

Measurement for Knowledge Management

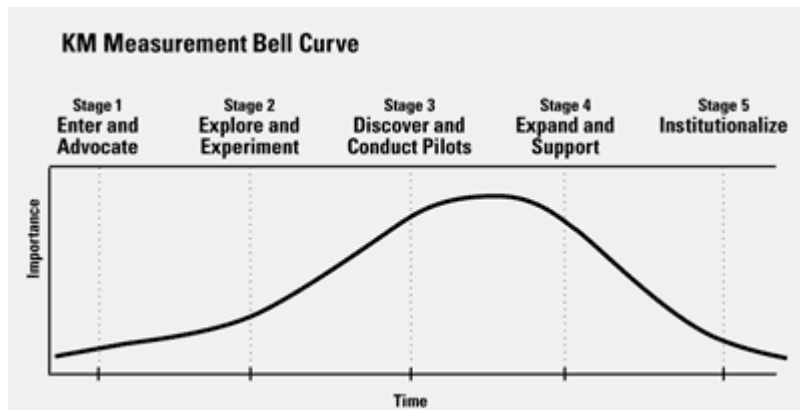
Examines the different stages of KM implementations and metrics for evaluating an initiative's progress. Introduces a "KM measurement bell curve" and offers case examples of organizations' ongoing assessment techniques.

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Measuring knowledge management (KM) is not simple. Determining KM's pervasiveness and impact is analogous to measuring the contribution of marketing, employee development, or any other management or organizational competency. It is nonetheless a necessity if KM is to last and have significant impact in an organization.

During its 2000 consortium learning forum, Successfully Implementing Knowledge Management, APQC focused on how some of the most advanced early KM adopters implement a knowledge management initiative, mobilize resources, create a business case, and measure and evolve their KM programs. This multi-client benchmarking project helped APQC and project participants identify measurement approaches, specific measures in use, and how measures impact and are impacted by the evolution of KM.

The need for measurement of KM follows a bell curve pattern through the life cycle of a business life cycle. In the earliest stages of knowledge management implementation, formal measurement rarely takes place, nor is it required. As KM becomes more structured and widespread and companies move into stages two, three, and four, the need for measurement steadily increases. As KM becomes institutionalized--a way of doing business--the importance of KM-specific measures diminishes, and the need to measure the effectiveness of knowledge-intensive business processes replaces them.



For this paper, APQC collaborated with Corning, Dow Corning, and Siemens AG to find real-world examples of measures throughout the stages and gain perspective on how companies deal with the perennial question, "How do we measure the value of KM?"

STAGE 1: ENTER AND ADVOCATE

The fire to manage knowledge starts with the spark of inspiration. There has to be a new source of energy or interest to cause KM to appear in the option set for the organization. Someone must become inspired with the vision of what it would be like if the organization could effectively support human knowledge capture, transfer, and use. Energized by his or her vision, this champion begins to search for opportunities to share the vision with others and to find opportunities to demonstrate the value of KM to the organization. The central task for the champion at this stage is to

create a vision that inspires others to join in the exploration of how managing knowledge might contribute value to the enterprise and its people.

Measures Appropriate for Stage 1

The value of embarking on the KM journey needs to be understood by members of management—more in theory at this stage than in quantitative numbers. The most effective way of convincing them may be to find the greatest areas of "pain" within your organization. Find redundant efforts, discover areas where knowledge is lost, and find points of frustration in your employee base. It is important to expose the need for knowledge management at this stage.

Interviewing key stakeholders helps uncover KM needs and exposes areas of lost time, effort, and therefore money. Making comparisons with similar industries that have successfully implemented KM also can convince skeptics. If your competitor has gained recognition for its KM efforts and has seen its productivity jump and operating costs plummet, you have likely found a good candidate to use as proof of KM's power.

Stage 1 is the time for advocating the potential of KM. Once you have others on board, more concrete measures will be necessary.

STAGE 2: EXPLORE AND EXPERIMENT

During the second stage of KM implementation, a practical definition of knowledge management is formulated within an organization and consideration of its applicability is made. The movement can start from several isolated, grassroots knowledge-enabling activities and develop into a cross-corporate vision and strategy. The development of several successful knowledge-enabling practices and pilots can be the catalyst to draw positive senior management attention. Further, it allows organizational sponsors to realize and consequently support the formation of a cross-functional team that can bring alignment.

At this point in the process, negotiations for some corporate funding can add additional resources to the scarce and limited funds from the local teams. Toward the end of this stage, the pilots' focus begins to center on specific knowledge management ideas and principles in order to demonstrate concepts and capabilities.

Measures Appropriate for Stage 2

We begin to see the emergence of a need for measurement in Stage 2 as interest about KM escalates in several parts of the organization. These measures can appear in three main categories: anecdotal (war stories, success stories, etc.), quantitative (growth), and qualitative (mainly extrapolation from anecdotal). It is appropriate to begin this section by identifying what should not be measured in Stage 2. Since most management initiatives are driven by financial results, the instinct is to identify quantifiable financial measurements such as productivity increases, increased sales, reduced overhead, etc.

Knowledge management will generate these financial measurements and others, but not in the early stages. Measurement of financial returns or results should not be undertaken at this point except as byproducts of other concurrent efforts. Simply stated, if you are measuring for financial returns when your organization is at this particular juncture, then you are measuring the wrong thing.

Focus should be on meaningful measures that concentrate on exploring the various opportunities in your organization for implementing knowledge management practices, developing your organization's knowledge management strategies, measuring the progress toward organizational awareness, and experimenting with different knowledge management concepts. You should concentrate on developing and selling the concept and then measure against your plan.

Examples of Stage 2 Measures

Simple measures are critical at this stage. Examples of potential measurements include:

Measure for Progress

Measure the progress you make in developing and growing sponsorship and support. How successful are you in gaining senior management's attention, i.e., is anyone listening to you? Measurement here is largely anecdotal with some quantitative measurements such as:

- the number of sponsors you can recruit both as champions and as project sponsors,
- how many times you can get in front of decision makers to make presentations and the responses you receive, and
- how much corporate underwriting and other funding you can get. If all you receive is verbal support and no time or money, your measurement of results should indicate a need to rethink your strategy.

Measure the Gap

As part of your early work in Stages 1 and 2, you should have completed an assessment or knowledge map of your organization to determine what practices you currently have in place and what you are missing. As part of this assessment, you should attempt to identify what, if any, measurements are currently being used. You will at some point need to determine the value of that measurement and whether it can be used going forward. The existing measurement can, at a minimum, provide you with a benchmark for future measurements.

Measure Against a Benchmark

Benchmarking with other organizations can be a persuasive tool and can lead to executive sponsorship. Since most successful KM initiatives are grassroots or organizational (department/division) and not corporate (top-down) in origin, measuring where you are in developing your program against other parts of the company can be useful. How many organizations have KM initiatives under way? What is their funding, staffing, and reporting structure? These types of measures can help you promote your KM program to your management.

If your top managers perceive that enabling knowledge capture and transfer is receiving attention in other organizations, they may be inclined to support you. If your KM activities can be shown to be less advanced than others', management may gain the incentive to provide additional focus and resources. If you are out in front of the other organizations, management may increase support to maintain the perception of leadership, which may also help you develop contacts for tacit knowledge sharing.

A company routinely captures its research intellectual property in the form of formal reports that are stored in the library. The library measures the volume of reports turned in by each department and forwards the numbers to department management, who can then use the numbers to determine the per capita reports being generated and other measurements. The number of reports accessed on an annual basis and specific areas of interest are also measured.

One approach may be to understand what your competitors are doing in leveraging knowledge sharing for their customers and within their organizations. Gaining an understanding of what your suppliers, customers, and peer companies are doing to enable knowledge sharing within their organizations and externally may also be a good idea.

Measure Your Cultural Readiness

It is important at this stage to build the foundation to develop a knowledge-sharing culture. Critical practices that foster employee information exchange, teamwork, collaboration, and trust development can be built upon through crediting the contributors. Look for teams that operate in this manner. Begin to collect the team's social norms and practices and determine if insights can be incorporated into other teams. Document stories to encourage role model behavior.

STAGE 3: DISCOVER AND CONDUCT PILOTS

This stage signals the formal implementation of a knowledge management initiative. The goal of Stage 3 is to provide evidence of knowledge management's business value by conducting pilots and capturing lessons learned that can be transferred and used to help the organization better implement KM on a larger and expanding scale. The framework for communities of practice begins to be formalized at this stage, and funding and support are derived from a mix of central resources as well as the donation of time, people, and money from within organizations that are enthusiastic about enabling knowledge sharing.

Measures Appropriate for Stage 3

There is a convergence at Stage 3 of the three main categories of measurement that exist in the early stages of KM implementation: anecdotal, quantitative, and qualitative. The degree of rigor and refinement becomes more defined and focused on business strategy in Stage 3. The key here is to begin to ensure that direct business value is perceived by the organization as a result of the knowledge-enabling projects. It is important to establish a mechanism to capture

the hard and soft lessons learned in the knowledge management pilots, as these will be the building blocks for the later KM stages.

Having a predefined taxonomy on the classification of lessons learned can be helpful in developing conclusions and identifying areas desirable for replication throughout an organization. In addition, during the acceleration of knowledge management scale-up, establishing measures for the various components of a knowledge management initiative is beneficial. These measures include process dimensions, culture dimensions, content dimensions, information technology dimensions, and people dimensions.

Examples of Stage 3 Measures

Measure the Business Value

Document both the hard and soft business value derived from each pilot. Begin to map measurements to your specific business goals, such as improved clock speed. This does not necessarily need to be rigorous at this point. Extrapolation of anecdotal measurements into more solid quantifiable measurements occurs. Can the pilot results be duplicated in other parts of the organization?

Time saved equals direct labor cost, which is easy to figure. Effort needs to be put into determining the ancillary costs associated with time savings. Some potential areas are resource redistribution, support staff cost reductions, and improved time to market.

Measure the Retention of Knowledge

Measure the amount of information contributed to the knowledge base over time against retrieval and reuse. Quantifiable measurements are not enough; they must be balanced with qualitative data to ensure an accurate, full picture. Unlike in previous stages, the number of hits to a Web site is not good enough. Specific measures and issues to be considered may include the following:

- Time spent per hit. This can reveal if individuals entering the site are actually reviewing its content (indicates quick review and rejection vs. what would constitute an individual actually digesting some content). This would have to be correlated with the number of individuals using it for an extended period of time and repeat users.
- Are the IP addresses those of repeat users? The intent for this measurement is to track repeat customers. Repeat customers indicate two things--either specific information is of repeated use to them or they find value in the additional information continually added to the application.
- How often is a site visited?
- What percentage of total hits represents repeat users? Value can be measured by repeat business.
- What is the threshold for indicating a repeat user is a steady customer? Someone may sample a site several times but will stop visiting if they fail to get the results they seek.

Measure the Cultural Impact

In Stage 3, the issues surrounding the potential for measuring the cultural side of knowledge management need to be addressed. Considerable effort needs to be placed on determining:

- the types of measurements
- the potential value of the measurements
- the cost for measuring vs. the value of measuring
- processes

In selecting measures, consideration should be given to if and how the cultural side (the big side) of KM can be measured in Stage 3.

- Anecdotal stories. How do we measure them? As stated earlier, stories can form the basis for extrapolation of quantitative data. This is not necessarily the only or best means of using anecdotal measurements, but considering the intrinsic value of the anecdote can be important. Can a story or a lesson learned have behavioral impact that cannot be measured directly or in traditional terms?

- Performance review. Another means of measuring cultural impact is through the performance review process. Individuals can be rated by their peers (360-degree feedback) on three major knowledge-sharing points listed below. This can be implemented in Stage 3 because there are formal (if only pilot) applications in place. As part of these applications feedback on the usefulness of the knowledge provided is essential.

1. Do they share their knowledge in an open and constructive way?
2. Do others find their knowledge of value and use it? What results are gained from it? This can also be demonstrated through venting processes for inclusion in databases and use of that information--Xerox Eureka, for example.
3. Do they use others' knowledge and apply it to improve operations? This can be measured somewhat by traditional business measurement tools.

- Public and private recognition and rewards for individuals and teams. Though we advocate team building and sharing of knowledge, incentives for individual contributions are still required. A reward or recognition system properly implemented can provide quantitative measurements.

Measure the Effectiveness of Sharing Communities

Document the effectiveness of communities of practices (CoPs). Based on the findings, determine essential elements that contribute to a coherent and effective CoP. Draw correlations against CoPs that have not been as successful. Extract lessons learned and best practices from these correlations and use them to build new CoPs and improve existing ones.

Measure the Ownership of Capture and Compilation

What are the costs involved in capturing information in a usable manor? This includes not only the capturing but also the indexing. If the information is not retrievable it is of little value. Quantifiable measurement of the time required to capture the information in a usable manner is applicable. This can be critical in evaluating the impact of a pilot project. Is the cost of the capture process too high in comparison to the value of the captured information or knowledge? Consider storytelling as an example. Here are some of the factors to be considered.

- Creating the storytelling environment (either electronic production or live storytelling)
- If live, what is the time commitment of participants (storyteller and audience)?
- If electronic, what are the production costs?
- Are the storage and distribution costs insignificant?
- How much responsibility is there on the individual to capture his information in a usable manor? This includes not only the capturing but also the indexing. If the information is not retrievable, it is of little value.
- Does the measurement of capture and compilation warrant effort?

Measure Project Management Effectiveness and Intended Results

Successful pilots will contribute to building organizational support and future funding. To ensure that projects are managed effectively, it is beneficial to track the projects. Was a formal methodology employed? Was a time line established and progress tracked? Were project objectives and expectations clearly stated and measured? Measure the performance of the pilots themselves against the intended results or hypothesis. Measurements can be quantitative, qualitative, or anecdotal.

Measuring cost in your pilots can provide critical information for determining program direction and strategy. If properly set up, measurements can enable a KM team to rethink its priorities in an efficient and timely manner, allowing for shifting resources to strengthen the potential for success.

Can the capturing of lessons learned from your pilots be used for measurements? The obvious answer is yes.

&3149; An organization can quantify these in two basic ways: number submitted and number referenced.

- A qualitative measurement can be reached through a feedback measurement system such as Eureka's thumbs-up or -down method of capturing the value of a tip to a user. Other measurements can be made using the number of times a lesson was used or through a feedback system allowing the capture of users' comments.

STAGE 4: EXPAND AND SUPPORT

When an organization reaches Stage 4, KM has proved valuable enough to be officially expanded to become part of the organization's funded activities. Demand for KM support by other parts of the organization tends to be high, providing additional evidence of its value. Pilot results are an added benefit.

High visibility and the authority to expand are a mixed blessing; the added visibility of costs and resources devoted to KM will require more formal business evaluation and ROI justification. The good news is that unless unforeseen factors derail the efforts, KM is on its way to being considered a strategic and necessary competency.

Measures Appropriate for Stage 4

Since organizations at Stage 4 are undertaking multiple projects in diverse areas of the business, it becomes necessary to evaluate the fitness of the knowledge areas in relation to the whole organization. Evaluating a knowledge area project might require examining many areas of fitness that, in aggregate, help the organization determine whether the projects in its KM portfolio are of high impact and beneficial to the success of the company.

Project criteria may include:

- Proficiency. Has a process become world-class because of KM, or has it made only mediocre improvement?
- Diffusion. Has KM been properly executed? Is the project and knowledge managed well? Is it well understood?
- Codification. Because codifying knowledge is expensive, should the organization limit that? Is that limitation visible and understood?
- Openness for combination/innovation. Is the knowledge described in jargon that no one understands? Is the knowledge base open to other disciplines? Does the project generate questions to the organization to help it grow?

Justification measures can be difficult when the organization is trying to decide whether to adopt KM as part of the ongoing corporate strategy. The question of measurement must often be restated at this stage. The organization has to not only measure how knowledge area projects perform but also evaluate how it feels the business key indicators are linked to the knowledge areas. This can be easier if the business owner decides what needs to be improved through a project before embarking on it. When the improvements occur, he or she can communicate the causal linkages between where the business started and where it ended up because of the concentration on creating a viable knowledge project.

At this stage, it is important to tap into the values of the organization and determine whether a culture shift is occurring. Personal performance reviews can be a useful avenue to determine whether managers support knowledge sharing and give employees a chance to show their ability to share. Then questions can be asked of employees to determine whether management really does support knowledge sharing. Targeted questions such as "How do you support creation and innovation?" can also help determine employee mind-set.

Although most corporate KM programs have been well-established and "proven" by Stage 4, it is still important to show that KM is working and will work going forward. To estimate ROI, add the costs of a community (including labor, meetings, facilities) and then define how much effort is spent on KM by knowledge management experts. Then decide how much effort has been saved by sharing solutions in the community.

Another way to approach ROI estimation might be by looking at subcommunities and their generation of solutions in terms of community projects. If a group needs a solution and embarks on a knowledge-creation effort, determine how much has been saved in time to market, competitive positioning, etc.

Examples of Stage 4 Measures

To help prove the value of KM in its organization, Siemens is currently making a master plan of KM metrics that contains measures for each of four dimensions of its holistic KM system:

1. Knowledge community: the organization, community, people dimensions
2. Knowledge marketplace: the technology involved
3. Key KM processes: the sharing and creation that takes place
4. Knowledge environment: encompasses the above

Community and Marketplace

Thinking in those terms, Siemens has realized that it can easily evaluate the success of its communities and marketplaces with such measures as:

- how much knowledge comes into or out of the community
- the amount of feedback that comes into and out of the community
- the quality of feedback

Since Siemens believes communities are the heart of the KM system, it has spent a great deal of time on CoP assessments-questionnaires for community members that provide ideas on how to improve the community and what the impact of the community has been on someone's business.

Environment

In addition, a company can measure its knowledge environment through sophisticated methods of value assessment, e.g., measuring the values of employees and business owners to see if they match. To determine the values, an outside firm asks a series of questions to determine at what level of importance various issues register with people. For example, a question might be "Is it more important for you to exchange experiences with friends or to create something new in your environment?"

The results of this effort have led the company to incorporate several new principles into the corporate value system.

KM Processes

Siemens has tried to check the health of processes to determine the performance of the sharing process. Ideally, the measures would evaluate whether a person has managed the process correctly and set the right limits on it. This would give Siemens a good way to not only look at the marketplace but also examine how much sharing and creation is taking place.

As a Whole

To monitor the entire KM system, it is possible to perform a KM maturity assessment that defines whether the process is still ad hoc and chaotic or has progressed to an optimized state. Siemens measures its four dimensions and 16 enablers, each of which has a set of questions. With a diagram showing the maturity for each dimension, an organization can get a feel for its maturity level.

Measures appropriate at Stage 4 are carried out with the future in mind. The value of KM principles has already been proven and companies in this stage are focused on how to embed KM throughout their organizations. Measures are used at this stage not to prove, but rather to improve, the existing projects and add to the corporate-wide strategy.

STAGE 5: INSTITUTIONALIZE KNOWLEDGE MANAGEMENT

In some ways, Stage 5 is the continuation of Stage 4 to its logical conclusion of full enterprise-wide deployment. However, Stage 5 differs from Stage 4 in three fundamental ways:

- It does not happen unless KM is embedded in the business model.
- The organization structure must be realigned.
- Evidence of knowledge management competency becomes part of the formal performance evaluation.

Sharing and using knowledge become part of the organization's "way of doing business" as well as an expected management competency. In the relatively young arena of KM, only a few organizations have reached this stage.

As in Stage 4, Stage 5 measures are not used to prove value. They are used to check progress and monitor the continued evolution of the culture. KM can no longer be called an initiative or project at this stage: Your business relies on it.

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