

Assessing the Business Value of Knowledge Retention Projects: Results of Four Case Studies

Denise J. McManus
Larry T. Wilson
Charles A. Snyder

Exxon-Calloway Faculty Fellow
Calloway School of Business and Accountancy
Wake Forest University
Email: mcmanusd@wfu.edu

Knowledge Harvesting, Inc.
Email: larry.wilson@ieee.org

Woodruff Professor
Auburn University
Email: snyder@business.auburn.edu

Abstract

Although the business value of Knowledge Management continues to be debated, it is evident that organizations need to manage their valuable corporate knowledge from a practical standpoint. Many researchers and practitioners agree that Knowledge Management (KM) must be defined in terms of business objectives. Organizational resistance to KM efforts is attributed to the lack of evidence that KM implementations are effective and can be measured, resulting in a positive impact to the bottom-line. The difficult question, however, remains of how to measure this valuable resource. Case studies are reported to show how one firm determined bottom-line value.

Keywords

Business Value Knowledge Harvesting
Competitive Advantage Knowledge Retention
Intellectual Assets Return on Investment
Knowledge Management

1. INTRODUCTION

A manager's major concern should be centered on managing the knowledge required to perform the organization's critical processes and tasks, while attempting to facilitate improvement and change. Organizations, recognizing this need, are now striving to establish knowledge management measurement systems to reveal the impact of KM in the dynamic business environment. The lack of effective management of knowledge could be because most organizations are still struggling to comprehend the KM concept (Holsapple & Joshi, 2002); therefore, managers must analyze and understand the workflow and business process of the organization to effectively manage the intellectual assets of the company, (Bixler, 2002).

2. KNOWLEDGE MANAGEMENT

"Knowledge Management (KM) is the discipline that focuses on capturing, organizing, filtering, sharing, and retaining key corporate knowledge as an asset" (McManus & Snyder, 2003, p.89); while "managing the leadership, organization, technology and learning aspects of internal and external intellectual assets through retention and collaborative sharing of knowledge for the purpose of improving performance and inspiring innovation throughout an enterprise" (Bixler, 2002, p. 18). KM is a practice that finds valuable information and transforms it into necessary knowledge critical to decision-making and action by integrating techniques from the fields of organizational learning, performance management, and quality management (Kirrane, 1999). Further, when performing KM, the techniques from expert systems (knowledge engineer), software development (programming, interface design, etc.) and telecommunications for distribution or sharing need to be incorporated; thus, KM projects are based upon cross-disciplinary requirements. The relationship between managing organizational improvement and conducting retention projects can be achieved by applying the

knowledge harvesting process, as illustrated in Figure 1. Knowledge Harvesting¹ is a mature methodology for rapidly converting top-performer expertise into knowledge assets that improve the organization's performance. User organizations are protected from knowledge degradation resulting from personnel losses, employee defections, and unavailability of needed experts at the right time and place. These knowledge assets also contribute to corporate competitiveness, profitability and valuation. The examples cited in this research are knowledge retention projects, which employed Knowledge Harvesting as the approach for eliciting and organizing vital know-how.

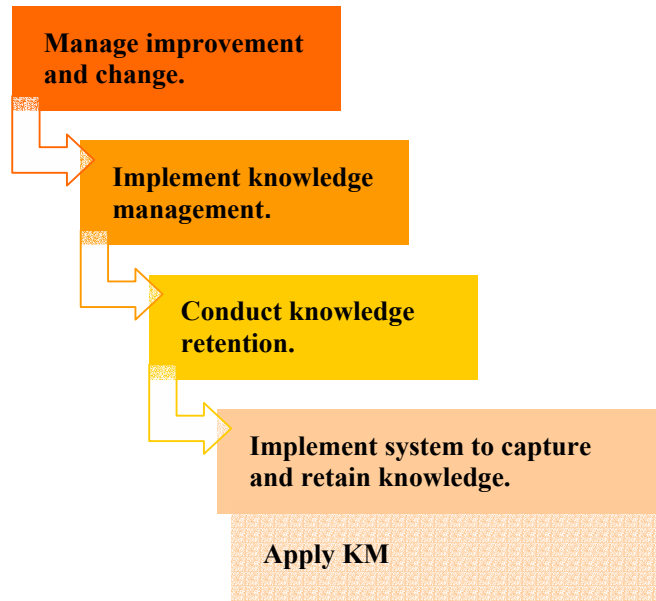


Figure 1: Knowledge Harvesting Process

The KH framework, as illustrated in Figure 2, can assist managers in their efforts to harvest and preserve essential knowledge surrounding the organization's key processes. The first step, Focus, is to determine the existing explicit knowledge and implicit (tacit) knowledge that is needed for the focal process. The second step consists of finding top performing people and their critical activities. Once identified, an understanding of these activities will be elicited from the key individuals. The knowledge must be arranged in an organized coherent or systematic form. The determination of how to properly package the knowledge so that it can be available when and where needed is a necessity. Sharing allows for the distribution of captured knowledge throughout the organization to individuals or groups that may require this relevant information. The purpose of a KM system is to allow people other than the key players to use or apply the same decisions rules; thus, employees can seek assistance from the database of knowledge that has been gained and stored from the experts of the organization. Evaluation must be performed in order to determine the effectiveness of the applications. The KM system must incorporate the ability to adapt to new knowledge so that it can be refreshed. The purpose of this research is to extend the first step of the KM process, with a priority on developing an effective measurement strategy for knowledge retention projects, as illustrated in Figure 3.

3. KNOWLEDGE RETENTION PROJECTS

A well-defined KM process should provide a foundation for the organization to understand its knowledge resources and activities, resulting in a defined method of organizational measurement. As illustrated in Figure 3, the knowledge harvesting process, project plans should be aggregated into three-month groups and should always be determined prior to measuring return on investment (ROI). The project plan will have a milestone schedule, project-costing information, and responsibility lists. It is our contention that the project plan is prepared prior to knowledge harvesting and specifies the measures required to report ROI.

¹ Knowledge Harvesting is a registered trademark of Knowledge Harvesting Inc.

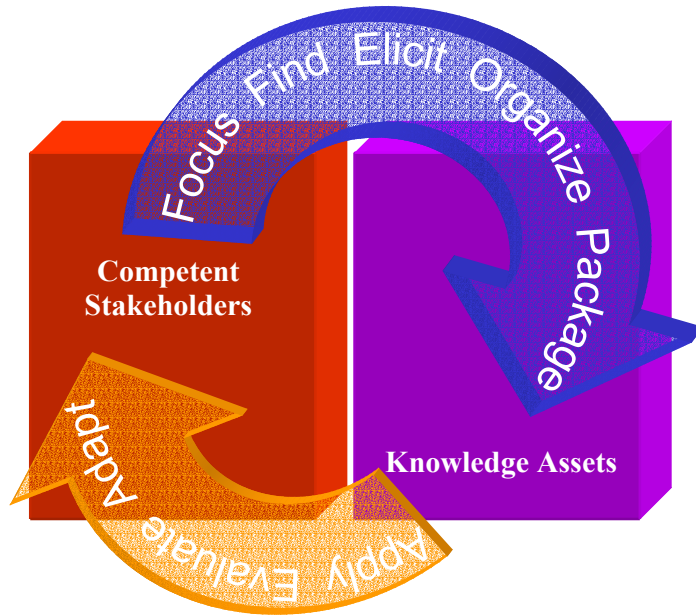


Figure 2 – Knowledge Harvesting Framework

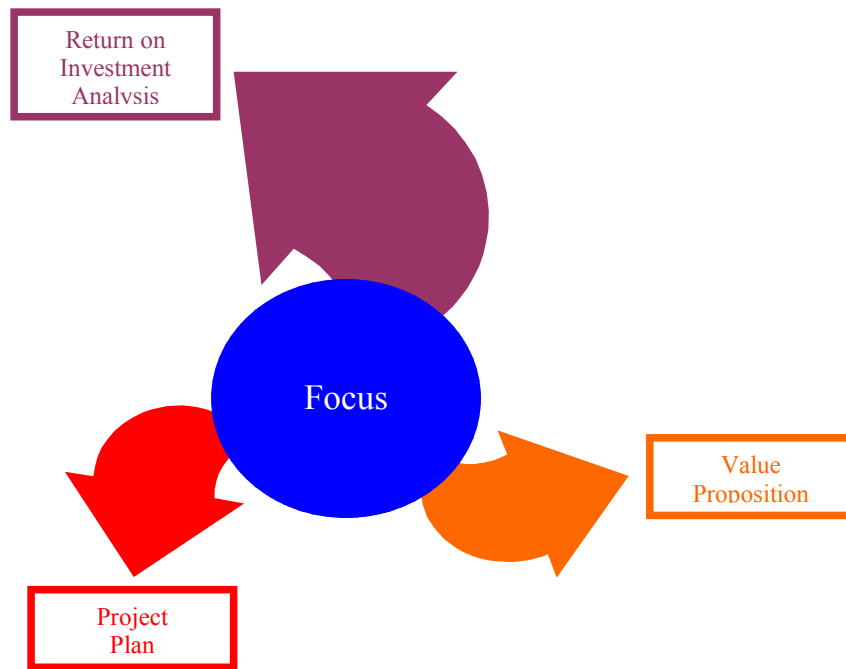


Figure 3 – Knowledge Retention Projects Documentation

“Discussing the usefulness of a project plan is a first step in managing free-wheeling employees and a project plan is an investment of time and money. If a manager decides to use a plan, reviewing the project variables will help provide ideas on the best project plan mechanics to use to control the project.” (Rosenwinkel, 1995).

In determining the best methodology for assessing the value of KM, managers must consider measurable process improvement, cost savings, business enablement, and risk reduction. We focus on measures of process performance as the best place to demonstrate the efficacy of KM.

A knowledge project should focus on a specific business problem that can be quantified, in terms of what the problem costs the company. The measurement for value is the most important thing. A knowledge management strategy based off of a fact-based business case that shows it will create value for the organization is vital, (MacSweeney, 2002, p. 44).

Measurement techniques should be applied to develop a method for generating a class of information that will be useful in a wide variety of problems and situations (Zairi, 1994). Some firms attempt to measure KM by estimating the value of the tangible assets, such as software or trained employees. Traditional financial methods, such as economic value added, total cost of ownership or balanced scorecard may be very effective with measuring tangible assets, but not intangible assets. Therefore, a methodology to measure the impact of elicited tacit knowledge must be determined; specifically, the returns on investment for knowledge retention projects.

4. KNOWLEDGE RETENTION PROJECTS - CASE EXAMPLES

Since measuring knowledge is vital to organizations, it becomes a tool that can be utilized to evaluate, control, and improve existing systems. “Organizational culture is increasingly recognized as a major barrier to leveraging intellectual assets. Knowledge ultimately assumes value when it affects decision making and is translated into action” (DeLong, 2000, p. 126). It is important that everyone involved define the project plan, the value proposition and the ROI in the same way, while understanding the limits of the concept when used to support business decisions. The knowledge harvesting process can significantly reduce time and result in improved performance. Real-world cases, from an international forest products company, are presented to illustrate the application approach of four knowledge retention projects.

4.1 Credit Management Case

In 1999, the forest products company experienced the loss of a senior manager (expert) in the area of delinquency and bad debt management. Due to a serious illness, the manager notified the company that he would be seeking medical treatment and would be leaving in two weeks. The company realized immediately that they had a critical need to capture the expertise of the manager; thus, a project plan was developed to capture the expertise of the senior manager. Two knowledge harvesters gathered information on the financial collection process over a six-week period, including follow-up interviews with the expert after his departure. During the knowledge harvesting process, the knowledge harvesters discovered that the loss of this valuable employee had the potential to negatively impact the efficiency and effectiveness of the department, which is indicative of risk. A knowledge retention risk mitigation orientation project is defined as the gradual depletion or complete loss of valuable knowledge that is essential to the success of the organization. The primary purpose of this orientation is to sustain the current level of productivity and mitigate any risks associated with employee migration.

The business result of harvesting the expert’s knowledge was a single source for understanding how to manage delinquent accounts and how to respond to bad debt events, e.g., bankruptcy, collections, etc. The final deliverable was an interactive tool that was developed to capture and disseminate the key decisions relating to the management and response to delinquent/bad debt events. The estimated cost of developing the project was approximately \$33,000, with a recognized benefit of \$150,000; i.e., the value of the project. The immediate benefits to the company included not only improved productivity gains due to bad debt management practices being deployed, but also the ability to move forward without replacing the senior manager. The total estimated benefit over a three-year timeframe is approximately \$450,000, with a net present value of approximately \$334,000. Therefore, the return on investment of this project was approximately 10:1. The company considered this project a success and made the decision to harvest the knowledge of other experts on other projects, as illustrated in the next three cases.

4.2 Call Center Case

Database Systems Services was challenged with maintaining and supporting an increasingly critical Call Center Management tool with only one technical expert. The company realized that they were experiencing a decreasing capacity to grow the Call Center, with a potential result of losing all ability to manage the existing volume. To address this issue, the stakeholders needed to a project plan that included capturing the expertise of the technical expert supporting the system. The business result of harvesting the expert's knowledge provided a single source for running the call center management tool called eGain. The primary characteristic of this project to enhance operational efficiency and diminish cost per transaction indicated that it was an efficiency orientation scenario. A knowledge retention efficiency-oriented project is one that yields the same amount of work with less cost and less time. The purpose of this project is to enhance operational efficiency and diminish the cost per transaction while moving work from a high-cost group to a low-cost group.

The deliverable captured the expertise from the technical expert and developed an interactive tool around the key decisions relating to the call center, eGain. The estimated cost of developing the project was approximately \$12,000 with a recognized benefit of \$41,000. The total estimated benefit over a three-year timeframe is approximately \$124,000, with a net present value of approximately \$89,000. Therefore, the return on investment of this project was reported as approximately 6:1. The efficiency gains from this project would include transferring 60% of the work from a high-cost employee to a lower-cost employee.

4.3 Data Reference Library Case

The company was challenged with maintaining and supporting an increasingly critical portfolio management tool with two technical experts. At best they would be faced with a decreasing capacity to add critically needed functionality to a growing information technology management tool. At worst, they could lose all ability to maintain the system as it stands today. Therefore, they had a critical need to capture the expertise of the Senior Systems Analyst supporting the system. The knowledge harvesting process indicated that this case was an efficiency orientation scenario. The business result of harvesting the expert's knowledge provided a single source for troubleshooting the IT portfolio management tool called Focus.

The deliverable captured the expertise from the Senior Systems Analyst and developed an interactive tool around the key decisions relating to troubleshooting the Focus tool. The estimated cost of developing the project was approximately \$13,000 with a recognized benefit of \$69,000. The total estimated benefit over a three-year timeframe is approximately \$207,000, with a net present value of approximately \$156,000. Therefore, the return on investment of this project was reported at a greater than expected ratio of 10:1. Since the expert quickly adapted to the harvesting process, it took less time for the harvester to capture his valuable information; hence, reducing the time and cost required for the harvesting process.

4.4 Troubleshooting Case

Currently, one of the manufacturing plants spends a substantial amount of time training shop personnel how to troubleshoot their Thermoforming process. Troubleshooting expertise is distributed among a few process experts with no single view of the process available. The plant is interested in developing an expert system not only to solve problems with the thermoforming process, but also to be leveraged across other Thermoforming process facilities. The knowledge harvesting process indicates that this case is a productivity orientation scenario. A knowledge retention productivity-orientation project is one in which the same amount of effort yields more work results. The purpose of this type of project is to improve the overall productivity and facilitate knowledge transfer in order to extend the abilities of others. The expected business result of harvesting the expert's knowledge will provide a single source of troubleshooting expertise for the Thermoforming process.

The short-term deliverable was an initial evaluation of the process to determine feasibility, scope, and broad requirements for an initial project to capture select Thermoforming expertise and distribute the expertise using eGain as the engine. The expected long-term deliverable is to engage a project to capture expertise, train individuals at the facility to "harvest" knowledge, deploy the expertise to the production floor, evaluate/enhance the effectiveness, and establish a plan to continually renew/refresh expertise. The estimated cost of developing the project is approximately \$64,000, with a recognized benefit of \$200,000. The total estimated benefit over a three-year timeframe is approximately \$1 million, with a net present value of approximately \$734,000. Therefore, the expected return on investment of this project was reported as approximately 10:1. If this prototype proves to be successful, the company will implement this process across four additional plants.

In the credit management case, the firm was forewarned of the imminent departure of one of its key individuals. The firm recognized the importance of capturing his intimate knowledge of a critical process and proceeded to work through the parts of the knowledge harvesting process. The success of the credit management project set the precedence to capture more valuable knowledge as illustrated in the other three cases. This type of procedure allows firms to build survival capabilities for the potential loss of knowledge, while measuring the return on investment of the project.

5.0 FUTURE RESEARCH AND LIMITATIONS

While this study used “real-world” case studies, it is limited to one company’s perspective; however, the proposed methodology was developed based upon the experience of two knowledge-harvesting experts. Therefore, the study appears to provide evidence that could be used for generalization of the findings. Currently, other companies are adopting this methodology, which will be reported in future research. This future research should provide a solid foundation for comparing and contrasting different types of projects with differing ROI impacts across organizations and industries.

In addition, an important research area that needs further investigation is an established pre-measurement baseline, intervention, post-measurement methodology from the organizational behavioural literature. This methodology coupled with the ROI orientation methodology should provide companies with clear feedback concerning the success of their knowledge retention projects (McManus, Wilson, Fredericksen, & Snyder, 2003).

6.0 CONCLUSION, DISCUSSION AND IMPLICATIONS

Our primary objective with this paper was to present a methodology to assist organizations in determining the business value of knowledge retention projects, by focusing their efforts on the problem of measuring productivity of knowledge workers. Efforts to determine ROI impact in the four cases cited show clear, positive, bottom-line results. Some benefits of the experience are a need for determination of orientation of each project in order to develop an accurate measure of knowledge retention projects impact. The four cases indicate that at least in one firm knowledge management (or knowledge retention) projects can have real return on investment impacts for the organization. Further, reporting of such projects may be required before knowledge management implementations can be viewed as truly valuable organizational efforts.

7.0 REFERENCES

- Bixler, C. (2002) “Knowledge Management and the Learning Organization Converge,” *KMWorld* (11:4), 21-22.
- Bixler, C. (2002) “KM: A Source of Practical Solutions to Emerging Government Needs,” *KMWorld* (11:8), 18-19.
- Davenport, T. and Prusak, L. (1998) *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press.
- Holsapple, C.W. and Joshi, K.D. (2002) “Knowledge Management: A Three-Fold Framework,” *The Information Society*.
- Kirrane, Diane. (1999) “Getting Wise to Knowledge Management,” *Association Management* (51:8), 31-39.
- MacSweeney, G. (2002). “The knowledge management payback,” *Insurance & Technology* (27:7), 41-44.
- McManus, D.J. & Snyder, C.A. (2003) “Synergy Between Data Warehousing and Knowledge Management: Three Industries Reviewed,” *International Journal of Information Technology and Management* (2:1/2), 85-99.
- McManus, D.J. & Snyder, C.A. (2003) “Organization Value of Knowledge Management”, *Information Resources Management Association International Conference Proceedings*, May.
- McManus, D. J., Wilson, L.T., Fredericksen, D. K., and Snyder, C.A. (2003) “Knowledge Management: Return on Investment.” (In Review).

Rosenwinkel, J.(1995) "Project plans in the new world," *Journal of Systems Management* (46:2), 34-39.

Snyder, C. A., Wilson, L.T., & McManus, D.J. (2000) "Corporate memory management: A knowledge management process model," *International Journal of Technology Management*, Spring.

Snyder, C.A., & Wilson, L.T. (1998). "The process of knowledge harvesting: The key to knowledge management," *Business Information Management: Adaptive Futures*, 8th Annual BIT Conference, 43.

Zairi, M. (1994) *Measuring Performance for Business Results*, Chapman & Hall, London.

8.0 COPYRIGHT

McManus, Wilson, and Snyder © 2003. The authors grant a non-exclusive licence to publish this document in full in the DSS2004 Conference Proceedings. This document may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. The authors assign to educational institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. Any other usage is prohibited without the express permission of the authors.