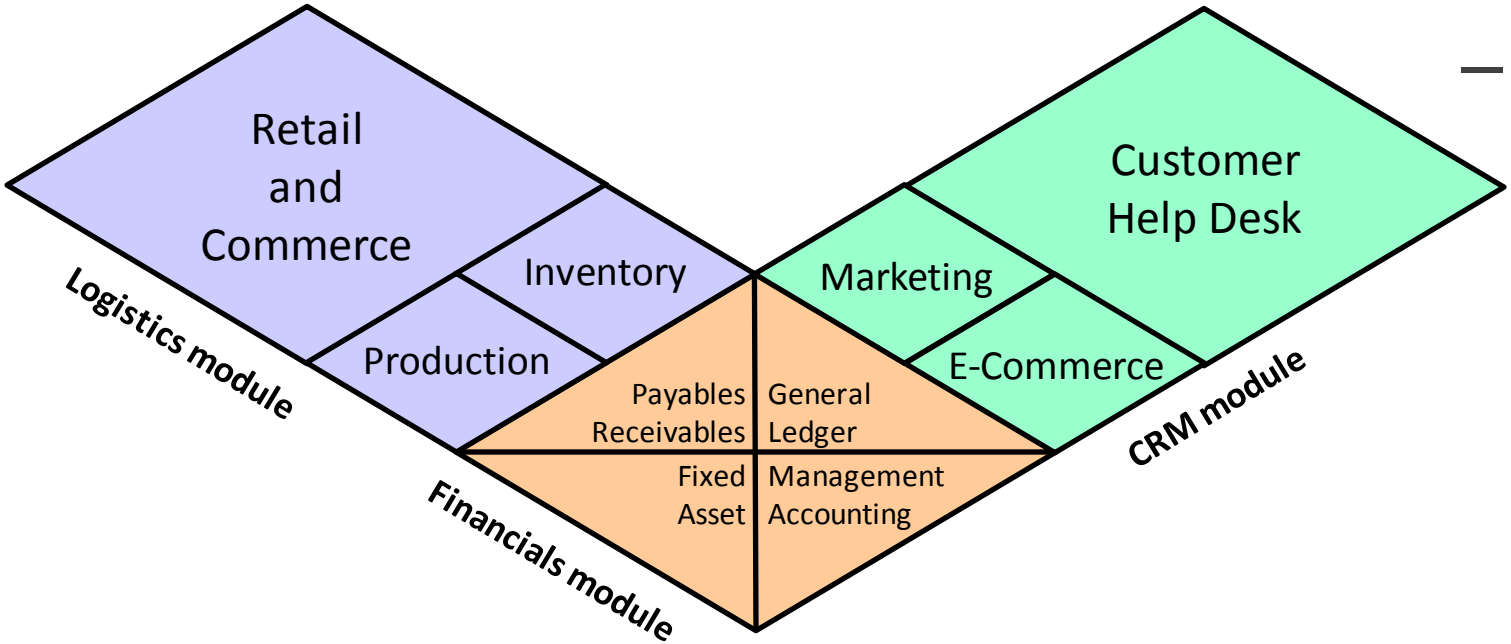
ERP infrastructure

- General setup



Module-based architecture

- Each function of enterprises is implemented by an independent module
  - These modules share the same database
  - Modules are compatible with others (verification not needed)
  - Pluggable as Lego blocks and work together



Modules

- Financial Accounting
  - General Ledger, Fixed Asset, Payables, Receivables, Cash Management, Financial Consolidation
- Management Accounting (Analytic)
  - Budgeting, Costing, Cost Management, Activity Based Costing

Modules

- Manufacturing
  - Engineering, Bill of Materials, Work Orders, Scheduling, Capacity, Workflow Management, Quality Control, Manufacturing Process, Manufacturing Projects, Manufacturing Flow, Product Life Cycle Management, Product Data Management
  - Computerized maintenance management system (CMMS)

Modules

- Material Requirement Planning
  - MRP 1
  - MRP 2
    - Simulations
      - It is possible to response to this order (supply chain, workbenches, …)
      - Should i prefer to answer to this order or to another order

Modules

- Supply Chain Management (Logistics)
  - Supply Chain Planning, Supplier Scheduling, Order to Cash, Purchasing, Inventory, Warehouse, Product Configurator, Claim Processing
  - Essential for Just-in-time (JIT) production strategy

Modules

- Customer Relationship Management
  - Sales and Marketing
  - Commissions
  - Service
  - Customer Contact
  - Call Center Support
- CRM systems are not always considered part of ERP systems but rather Business Support System (BSS) systems

Modules

- Human Resources
  - Recruiting, Training, Payroll, Benefits, 401K, Diversity Management, Retirement, Separation
  - Carriers, Skills, Vacations, Presence
- Project Management
  - Project Planning, Resource Planning, Project Costing, Work Break Down Structure, Billing, Time and Expense, Performance Units, Activity Management

Modules

- Data Services
  - Various "self–service" interfaces for customers, suppliers and/or employees
- Access Control
  - Management of user privileges for various processes

Domains / Sectors

- Certain ERP or module (or overlay) are dedicated to particular domains of activity:
  - Hospitals
  - Telephony
  - Cosmetics
  - Agribusiness
  - Printers/Publishers
  - Ready-to-wear
  - Hypermarket distribution





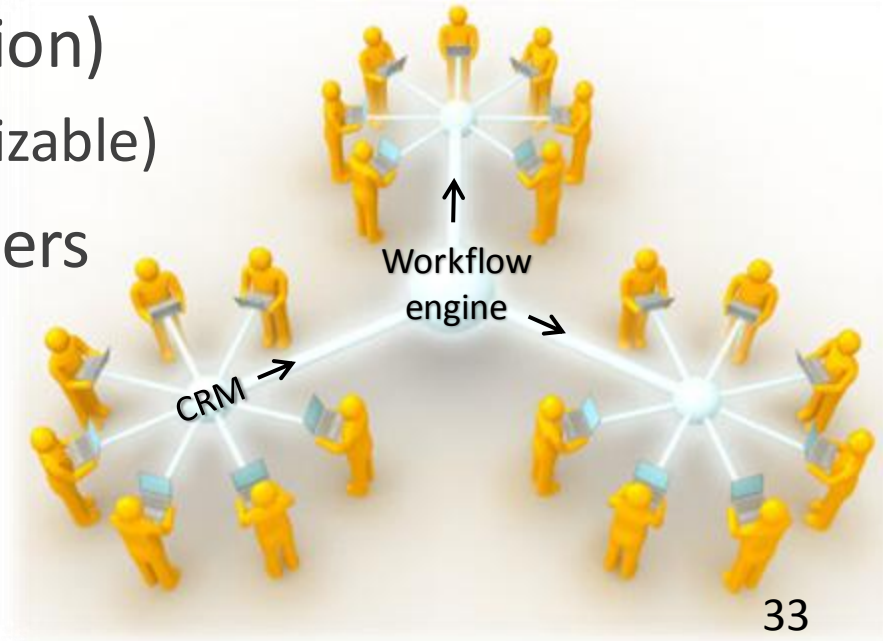

  - Automobile
  - Electrical goods
  - Aeronautic
  - Construction
  - Banks
  - Insurances
  - …





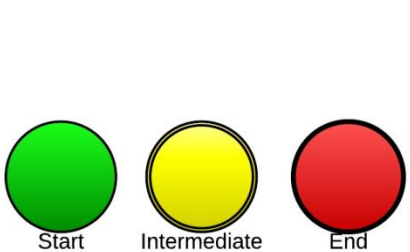
Workflow engine

- Integrated workflow engine
  - After an input / After an update
    - Store information into database
  - New information is spread in all the modules needing it (synchronization)
    - Automated (and customizable)
  - Unnoticeable for end-users

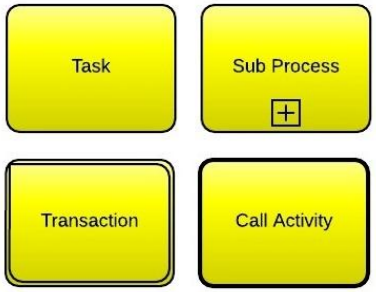


Workflow programing

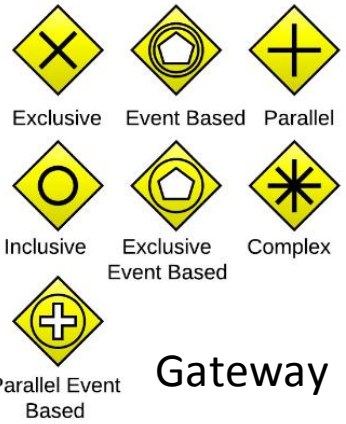
- BPM modeling (Business Process Management)
  - Flowchart diagrams
  - **BPMN** (Business Process Model and Notation)
  - **XPDL** (XML Process Definition Language)
  - **BPEL** (Business Process Execution Language)
  - **WS-CDL** (Web Services Choreography Description Language)



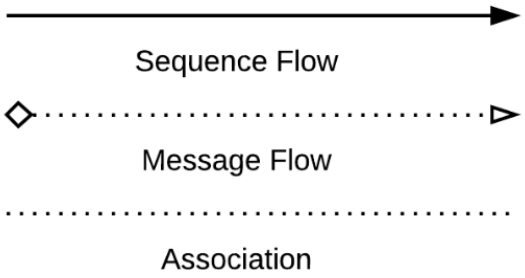
Event



Activity



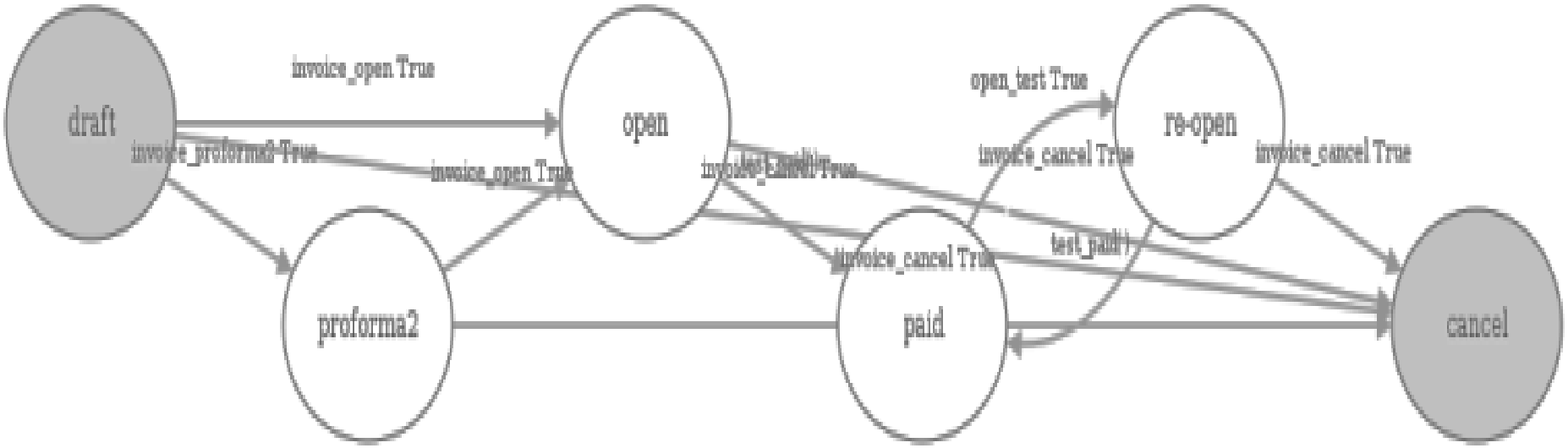
Gateway



Connections

Workflow programing

- Example of an invoice in OpenERP 7.0



Strong points of ERP

- Main advantages
  - A **unified** system allow to make working users of different activities in a **identical applicative environment**

    - Coherent and homogenous data (single DB)
    - Integrity and unity of information (no redundancy)
    - Minimal costs
      - No interface between modules, synchronized treatments, corrections assumed by the editor
    - Global training for end users (same logic and ergonomics)
    - Costs and time of installation are known
      - Often 3 to 36 months (but can also be 7 or 8 years!)

Weak points of ERP

- Main inconvenient
  - High cost (heavy investment)
  - Functionalities rarely covers all needs
    - Extra developments are (always) required
  - Functional coverage is larger than needed
  - Requires deep knowledge of the enterprise processes
  - Must sometimes **adapt the processes** to the ERP
  - **High dependency** to the editor (source code, new versions)
  - Heaviness and rigidity of the installation process
    - Long or difficult appropriation by end users

Benefits for the organization?

- Multi-**currencies/languages/legislations** tool
- No divergent information between departments, then some conflicts are **avoided**
- Better coordination among departments
- Better management of storage
- More **reliable** indicators and dashboards
- Putting all the enterprise in a single software
  - Allow a **global vision** of the enterprise
  - Helps having a **more standard** internal functioning

Risks

- When the ERP stops working, the enterprise stops too!
- When the DB fails, the ERP stops!
- If the DB breaks, **all** data of the enterprise can disappear and be lost forever!
- Disaster Recovery Plan (DRP)
  - **Documented** process and set of procedures
  - Recover an IT infrastructure in case of a disaster
    - NYC flooded by Hurricane Sandy in October 2012
    - Physical duplication was not enough

Do i need ERP?

- This is a strategic choice
  - Nowadays SME are also concerned
- Strategic analysis
  - Environment / Enterprise
  - Risks / Opportunities
  - Strengths / Weaknesses
  - Main objectives of the enterprise? Key processes?
  - What level of modules? Sales/Finance/Logistics/B2B/B2C
- Not only reduce costs, but increase global performance (quality, reduce times, decisions, reduce errors)

Back to reality

- ERP systems were designed in order to be a single solution allowing to manage all the functions of the enterprise: it is not the case!
- Limitations
  - Not possible to parameter in order to fit the process of the company
    - Don’t tell the enterprise ERP knows better its business
    - Adapt the enterprise to the ERP
  - Function is not (yet) implemented
  - Function is not compatible
    - With local laws
    - With other software used in the company

Communication with other EAS

- Plug an external software with ERP
  - Thought CSV file or XML file
  - Thought Database (triggers)
  - Thought **webservice** (**RPC/XML, SOA**)
- Compatibility
  - Office software suites (MS Office, OpenOffice, LibreOffice)
  - Reporting tools (SugarCRM, Kettle, JasperReport, ReportLab)
  - Business intelligence tools (Pentaho, SpagoBI)
  - Accounting EAS (Ciel, Sage, Cegid Quadra)

Other software for enterprises

- **Groupware**: software for collaborative work
  - Shared e-mail boxes
  - Shared calendars
  - Shared contacts directories
  - Electronic Document Management System (DMS)
  - Examples:
    - **IBM LOTUS NOTES**
    - **MICROSOFT SHAREPOINT**
    - **HORDE PROJECT**
    - **ORACLE BEEHIVE**
    - **O3SPACES**
    - **Box.net**

Do **not** confuse all business software with ERP

Your products in action with ERP

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Factors to Consider When Selecting an ERP Platform

ERP project

- ERP should not only be seen as a tool or software
  - For the enterprise, ERP is a real project
  - New way of thinking MIS
  - Need to know (to discover?) and write all procedures
  - Needs new collaborations between departments
  - Should be conducted with end-users
- A failing ERP project can endanger the enterprise

What criteria?

- Hundreds of solutions around the world
- How to select an ERP among others?
- Steps of installation?
- Preparation?
- Roadmap?

The market of ERP

- Can be divided in 3 categories
  I. The more powerful and expensive systems
     - Only few editors at this level
     - Budget of at least $600,000
       (but largely higher according to the number of modules and users)
  II. Less powerful ERP but with really lower cost
     - Medium-sized or subsidiary company of big enterprises
     - Smaller business start using it to be better challengers
     - Budget ranging from $100,000 to $600,000
  III. Lot of small EAS (considered as complete ERP?)
     - Budget ranging from $5,000 to $100,000

Functions and processes of the enterprise covered by the ERP

Generalist ERP

less traditionnal modules

- Project management
- Human ressources
- Maintenance

traditionnal modules

- Accounting
- Purchasing
- Sales
- Inventory
- Manufacturing

Verticalization

by activity

- Production
- Distribution
- Sales points
- Business to business
- Business to customer

by domain/sector

- Textile
- Agribusiness
- Chemistry
- Hostels
- Banks

Features of each category

- ERP for large companies
  - Modules around a central core
  - Extended parameters for processes and workflow
  - Fully configurable
- ERP for SME
  - Several modules included in the common core
  - Fixed processes and workflow
  - Minimal accounting (simple purchasing and sales backlogs)
  - Mono-lingual
  - Supports only one DBMS and one OS

TCO

- Total Cost of Ownership
  - For all phases of the ERP project
    - Phase 1: Preliminary studies, detailed studies
    - Phase 2: Developments, parameters
    - Phase 3: Preparation and first tests
    - Phase 4: Training end users
    - Phase 5: Replacing the old system by the new one, checking the new data stream is all right
    - Phase 6: Maintenance, evolutions, new versions
  - Estimate the number of **days** and **persons**
  - What **resources**? (internal, external, hardware, infrastructures)

ROI

- Return On Investment
  - Can be very long
  - Promises not always kept
    - Competitive advantage
    - Costs reduction
  - But the real ROI of ERP is not always about money
    - Better decisions and management
    - Better visibility of the activities
    - Clarification of procedures
    - Productivity increased

Before and after ERP

- Lenôtre: first gourmet catering in France
  - Created in 1957, 1400 employees
  - Decrease 15% of the stocks in 3 years

- Optic 2000
  - Created in 1969, 620 employees in 2011
  - Immediate decrease of out-of-stock problems
  - Higher rate of service for delivery
  - Better quality control of bought products

Kenneth Laudon, Jane Laudon, Management des systèmes d'information, Chapitre 11, Pearson Education Inc, (9e édition, 2006)

Before and after ERP

- RhodiaSilicones

  – Before ERP, about 4 on 10 orders were not delivered on the date asked by the customers. The OTIF indicator (On-Time In-Full) went from 62% to 75%-80% at Saint-Fons factory

- PSA Peugeot Citroën

  - Holding created in 1965, >200.000 emp. in 2012

  – The visits rates of the ERP is 40% higher than with the former information system

Before and after ERP

- Kiabi: French ready-to-wear distributor
  - Created in 1978, about 6500 employees in 2011
  - Before ERP, data update was performed during the night and every invoices could be paid only the day after its input. It is now instantaneous!
  - Before ERP, writing an income statement was taking more than one week. Today, informations can be changed until the last minute!

Before and after ERP

- Soitec: a French semiconductor manufacturer
  - Created in 1992, 1275 employees in 2011

  - Automatisation and integration of the information flow reduce time for input and reduce input errors and the time to correct input errors
  - Accounting and sales administration: about 5% to 15% increase of productivity
  - Logistics: about 10% to 20% increase of productivity
  - Under 1% of errors for packaging and labelling (it was 6% before ERP)

Achat d'un système ERP

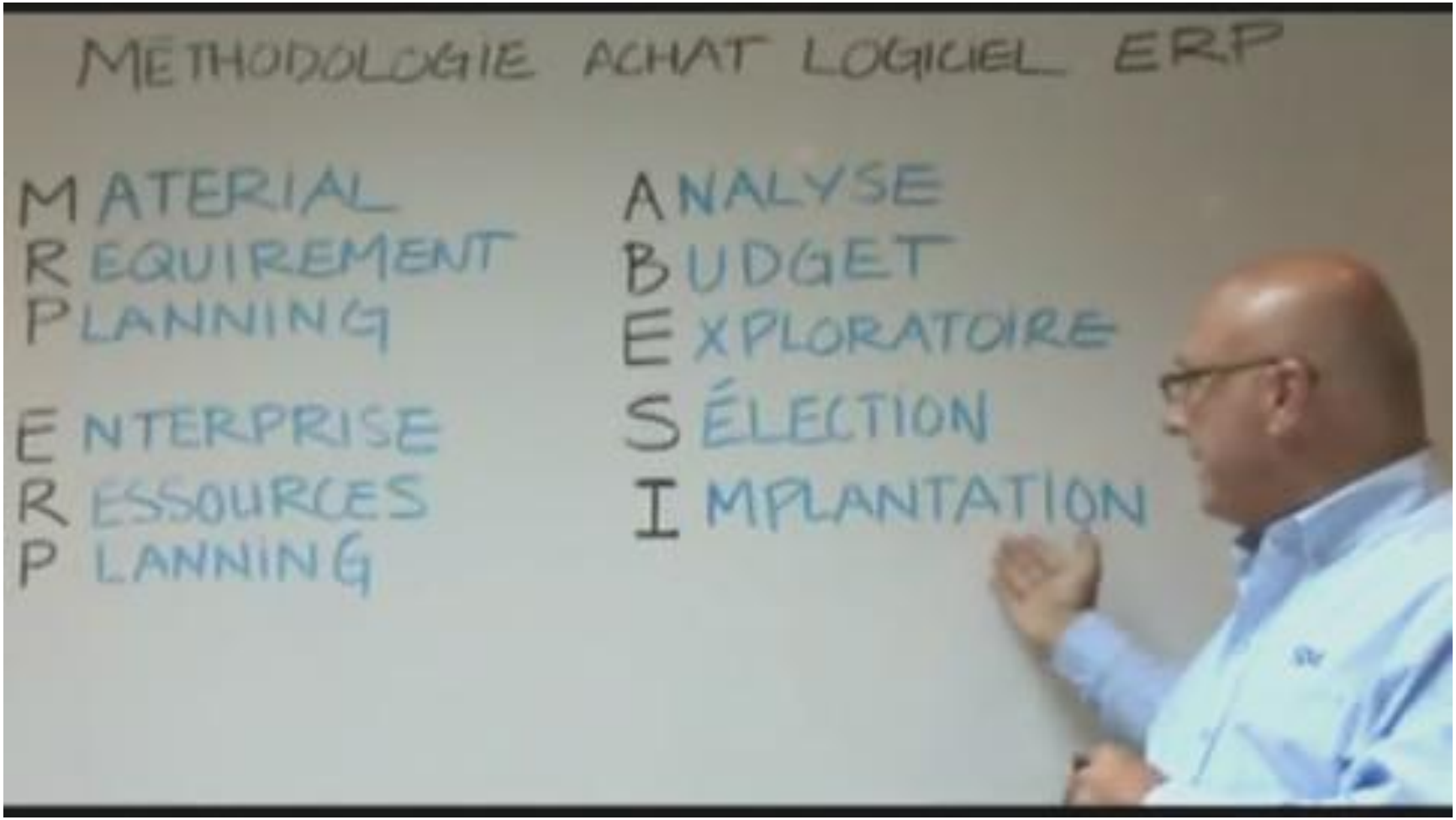
- Michel Beaudry, *www.formateur.ca* (2009)
  - Dans cette capsule, Michel Beaudry nous explique comment faire pour **choisir** le bon logiciel ERP ?
  - Voici donc les cinq étapes de la **méthodologie** mise au point par Michel Beaudry qui vous aideront à faire le bon choix. La majorité des entreprises qui ont appliqué cette technique ont choisit le bon logiciel et l'implantation fût un grand **succès**.

13'30 *(« Canceller » = Annuler)*

Achat d'un système ERP (1)

6' - Michel Beaudry – Directeur de projets – 2009

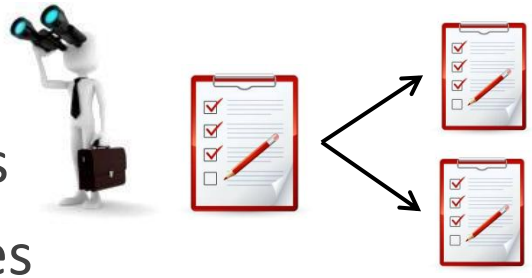
Achat d'un système ERP (2)



7'30 - Michel Beaudry – Directeur de projets – 2009

Steps for phase 1

1. Create the vision of the enterprise
2. Establish the list of needed functionalities
3. Identify critic and standards functionalities

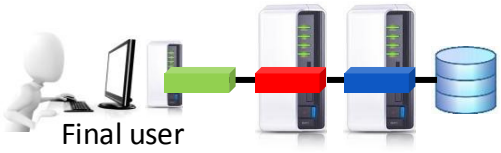


4. Make a list of potential ERP candidates
5. First selection process to retain 5 candidates

	ERP 1	ERP 2	ERP 3	ERP 4	ERP 5	ERP 6	ERP 7	ERP 8	ERP 9	ERP 10
F01	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗
F02	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
F03	✓	✓	✓	✗	✓	✓	✓	✗	✗	✓
F04	✓	✓	✓	✗	✓	✗	✓	✗	✗	✗
F05	✗	✓	✓	✗	✓	✓	✓	✗	✗	✗
F06	✗	✓	✓	✗	✓	✓	✓	✗	✗	✗
F07	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗
F08	✗	✗	✓	✓	✗	✗	✓	✓	✓	✗
F09	✗	✗	✓	✗	✗	✗	✓	✗	✓	✗
F10	✗	✗	✗	✓	✗	✗	✗	✓	✗	✓

6. Write scope statements and send call for tender
7. Analyze responses
8. Select 3 final candidates

9. Demonstration by the 3 editors/vendors of the solutions with data of the enterprise



10. Select the ERP
11. Write contract and start planning the installation

Installation budget (steps 2-5)

- Vary according to the **number of modules** required and the **number of final users**
- Budget includes
  - Cost of infrastructures and hardware
    - Servers, air cooled rooms for servers, hosting
  - Cost of licenses (be sure of the number of final users!)
  - External ERP consultants (how many, how long)
    - Functional or technical ones
  - Internal human resources

Installation budget (steps 2-5)

- Anticipate hidden costs in your estimation
- Be careful to hidden costs
  - Can explode if your installation plan is not well prepared
    - Delayed, out of time
    - Dysfunctions
    - Inertia, slow-response internal departments

Proprietary or Open source

- Large company
  - Proprietary ERP
- Small and Medium sized companies
  - Proprietary ERP
  - Open source ERP
  - Specialized proprietary ERP (and low price)
- Other criteria that can be considered
  - Rich client not available for GNU/Linux workstations used in the small enterprise

Solidity of the editor

- Prices of proprietary ERP are sometimes quite excessive 
  - But one could say that:
    « at least, their editors are rich society and wont become bankrupt overnight! » 

- The real limitation of proprietary ERP lifespan's isn't bankrupt of its editor, but its acquisition by a richer ERP editor ! 

Aqcuisition of an editor by another

- At the time of the acquisition, the new editor quickly announce the ERP will still be maintained, just to reassure the users
  - But for economic reasons, developing two different source codes (doing the same) is usually stopped few years later (when contracts end…)
  - One of the ERP is then stopped and users are invited/constrained to migrate
  - Then users must change their ERP and spend lot of money to redevelop customizations and do the integration again

Example of an acquisition

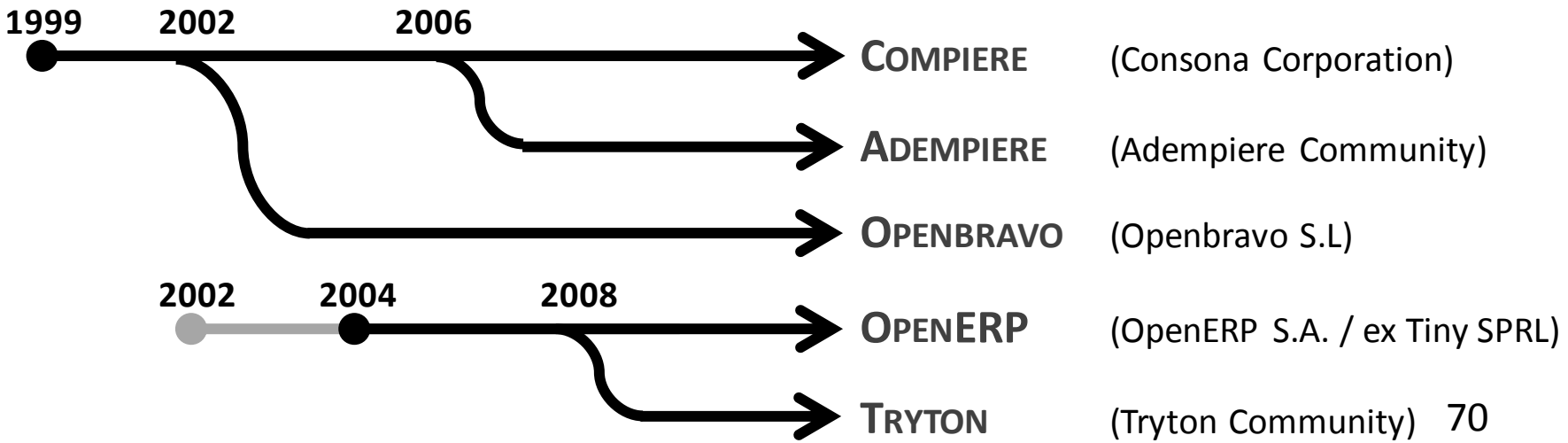
- The case of Amaris (ERP specialized for industry)
  - Acquired by Cegid in 1997
    - Functionalities of Amaris are redeveloped in the main ERP solution of Cegid
  - New marketing strategy with Amaris users, by offering a higher range solution (translation: higher prices)
    - Some users accepted to pay more expensive licenses
    - Some others decided to continue working with fixed Amaris code, not maintained anymore
    - Problem example: Amaris client not compatible Win7
- Numerous examples of this kind happen

Open source ERP editors

- The editor of a free ERP can also become bankrupt or be acquisitionned by another editor
  - But in this case, an open source community can continue to maintain the source code
  - This advantage is considerable regarding proprietary software
  - But, for this to become true, developers of the open source community must be **numerous** and have high specific skills on the **ERP foundations**, not only on modules and top-level layers

Open source ERP communities

- Open source ERP is not leaded the same as usual open source projects
  - Always started by a private editor
  - Then a community of volunteers grow (or not)
  - Disagreement with governance ⇒ fork



IT consulting enterprises

- The installation of an ERP without a local IT consultant would be madness
  - The **IT consultant** must be a specialist of your ERP
    - *Société de services en ingénierie informatique* (SSII)
    - *Société de services en logiciels libres* (SSLL)
  - Then acquire internal skills
- Outsourcing
  - IT consultancies estimate, manage, implement, deploy, and administer the enterprise IT system

OUTLINE

1. What is ERP? Why ERP?
   - Definition
   - Characteristics
2. Conduct an ERP project
   - Phases of the project
   - Criteria for selection
   - Steps of installation
3. Major actors of ERP market
   - Proprietary and open source solutions
   - IT consultants

Major actors of ERP market

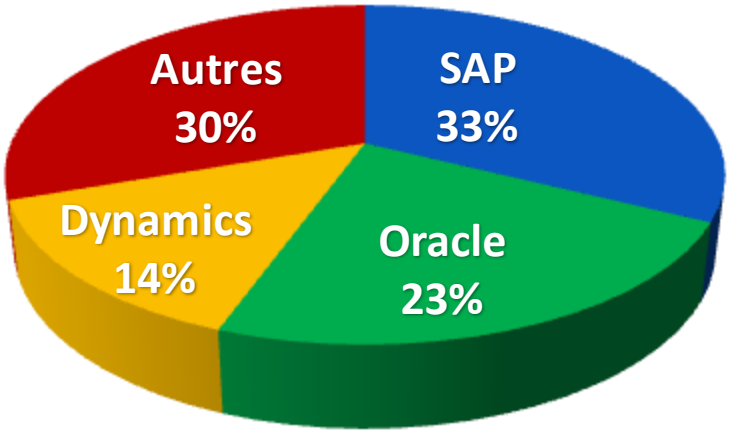
- Editors of proprietary software
- Editors of open source software
- Consultants

Sage ERP x3 overview

Proprietary ERP solutions

- Hundreds of solutions
- Main actors of the market:
  1. **SAP** (1972)
  2. **ORACLE** (v1 en 1978)
     - **E-BUSINESS SUITE**
     - **PEOPLESOFT + JD EDWARDS**
     - **SIEBEL (CRM)**
  3. **SAGE ERP** (1981)
  4. **MICROSOFT DYNAMICS**

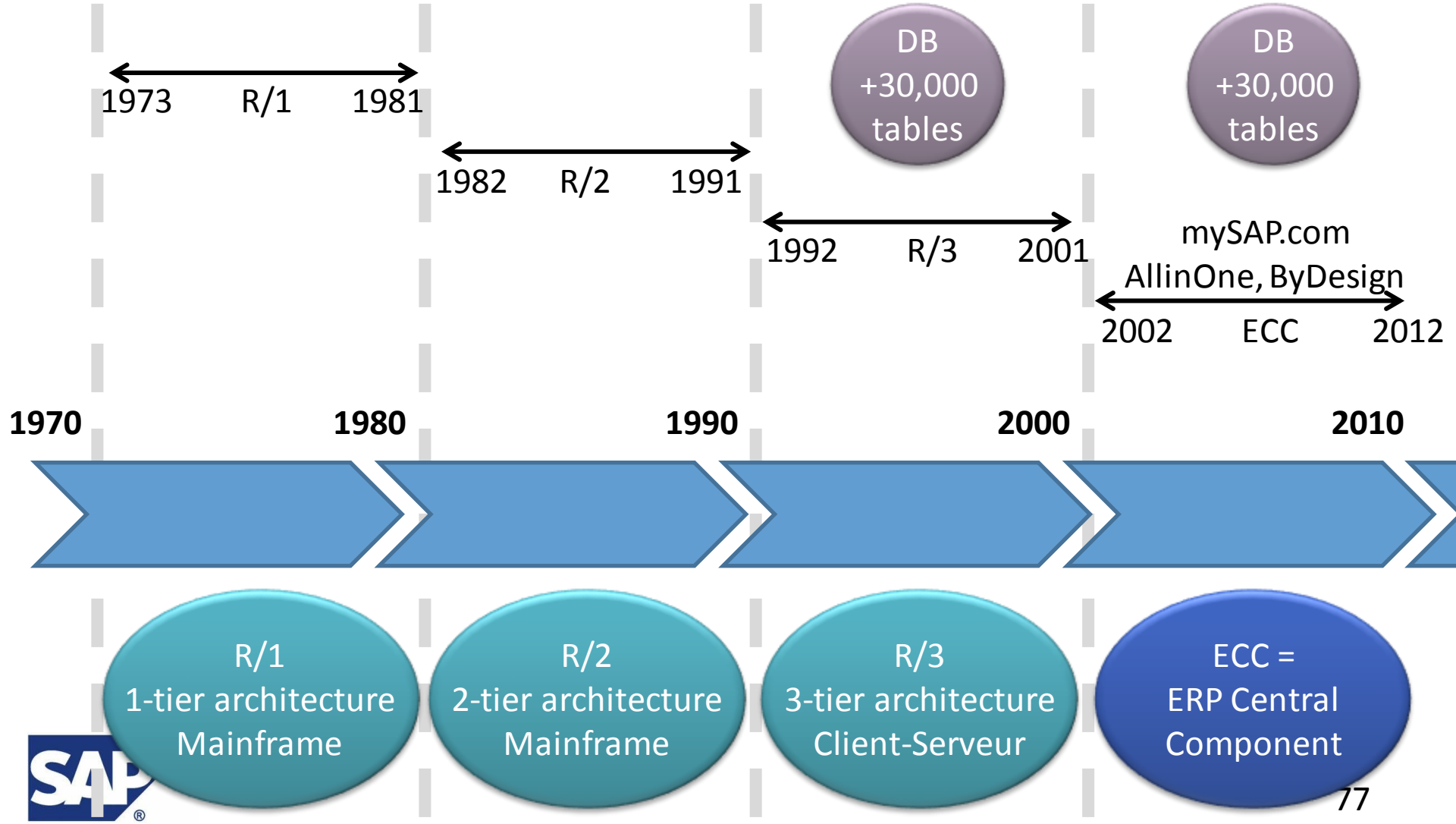
2005-2009



Major actors: SAP

- **Identity**
  - **S**ystem **A**nalysis and **P**rogram Development
  - **S**ystems **A**pplications and **P**roducts in Data Processing
  - German company
  - Created in 1972 by 5 former IBM engineers
    - Dietmar Hopp, Hans-Werner Hector, Hasso Plattner, Klaus E. Tschira, and Claus Wellenreuther

History of SAP versions



SAP

- Success
  - Software with very high level of quality
  - Careful, rigorous and disciplined high-level-team
  - German way very different from the empirical « good enough » american way

SAP

- Some figures
  - 1972: 9 persons
    - Revenue 300,000 EUR
  - 1982: 250 customers in Germany
  - 1988: first american office in Phyladelphia
  - 1998: 20,000 installations of R/3
    - 1.5 Million of employees use SAP daily
  - 2000: 25,000 persons
    - Revenue 6.3 Billion EUR

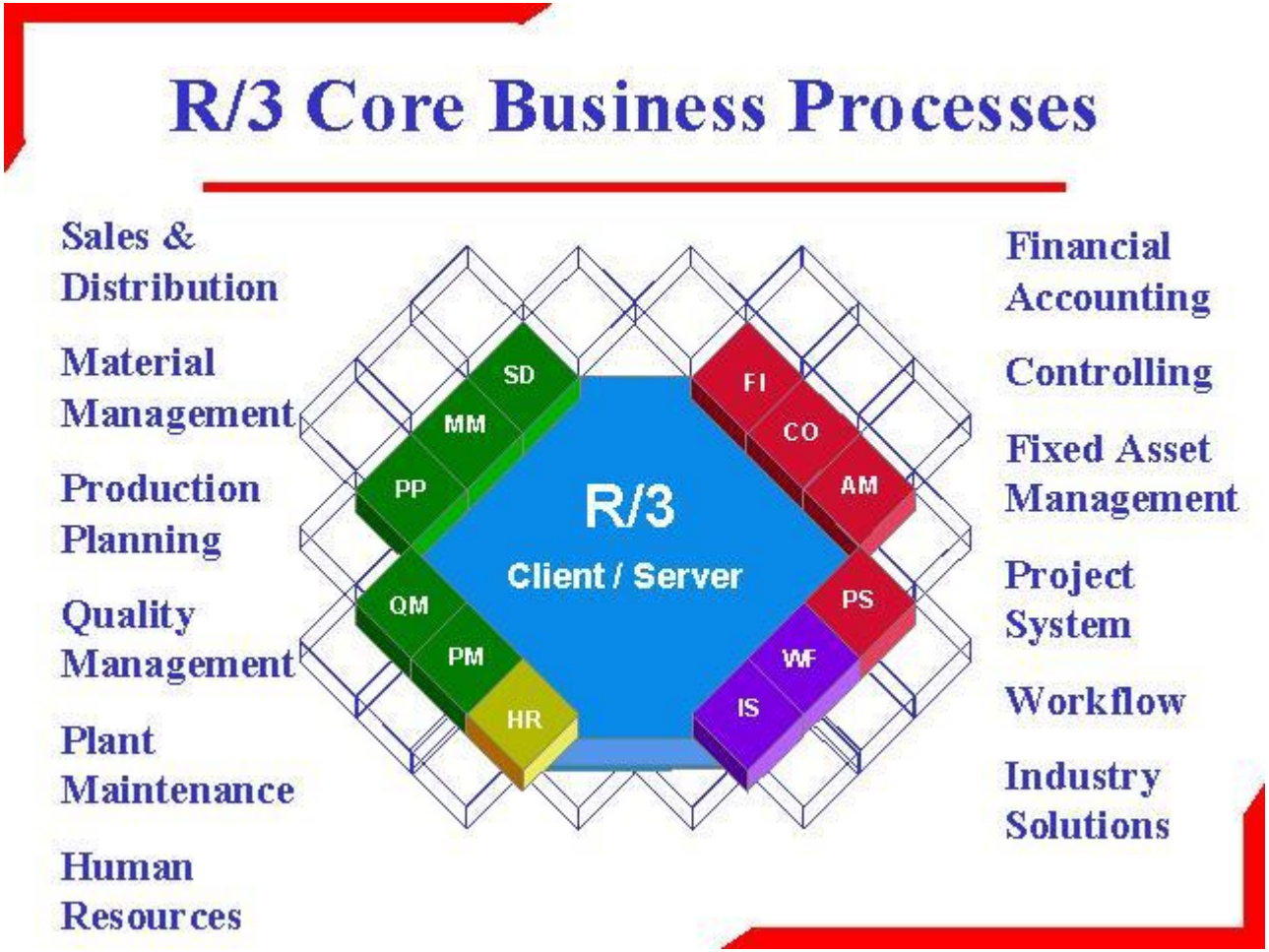
SAP

- Products
  - SAP All-in-one
    - For medium size companies
    - From 20 to 60 client workstations
  - SAP Business One
  - SAP Business ByDesign
  - SAP R/3

SAP R/3 modules

- **SAP R/3**

(1992-2001)

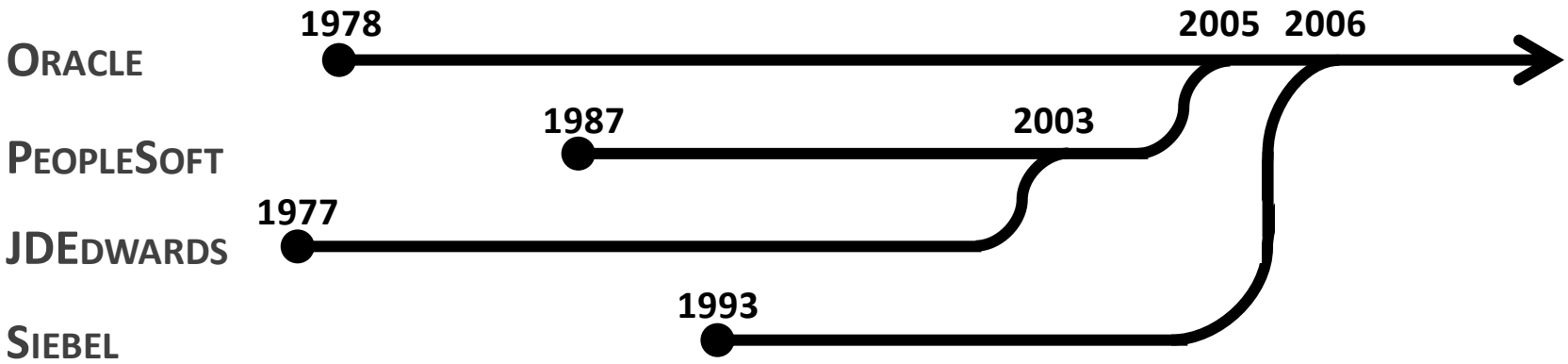


SAP programming language

- SAP ERP (ECC) 6.0 is written in C, C++, ABAP/4
- ABAP was created by SAP in 1983
  - **A**dvanced **B**usiness **A**pplication **P**rogramming
  - Inspired by COBOL
  - High-level programming language
  - SQL integration
  - Interpreted language
  - ABAP/4 is object oriented
  - Used in several EAS of SAP Business Suite

Oracle

- Oracle E-Business Suite
  - Part of Oracle Applications
    (non-database and non-middleware Oracle software)



ORACLE
e-businesssuite

Sage

- 1981
- Targets mid-sized enterprises (less than 500 employees)
- Several products
  - Sage One, Sage 50, Sage 100, Sage 300, Sage 500
- Sage ERP X3 (formerly Adonix X3)
  - Acquisition of the editor Adonix in 2005
  - Product for SME-SMB of 500-2000 employees

Sage modules

- **Sage ERP x3**

Finance

- Financial accounting
- Receivables and creditor accounting
- Payment transactions (or payment management)
- Cost accounting
- Investment accounting
- Controlling
- Consolidation

Purchasing

- Material requirements
- Budget monitoring
- Supplier enquiries
- Purchase orders
- Outsourcing
- Multistage signature control
- Contracts

Sales

- Open pricing
- Offers and contracts
- Order entry
- Product configuration
- Inventory commitments
- Delivery planning and shipping
- Invoicing
- Returns
- Sales commissions

Warehouse Management

- Dynamic management of locations
- Planning and execution of reception
- Workload analysis and resources planning
- Preparation Orders optimisation
- Post-preparation tracking operations
- RF invoice communication

CRM

- Contact management
- Sales force automation
- Customer support
- Call centers
- Guarantee management
- Service orders
- Knowledge base
- Marketing campaigns

Inventory

- Multistage warehousing and site management
- Movements and transactions
- RF data acquisition
- Quality control
- Cost calculation
- Acquisition price tracing
- Inventory control
- Procurement

Manufacturing

- Discrete/process manufacturing
- Parts lists/composition/formula management
- Work schedule management
- MPS/MRP
- Technical data configuration
- Link to weighing scales
- Cost calculation
- Quality assurance
- Capacity planning

Microsoft

- Microsoft Dynamics (Microsoft Business Solutions successor)
  - MS Dynamics AX (formerly Axapta)
  - MS Dynamics GP (formerly Great Plains Software)
  - MS Dynamics NAV (formerly Navision)
  - MS Dynamics SL (formerly Solomon IV)
  - MS Dynamics CRM
  - MS Retail Management System (formerly QuickSell)

Microsoft Dynamics

GEAC

- 1971, Canada 
- Generalist ERP (SmartStream, Expert, Millennium)
- Verticalization
  - Libraries: Vubis, Advance, GeacPlus
  - Hostels: Geac UX, Geac SCO, Geac /GH
  - Restaurants: Geac CTC, Geac Remanco
  - Purchase and costs: Geac CCS
  - Golf clubs: Geac Pebble Beach

Geac Enterprise Solutions™

Other proprietary ERP editors

- Cegid (1983, Lyon) 
- Baan (1978, Netherlands)
- Divalto (1982, Strasbourg) 
- Silog (1984, Caen) 
- Prism (1987, PrismERP in 2002)
- Lawson (1975, acquisionned by Intentia in 2006)
- SSA Global (1981, Chicago, USA)

Open Source ERP

- Around 30 ERP solutions
- Main ERP solutions
  - **OPENERP** (2002, Python) — `www.openerp.com`
  - **OPENBRAVO** (2005, Java) — `openbravo.com`
  - **ADEMPIERE** (2006, Java) — `www.adempiere.com`
  - **COMPIERE** (1999, Java) — `www.compiere.com`
  - **ERP5** (2003, Python) — `www.erp5.org`
  - **NEOGIA** (2004, Java) — `neogia.org`

GOODYEAR 2000 — Yves Rocher 2008 — LA POSTE 2009

EADS astrium 2006

OpenERP OPEN SOURCE MANAGEMENT SOLUTION — openbravo opening ERP's future! — ADempiere — Compiere — ERP5 — Neogia

A list of open source ERP

- OpenTaps (Java)
- OFBiz (Java)
- OpenBlueLab
- PlazmaERP (Java)
- JFire (Java)
- JallInOne (Java)
- OpenAguila (Java)
- Dolibarr (PHP)
- EBI Neutrino R1 (Java)
- Ekylibre (Ruby)
- Ezinux
- FreedomERP (Java)
- OpenConcerto (Java)
- OpenSI (Java)
- SQL Ledger (Perl)
- Taïka PGI (created from several open source EAS)
- Tryton (Python)
- Vanilla Openbravo

Differences among open source ERP

- Programming languages (Java, Python, PHP)
- Databases (Oracle, PostgreSQL, MySQL, Zope)
- Licenses (GPL, AGPL, Apache, …)
- Governance: Editor / Community

Open Source ERP

- Strong points
  - Solidity of editors (communities)
  - Designed and developed closely with the users
  - Lesser time to put in place than proprietary ERP
  - Very low failure rate (because very adaptable)
  - Training is not designed and exclusively managed by the editor (debateable way to do things)
- Weaknesses
  - Proprietary competitors installed for decades
  - Still relatively new (youth)

Changement de SI chez Yves Rocher

- Dans ce groupe SAP prenait déjà en charge :
  - la comptabilité, la finance et la gestion de la chaîne logistique
- Le nouveau DSI s'est vu attribuer la tâche d'enrichir l'existant : il a consulté le marché
  - Solutions existantes trop chères selon la société
  - Choisit **Compiere** qui couvrait 75 % des besoins
    - Avec seulement 20 % du budget initial investis sur les **développements** et l'**intégration**, Yves Rocher est arrivé au bout du projet sans pour autant remettre en cause toutes les habitudes des utilisateurs

IT consulting enterprises

- French enterprises
  - **CAPGEMINI** (1967, Grenoble)
    - 120,000 employees in 2011
  - **UNILOG** (1968, acquisitioned by Logica in 2005)
    - 41,000 employees in 36 countries
    - 9,200 in France
  - **ALTEN** (1988, Paris)
    - 16,000 employees in 14 countries in 2012
  - **SMILE** (1991, Paris)
    - 700 employees in 16 agencies around Europe

IT consulting enterprises

- Around the world
  - **IBM** (1911)
  - **ACCENTURE** (Arthur Andersen, 1913, 1989, 2002, USA, now Ireland)
    - 257,000 employees in 120 countries (2012)
  - **LOGICA** (1969)
- And many many many others
  - Can be local ones (city, country)
  - And other international ones

ERP et stratégie

- Débat MyDSI-TV, Accenture (8 janvier 2009)
  - Pour débattre, autour de **Luc Fayard**, de l'alignement stratégique du SI sur la trajectoire de l'entreprise :
    - **Christian Lévi** Directeur de la transformation financière *EDF*
    - **Jean-Marc Lagoutte** DSI de *Danone*
    - **Philippe Nieuwbourg** Directeur du musée de l'informatique
    - **Vincent Delaporte** Responsable ligne de service *SAP* d'*Accenture*

25' *(BI = Business Intelligence)*

ERP et stratégie

25' – Débat MyDSI-TV – 8 janvier 2009

Schedule

1. **ERP:** Introduction to basis principles (2h cours)
2. **ERP:** How to select software (2h cours)
3. **OpenERP:** Administration, Development (3h cours)
4. **OpenERP:** Installation and configuration (5h TP)
5. **OpenERP:** Follow a complete flow (4h TP)
6. **OpenERP:** Module programming + Webservice (8h TP)