
Studying Communities and Knowledge Management

Department of Informatics
University of California, Irvine
Hiroko Wilensky
With Norman Su, Gloria Mark,
David Redmiles

Outline

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About Research Methods

- **Qualitative research** involves analysis of data such as words, pictures or objects.
- **Quantitative research** involves analysis of numerical data.
- Ethnography is one of the qualitative research methods
 - The researcher can get closer to “where the action is” by being at the field site.
 - The researcher can obtain a deeper understanding of the behaviors of people, the group or the organization and the reasons behind the behaviors.

Research Method

- Qualitative Method
 - Ethnographic Field Study
 - Semi-structured interviews
 - Meeting observations
 - Document (e.g. Power Point slides) Reviews
- Observed 9 KM Exchange meetings (each 4.5 hours)
- Observed 3 conferences
- Conducted 24 interviews (30 to 90 minutes)

Aerospace Industry Workforce Issues

- Aging workforce
 - Average Age of production workers – 51
 - Average age of engineers – 54
 - About 27% is eligible for retirement by 2008
- Generation gap
 - 500,000 laid off in the 1990s
 - Difficulty in recruiting young engineers

Aerospace Industry Secretive Nature

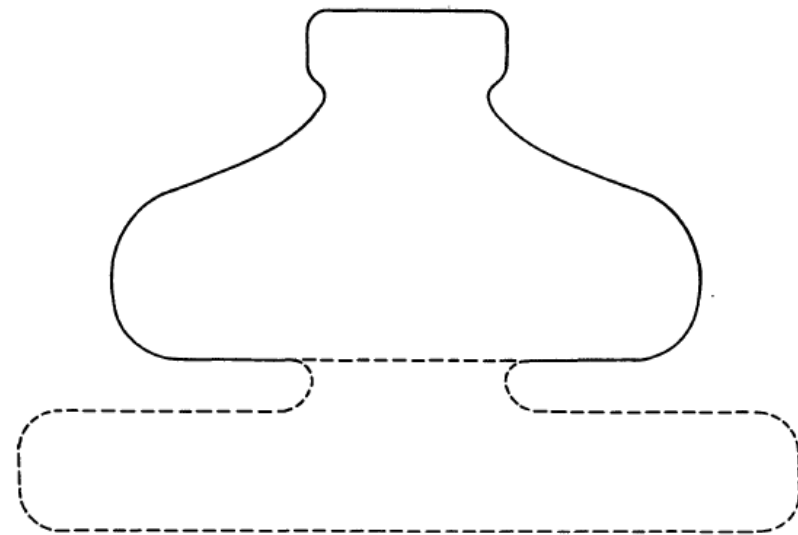
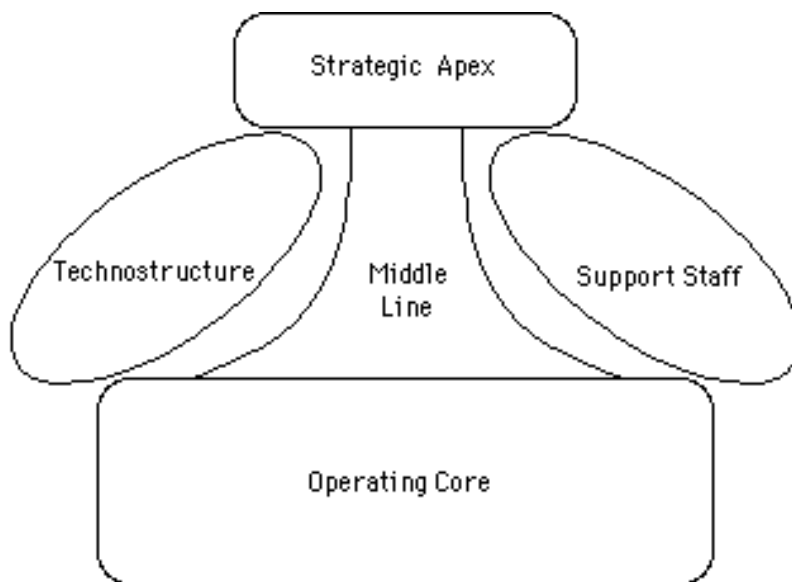
- Rigid government regulations and standards
 - To protect safety and security
 - e.g. ITAR (International Traffic in Arms Regulations)
- Need to gain competitive advantage
- Business Structure=Silos
 - Employees work in secluded environment
 - Often, knowledge can not be shared even within the same company

Aerospace Industry Organizational Structure

- Mintzberg's frame for organizations
 - Five components
 - Operating core - produces the company's basic products and services
 - Strategic apex - top management
 - Middle line – middle management
 - Technostructure – applies analytic techniques to the design and maintenance of the company
 - Support staff – provides support to the rest of the company

Aerospace Industry Organizational Structure

One type of configuration of five components is called “Adhocracy”



Aerospace Industry Organizational Structure

- Mintzberg's Adhocracy
 - Matrix Structure
 - "Programs" (market driven project teams)
 - Functional units for housekeeping purposes
 - Feel uncertainty about their future
 - What is my next project? When will my next project come?
- Funding Issues – erratic defense budgets
 - Direct budgets - allocated to programs
 - Indirect (overhead) budgets – scarce, used for supporting efforts
 - Tools/processes are often developed within programs using direct budgets (difficult to develop common tools/processes and to share knowledge)
- Charge numbers
 - Employees need to use their own time if a charge number is not provided (e.g. lunch time seminar)

Engineering Culture

Bureaucratic Profession

- Engineering is a bureaucratic profession
 - Central to the mission of the organization and important to its competitive advantage.
 - Limited job alternatives and mobility.
 - Creative work is controlled by program decisions outside of the lab.
 - Loyalty, job satisfaction and identity come from the relationship with the employer, not from the profession (contrary to KM practitioners).
 - Engineers accept administrative decisions about deadlines, project assignments and resource constraints as inevitable and legitimate.

Engineering Culture

Engineering is a craft

- Engineering is a craft
 - Characterized by ambiguity, disagreement, deviation from design specifications and operation standards and ad hoc rule making.
 - Rules making is experience-driven.
 - Engineers develop “local knowledge” from a learning process based on tacit understanding that is difficult to convey to others. (Difficult to build explicit knowledge from tacit knowledge)

Study #1

Disciplinary Rhetoric

- Disciplinary Rhetoric of Human-Computer Interaction (Cooper & Bowers, 1995)
 - Analysis of discourse of human-computer interaction (HCI)
 - How a new discipline (or people) frame their words and actions to cement their discipline into mainstream thought.
 - KM is also a relatively new discipline and KM teams are new in the organizations.

Disciplinary Rhetoric Discourses

- KM is critical for efficient use of knowledge
 - Knowledge is objectified (viewed as a thing, an object)
 - Tacit knowledge can be converted into explicit knowledge
 - knowledge must be found, saved and reused.
 - Knowledge is complex and subtle.
- KM is progressive (contrast with IT)
 - KM tools/practices can handle knowledge efficiently
 - KM tools/practices are for connecting people
 - KM practitioners are special: knowledgeable about human and organizational behavior.
- KM is misunderstood
 - KM is a mere formalization and codification of good practices already happening in the organization.
 - Difficulty in promoting KM in workplaces

Disciplinary Rhetoric The Community

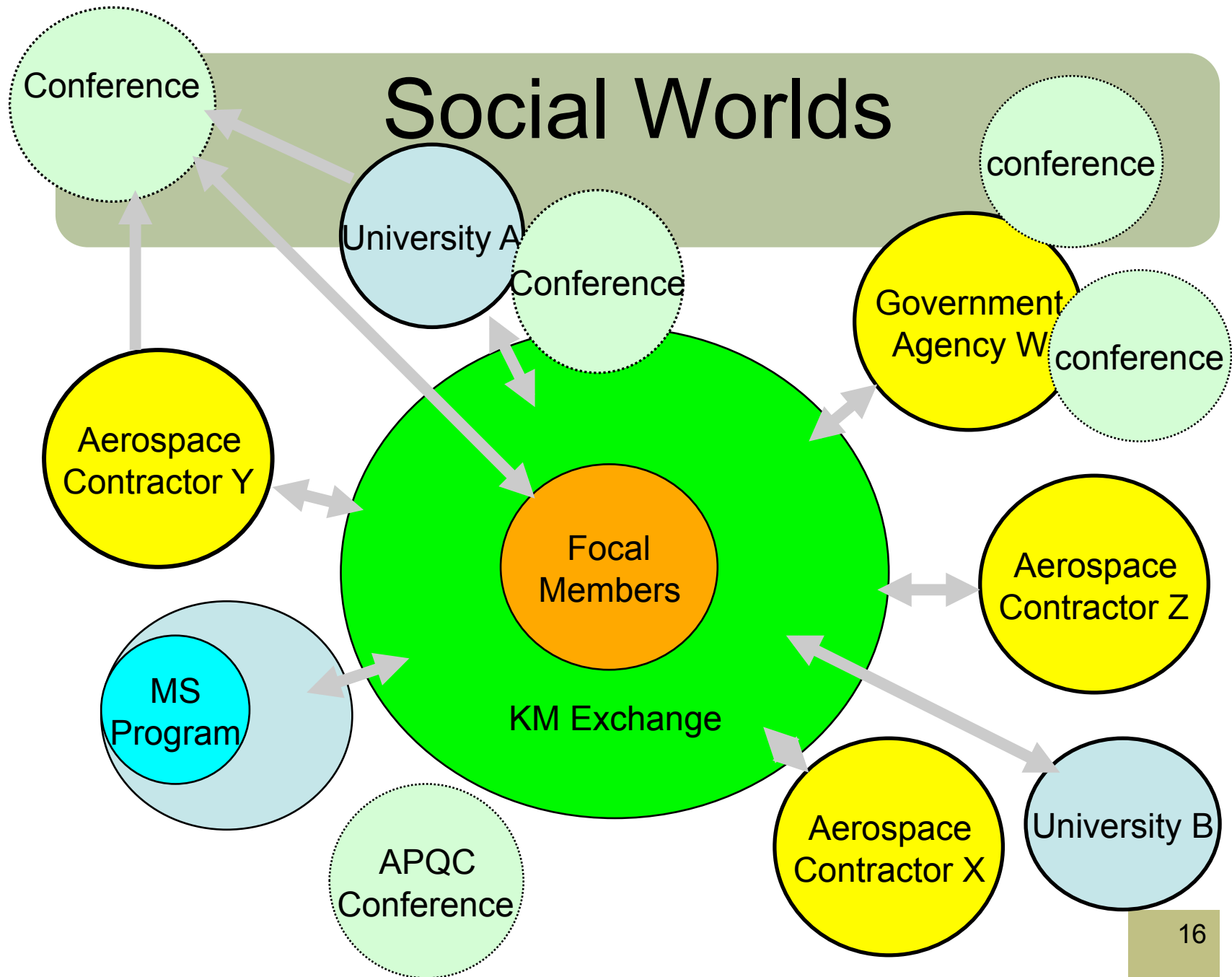
- Disparity of motives among old-timers and newcomers
 - Newcomers simply want to learn KM
 - Old-timers need to promote and legitimize KM in their workplaces as well as learning KM
- Place for legitimization of KM practice as well as learning
 - To affirm KM practices for members
 - To share the pain
 - To build the discipline's language

Study #2

Social Worlds

- Social Worlds (Strauss, 1978)
 - Collective unit of individuals with common goals
 - Dynamic, highly fluid social structure
 - Each social world has a primary activity and sites to perform the activity
 - In modern society, people belong to multiple social worlds simultaneously
 - Social world intersects with other social worlds
 - Strauss stresses the importance of a social world's history
 - A variety of forms: small or large; temporary or long-lived; virtual or physical, etc.

Social Worlds



Social Worlds

Mirroring Actions/Interactions

- Actions and interactions in social worlds are mirrored and then reinforced in a new cross-sectional social world.
 - Knowledge on KM is primarily passed down from experienced senior practitioners to junior practitioners at workplaces.
 - Similarly, knowledge on KM is passed down from old-timers to newcomers in the community (hierarchical than CoP model)

Social Worlds

Institutionalized Beliefs on KM

- Uniform beliefs on KM in the community
 - Aging workforce will cause a serious knowledge drain
 - Importance of a sharing culture
 - The aerospace industry culture needs to be a sharing culture prior to promoting KM successfully
 - KM helps the aerospace industry culture become a sharing culture
 - Tacit knowledge can be converted into explicit knowledge

Social Worlds

Boundaries and Identities

- Started by a few senior members to have local gatherings to discuss and share aerospace industry specific KM issues
- Earlier KM Exchange meetings – “Our identity is ‘aerospace’ KM”
- *Academia enrolment*
- Stagnation – “repetitive”
- Disparity of motives among members
- Annual KM Exchange sponsored conference open to other industries
- Everyone wants the KM Exchange to grow (not necessarily expanding the boundaries)

Social Worlds

Diffusion of Web 2.0

- Web 2.0 (e.g. Wikis, Second Life)
 - KM Exchange is the primary reference group
 - KM Exchange presentation on wikis in Sept 2006 drew interests among members
 - Members wanted to experiment wikis at their workplaces
 - Wiki was the discussion topic numerous times
 - Luminaries in the field are also enthusiastic about Web 2.0
 - APQC, KM World Magazine, Kimiz Dalkir's book
 - Viewed as “progressive” and “connecting people” tools

Conclusion

- A community can be much more complex than Wenger and Lave's CoP (communities of practice) model.
- A community can exist for motives other than simply learning
- Actions and interactions of social worlds can be mirrored and then reinforced in a new cross-sectional social world
- A new social world can retrospectively impact other social worlds

Current and Future Studies

- Study of Library Services in an aerospace company (some similarities to KM)
 - Community of librarians
 - Use of wikis and blogs
- Need field data to learn how KM is diffused at workplaces
- Diffusion of IM in an aerospace company
- Diffusion of enterprise blogs and wikis in an aerospace company

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