Knowledge Capture at WSDOT

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How do you know something?

How did you learn what you know?

What do you know that others should know?

How do you teach others what you know?

How do you capture that knowledge?

https://itservicemanagement-itil.com/preserve-intellectual-capital-cai-akc/
What is knowledge?

Different facets, interacting at all times

• Human knowledge
  – Includes technical, skills, expertise.

• Social knowledge
  – Exists only in relationships.

• Cultural knowledge
  – A collective understanding of how things are done, not dependent on a particular person, but likely to reside in a group – greatly impacted by high turnover.

• Structured knowledge
  – Embedded in systems, processes, tools, and routines – e.g., desk manuals would help with this. Rule-based.

“Lost Knowledge: Confronting the Threat of an Aging Workforce.” David W. DeLong 2004
Knowledge Capture

Tacit
Operational
Intuitive
Contextual
Experience-based
Value-based
Hard to communicate

Explicit
Codified
Documents
Videos
Databases
Other
Easily Shareable
Aren’t we doing this?

• Manuals and guidance documents
• Exit interviews
• Lessons Learned
• Best practices
• After action reviews

Yes, and… need to dig deeper to the operational context

Know How, Know Why
WSDOT Knowledge Interviews: A Pilot Project

• 17 Interviews conducted
• Rule of thumb: three 2 hour interviews
• Audio recorded, recording destroyed after transcription
• Transcribed by graduate students in journalism
• Generic outline that could be modified

Questions on Operational Knowledge

• Operating Data
• Key Operational Issues
  – Front burner
  – Hibernating
• Projects
  – Pending
  – Completed
• Job Functions & Activities
• SWOT of interviewee’s organization
• SWOT of other organizations
• Lessons learned
• Knowledge Networks
• Unexploited ideas

Outline from Dr. Maureen Hammer
Example: Tribal Liaison Summary

Result

• 7 page summary document
• Shared with incoming Tribal Liaison

Tribal Liaison Profile

POSITION HISTORY
Transportation Secretary Doug MacDonald created the Tribal Liaison position within the Government Relations Office to support government-to-government consultation between WSDOT and the state’s tribes. Between 2001 and 2003, a consultation policy was developed and then the Centennial Accord Plan, in cooperation with the tribes and each office of WSDOT. WSDOT offices described their programs, funding opportunities, cycles of work, how they would cooperate with the tribes, and how they would incorporate tribal interactions into their own office.

An initial goal of the tribal liaison was to educate the department on tribal issues. Work with tribes requires extra time and paperwork, especially early in a partnership, so a training program was established to inform WSDOT employees on general issues and solutions, and to encourage outreach to the tribes. Regular training sessions were coordinated for mode offices and regions. Currently, training occurs once per year through all offices.

GENERAL DUTIES
Primary concern: Impact of projects on tribal interests.

Primary duty: Provide tribal consultation in order to avoid, minimize, or mitigate damages and impacts to tribes’ cultural and natural resources.

Other duties:
• Assist in completion of WSDOT projects.
• Facilitate meetings between project teams, tribal leaders, and the tribal community. Preside over initial meetings.
• Coordinate department training projects on tribal issues.
• Remain available to tribes to facilitate transportation needs and represent their concerns within the department.
• Ensure consultants consider tribal issues.
Knowledge Interviews: A Pilot Project

Lessons Learned

• Awesome experience!
• Employees were curious and appreciated the request
• Labor intensive
• Lack a good repository and way to share
• Validation step takes time
• Request usually made within a couple weeks of a person leaving – too late

~ $2500/person

Advice

• Support with
  – correct spelling of the person’s name, title, and office.
  – organizational chart with the position on it
  – resume to help with time periods and titles
  – follow up contact email and phone number
• Establish selection methodology (risk-based)
• Establish repository, outreach, & access
Knowledge Book: Sustainable Safety

Testing development of the Method to Analyze & Structure Knowledge (MASK)

• Kraft Foods, LLC shared at the NCHRP Domestic Scan on Knowledge Management

• Six models of knowledge capture
  – Content types
  – Process
  – Phenomena
  – History
  – Evolution
  – Know How

• Limited expertise available in the US

• Focus: Sustainable Safety
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- Documentation
The policy framework for WSDOT’s Sustainable Safety practice is based on policy requirements and state of the practice. The policy framework informs performance expectations. The policy framework and performance expectations are the foundation for safety performance, safety investments, implementation activities, and development of resources.
Lessons Learned

• Expertise in the method is important
• First version very narrative and book-like
  – Shifted to emphasize access through the models
• Topic selection is key
  – Started with Crash Analysis
    • 6 experts
• Subject Matter Expert availability is key
• Even so, product will be valuable
Examples Knowledge Capture Practices

- Case studies
- Exit Interviews
- Knowledge Books (using the Method to Analyze & Structure Knowledge)
- Knowledge Interviews (capturing operational knowledge)
- After action review
- Feedback Loops
- Lessons Learned
- Institutional Forgetting
- Last Lecture
- Storytelling
- Oral Histories
In Summary

• Mission critical knowledge may be walking out the door

• Focus on operational knowledge
  – Skill, expertise, & experience

• Prioritize knowledge capture needs
  – Mission critical
  – Current core competency
  – Not readily accessible
  – Rare or unique
  – Stabilized

• Fit capture tool/product to the need

• Consider current documentation
  – Modify/augment as feasible

• Pay attention to curation
  – Can employees find and use captured knowledge