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Web 2.0. What will be its impact on distributed work?

Trial lecture as a partial fulfillment for the **Ph.D. degree**, October 26, 2007.

Eli Hustad

Content

- Examples of distributed work settings
- ICT infrastructure in distributed work
- What is Web 2.0?
- Examples of Web 2.0 technologies and social networking sites
- The role of Web 2.0 in distributed work
- Web 2.0 in a wider perspective
- Recent research on Web 2.0 in distributed work
- Potential benefits and challenges of Web 2.0 in distributed work

Distributed work

- Organizational forms that involve communication and coordination
  - between geographically dispersed organizational units
  - between workers who are physically dispersed from one another
- Examples
  - Multinational companies
  - virtual organizations
  - virtual or dispersed teams
  - knowledge-sharing social networks
  - teleworkers
- ICT facilitate communication and coordination to sustain relations within a distributed design
- The dimensions of working “anyone/anytime/anyplace”

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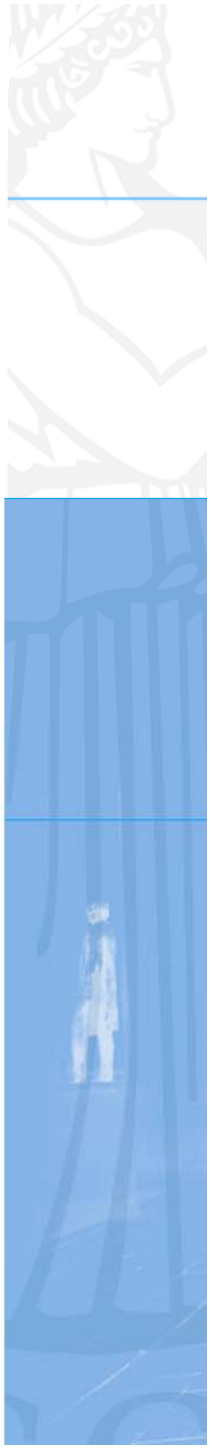
Distributed work - challenges

- Building trust
- Enhancing authority and control
- Building team or network identity
- Cultural heterogeneity
- Social-psychological effects of geographic distance on collaboration
- The opportunities and limitations of ICT to facilitate a shared context for communication and knowledge sharing in distributed organizing



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Distributed work – examples of ICT environment

People - collaborative networks
Information infrastructures Internet, Intranet, Extranet
Common information spaces
Virtual project room Application sharing Document management system Wikis, Blogs, Folksonomies (social software – web 2.0 applications)
Communication technologies
E-mail Conferencing systems (video/audio/desktop) Instant messaging, SMS
Enterprise systems (e.g. CRM, Content management, business portal, KMS, ERP systems)
Coordination technologies (work flow system, calendar)

What is Web 2.0?

- *Web 2.0 is a set of economic, social, and technology trends that collectively form the basis of the next generation of the Internet – a more mature, distinctive medium characterized by user participation, openness, and network effects*

  (John Musser and Tim O'Reilly 2006).

- Consisting of social-networking sites, Blogs, Wikis and Folksonomies
- Networks effects created by an architecture of participation
- Several Web 2.0 software applications developed by the open source community
- Web 2.0 – a controversial term (hype or conventional wisdom?)

Web 1.0 versus	Web 2.0
Websites as isolated information silos	Websites as interlinked computing platforms
Static websites, download	Dynamic websites, upload and download
Content management systems	Wikis
Directories (taxonomy)	Folksonomies
Britannica Online	Wikipedia
Personal websites	Blogging
Small “content development groups”	User-created content
Publishing	Participating and building social networks
HTML, hypertext	Ajax (JavaScript, XML), mash-ups
Software created by computer experts	Users became co-creators and develop applications
Annual or more seldom releases (Microsoft)	Perpetual beta (Google) “Open source” related development

Web 2.0 “synonyms” and consequences

- Participating web
- Social computing/social software
  - User based content
  - The customer becomes a producer
  - The prosumer - combination of consumer and producer

Web 2.0: Social networking sites

- Examples of social networking communities:
  - Encyclopedia (wikipedia.org)
  - Professional support (likedin.com)
  - e-dating (gaydar.com)
  - multimedia sharing (youtube.com)
  - Friendship/blogging purposes (myspace.com)
  - Virtual gaming (worldofwarcraft.com)
  - Virtual worlds (secondlife.com)

Principles and examples for participating in web 2.0

- Philosophies and principles
  - Open source and free access to several applications
  - Self-organizing
  - Mass collaboration: Users decide and create content collectively
  - No exclusion of users
  - Applications getting better by use
- Wikipedia
- http://en.wikipedia.org/wiki/Wikipedia:About
- Mash-ups - merging content from different sources into a new context
- http://www.google.com/apis/maps/documentation/examples/index.html
- Video and video blogs http://www.youtube.com/watch?v=6gmP4nk0EOE

Web 2.0 in a wider perspective of contemporary trends

- Scientific knowledge
  - Mode 1 vs. Mode 2 – a shift in how scientific knowledge is produced
- Organizational theories and IT
  - Hierarchical versus Heterarchic organizing
  - Enterprise 1.0 vs. Enterprise 2.0 – changes in business models
  - The second generation of knowledge management which focus more on networking (communities of practice and knowledge portals)

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Web 2.0 in a distributed work context?

- Can web 2.0 applications facilitate social networks or virtual teams in an organizational context?
- How does Web 2.0 fit with traditional, hierarchical business models?
- Will social networking technologies easily be accepted by management and adopted by the users in a distributed work setting?
- Will web 2.0 applications better overcome challenges in distributed work compared to traditional “Web 1.0”?
- Will web 2.0 technologies change traditional corporate intranets with predefined content/taxonomies/applications into more open Wiki-based intranets where users (employees and customers) decide content, create Folksonomies and best practices?

Distinguishing features of hierarchical and heterarchic organizations

Organizational dimensions	Hierarchical	Heterarchic
Form of organizing	Permanent hierarchy	Temporary work teams
Decision authority	Centralized	Decentralized
Accountability	Fixed, top-down	Shifting, distributed
Division of labor and roles	Stable, specialized	Dynamic, blurred
Boundaries	Clearly specified, persistent	Fuzzy and permeable
Work process	Routine work, standardized, rule-based	Improvised, flexible, participative
Composition	Homogenous	Heterogeneous
Performance criteria	Established, singular	Emergent, multiple
Watchword	Stability, inertia	Speed, adaptability

Source: Kellogg et al. 2006

Source: Tapscott 2007

"The Open Networked Organization"

Source: *Paradigm Shift: The New Promise of Information Technology*, 1992

	Closed Hierarchy		Open Networked Enterprise
Structure	Hierarchical	→	Networked
Scope	Internal/closed	→	External/open
Resource Focus	Capital	→	Human, information
State	Static, stable	→	Dynamic, changing
Personnel/focus	Managers	→	Professionals
Key drivers	Reward and punishment	→	Commitment
Direction	Management commands	→	Self-management
Basis of action	Control	→	Empowerment to act
Individual motivation	Satisfy superiors	→	Achieve team goals
Learning	Specific skills	→	Broader competencies
Basis for compensation	Position in hierarchy	→	Accomplishment, competence level
Relationships	Competitive (my turf)	→	Cooperative (our challenge)
Employee attitude	Detachment (it's a job)	→	Identification (its' my company)
Dominant requirements	Sound Management	→	Leadership

3

The rise of the Enterprise 2.0

Strategy domain	Closed corporation	Enterprise 2.0
Corporate boundaries	Vertically integrated	Focus on Core
Value innovation	Closed innovation Do it yourself	Open innovation Co-creation
Intellectual property	Protected	Open, shared
Business processes	Internal – Enterprise integration, complex, hardwired	External, modular, reconfigurable
Human capital and knowledge capital	Traditional demographics Containerized	Global N-Generation Collaboration Across the B-web
Modus operandi	Plan and push, hierarchical, power over, lumbering	Engage and collaborate, self-organizing, pull, power through, Agile
Relationships	Transactions, product service	Relationship capital, experiences
Technology	Proprietary, monolithic, silos, enterprise, dumb networks	Standard-based, Service-oriented, Interoperable, inter-enterprise, intelligent networks

Source: Wikinomics, Tapscott' presentation on Enterprise 2.0, 20 June 2007

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Recent research on Web 2.0 in distributed work - Wikis - 1

- Distance learning
- Wikis are increasingly being used by educators in teaching activities, e.g. in distance learning and virtual courses
  - Wikis enable collective learning
  - Enhancing student interaction
  - Support online teaching and assessment
- Examples
  - Case 1: teaching of writing (Coley 2006).
  - Wikis: Seedwiki, EditMe and Swiki.net, Interwiki
  - Case 2: Project-based assignment (Xu 2007)
  - Open source PmWiki

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Recent research on Web 2 in distributed work Wikis - 2

- How do organizations use wiki technology and the wiki way to facilitate higher levels of constructive customer engagement?
- A recent case study identified six enabling characteristics (Wagner and Majchrzak 2007).
  - e.g. Allowing multiple layers of participation to emerge and be maintained leads to greater constructive customer engagement
  - wiki magic
    - a gift and sharing culture
    - a creator culture
    - Pride of ownership
    - Contribution to a common good
    - low barrier to entry

Recent research on Web 2 in distributed work Wikis -3

- Intranet 1.0 - traditional
  - Creation and dissemination of information are separated from use
  - Web pages and resources are created first – then implemented
  - No ownership of individual pages
  - Content express the organization's assumed expertise and knowledge
  - Content lack up-dated expertise from day-to-day work practices
- Intranet 2.0 based upon Web 2.0
  - content and structure designed by users
  - facilitates greater collaboration in creation of content
  - Do not differentiate between use and creation of information
  - Do not distinguish between internal business resources and the external web

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Recent research
Use of Web 2.0 in distributed software development

- Web 2.0 and situational applications (mash-ups)
  - Community-based computing (e.g. Cherbakov et al. 2007, IBM journal).
  - Web-based ad hoc computing between professional programmers and business professionals
  - Not ideal software, short-lived
  - Perpetually improved
  - e.g. AJAX
  - Reuse existing building blocks
  - Changing role of IT from developer to enabler
  - Shift in both technology and usage patterns
  - Millennials - new workers

Scenario: the new digital generation

- The workforce in 2015
- Born between 1982-2000
- Comfortable with diverse media, ubiquitous computing
- Social networks and interactions
  - collaboration, constantly connected, multitasking
  - visual learners (Google - in front of physical libraries)
  - participating in different social online communities (e.g. MySpace, Facebooks, Flicks, worldofwarcraft)
- Scenarios: Future companies of 2015 with extremely individualized worker with underlying social engines
- Companies need to consider this power and social dynamics to survive
- The worker-consumer will control the work environment and pull from sources of tools, information and resources to be effective personally and on the job
- The boundaries between job and leisure time will be more fluid

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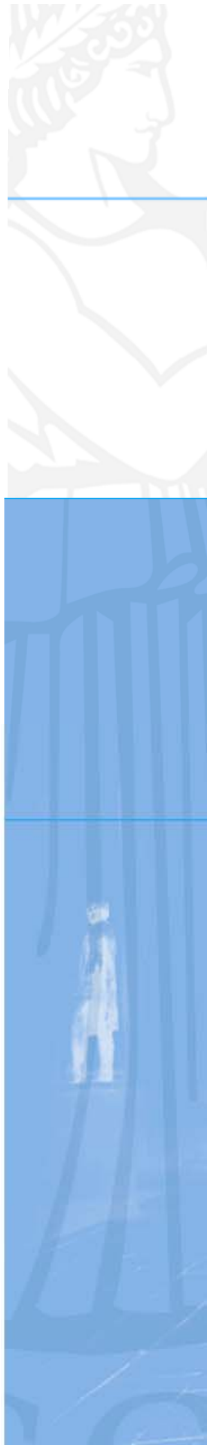
Summary of how Web 2.0. will make impact

- Web 2.0 represents a shift towards a participating web based upon user created content and mass collaboration
- Social networking does already make impacts in distributed work settings
- Social networking provide a common good, a global source of knowledge which all local communities can utilize and further develop- in the context of leisure and work
- Web 2.0 and distributed work – rather is a socio-technical interplay – than technological determinism
- Web 2.0 may interfere the traditional software development cycle
  - community-based situational software development
  - users as co-developers
  - perpetual beta
- Potential for adoption of wikis in intranets of distributed firms
- Potential for wikis in distance learning to create collaborative learning processes
- Challenges with web 2.0 adoption
  - To change closed traditional business models towards openness and networking models
  - From control to self-organizing
  - Who owns the social data on websites?
  - rethinking copyright, identity, authority



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