On the Beat: Techniques for Capturing and Sharing the Exchange of Ideas
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Abstract: As part of a strategy to leverage information and knowledge sharing across the corporation, MITRE's Knowledge Management Services Department has developed a billable "content capture" service for its customers. Information Analysts attend internal technical meetings, called Technical Exchange Meetings, or "TEMs," and report on the content of presentation and subsequent discussion and analysis that take place in that forum. From these notes, the Analyst crafts a web-based document, adding relevant internal and external links that add value to the content. Come learn how the "KM Reporters" build and deliver this valuable service. (93 words)

Introduction:

The MITRE Corporation´s work, by their approximately 5,000 employees, is focused within three Federally Funded Research and Development Centers (FFRDCs). One FFRDC performs systems engineering and integration work for Department of Defense C3I (Command, Control, Communications, and Intelligence). A second performs systems research and development work for the Federal Aviation Administration and other civil aviation authorities. The third FFRDC provides strategic, technical and program management advice to the Internal Revenue Service and the Treasury Department. MITRE's principal locations are McLean, VA, Reston, VA, and Bedford, MA, with many other sites around the nation and the world collocated with customer groups.

MITRE's operating centers are devoted to finding engineering solutions to problems of public interest, building prototypes, experimenting with commercial products, and doing research in fields such as human language learning, intelligent information processing, and robotics. (http://www.mitre.org)

MITRE Information Analysts:

Information Analysts at MITRE work for Knowledge Management Services, a group within the InfoCenter Services Department, which in turn is part of the corporate division, ACIS (Advanced Computing and Information Systems.) Analysts are librarians by training, with background and experience in corporate, academic, and not-for-profit information centers. Each of the seven information analysts is assigned to one of the company's operating centers to provide research support for various customer endeavors. InfoCenter Services also operates the InfoDesk, a real and virtual information desk that offers MITRE staff telephone, email, and walk-in reference service. Most of the requests handled by InfoDesk staff are relatively quick tasks (finding citations, filling document delivery requests, and offering navigational tips to users of the internet, intranet, and/or the digital information resources services to which the department subscribes.) Work done by the information analysts is typically longer term, ranging from a few hours to several months' worth of research support. InfoDesk staff and information analysts bill their time to the various projects their users are working on. The management goal is to bill between 50% and 100% of analysts'

time for ongoing and in-depth services.

Knowledge Management at MITRE:

MITRE began its corporate-wide knowledge management initiative in 1999. At that time, our Vice President and Chief Information Officer explained; "Knowledge management is a total corporate strategy, not an information technology (IT) strategy. The corporation's goal is to improve execution of work using best practices and lessons learned via the creative application of knowledge by individuals, supported by an information infrastructure that enables collaboration and knowledge retrieval, and a corporate working environment that supports the mission-oriented activities through appropriate culture, policies and recognition."

Among the goals of the KM initiative is the promotion of the sharing and reuse of information and knowledge across the company. Mechanisms such as email discussion lists, and "hotlines," publishing repositories such as transfer folders and a recent corporate initiative called Project Share are all services and tools offered in support of the company's KM goal. The MII (MITRE Information Infrastructure) is the corporate intranet and was initiated about seven years ago, connecting company employees in Bedford, MA, Northern Virginia and at over sixty sites. Transfer folders are available for personal publishing and reside on one of the corporate servers. Staff can post documents in a wide range of formats to their transfer folders so that other MITRE staff may access the content. Approximately 500,000 files have been shared thus far, including HTML, Word, .Power Point, Excel, text, and rich text formats. Another initiative, Project Share, is a publishing forum associated with projects. Documents in Project Share are uploaded in their native format to the server with associated metadata stored in a metadata catalog. Metadata elements include title, author, major subject category, and additional keywords to facilitate search and retrieval. Rolled out in August 2001, Project Share now contains over 6,500 documents.

Knowledge Management Services staff will typically include as part of a research request a search for local experts inside the company, in an effort to link a requester with other MITRE technical staff who have expertise to share. Other ways to find local experts include searching personal homepages and resumes on the intranet, posting a request on a MITRE email listserv or on the Technical HOTline, contacting knowledgeable staff in Technical Centers and Technology Area Teams (TATs), tapping the MITRE Expertise page of cluster and specialty groups, searching for online documentation in Project Share and the MITRE Catalog, and searching for published documents on the Corporate Library System (CLS).

TEMs

Another mechanism used by MITRE staff to share information and knowledge with each other and their customers is the Technical Exchange Meeting (TEM.) The tradition of the TEM at MITRE dates back to the 1990's. The TEM is a gathering in which staff share information about their work programs and projects, answering questions, sharing challenges, and engaging in dialog with attendees. TEMs are generally open to all MITRE employees and sometimes include customers as invited guests. The company holds roughly 20-25 TEMs annually, each of which is based on a common theme and sponsored by a program committee of representatives from one or more of the operating centers. Over the past year, for example, MITRE has held TEMs on web services, topics of interest to federal CIOs, digital convergence, bioinformatics, open source software, and XML. Presenters typically give 40-minute briefings on their projects answering questions from attendees and engaging in discussion as a group. TEMs are usually held

at one of the main sites, with videoconferencing capability provided to other MITRE sites whose staff wants to attend.

The CIO Workshop

In Fall 2000, a customer of one of the Information Analysts hosted a Workshop on topics of interest to federal CIOs (chief information officers.)   As part of the job, the customer asked her Knowledge Management Services liaison to attend the TEM and to act as a "reporter,"capturing summaries of the events that would ultimately be posted to the internal CIO website for internal use at MITRE. Users of the CIO web site are technical staff who support a customer base consisting largely of federal CIOs.

Gayle Sobanek, MITRE Information Analyst to the Corporate Center, attended the two-day workshop, took notes on the presenters' briefings, captured the discussion and question and answer period following each briefing, and put the content into a web-based format. She researched the content and added relevant links to sites of interest on the intranet and internet with links to any available full text of briefings, articles, or white papers cited or discussed. In addition, she researched the topics and added relevant citations to resources to supplement the content of the notes. Gayle's goal was to add as much value as possible to the content of notes. Future readers of the notes might then use them as "stepping stones" to further research on a topic, as well as a means of finding out what had been discussed if they had been unable to attend.

The "CIO Workshop" required about 40 hours of analyst time to prepare the content for the web site. The TEM products included an executive summary, consolidated notes, links to briefings, websites and other documentation referenced at the sessions. Key points from the roundtable and group discussions were also transformed into informative web pages and charts that were captured and archived as products of the TEM. All of this content was coded by the analyst using Visual Page, an HTML editing tool, and sent to a web designer for small changes to "look and feel," design and color, and subsequent uploading on the server. As a result of the CIO Workshop, a cross-organizational team was formed to create a CIO portal for the community that would include, along with the notes, an email discussion list and its archive, recent news stories, and upcoming conferences and events of potential interest to the CIOs**.** The CIO Portal officially rolled out in Feb 2001.

The portal requires continuous updating to keep the content current and to be a valuable resource for the CIO community at MITRE. Users are encouraged to submit relevant CIO news stories, links, events, and documents for each of these sections to make the site a useful tool. The content management team at MITRE is collecting statistics from page counters and logs and feedback from users as a guide for improvement of the portal and to make it a practical tool for the CIO community. Maintenance is a manual process but in the future, the team hopes to benefit from emerging capabilities of content management systems and web services to automate the process. Currently, 2001 Workshop notes and products are on the site and plans are being made for the Fall 2002 CIO Workshop.

The Knowledge Capture Service:

Gayle reported to her colleagues that the CIO Workshop experience was valuable in helping her understand and assess the needs and interests of her customer group, providing face-to-face contact with them, and helping to promote the availability and competencies of the Knowledge Management Services liaisons. The success of the CIO workshop and positive customer feedback sparked the idea of offering the same

knowledge capture service to other customers.

The CIO Workshop coverage was initiated by the customer and had never been done before, so the KM Services group had no outreach model to use to promote the new knowledge capture service to the corporation. The group and its managers were eager to provide a service tailored to the needs of the TEM organizers and contribute to the effort to capture and reuse information and knowledge in the company, and a rough model grew out of experimentation.

A good opportunity to reach out to a customer presented itself in Spring 2001, when one of the operating centers, the CIIS (Center for Integrated Intelligence Systems) began preparing for its "Site Leaders" conference. This is an annual gathering at which one of the center's divisions comes together to discuss work in progress. Staff come from all over the world to exchange ideas and news, get feedback from colleagues from whom they are geographically isolated, discuss departmental and corporate policies, and make face-to-face contact with colleagues whom they often don't otherwise see. This meeting seemed like a good opportunity to offer the content capture service, as the development and maintenance of a strong collaborative bond across the many sites appeared to be of major importance to the center's Technical Directors. It was also likely that not everyone from each MITRE site around the world who wanted to do so would be able to attend the annual meeting, and that there would be a real need for them to rely on notes to find out what had transpired. Content capture would be a good way to share the information.

Allison Ounanian, the Knowledge Management Services liaison to the CIIS approached the meeting organizer via telephone and email in order to explain the content capture service. The reaction was very positive, so she went forward using the finished product for the CIO Workshop as an example of what an outcome from the Site Leaders' sessions might look like. Based on the amount of time Gayle had spent attending the CIO Workshop and preparing its notes, Allison provided the customer with an estimate of the amount of time the job would take. An 8-hour day of briefings and discussion had taken 2-2.5 days for Gayle to write up, so, for the four-day Site Leaders' meeting, Allison estimated about 80 hours of work, excluding the time spent attending the meeting.

The process was an adventure; Allison met with the organizer of the Site Leaders' meeting via telephone and VTC about a month ahead of the meetings to get a sense of what content the customer considered most important. He was particularly interested in capturing the content of question and answer and brainstorming sessions. As for previous years' Site Leaders' meetings, he planned to produce a CD product for the sponsors of the center, containing the briefing slides from the presentations, so that there would be a record of what had transpired at the meeting, and a demonstration of the technical expertise of the staff gathered there. The CD would now also contain the value-added content capture.

The customer in this case was an ideal one with whom to begin the content capture effort. In addition to being in a position of authority as a technical director in his center, the customer acts as one of the corporation's Center Knowledge Managers, so had demonstrated an interest in and commitment to knowledge sharing. He was most willing to try the content capture service to support the larger goal of promoting knowledge sharing in the company. He also invited the information analyst to give a presentation of her own at the Site Leaders' meeting, highlighting the research services available to the technical staff.

One challenge in the TEM content capture service that has recently found a solution is that of TEM document storage. A repository called The Technical Exchange (TEx) was initially constructed by members of the Information Management group to coordinate TEM scheduling, announcements and planning. It was then expanded to include a searchable archive of meeting products and summaries.

Below is an example of The Technical Exchange (Tex) Archive.

In the past, TEM announcements were on TEx, but summaries were delivered to customers and posted wherever the customer wanted them (on a local departmental server, in a Project Share file or on a departmental web page, e.g.). Now, a TEM Overview template is used to create cover pages with links to all briefings presented at the TEM. Summaries and metadata are provided for each TEM as well. MITRE staff can now go to the TEx homepage to search the archives, read notes, or retrieve any of the briefings given at a meeting.

In addition, a page counter monitors hits on the TEM Overview pages (example below) and another counter will soon be added to the summaries authored by the reporters. There has been a substantial amount of positive feedback from TEM organizers and participants about the value of being able to refer

back to the record of the events. The cost of the content management service to the company is a small fraction of the total expense of planning, preparing, and presenting a TEM.

Below is an example of a TEx TEM Overview page.

Open Source Software Technical Exchange

Time: 2/14/2002 08:00 AM through 04:30 PM
Location: Bedford 1A401, Reston S4310, Wilson 1B02, Sites
POC:
Type of Session: Technical Exchange
Audience: MITRE Only
Link to TEM Website: Open Source TEM Site

Summary

Individual Briefings & Documents

MITRE Media Center Files

Abstract: What is Open Source Software (OSS)? "The basic idea behind open source [software] is very simple: When programmers can read, redistribute, and modify the source code for a piece of software, the software evolves. People improve it, people adapt it, people fix bugs. And this can happen at a speed that, if one is used to the slow pace of conventional software development, seems astonishing." (See: http://opensource.org) OSS encompasses powerful products such as Linux, Apache, and GNOME, and processes for making software development activities and results more open and accessible.

Summary: Open Source Software Technical Exchanges

This summary includes synopses of the following activities:

- Opening Remarks by
- Opening Remarks by
- Each session, including Question & Answer highlights, with links to the session's briefing.
- Proposed Topics for the future with question & answer highlights.

L. Allison Ounanian, R201/Knowledge Management Services, prepared this TEM summary.

What's Involved: What You Need in Your Toolkit

Right now, there is no way around the fact that the reporter's job is labor-intensive, and time-consuming. Audio and video recordings of sessions can be helpful in the same way a transcript is for any exchange, but they don't solve the problem of finding and providing the background research that adds value to the content, nor allow for the integration of multiple forms of media.

It is helpful to look at presentation slides before the TEM in order to get a quick overview of the briefer's topic, specialized vocabulary and government, industry, or technology acronyms that always come up. It's helpful to have a sense of the presenter's background in order to be familiar with his/her frame of reference, special interests, and expertise. Often, slide presentations are posted to the network space from which they'll be shown to the audience only minutes or hours before the session starts so studying them for any length of time is not usually possible.

While the TEM is running, the reporter must quickly take notes, flagging topics that will require further research, expansion or additional interviewing with the briefer. Sometimes, quick fact-checks can be done immediately after a briefing or during a break via personal interview and fact checking with the briefer or

other participants. If it's impractical to do this during the sessions (one session may start up directly after another, or a briefer leaves immediately after his segment), follow-up via telephone and email is used. In that case, just making sure the reporter has the name and/or affiliation of the speaker or can verify it with someone else is critical. Deciding what to cover or emphasize is often a matter of judgment on the part of the reporter; important cues are things like the amount of discussion, questions, debate, or comment a point generates in the group. The slides that the briefer uses are often helpful for getting vocabulary or terminology that sounds cryptic during the presentation, providing the researcher with some key vocabulary for searching after the TEM. If the reporter is uncertain how important a particular point of discussion is, she can usually ask the presenter about that. The presenter will often take that opportunity to add other comments, examples, or clarification that is usually valuable for the summary as a whole.

Results from "post-TEM interviews" and exchanges with presenters can vary quite a bit in terms of their usefulness to the reporter. Asking a briefer to "comment further on what he said in regard to "ways in which an internal community of interest should go forward in the development of a particular category of open source tool" can yield an economical 20-word suggestion or a detailed 500-word email, depending upon the briefer's time and interest. Occasionally, the briefer might not respond at all forcing the reporter to use only what she has collected at the meeting plus additional detail from the slides.

Challenges include:

•Producing a meaningful portrayal of technical contents without a technical background in the many areas that are covered by the TEM briefers. None of the information analysts is an engineer. The vocabulary is specialized and the acronyms fast and furious.

•Balancing the workload of the department so that the labor-intensive nature of the production can be supported. While an analyst is covering a TEM, who is going to cover her other incoming research requests? Where does the research support come from while the analyst is taking 40 hours of time to produce the web pages for the TEM customer?

•Managing the coverage of TEMs; with the number of staff available for coverage of these and for the regular business of research, who decides which TEMs can be covered? What criteria can be used to determine which TEMs are more "valuable" than others and ought to be covered? The popularity of the service has have grown somewhat, and analysts are asked to cover other meeting content, such as the planning sessions of the enterprise Architecture Council.

•Ensuring that proprietary or sensitive content is excluded from the notes. As a rule, the reporter sends the notes to the presenter for a quick review prior to publication to assure that the content is correct. This also serves to allow presenters the chance to edit remarks before broad dissemination of the content.

As work on the product progresses, it is typically posted on a corporate server accessible to the customer so that he stays apprised of how the work is going. As the content is written up, the information analyst looks for any content that can be expanded. A briefer might say, "the work of Dr. Richard Falkenrath is of particular interest here," affording an opportunity to identify this scholar, and provide links to relevant web sites, and relevant full text sources.

Why is the Process Beneficial to the Information Analyst?

The TEM content capture process is beneficial to the information analyst for a number of reasons. In an environment where most customer contact is done via telephone and email, it is naturally a good opportunity for personal contact. It also allows the analyst to gain insight into projects and technologies that her technical staff is working on, often just by virtue of the amount of background research that some of the reporting requires. In addition, the process allows the analyst to identify and/or help establish communities of interest among her clientele, proactively provide customers with information relevant to their work, and identify staff expertise that might be useful for referrals required in future research requests. A TEM may also provide the analyst with an opportunity to do a marketing briefing on the Knowledge Management Services research support activities.

At times, the reporting task seems like a lengthy reference request, in which fact upon fact needs to be checked, the best example of a resource selected, and sources verified and investigated. For the authors, the service has provided great help in learning about trends and technologies, the environment in which their customers work, and the challenges they face. It has provided some increased visibility for the analysts within the customer groups and demonstrated skills that may not be typically associated with the information analyst's repertoire.

Other Challenges to Consider:
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Because of the specialized content and lack of engineering background, an information analyst can understandably be reluctant to cover a TEM. Another analyst, undeterred by the often highly technical content, feels that the supplemental research done in the production phase is of sufficient value for her to produce meaningful notes. Customer feedback and repeat business would seem to indicate that the method works.

Other analysts whose 40-plus hours each week are primarily absorbed with billable customer research have said they have neither the time to add a content capture service to their workloads, nor the writing skills required to do the summarization. Should the analysts be outfitted with technical writing skills so that everyone in the department possesses a "reporting" skill set? The information analysts' skill set already includes interviewing and paraphrasing skills, both of which have proven useful for content capture and summarization.

Although customers' requirements vary, the group offering the service should leverage the opportunity to create and apply a consistent look and feel to the product so that it is clearly associated with the department that produces it. The TEx overview pages and summaries are a great start to this, but branding for the content capture service still needs to be addressed.

There is an enormous amount of content to capture. Some of the meetings are audio- and video- recorded, and others not. An automated mechanism that captures audio and video content, integrating it with the content of the Power Point briefings and relevant internet links would be a good start.

Conclusions:

MITRE Center Knowledge Managers have set the capture of TEM summaries as a goal for FY02. Fourteen TEMs have been summarized since October 2001 with funding provided by the TEM organizers and the Corporate KM program. Tools in development that will allow for multimedia content capture and indexing hold promise for the future ease of meeting knowledge capture.

From the beginning, with technical management and information analyst initiatives to summarize and document the TEMs, MITRE's Knowledge Management Services has evolved a fairly comprehensive system for scheduling, planning, and documenting TEMs. This integration gives staff more notice about upcoming TEMs, provides a forum in which to show the product of the analysts' coverage to new organizers, and serves as an integrated archive.

The information analysts at MITRE have been "on the beat," covering customers' technical exchange meetings for two years. How will the process evolve?