CAUT Librarians Conference - Speaking Notes

Slide 1 (title slide)

Good afternoon. I am very excited to be here at the CAUT Librarian’s conference as a presenter on the topic of knowledge management.

Slide 2 (session outline slide)

My presentation begins with a description of the problem of lost knowledge.

I will then introduce knowledge management as the solution and describe a number of specific knowledge management techniques. We will then form small groups for some breakout sessions to try out some of these techniques and regroup at the end to summarize our discoveries including possible applications of KM in our own organizations. There will also be time for questions.

Slide 3

David De Long’s 2004 book “Lost knowledge: confronting the threat of an aging workforce” cites a number of examples of lost knowledge

1) The first example concerns NASA’s Saturn V rocket

- In 1969, Neil Armstrong walked on the moon
- By 1972, five more Apollo missions had landed on the Moon
- But, by the early 1990s, all the senior engineers at NASA who had designed the Saturn V launch rocket had either left for other companies or were encouraged to take early retirement
- Some argue that NASA has lost the knowledge it developed to send astronauts to the moon
2) The second example concerns Stradivarius violins

- What is the secret to recreating these great musical instruments? Is it the varnish? Is it the wood? Is it the shape?

- For years, scientists have been trying to rediscover what the great Italian violin-making families such as the Stradivari family knew about the craft of violin making – knowledge that appears to have been lost to today’s violin makers.

Slide 4. What is lost knowledge?

Now that you have heard a few examples of lost knowledge, it might be useful to actually define what is meant by the phrase. According to David DeLong, if knowledge, within an organizational context is “the capacity for effective action or decision making in the context of organized activity”, then lost knowledge, can be defined as “the decreased capacity for effective action or decision making in a specific organizational context”

Slide 5. A quick survey

Before I delve any further into the problem of lost knowledge, I’d like to take a quick survey.

Please put up your hand if anyone from your Library has retired in the last 12 months.

Now, please put up your hand if any one has voluntarily left your library in the last 12 months.

- You have just identified the main cause of lost knowledge in organizations: Knowledge is lost when it walks out the door. If an employee retires or resigns and the organization has not systematically captured and transferred that person’s knowledge, then that knowledge is lost to the organization, and is not being transferred to the next generation.
Slide 6. How do we lose knowledge?

So, how do we lose knowledge? There are three drivers or causes of lost knowledge in organizations:

- The first cause is **Changing workforce demographics** - primarily an increasing number of **retirements** due to an aging workforce. Many organizations are now experiencing **Recruitment problems** - partly due to labour shortages of younger workers – as well as **retention problems** – namely increased employee turnover in the younger workforce to due changing attitudes and expectations.

**Canadian data on aging workforce (refer to 8Rs presentation here)**


The oldest of the post WWII baby boomers (born from 1946-1964) will be turning 60 next year and many, depending on the industry in which they work, have already taken early retirement.

The oldest of the boomers have been described as “the beginning of a rising wave of retirements” that will peak in the early 2020s when the largest birth cohorts (1960 & 1961) reach the median retirement age of 61. These retirements will present succession issues for organizations as more employers compete to hire replacements from shrinking labor pool.

- The second cause of lost knowledge is the **changing nature of knowledge**. Knowledge-intensive work is much more interdisciplinary – requiring the integration of expertise across a wide range of subjects and collaboration with experts in related disciplines (e.g. in the pharmaceutical industry – collaboration occurs between experts in the fields of biochemistry, pharmacology, and bioinformatics). The cumulative knowledge gained by working with others in such complex environments creates critical expertise and experiential knowledge.
that didn’t exist a generation ago. This knowledge is hard to replicate and also difficult to capture and share because it is so abstract.

- There is another cause of lost knowledge, and that is **organizational change in a turbulent environment**. Organizations exist in turbulent environments and must react quickly to changes in their environment. The need for speed means there is often little time to learn and reflect so “lessons learned” are not captured along the way. Employees can stagnate if there is no time to develop new skills or to reflect and learn from others.

**Slide 7.**

**Organizational Knowledge can be lost at three levels:**

*At the Individual level:* for example, when a veteran manager suddenly leaves an organization and takes with him years of knowledge about customers, suppliers, and how to effectively do his or her job.

*At the Work unit or small group level:* for example, if a project team fails to keep the documentation from a completed project, when a similar project is launched in the future, the new team must “reinvent the wheel” and will not benefit from the insight of its predecessors.

*At the Functional or organizational level:* due to, for example, mass layoffs or retirements.

In 1981, Ronald Reagan fired 11,000 striking air traffic controllers and replaced them with managers, military air traffic controllers, and new hires who had to be trained from scratch. It took 7 years to return to pre-strike controller strength. Ironically, many of these air traffic controllers (some say 12,500 of 15,000 currently working) are due to reach the mandatory retirement age for US controllers of 56 years of age in the next 10 year and industry sources report that many control towers are already understaffed.

**Slide 8. Where does organizational memory reside?**
According to Cross and Baird, organizations remember lessons from the past in a variety of ways.

An organization’s memory resides in 5 places:

1) in the minds of its employees

2) in an employee’s network of personal relationships – who they turn to for information and advice

3) in repositories - databases or filing cabinets

4) it is embedded in work processes – for example, McDonald’s has engineered knowledge into its work practices making them almost fool-proof

5) it resides in product and service offerings – these offerings can shape which skills and organizational competencies or expertise a company will develop over time.

Slide 9.

The effects of lost knowledge can be:

- *anticipated or unanticipated:* you may be able to plan for the effect of massive retirements but you may also be surprised when a key piece of machinery no longer runs because it turns out the maintenance technician retired with know-how that wasn’t in the maintenance manual

- *tangible or intangible:* the impacts can be financial quantifiable or hard to measure – what is the impact of the loss of social capital (key relationships with customers and suppliers and personal networks)

- *And the costs can be immediate or delayed:* for example, a immediate reduction in quality, or delayed, for example, when a company fails to capture lessons learned after experiencing problems during a major project (e.g. rebuilding a refinery tank) and then experiences the same problems years later during a similar project, resulting in lost sales etc.
Lost knowledge can directly threaten an organization’s strategy in several ways:

1. by reducing their capacity to innovate – a young, inexperienced workforce may lack the experience and expertise to be innovative
2. by threatening their ability to pursue growth strategies – the organization may be unable to support expanded operations and may have fewer experienced staff to mentor new hires
3. reduced efficiency undermines low-cost strategies – new hires take time to reach the efficiency levels of more experienced staff, and the organization may experience more frequent and costly errors as they ‘reinvent the wheel’
4. losing knowledge can give competitors an advantage – especially if the competition is able to retain their knowledge
5. losing specific knowledge at the wrong time increases vulnerability – new knowledge that is essential to an organization’s strategy may not be well documented or may only reside in someone’s head.

Slide 10.
Recently, I discovered some startling statistics on knowledge transfer in the US workforce. A survey conducted by Accenture (a management consulting firm) of more than 500 US workers between 40 and 50 years of age found the following:

- 26% of respondents said that their organizations will let them retire without any transfer of knowledge.
- 20% anticipate an intensive, months-long process of knowledge transfer prior to leaving.
- 28% believe the knowledge transfer process will last a week or two.
- 16% will have an informal discussion with others in the organization prior to leaving.

Slide 11 The solution: Knowledge Management
What is knowledge management?

There is no standard definition but here are some examples from different sources:

- The systematic processes by which knowledge needed for an organization to succeed is created, captured, shared, and leveraged (Rumizen).
- A set of techniques and practices that facilitate the flow of knowledge into and within the firm (Birkinshaw).
- A fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information (Davenport & Prusak)

**Slide 12. What is knowledge?**

In order to define knowledge, we need to make a distinction between data, information, and knowledge.

- Data are objective facts or structured records of transactions.
- Data is transformed into information when its creator adds meaning (Davenport).
- Rumizen defines knowledge as “information in context to produce an actionable understanding”. For example, a street map contains information that can help you navigate around the City of London. A London Taxi Driver intuitively knows how to navigate this information because he has acquired this knowledge in the process of earning his taxi licence.

There are different types of knowledge, and it is important to understand the distinction between them, as I will be referring to them throughout the rest of this session.

**Explicit knowledge**: is knowledge that is easily codified (documented), it can be shared independent of its human source, and it can be embedded into processes or systems.

**Tacit Knowledge**: is know-how that is difficult to verbalize (knowing how to ride a bicycle)
Implicit knowledge: is rule-based or fact-based knowledge that has not been articulated

Or know-how that is unarticulated – it can readily be communicated but doesn’t lend itself to codification because of the contextual complexity.

Slide 13. KM Practices: an overview

The following are examples of indirect methods of transferring explicit knowledge. For example, when you need to capture knowledge from retiring employees and share it with successors (the next generation of workers).

Documentation: paper files or databases can codify work practices and preserve explicit knowledge for later use.

Interviews: employees about to retire or leave an organization can be interviewed or debriefed to capture and transfer both explicit and implicit knowledge. Interviews can be transcribed and edited down into “knowledge nuggets” for later retrieval.

Training: this a knowledge transfer practice that focuses on delivering knowledge to potential users. Trainers can work with process or subject matter experts to create training materials that preserve organizational knowledge. Training can help to bridge potential gaps in knowledge across generations of employees.

Slide 14. KM Practices: an overview

Implicit or tacit knowledge is complex, abstract, and context dependent. The following are examples of methods or practices that are best suited to transferring implicit and tacit knowledge directly (rather than indirectly):

Storytelling: people naturally share knowledge by telling stories, and storytelling can be used in an organizational context to communicate knowledge that cannot be easily codified or represented as rules. I will explore this technique in more depth in a few minutes.
**Mentoring & coaching**: have been described as the most effective ways of directly transferring critical work-related knowledge from one individual to another. New hires are matched with veteran employees (or recently retired employees) and can be used to help transfer technical, operational, or managerial skills. Companies that use this practice, however report that there is a significant time commitment required to socialize and train new employees, so you need to focus your efforts on critical areas.

**After action reviews**: this practice was developed by the US army as a way of transferring the lessons of experience (in the Army’s case, battlefield experience). By reflecting on a recent activity, groups or individuals can not only learn from their own experience but generate new knowledge that can improve future performance. I will explore this technique in more detail shortly.

**Communities of practice**: these are communities or networks of practitioners within the same organization or across organizational boundaries that share expertise. These communities can be leveraged to support knowledge sharing and problem solving as well as improving retention of key employees (by providing them with a sense of connectedness to similar others).

**Slide 15. Knowledge-focused Exit Interviews**

Now, let’s take an in-depth look at *Exit Interviews*. Also known as knowledge harvesting interviews, they are in-depth qualitative one-to-one interviews conducted in order to capture knowledge from key employees before they leave an organization through retirement or voluntary resignation. The goal is to capture knowledge about what it takes to do the job.

**Who uses it?** Now, let’s take a look at who is using this technique and how they are using it.

**Slide 16.**
The World Bank uses interviews to capture knowledge from potential retirees and experts. For example, regional experts at various World Bank offices have been interviewed to capture local knowledge (e.g. urban planning projects in Brazil). Interviews may be audio-taped or video-taped, then transcribed and posted to the organization’s Intranet. Hyperlinks within an interview transcript allow users to access thousands of other pages of related materials referred to in the interview. On this slide is an example of such an interview, which has actually been posted to the World Bank’s public web site.
Slide 17.

**Delta Air Lines** – when they needed to reduce the size of their workforce after the economic downturn post – September 11, 2001, Delta was determined to cut staff without a reduction in knowledge and performance. 11,000 employees accepted severance packages – of these, 1,200 were aviation maintenance technicians with many years of experience. Delta used exit interviews to capture and transfer knowledge from departing employees. Due to the large numbers and the short time frame, only those employees who represented a critical job loss and who met four additional criteria were interviewed. Delta looked for employees who were outstanding performers, who occupied positions in which there were no other incumbents or trained backups, who were considered go-to persons in a crisis, and who had great contacts in and out of the company.

Slide 18. **UK Post office knowledge interviews**

**UK Post Office’s Consultancy Branch** has 1300 employees and experiences a 20% staff turnover rate. KIs are one of many tools within their knowledge management programme. They only conduct 50-60 KIs per year due to the cost involved.

Knowledge interviews can occur based on three scenarios:

*Entry* - when someone joins the organization, they may possess relevant experience from other organizations that could prove useful to the Post Office

*Expert* – when someone is recognized as having particularly vital knowledge that ought to be disseminated more widely

*Exit* – when a senior member of staff leaves, so that their insights and what they know can be extracted before they disappear
Post Office Consulting’s KI process follows 5 steps

**Step 1:** preparation / pre-interview screening to explain the KI process and to build rapport between interviewer and interviewee by learning more about the interviewee, their work, their achievements, their contacts, and to find out who might benefit from their knowledge

**Step 2:** create an interview map – maps out key areas to probe such as people/contacts, learning points, value of projects/activities, information sources created or consulted, changes over time, and outputs

**Step 3:** main interview – takes from 2-5 hours, is taped and transcribed, and sometimes videotaped.

**Step 4:** analysis – POC uses software tools to map out the captured knowledge

**Step 5:** outputs – can vary but often include an unedited interview transcript, a case study, a job description, a person specification (personal and interpersonal skills/traits), a contact directory

**Slide 19. Exit Interviews Key Success Factors**

According to Pamela Holloway, the following are *Key success factors for exit interviews*:

- use trained, skilled interviewers;
- conduct interviews face-to-face, implement the 3E (entry, expert, exit) approach;
- if employee is leaving, use the exit interview to build a parting relationship (so you can connect with them later if need be);
- use the knowledge and information that you collect so that others will have a reason to contribute.

**Slide 20. Organizational Storytelling**

**What is it?** As I mentioned earlier, storytelling is sharing knowledge by telling organizational stories. According to Stephen Denning, leaders need to use a variety of narrative patterns (or story types) to achieve different objectives. In his May 2004 Harvard Business Review article “Telling Tales”, he identified 7 different objectives and matching narrative patterns.
1. **Sparking action** (springboard story): the story enables listeners to visualize the transformation needed in their circumstances and then to act on that realization.

2. **Communicating who you are**: these stories help build trust by enabling listeners to understand and empathize with the speaker (usually someone trying to lead change). These stories are based on a life event that reveals some strength or vulnerability and shows what the speaker took from the experience.

3. **Transmitting values**: these stories help the audience to understand “how things are done around here” and often take the form of a parable.

4. **Fostering collaboration**: Stories can be used to foster collaboration by generating a common narrative around a group’s concerns, beginning with a story told by one member of the group. Ideally, that first story sparks another and another until the group has developed a shared perspective and sense of community.

5. **Taming the grapevine**: these stories harness the energy of the grapevine to defuse a rumor by convincing the audience/listener that the gossip is untrue or unreasonable.

6. **Sharing Knowledge**: communicating know-how by sharing stories. These stories focus on mistakes made, show how they were corrected and why the solution worked.

7. **Leading people into the future**: these stories evoke the future you want to create, but avoid providing too much detail that may turn out to be wrong.
Slide 21. Storytelling: Who uses it?

World Bank. Stephen Denning used springboard stories to win support for knowledge management, by enabling staff and managers to envision a different kind of future for their organization.

Slide 22: JPL image. NASA’s Jet Propulsion Laboratory uses storytelling to socialize new employees into the JPL culture. Monthly storytelling sessions bring in veteran JPL scientists tell stories recounting what it was like on old NASA missions and help to connect them to the lab’s history and mission.

Slide 23. NASA ASK magazine image. NASA’s ASK Magazine helps project managers across NASA share lessons learned via stories on their magazine website.

Slide 24. After Action Reviews

What is an AAR? An after action review is a discussion of a project or activity designed to help an individual or team to capture and share lessons learned by making tacit knowledge explicit. They can take the form of personal AARs (reflecting or your own activities), informal AARs (a team discussion after a presentation or meeting) or formal AARs (project reviews conducted at the end of major projects or events)

What is involved? It is a simple process. Essentially, all you need to do is call a meeting of participants (e.g. team members) and have each participant answer 4 questions:

1. what was supposed to happen? [the objective of the activity]
2. What actually happened? [facts]
3. Why were there differences? [identify and discuss successes and shortfalls]
4. What can we learn from this? [what would we do differently next time to make it better]
The AAR can be documented and shared with others – so you want to think about who could benefit from it.

**Some Key success factors for AARs**: capture lessons learned before a team disbands, while memories are still fresh. If lessons learned are immediately applied, it becomes a live learning process.

Now, let's take a look at some examples of how After Action Reviews are being used in organizations.

**Slide 25. After Action Reviews @ the US Army**

**US Army**: AARs originated with the US Army as a tool to support training exercises – during or after battlefield exercises – in order to review the day’s action - but now they are used throughout the organization. Here you see an example of AARs conducted in the area of disaster preparedness and recovery support.

**Slide 26. AARs @ Harley-Davidson**

**Harley-Davidson**’s Kansas City plant uses AARs during the pre-build process for new models.

After each pre-build, an AAR is held to compare actual performance against their initial assumptions – resulting in performance improvements in the manufacturing process. Notice that AARs are meant to be Iterative and repeatable.
Slide 27. AARs @ BP.

Holistic model of KM. British Petroleum has a holistic model of knowledge management consisting of three processes:

Learning Before Doing (Peer Assists) – involves learning from others before engaging in a new project (e.g. drilling a new oil well). Specifically, it is a meeting or workshop where people are invited from other organizations or groups to share their experience, knowledge, and insights with a team who have asked for help early on with a new project.

Learning While Doing (After Action Reviews) – AARs were used by BP in Vietnam when they were negotiating with the Vietnamese Government. Brief AARs were held immediately after every meeting (negotiating session) to debrief, reflect on what happened, and incorporate this learning into the next day’s session.

Learning After Doing (Retrospects) – what we commonly call post mortems, which are in-depth after action reviews of major projects (e.g. a major product launch or at the end of a construction project). These are facilitated reviews that can last from several hours to several days – lessons learned are often expressed as advice for future project teams.


We will now form small groups for several different breakout sessions, as outlined in the next few slides. You also have activity work sheets among your handouts.
Slide 29. Activity 1: Exit Interview Activity

Form groups of 3 at your table. 1 person will act as the person who is leaving. The second person will act as the interviewer. The third person will act as the note taker. A list of probes or interview questions has been left at your table to help you with this activity. Spend about 5 minutes on the actual interview, then regroup to discuss how you would proceed with identifying the key personnel or critical jobs that should be targeted for exit interviews.

Slide 30. Activity 2: After Action Review

This activity can be done individually or in small groups if you are sitting with others from the same organization. Pick a recent event or activity to review. Answer the 4 questions on the activity sheet provided. Then think about who could benefit from your insights. Is this a repeatable process? As a table, review the types of activities and think about future activities that are repeatable.

Slide 31. Activity 3: Storytelling Activity

This activity involves the whole table. You will be given an activity sheet that summarizes the types of stories and the goals to be achieved.

First, thinking about your own situation, list 3 examples of how storytelling can be used by your organization (library or academic staff association).

Then, as a table, share your ideas and generate a list of the top 3 scenarios and be prepared to share these with the rest of the room.
Slide 32. Possible applications of KM

[Feedback on Breakout Sessions – use to fill in the following]

Possible applications:

- for individuals
- for academic staff associations
- for libraries
- for others

Slide 33. Summary and Questions

- To review, we looked at the problem of lost knowledge including the causes and consequences of it. We then looked at the solution, which I propose to be Knowledge management. We looked at specific techniques and had a chance to test them out in our break out sessions, and even brainstormed for possible applications of these techniques in our own workplaces.

- In your package, you should have a handout on Sources for further reading on KM.

- Does any one have any other questions for me? If not, then I’ll end by saying …

Slide 34: Thank you

I have included my contact information and look forward to hearing how you have implemented KM techniques in your own organization.