

An Overview of Methods of Knowledge Management Valuation

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Abstract

Organizations can gain several benefits from implementing a knowledge management strategy. Tactically, they can accomplish some or all of the following: reduce loss of intellectual capital due to people leaving the company; reduce costs by decreasing the number of times the company must repeatedly solve the same problem, and by achieving economies of scale in obtaining information from external providers; reduce redundancy of knowledge-based activities; increase productivity by making knowledge available more quickly and easily; and increase employee satisfaction by enabling greater personal development and empowerment. The best reason of all may be a strategic need to gain a competitive advantage in the marketplace.

In this paper an attempt has been made to measure the value of all such benefits in financial and nonfinancial term. This paper explains the various methods towards valuation of Knowledge Management.

Introduction

For the successful management of knowledge, knowledge needs to be measured. Without valid measurement, it is hard to manage it effectively. However, intangible characteristic of knowledge makes the knowledge measurement a very challenging task. In considering a Knowledge Management (KM) initiative, a corporation's senior management has to answer several basic questions:

- Will Knowledge Management save the corporation money?
- Will it generate extra revenue?
- If so, how long will it take, and what resources will have to be invested?

- What's the downside of a failed initiative?

Knowledge is considered one of the most important assets in the economy. It is the major source of economic growth of the country and Individual Corporation's success. The importance of the knowledge become even more emphasized as industrial economies have entered a new epoch, new economies in the 21st century. Regarding the importance of knowledge, Peter Drucker mentioned in his book, *Managing in a Time of Great Change* that "knowledge has become the key economic resource and the dominant – and perhaps even the only-source of comparative advantage."

Because knowledge is difficult to create and imitate, it can be the source of sustainable competitive advantage. Therefore it has to be nurtured and managed to achieve sustainable competitive advantage. For the effective knowledge management, it is very important to measure the knowledge. Without valid and reliable measurement of knowledge, it becomes very difficult to develop a comprehensive theory of knowledge or knowledge asset. Consequently, no clear progress can be made in the efforts to treat knowledge either as a variable to be researched or asset to be managed.

Discussion

In this paper various type of methods used by different companies are explained. In general, companies take either an *asset-based approach* to knowledge management valuation or one that links knowledge to its applications and business benefits. The former approach starts with the identification of intellectual assets and then focuses management's attention on increasing their value. The second uses variants of a balanced scorecard, where financial measures are balanced against customer, process, and innovation measures. Among the best-developed financial measurement methods in use are the balanced-scorecard approach, Skandia's Navigator, Stern Stewart's economic value added (EVA), M'Pherson's inclusive valuation methodology, the return on management ratio, and Levin's knowledge capital measure.

Traditional measurement tools, such as an ROI calculation, fail to adequately consider many of the positive, qualitative contributions ascribed to Knowledge Management. One reason that ROI measurements fail in evaluating the effect of Knowledge Management on the bottom line is that many of the effects are qualitative and difficult to measure, such as an increase in the number of communities of practice. For example, consider the potential

benefits of a KM program listed in Exhibit 1. The quantitative benefits, such as cost savings, increased stock valuation, and reduced cost of sales can be evaluated objectively, but the qualitative benefits, such as increased customer loyalty, positive cultural change, and employee empowerment, are difficult to assess or apply metrics to, especially in the short term.

We can use a benchmarking approach, e.g., by comparing the pilot program with other R&D departments in similar industries experimenting with Knowledge Management. However, in searching for best practices in other similar firms, the CKO has to run into confidentiality and privacy issues, given the competitiveness of the industry. As a result, the best he can do is compare practices in the R&D department with those in other departments in the corporation.

Exhibit 1

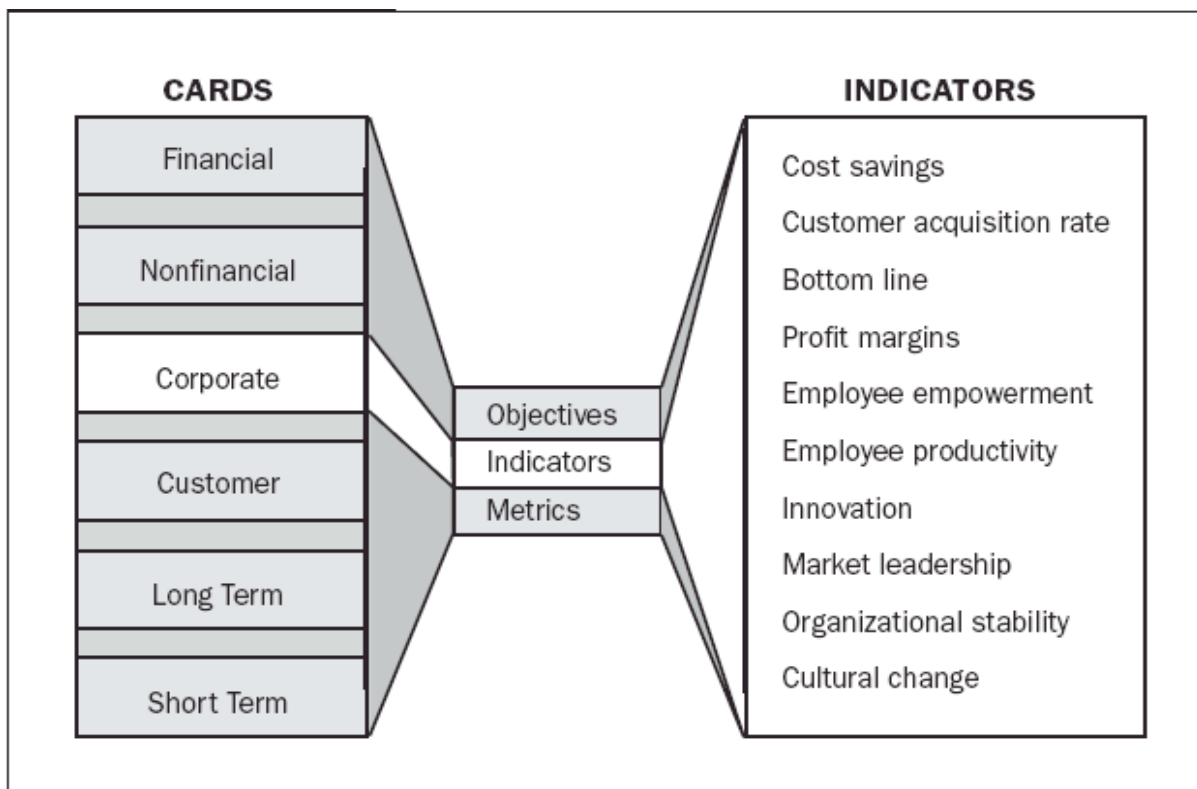
Potential Benefits of Knowledge Management

Quantitative	Qualitative
Cost savings	Better management of ideas
Greater customer acquisition rate	Decreased likelihood employee defection
Improved bottom line	Greater customer loyalty
Improved profit margins	Increased collaboration with customers
Increased corporate valuation	Increased customer satisfaction
Increased customer loyalty behavior	Increased innovation
Increased customer retention	Increased knowledge worker empowerment
Increased market share	Increased knowledge worker productivity
Increased repeat purchases	Increased knowledge worker satisfaction
Increased stock valuation	Increased market leadership
Increased quantity of work	Increased organizational stability
Reduced cost of sales	Increased shareholder satisfaction
Level of service (if measurable)	Increased understanding of customer needs
Increased quality of work or decreased error rate	Positive cultural change
	24x7 accessibility
Increased efficiency	Innovation
	Improved usefulness of knowledge
	Improved accessibility of knowledge

Unsatisfied with the positive but unconvincing results of the benchmarking effort, many CKO decided to use a balanced scorecard technique. As illustrated in Exhibit 2, the technique provides a template for listing the corporation's objectives, indicators, and metrics from financial, nonfinancial, corporate, customer, and long-term and short-term perspectives.

Using the scorecard technique, we can associate each perspective with objectives, indicators, and metrics. For example, from the corporate perspective, choice of indicators of change attributable to the KM initiative include quantitative, objective measures, such as cost savings and profit margins, as well as qualitative, subjective measures, such as innovation, market leadership, and cultural change. Similarly, for each of these indicators, we can assign metrics and corporate objectives. The objectives associated with each item in the scorecard are time-limited and quantified as much as possible. In Custom Gene Factory, the CKO's objectives for cost savings was \$100,000 per year, and the objective for turnover rate is to decrease the current rate by 10 percent.

Exhibit 2.



Another method of measuring the value of knowledge is to estimate its price if it was offered for sale. Most firms are reluctant to sell knowledge, unless they are expressly in the business of doing so. Generally a firm's knowledge is an asset that has competitive value, and if it

leaves the organization, the firm loses its competitive advantage. However, it is possible to price the knowledge and the access to the knowledge in order to make it worth a firm's while to sell it. For example, American Airlines' Decision Technologies Corp. grew from a small internal analysis team in the 1970s. Initially the team was created to solve problems and provide decision support to American Airlines only. As it grew, it became an independent corporation within AMR Corp., and it began to provide consulting and systems to other airlines, including American's competitors. AMR evidently had decided that the revenue it could obtain by selling some knowledge overrode any competitive advantage it would lose by doing so. The major consulting firms are in the business of selling expertise. Their knowledge management efforts, which often began as internal systems, evolved into quite valuable systems that their clients use on a regular basis.

Success indicators with respect to knowledge management are similar to those for assessing the effectiveness of other business-change projects. They include growth in the resources attached to the project, growth in the volume of knowledge content and usage, the likelihood that the project will survive without the support of a particular individual or individuals, and some evidence of financial return either for the knowledge management activity itself or for the entire organization. There are in general two types of measures that can be used to assess the effectiveness of a KM initiative: results-oriented and activity-oriented. The results-oriented measures are financial in nature and might include such things as increase in goods sold. The activities-based measures consider how frequently users are accessing knowledge or contributing to knowledge.

Issues

The experience of many CKOs in rationalizing continued investment in KM highlights several issues:

- A successful KM implementation typically requires a significant investment in people, processes, time, and technology.
- In assessing the value of a KM initiative, traditional ROI calculations and benchmarks are usually inadequate.
- It's difficult to show a return on investment for KM practices in part because of the difficulty in quantifying the contribution of enabling information technologies.

- Short-term measures of the effect of a KM initiative are generally subjective and qualitative; long-term, objective, and quantitative effects may not be measurable for years into the project.
- Techniques such as the balanced scorecard, while imperfect, provide a condensed view of qualitative and quantitative objectives, metrics, and indicators that management can use to establish the value of a KM project to the corporation.

Financial Metrics

Even though traditional accounting measures are incomplete for measuring KM, they are often used as a quick justification for a knowledge management initiative. Returns on investment (ROIs) are reported to range from 20:1 for chemical firms to 4:1 for transportation firms, with an average of 12:1, based on the knowledge management projects assisted on by one consulting firm. In order to measure the impact of knowledge management, experts recommend focusing KM projects on specific business problems that can be easily quantified. When the problems are solved, the value and benefits of the system become apparent and often can be measured.

At Royal Dutch/Shell group, the return on investment was explicitly documented: The company had invested \$6 million in a Knowledge Management System in 1999 and within two years obtained \$235 million in reduced costs and new revenues. Hewlett-Packard offers another example of documented financial returns. Within six months of launching its @HP companywide portal in October 2000, Hewlett-Packard realized a \$50 million return on its initial investment of \$20 million. This was largely due to a reduction in volume of calls to internal call centers and to the new paperless processes. The financial benefit might be perceptual, rather than absolute, but it need not be documented in order for the KM system to be considered a success.

Nonfinancial Metrics

Traditional ways of financial measurement may fall short when measuring the value of a KMS, because *they do not consider intellectual capital an asset*. Therefore there is a need to develop procedures for valuing the *intangible* assets of an organization, as well as to incorporate models of intellectual capital that in some way quantify innovation and the

development and implementation of core competencies. When evaluating intangibles, there are a number of new ways to view capital. In the past, only customer goodwill was valued as an asset. Now the following are also include:

- *External relationship capital*: how an organization links with its partners, suppliers, customers, regulators, and so on
- *Structural capital*: systems and work processes that leverage competitiveness, such as information systems, and so on
- *Human capital*: the individual capabilities, knowledge, skills, and so on, that people have
- *Social capital*: the quality and value of relationships with the larger society
- *Environmental capital*: the value of relationships with the environment

Metrics to Consider: There are several metrics which can be used to measure the effectiveness of knowledge management;

Speed of Response to Customer Needs. The speed at which your organization can achieve closure around the needs of your customers is a relatively simple metric that will begin to orient your people's efforts in the right direction.

Speed of Response to Customer Opportunities. Opportunities are those rare events where the window opens wide. If your organization is prepared to deal with them, it can make major moves forward; if it's not, someone else will.

Speed of Innovation. The percentage of revenue coming from sales of relatively new products will provide a useful index of whether you are opening up new markets or simply mining old ones.

At Buckman Labs, the percentage of revenue coming from sales of products less than five years old, as shown in figure. This metric tracks total company performance on speed of innovation around products. Sales has to define the need by listening to or watching customers, R&D has to create or find the products, Manufacturing has to produce them or arrange for their production, and Sales must complete the circle with the customers on the front line.

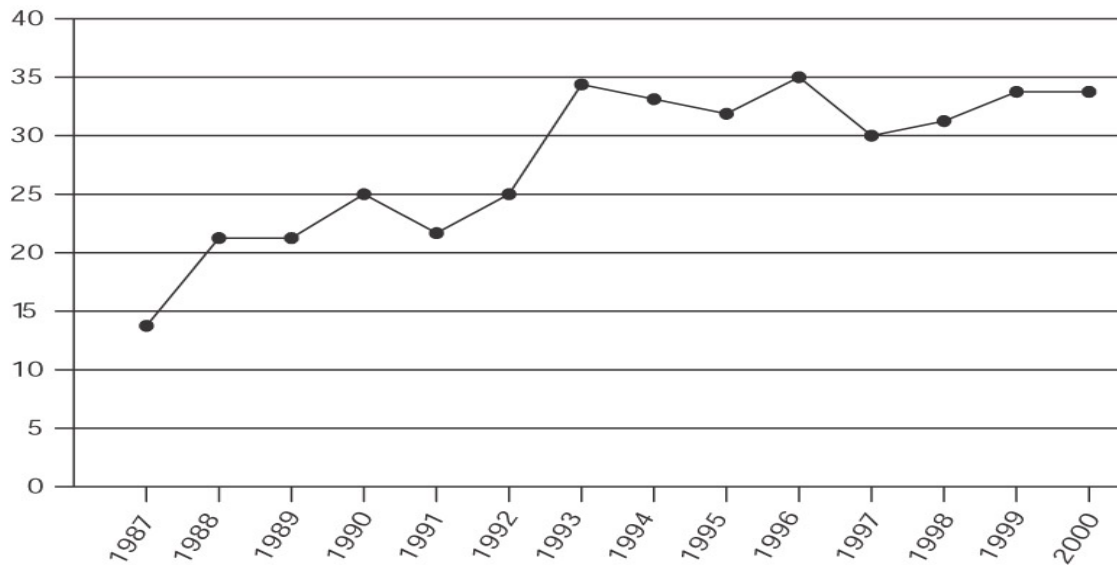


Figure: New product sales as a percentage of total sales

Productivity. Another excellent measure of organizational success is an index of per-person accomplishments. Whether in sales or service or manufacturing, producing more value per unit of time is an essential mark of progress.

Table: Examples of organizational performance metric

Performance	Efficiency	Quality
Corporate Development	No. of strategic alliance And M&A attempts	No. of successful deals
Product/service Innovation	No. of new products or new services developed	No. of successful launches
Technology Management	Turnover rates of new technologies	Market newness, No. of patents and cross licenses
Operations Management	Service provisioning Time	No. of automated processes
Customer Care	No. of processed customer calls	Customer satisfaction index

For example, a knowledge management initiative undertaken by Partners HealthCare System, Inc. has not resulted in quantifiable financial benefits, but has greatly increased the social capital of the company. The knowledge management system for physicians implemented by Partners reduced the number of serious medication errors by 55 percent at some of Boston's most prestigious teaching hospitals. Calculating return on investment for such a system turns out to be an extremely difficult proposition, which is why only a small fraction of hospitals use similar systems. While the company is unable to determine how the system affects its bottom line, it is willing to justify the costs based on the system's benefits to the society.

Conclusion

For the successful management of knowledge, knowledge has to be measured. However, it is not clear whether we can properly measure the knowledge which either proper measurement may not exist or can't be measured. To address this issue, we assessed how much the knowledge contributes to the business performance, rather than trying to measure the value of knowledge directly. There are a number of ways to measure the value of intellectual assets and of providing them to the organization but it is difficult to measure the success of a KMS as traditional methods of financial measurement fall short, as they do not consider intellectual capital an asset. Nonfinancial metrics are typically used to measure the success of a KM, yet some firms have been able to determine financial payoffs.

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