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Summer School in Trento, June 19-30 2006


The challenges of the Now Economy

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www.economia.unitn.it/etourism

 UNIVERSITÀ DEGLI STUDI
DI TRENTO

Schema

- Goal of the talk: to establish the general context for a "goal-driven" Web application development
 - Web Engineering
 - Now Economy vs. New Economy
 - Web development challenges


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Introduction

Overview


Timetable

The WeeNet Project

INTRODUCTION

Summer School
Web Engineering: designing web applications
for the Now Economy

The purpose of the school is to provide an introduction to **Web Engineering** methods and modeling languages. In many economic and social sectors, a Web site plays a strategic role in the so called "**now**" economy that is based on 7/24 online services. Lessons learned from failures of the new economy and the demands of the now economy call for a systematic approach to Web site development according to the Web Engineering methodologies.




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Web Engineering

- Web engineering is the discipline of systematic development of Web applications
 - It is a relatively new **branch of software engineering**, addressing the specific issues related to design and development of large-scale Web applications (*Webware, WIS-Web Information Systems, Web systems*).
In particular, it focuses on the methodologies, techniques and tools that are the foundation of complex Web application development and which support their design, development, evolution, and evaluation (Wikipedia).



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Web applications vs. "SW" systems

- continuously evolve in terms of their requirements and functionality
- are meant to be used by a vast, variable user community
- have a compressed development schedule, and time pressure
- demand a good "look and feel"
- uses cutting-edge, diverse technologies integrates numerous varied components
- have more demanding security and privacy needs ...
- failures or dissatisfaction of users of Web-based applications can be much worse than conventional IT systems (Murugesan, Ginige, 2005)

WHY?



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New economy

- The advent of the new economy was first noticed in 1969
- It is often referred to as the information economy: information plays the main role (rather than material resources or capital) in creating wealth
- It describe the evolution from an industrial and manufacturing-based economy into a knowledge based economy (KW or intellectual capital as a strategic factor)



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New economy, cont'd

- It was driven by two “forces”:
 - **Globalization**: in R&D, technology, production, trade, finance, communication and information, which has resulted in opening of economies, global competition and interdependency of business
 - **Technology**: Information and Communication Technology (ICT, *digital technology*) has transformed business organizations, business models, business processes, ...



New economy, cont'd

- **Globalization**
 - Management and control in a global marketplace
 - Competition in world markets
 - Global work groups
 - Global delivery systems



New economy, cont'd

- Transformation of industrial economies
 - Knowledge based economies
 - Productivity
 - New products and services
 - Time-based competition
 - Shorter product life
 - Turbulent environment



New economy, cont'd

- Transformation of the Enterprise
 - Flattening
 - Decentralization
 - Flexibility
 - Location independence
 - Low transaction and coordination costs
 - Collaborative work and teamwork (Laudon & Laudon, 1998)



New economy and the Internet

- Internet as a revolutionary “factor of change”:
 - Mid 90’s the Internet came to the general public’s attention with the diffusion of the World Wide Web
 - At first people saw the possibilities of free publishing and instant worldwide information
 - Two-way communication over the “Web” led to the possibility of direct Web-based commerce or **Electronic Commerce**
 - New **business models**

Electronic Commerce

“Electronic Commerce is about **doing business electronically**.
 It is based on the electronic processing and transmission of data, including text, sound, video. It encompasses many diverse activities including electronic trading of goods and services, online delivery of digital content, electronic fund transfers, electronic share trading, electronics bill of lading, commercial auctions, collaborative design and engineering, online sourcing, public procurement, direct consumer marketing, and after-sales services. It involves both products (consumer goods, specialized medical equipment) and services (information services, financial and legal services) and new activities (virtual malls).”

European commission, 1997

Electronic Commerce, cont'd

- e-commerce: buying and selling of goods and services electronically (synonyms: e-business, e-organization, net-enablement, net-enhancement, e-world, etc.)
- Benefits
 - Internet links buyers, sellers
 - Lowers transaction costs
 - Goods and services can be advertised, bought, and exchanged worldwide



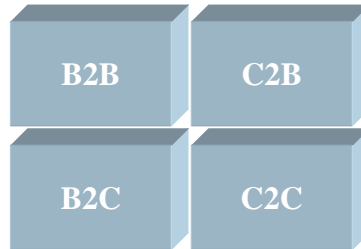
Electronic Commerce, cont'd

- Why do organizations invest in e-commerce?
 - Digitization of products
 - Inexpensive telecommunications
 - Widespread diffusion of computers
 - Increased pressure on costs and margins
 - Changing organizational models
 - Rapidly shrinking cycle times
 - Intelligent products and services
 - Demand for mass customization



Electronic Commerce, cont'd

■ Categories of Electronic Commerce



Europe, 2004: B2B - € 592 billions; B2C - € 88 billions
 2008: B2B - € 1.866 billions; € B2C -351 billions

Electronic Commerce, cont'd

	Sector	2004	2008
Italy	B2C	8,6	39,6
	B2B	65,3	199,4
France	B2C	11,9	59
	B2B	85,7	272,9
Germany	B2C	22,3	89,4
	B2B	180,3	580,6



EITO- European Information Technology Observatory, 2005,
www.eito.com

Business models for the New economy

- The Internet has created new business models, changing the way companies conduct business
- A business model is the instrument by which a business intends to generate revenue and profits



Business models for the New economy, cont'd

- A business model describes how a business:
 - selects its employees and customers
 - defines and differentiates its product offerings
 - creates utility for its employees and customers
 - acquires and keeps employees and customers
 - goes to the market promotion strategy and distribution strategy
 - defines the tasks to be performed
 - develops a sustainable presence with respect to the environment and society
 - configures its resources
 - captures profit



Business models for the New economy, cont'd

- Virtual storefront: Amazon.com
- Information broker: edmunds.com, realtor.com
- Transaction broker: e*trade.com, expedia.com
- Online marketplace: eBay.com, priceline.com
- Content provider: CNN.com, mp3.com
- Online service provider: Monster.com, salesforce.com, xdrive.com
- Virtual community: FortuneCity.com, weblogs, iVillage.com
- Portal: Yahoo.com, MSN.com



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Business models for the New economy, cont'd

- Each business model innovations can give the firm a sustainable competitive advantage
- But companies must change their business models as value migrates from industry to industry
- Ultimately the success or failure of a company depends on how well its business design matches their customers' priorities



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New economy: the dot-com boom

- The situation:
 - Optimists: unprecedented coexistence of economic linked with a new technological paradigm centred on ICT
 - Pessimists: increasing risk and insecurity
- What happened? -> **dot-com boom**
 - A dot-com company was any company that promoted itself (the name stems from the top-level domain ".com" or commercial) as an Internet business
 - The Web became a new killer application and many companies were (re)founded
 - Examples of dot-coms: Amazon.com, Boo.com, eBay, **eToys**, **Freeinternet.com** ...



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New economy: the dot-com bubble

- Many companies failed and became known as **dot-bombs**
- The dot-com bubble "was a speculative bubble covering roughly 1997–2001 in which stock markets in Western nations saw their value increase rapidly from growth in the new Internet sector and related fields. The period was marked by the founding (and in many cases, spectacular failure) of a group of new Internet based companies commonly referred to as dot-coms."



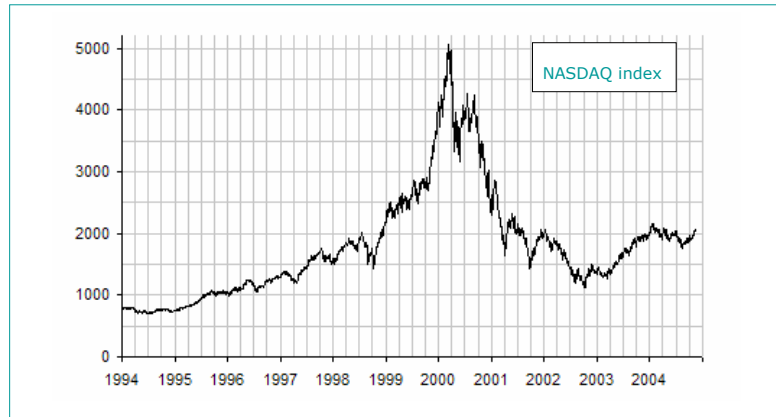
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New economy, the dot-com bubble cont'd



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Now economy

“Forget the New Economy, the **Now Economy** has taken its place. It's a case of one buzzword bumping another buzzword out of the way. It's another swipe at business practices that existed "before" the Internet so rudely interrupted them. The Now Economy is so named to reflect that the customer now controls the marketplace, not business. And the customer wants "it" now. And, as the theory goes, they can have it now because of the Internet”.

<http://www.buzzwhack.com/buzzcomp/indln.htm>



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Now economy

- Phrases and buzzwords related to the Now or “real time” economy:
 - real time enterprise
 - “speed is king”
 - based on 7 days 24 hours online service
 - **web-based Information Systems**



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Now economy, cont'd

- The Now economy can be described as an “accelerated” New economy
- Strategic Web-based IS can change goals, operations, products, services, environment, to gain competitive advantage



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ISSUE	OLD INDUSTRIAL ECONOMY	NEW KNOWLEDGE ECONOMY
Markets		
Economic Development	Steady and linear, quite predictable	Volatile - extremely fast change, with explosive upsurges and sudden downturns, and chaotic - the direction of the economy's changes is not perfectly clear ⁴
Market changes	Slow and linear	Fast and unpredictable
Economy	Supplier-driven	Customer-driven
Lifecycle of Products and Technologies	Long	Short
Key Economy Drivers	Large industrial firms	Innovative entrepreneurial <u>knowledge-based firms</u>
Scope of Competition	Local	Global <u>hypercompetition</u>
Competition: Name of the Game	Size: The big eats the small	<u>Speed</u> : The fast eats the slow
Marketing: Name of the Game	Mass marketing	<u>Differentiation</u>
Enterprise		
Pace of business	Slow	Appreciably faster with ever-rising customer expectations
Emphasis on	Stability	<u>Change management</u>
Business Development Approach	<u>Strategy pyramid</u> : vision, mission, goals, action plans	<u>Opportunity-driven, dynamic strategy</u>
Success Measure	Profit	Market capitalization (the market price of an entire company)
Organization of Production	Mass production	Flexible and <u>lean production</u>
Key Drivers to Growth	Capital	<u>People, knowledge, capabilities</u>
Key Sources of Innovation	Research	Research, <u>systemic innovation, knowledge management, integration, new business creation, venture strategies, new business models</u>
Key Technology Drivers	Automation and mechanization	Information and communication technology, <u>e-business</u> , computerized design and manufacturing
Main Sources of Competitive Advantage	Access to raw materials, cheap labor, and capital for conversion; cost reduction through economies of scale	<u>Distinctive capabilities</u> ; <u>institutional excellence</u> ; <u>moving with speed</u> ; human resources; customer partnership

http://www.1000ventures.com/business_guide/




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Management challenges

- Finding a successful business model
- Organizational change challenges
- Obtaining business value from information systems (IS)
- Determining necessary assets to ensure effective use of technology
- Understanding business and system requirements of a global economic environment
- Supporting goals in rapidly changing environments
- Ensuring IS are used in an ethical and socially responsible manner



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Web engineering challenges

Developing Web applications for

- Finding a successful business model
- Organizational change challenges
- Obtaining business value from information systems (IS)
- Determining necessary assets to ensure effective use of technology
- Understanding business and system requirements of a global economic environment
- Supporting goals in rapidly changing environments
- Ensuring IS are used in an ethical and socially responsible manner

Web engineering in the practice

- Do Web developers adopt a Web engineering approach?



Not always

- Examples from the Tourism sector:
 - Tour operators, hotel chains: OK
 - Tourist boards: some
 - Small hotels:)-:

Conclusions

- Web applications play a strategic role for companies, organizations, communities: some of them would not even exist without Internet and their Web site
- The new (now) economy (society) imposes new challenges for the Web developers and Web engineers have to become aware of their responsibility



References

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- Kelly K., New Rules for the New Economy, Wired Magazine, 1997

