

ICS 132: Organizational Information Systems

Knowledge Management

what's the problem

- organisations need to manage their assets
 - money, locations, materials, etc...
 - exploit these assets in order to succeed
 - producing new products, selling services
 - however, exploiting assets requires knowledge
 - knowledge is highly distributed
 - manuals, filing cabinets, email messages, people's heads
- knowledge is an organisational asset
 - needs to be nurtured and managed
 - what sorts of knowledge are we talking about?

what's the problem

- consequences of failure
 - losing abilities as employees leave the company
 - expensive to retrain and relearn old lessons
 - wasted effort as people all learn individually
 - failure to capitalise on what the organisation "knows"
- it's not just about what you know...
 - it's knowing what you know
 - and putting it into practice

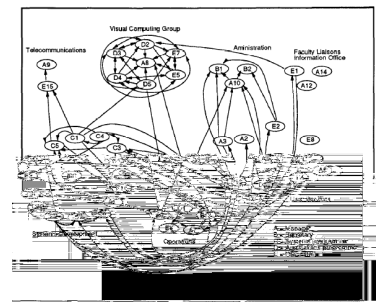
KM is not new

- we already manage knowledge
 - training, libraries, seminars, lectures, universities
 - KM as such is not a new phenomenon
- new as a business focus
 - explicit understanding of "knowledge assets"
 - formulated as a technical & organisational problem
 - new processes & procedures for managing knowledge
 - new technology in support of those processes
 - the rise of the "Chief Knowledge Officer"

managing knowledge?

- capturing knowledge
 - making it explicit
- sharing knowledge
 - best practices
 - new techniques or approaches
- supporting reuse
 - being able to find relevant information
 - being able to apply it to the situation at hand
- putting people in contact
 - from finding *information* to finding *expertise*

knowledge & social networks



communities of practice

- community – group of people brought together by some common interest or concern
- community of practice
 - common activity
 - *practice?* “practice is, first and foremost, a process by which we find the world and our encounters with it meaningful”
 - legitimate peripheral participation

KM technologies

- forging communities of practice
 - putting people in touch with one another
 - encouraging conversation & reflection
 - active learning
- two requirements:
 - interaction
 - email, chat, conversation, ...
 - persistence
 - repositories, archives...

tacit knowledge

- tacit knowledge
 - *knowing how* rather than *knowing what*
 - skill and craft knowledge
 - riding a bike? juggling?
- knowledge that’s organisationally tacit
 - “if only we knew what we knew”

organisational memory

- systems recording organisational knowledge
 - repositories of cases, procedural handbooks, record systems
- the tricky parts
 - putting information into the system
 - when? managing overhead
 - how? decontextualise
 - getting it out again
 - how to formulate queries
 - you don’t know what’s in there...

context

Your major customer, Alpha Corp., calls up and reports that their system has been responding sluggishly, resulting in a backlog of unprocessed jobs building up at the end of each day. Their job rate hasn’t increased lately, but they have moved to a new server and upgraded their network infrastructure, although they don’t know whether these might be factors.

KM technologies

- expert systems
 - codifying the “knowledge” of human experts
 - making it usable by non-experts
- problems
 - eliciting expertise is notoriously difficult
 - tacit knowledge again
 - how do you know when you’re done?
 - application is tricky too
 - using the right rule at the right time
 - the real world is more complex than a ruleset
 - generally can’t explain their reasoning

KM technologies

- case-based systems
 - expert systems using scenarios rather than rules
 - finding relevant information through analogies
 - two models
 - present similar cases for human interpretation
 - case-based reasoning in an expert system

reward structures

- examples
 - Xerox's service engineers and sales force
 - consultants in Alpha Corp

reward structures

- examples
 - Xerox's service engineers and sales force
 - consultants in Alpha Corp
- take-home lessons
 - organisational and individual needs
 - knowledge sharing may be good for the organisation, but not for the individual
 - knowledge sharing won't work unless the individual benefits
 - different forms of benefit, recognition & reward

the human factor

- examples
 - the helpline at Global Airframe
 - the law office: M's files

the human factor

- examples
 - the helpline at Global Airframe
 - the law office: M's files
- take-home lessons
 - in the system vs in your head
 - even when information is digitally recorded, often still needs people to put it into context
 - ironically, people-in-the-loop turns out to be a strong determiner of success

expertise location

- if people are so important...
 - the MSC study found three patterns
 - expertise identification, expertise selection, escalation
 - heuristics: e.g., the "Line 10 rule"
 - the basis for a technical system
 - draw from recommender systems
 - recommend people!
 - locate expertise based on problems
 - *navigating* knowledge, not *representing* it

problems

- a little knowledge is a dangerous thing...
 - putting it in context
 - the context is not always obvious...
- knowledge as a “fungible resource”
 - treating knowledge like widgets
- it’s not what you know...
 - ... it’s knowing how and when to apply it
 - finding it when you need it
 - finding the people who know

summary

- recognising “knowledge assets”
 - corporations depend on the skills and experiences
 - increases risks
 - supporting organisational learning
 - increases need for mechanisms of trust
- technology is part of a KM strategy
 - supporting informed decision making
 - but only plays a role – KM is a cultural issue
 - making sure that the organisation rewards KM

next time

- we’ve covered a lot of topics
 - processes, security, communication, knowledge...
 - cases tie it all together
- we’ll practice on some cases and discuss
- the final is NEXT WEDNESDAY
 - next Monday will be a review lecture
 - let me know if there are specific topics you’d like me to cover
 - jpgd@ics.uci.edu