Delivering Extraordinary Value from Your Organization's Knowledge

Successful KM leaders know how to create significant business value by applying their organization's knowledge and expertise to improve work results and accelerate the competency of less experienced practitioners. They build on past successes to develop trust with sponsors and colleagues who share their vision. Unfortunately, too many KM initiatives significantly underperform expectations. These projects have likely neglected one or more components of a sound KM strategy: the processes, technology, behaviors and value. In my experience, KM leaders have the most difficulty making the connection between knowledge assets and business value. Without this, their KM initiatives will not achieve sustainable management sponsorship and member engagement.

There haven't been many published case studies that lay out the big picture from opportunity to design to financial results. This article shares insights from several successful Chevron knowledge-sharing network initiatives that have delivered significant business value in areas such as cost reduction, safety and operational excellence. The stories identify critical success factors and describe how these projects delivered extraordinary results.

Best Practices

In the early 1990's, benchmarking studies revealed that Chevron's operating costs were significantly higher than those of major competitors. A comprehensive, multi-year effort was launched across all business units to find ways to significantly reduce costs and increase operational performance. Best practice teams were formed covering every aspect such as drilling, refining, energy management, procurement, capital project management and even IT. Identifying and replicating internal or external best practices was a major element of the strategy. Through these efforts, operating costs were reduced by over $2 billion per year[1].

Let's look at the details of one example. The refining organization created a number of best practice teams to look for ways of improving major processes such as distillation or catalytic cracking as well as maintenance and utilities management. Led by full-time process masters with members from each refinery and a refinery manager sponsor, each team compared operating practices to find what worked best. They recommended equipment changes or process operating improvements and worked with each refinery on deployment that lowered cost and increased production. The ROI for these best practice teams was 10-15 times the overall investment[2].

What are the critical success factors that enabled this result? Best practice sharing is one of the oldest and most recognized KM processes. Emerging collaboration technology was deployed to connect team members (yes, effective tools were available 20 years ago). This helped each team collect, compare and comment on plant designs and operating practices. The quick access to information also helped team members achieve greater progress between quarterly face to face meetings. The refinery business goals and metrics had a long history so the impact of improvement projects could be quickly measured. Think about using existing metrics to provide a good baseline and accelerate management's buy-in.

As is often the case, behavior or culture change was the biggest challenge. Refineries shared a "not invented here" attitude and a hierarchical command structure that inhibited implementation. Leadership metrics were adjusted from individual refinery performance to system-wide improvement and accountability for results. There were also a large number of great ideas that had to compete for limited resources. By creating a more adaptive environment that gave each refinery control of implementing best practices that would meet their local business goals, refining leadership was able achieve desired results.

Day-to-Day Problem-Solving

In the early 2000's, the Chevron and Texaco merger more than doubled the number of refineries in the system, with all the additions located outside the U.S. Based on the ROI analysis described above, it was easy to convince the new refineries to join existing best practice teams. However, it was impractical to rely on the U.S.-based process masters for world-hopping problem-solving.

Refining leadership championed the development of a new global network to connect technical experts, refinery engineers and operators to tackle day-to-day operating problems. The collaboration platform was enhanced to enable any individual to ask questions concerning a problem they faced, to share successful practices or tips, and to search a library of previous problems and solutions or other refining knowledge within a single portal. To ensure quick response to urgent questions without overloading colleagues, the technology used an email-enabled process that directed questions to a subset of over 2000 members who registered their willingness to provide answers in a self-selected subset of 200 process or equipment categories[2].

Usually a question received multiple responses within a day. But if no answer was submitted, the question was escalated to technical experts who were responsible for the subject areas. After receiving answers, each questioner was asked to document the solution that was actually used (closing the loop) and estimate the magnitude of cost and/or time saved. During the first seven years, over $100 million of cost savings were recorded.

Here's an example of a weather-induced problem in one of our processing units[3]. A lightning strike caused problems with instrumentation that led to elevated feed input and resulted in sooting of the catalyst bed. The unit's engineer sought suggestions to remove the soot and reduce the resulting pressure drop by posting a question in the system. By the time he got to work the next day, he had received four replies from an operations superintendent, a process engineer, a process advisor and a process technical expert located in four different locations. Based on their feedback, he had a workable plan to correct the problem and reuse the catalyst. This saved over $100,000 and at least a day of his time trying to research the problem. The unit's engineer commented, "I especially like the global aspect of our system - I'm very used to sharing info with the U.S. refineries but this really has opened the door to contacts around the world."

Asking and answering question is one of the most fundamental and effective ways of learning. Technology exists or can be customized to support the conversations, create a repository of solved problems and provide an expertise locator directory to find contacts when help is needed quickly. The

cost savings metrics were easily integrated, allowing reports by refinery, by process, by equipment even by who asked and answered. Many such Q&A KM systems have been deployed. The failure of KM leaders to build in quantitative metrics is perplexing.

Two behavioral challenges needed to be overcome for a successful roll-out: getting the new global network to trust in the proposed answers and to address "what's in it for me to take time to share?" This change management was handled by stakeholder engagement of refinery leaders, technical experts and plant operators or engineers. Developing trust without a working relationship was handled by a trust but validate approach. Suggested solutions were not implemented blindly. The ideas were evaluated locally to make sure they fit the specific operation. Concerns about the willingness of engineers and operators to take time to respond to questions, report successful solutions and document value were raised and addressed through a series of meetings. The personal value was clear; it helped individuals get work done quickly and it significantly benefited refinery performance. Website design alternatives were also reviewed so that participants felt they had input to the final system. Other shorter-term behavior change actions included a senior management communication plan, creating performance objectives for all employees with targets on the business scorecard, abundant training, and peer recognition to highlight success stories of problems solved.

Lessons Learned

Knowledge-sharing networks are often designed to develop and share successful practices and to provide solutions to business problems as described above. They also enable rapid communication of lessons learned that help colleagues avoid costly situations. For example, one business unit received an incident report from a partner operating a similar oil field in a different region[4]. While completing a well, a service contractor was preparing a perforating gun, which is used to shoot holes in the well casing to allow for gas production. An electrical problem caused the gun to fire prematurely, resulting in costly damage to the well. Immediately, three people shared the report in several drilling-related email networks. Several hundred operating and technical staff, including two well logging specialists, received the report. Aware that the same type of job was planned at another location, they contacted an employee at that unit who stopped the perforating operation and did not reschedule the work until his team could address all issues. It took just four days between the incident and the report being used half a world away and potentially saved $30 million. Based on stories like this, estimated value for a group of twenty exploration and production networks was $50-75 million per year.

Conclusion

Many books and articles have been written about designing and sustaining successful KM initiatives. Yet many of these efforts struggle with engaging members and creating meaningful value. The most successful KM leaders make sure their plans deliver on these critical success factors:

- Align the effort with key strategies or initiatives and adapt their metrics
- Engage active executive sponsors to provide resources and communicate success
- Deliver what members want (e.g., solutions, tools, competency, relationships)
- Assess value and health regularly

Find ways to document value using your organization's top level metrics and you'll have business managers competing for your resources.

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