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Innovation and Creativity

“ERP 2.0, critical for modern businesses”

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Overview

- Introduction
 - What is ERP?
 - Web 2.0 and web services
- ERP 2.0
 - What is it?
- “ERP 2.0, critical for businesses”
 - How can it help businesses?
 - Why is it critical?

What is ERP?

- ERP = Enterprise Resource Planning
 - MRP + CRM + HR...
- Different applications like:
 - Planning
 - Accounting
 - Billing
 - Logistics
 - etc...
- What's the big deal?



What is ERP?



- What's the big deal? **INTEGRATION!**
 - Of both data and executable code

Introduction

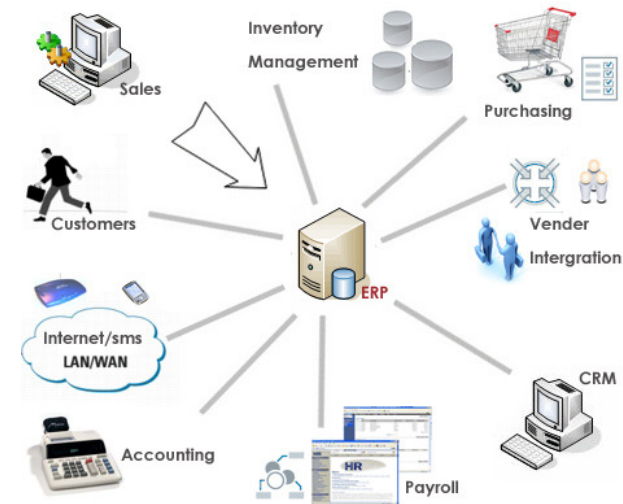
- ERP: Technology to support businesses/enterprises
- Internet technology to support ERP
 - Traditionally ERP has existed as very large applications
 - Move towards smaller services based on
 - SOA
 - Web 2.0

ERP Implementation

- ERP software systems are typically complex and usually impose significant changes on work practices. Implementing ERP software is typically more cost effective if specialist ERP implementation consultants are employed.
- The length of time to **implement** an ERP system depends on business size, scope of change and willingness of the customer to take ownership for the project.
- The most important aspect of any ERP implementation is that the company who has purchased the ERP solution takes **ownership** of the project.
- To implement ERP systems, companies often seek the help of an ERP vendor or third-party consulting companies. These firms typically provide three areas of professional services: consulting, customization and support.

ERP – advantages

- ERP systems work in real-time.
- Many of these systems are global.
- They can work in multiple languages and currencies.
- Customization
- “Best Practices”



ERP – disadvantages

- Customization of the ERP software is limited.
- Re-engineering of business processes to fit “best practice”.
- ERPs can be very expensive to install and vendors can charge (unrelated) sums of money for annual licenses.
- ERPs are often as too rigid and too difficult to adapt to the specific workflow and business process of some companies
- ERPs are too restrictive and do not allow much flexibility in technical implementation and usage.
- Frequent compatibility problems with various legacy ERPs of partners.
- The system may be over-engineered relative to the actual needs of the customer.

Why is there a need for change?

- ERP is complex and not intended for public consumption.
- It assumes that the only people handling order information will be your employees, who are highly trained and comfortable with the technical jargon embedded in the software.
- Now customers and suppliers are demanding access to the same information as the employees get through the ERP system.
- E-commerce means IT departments need to build two new channels of access in to ERP systems
 - one for **customers** (business-to-consumer)
 - one for **suppliers and partners** (business-to-business).



Web 2.0



Web 2.0

- Tim O'Reilly coined the term Web 2.0 to describe a quickly growing set of Web-based applications.
- Web 2.0 is defined as “the philosophy of mutually maximizing collective intelligence and added value for each participant by formalized and dynamic information sharing and creation.” [Högg06]
- Revenue models of Web 2.0 applications strongly differ from traditional models in the software industry. First, software applications aren't packaged and sold as over-the counter products anymore, but provided as services (or the “end of the software release cycle,” [Högg06]).

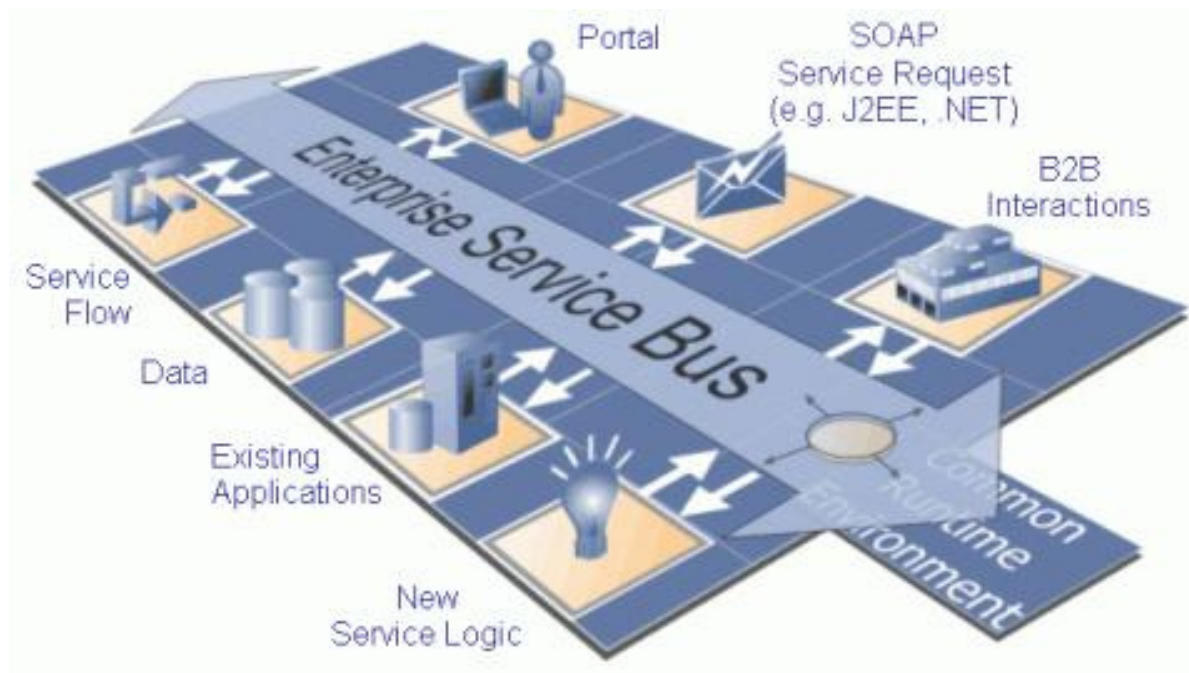
Web 1.0 vs Web 2.0

Web 1.0	Web 2.0
Web-as-information-source	“Participatory Web”- Social media
Personal website (Frontpage)	Facebook
Encarta	Wikipedia
Streetmap or Yellow Pages	Google Earth
<i>Home video</i>	Youtube
<i>Microsoft Office</i>	Google Docs & Spreadsheets

Based on [Knights07]

SOA- Service Oriented Architecture

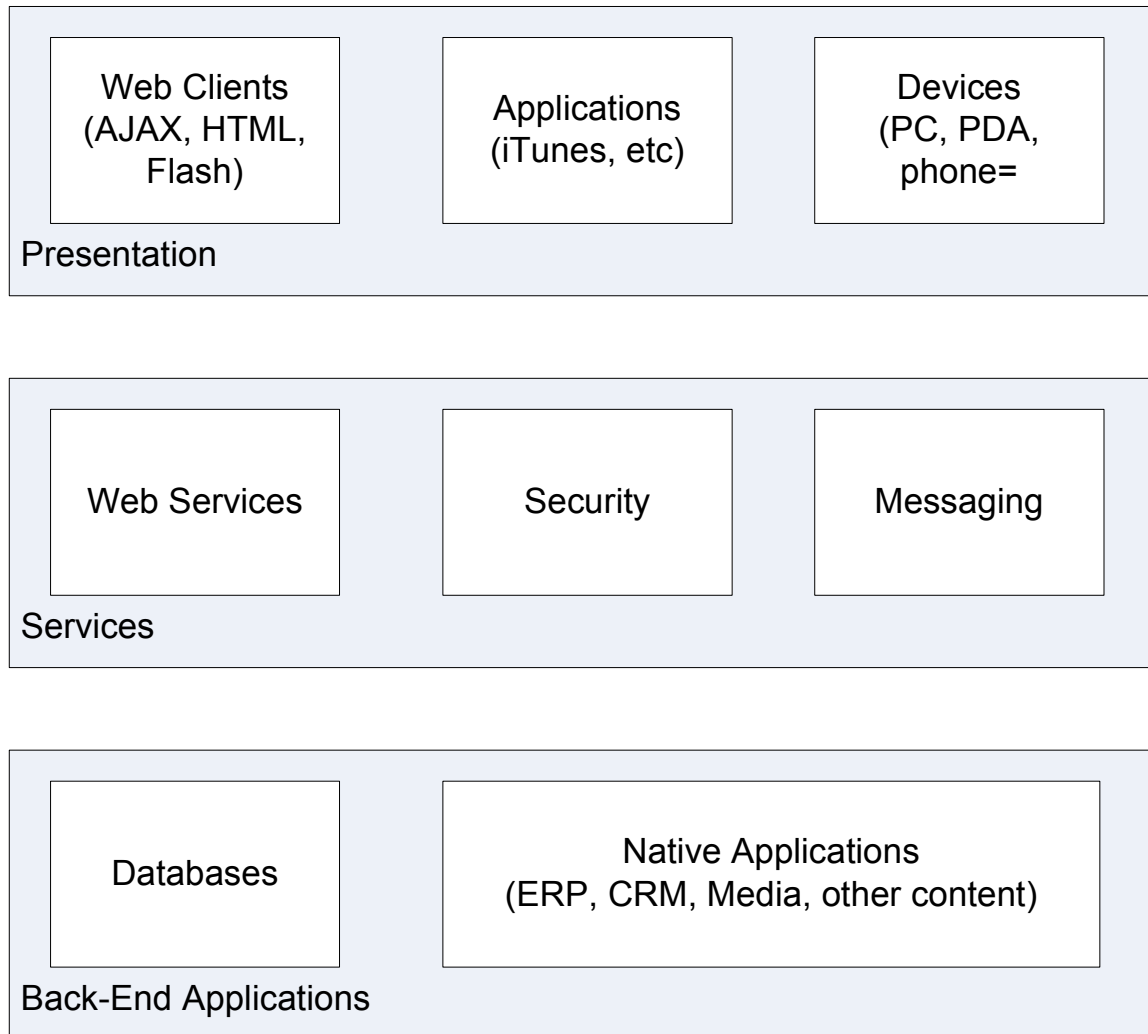
- SOA is considered the philosophy of encapsulating application logic in services with a uniformly defined interface and making these publicly available via discovery mechanisms [Schroth07].



Web as a platform for SOA

- Technically unsophisticated business experts would be empowered to model and deploy business models in an extremely quick and efficient fashion.
- The interconnection of presentation-layer focused Web applications to internal SOA implementations could be of significant value for enterprises, as this could extend their services' reach to the Web for further use and composition by their business partners and customers. [Schroth07]

Web 2.0, SOA and ERP



Web Services

- A Web Service is "a software system designed to support interoperable Machine to Machine interaction over a network." Web services are frequently just Web APIs that can be accessed over a network, such as the Internet, and executed on a remote system hosting the requested services.
- These Web APIs can be adaptive, meaning that they can change according to evolving requirements.

Paradigm-shift for ERP via web

2.0 [Jansen06]

- A paradigm-shift is taking place for ERP and software in general.
- In the past software was delivered to customers directly from the vendor, including third party components, it is now not uncommon to have a large number of parties involved that perform customisation, development, and maintenance on a software product.
- A shift from software supply chains, to software supply networks. In these networks a software vendor can, for example, deliver its ERP product, together with a number of third-party extensions to a customer.
- The customer now deploys the product, purchases another third-party customisation, and performs some customisation itself.

“What SAP could learn from social media” [Farber & Dignan]

- **User interface:** ERP’s UI isn’t exactly Web 2.0. By taking the processes in ERP and putting them in a format we all understand would have a serious adoption benefit.
- **Training costs:** And if you make the UI look like all the sites we’re used to guess what happens? You don’t have to spend so much training people to use the system.
- **Knowledge management:** Knowledge management is technically not a part of ERP per se, but it could be folded in. Consider the following: You’re stuck in an accounts payable module. You need help. You tap a wiki for a workaround or rule—or even the justification for such as rule—and you’re done.
- **Process widgets:** Using social media techniques an ERP vendor may be able to cook down a business process (cash to order, procurement etc) down to a widget. And if you could take these blocks (that would be handy to use) couldn’t you build an ERP-ish system that would be very SOA friendly?

ERP 2.0, Critical for modern businesses?

- What is a modern business?
 - Enterprise with integrated business processes
 - Business relations through the Internet
 - Customer relations through the Internet
- How is ERP 2.0 critical for these businesses?

Business-criticality

- Constant availability from anywhere
- Communication with other actors
- Time-to-market for new products or services
- Cost/benefit of the ERP
- User Interaction and responsiveness

Advantages of ERP 2.0

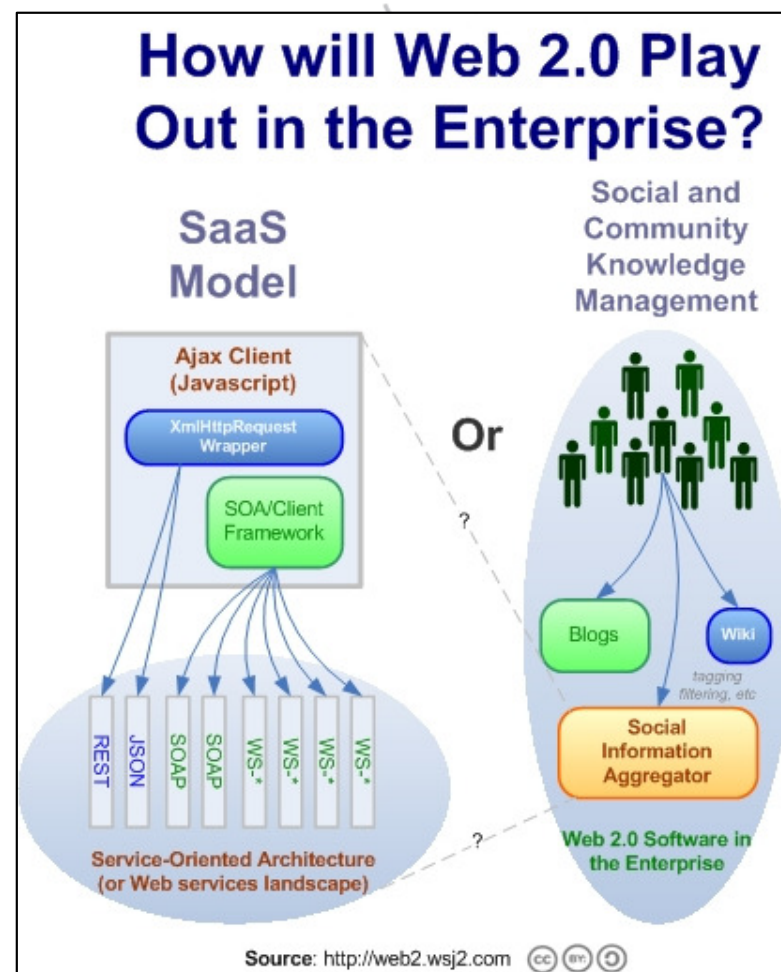
- Web-based, not application-based or terminal-based
- Compatibility between various platforms
 - Users will not be locked in, can mix with other applications
- Higher adaptability to business needs
- Scalability, incremental development, decentralized
- New functionalities (via Web 2.0 and SOA)
 - **Collaboration**, more information is available for everyone
 - Semantic tagging, for searching and grouping
 - “Mashups” – combining different existing services into new ones

Communication

- Internal Enterprise Communication
- External communication
 - Other businesses
 - Customers
- Key issue: Communities of practice [Wegner02]
 - Through wikis, discussion forums, other knowledge sharing tools

Effects for customers

- Blogging customers can disseminate their opinions about products faster than any newswire [Knights07]
- Web 2.0 communities can be used for new product feedback, shortening the product development time and targeting valuable marketing resources.



[Hinchcliffe]

Web based ERP example: NetSuite



- Integrating back-office ERP solutions with
 - eCommerce interfaces towards customers
 - Customer Relations Management

Size and cost of ERP 2.0

- **Size:** As with “ERP 1.0” from small to very large
 - Easier to expand from the small
 - Flexibility of services implemented
- **Cost:** More choice
 - Pay for what you need instead of what you have to get
 - Open Source Software: Open source ERP

Open Source ERP

- ERP systems are also available as open source
 - Example: “webERP”: “Web-hosting the only external cost”
- Also ERP 1.0 solutions as open source
- Reuse and Incremental development
- For enterprises that are comfortable with getting their “hands dirty”, in exchange for lower external costs
 - High level of customization (on code level)
 - Requires a high level of development experience

Issues to be wary of



- Security and authentication
 - More connections between more actors
 - Although previously used security solutions were not necessarily perfect either
- Presentation more important than functionality?
 - Fancybility
 - Temptation of making functions that are not needed

Summary

- ERP is moving towards a web-based platform
- Services (SOA) and Web 2.0
- Flexibility
- Mashups (different “standard” services combined in an original way to make “new” service)
- Available for more businesses
 - potentially lower costs
 - better fit
- Critical in terms of communicating internally, with other businesses, and with the customers

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- M. Knights:** “Web 2.0”, IET Communication Engineer, February/March 2007
- E. Wenger, R. McDermott & W.M. Snyder:** "Cultivating communities of practice : A guide to managing knowledge", Cambridge, MA : Harvard Business School Press. 2002
- Several blog entries on the topic:
 - Dion Hinchcliffe
 - Dennis Howlett
 - Dan Farber & Larry Dignan