THE SEARCH FOR KNOWLEDGE MANAGEMENT SUCCESS

How do we know when a knowledge management (KM) project or initiative is successful? Jennex, Smolnik, and Croasdell (2007, 2009) explored KM success and proposed that KM success is getting the right knowledge to the right people at the right time and is measured in four dimensions: impact on business processes, impact on knowledge management strategy, leadership/management support, and knowledge content. This chapter continues the previous studies by reporting on a further study that used a proposed set of measures and a survey to see if these measures were observed in a specific knowledge management project or initiative. The results of these studies are a definition of KM success and a set of measures that shows KM practitioners and researcher where to look for KM success.

Knowledge is a new currency used by an organization’s knowledge workers to achieve goals or produce an economic benefit. Knowledge systems and knowledge management (KM) initiatives support knowledge workers in the performance of their jobs. An organization’s ability to access its corporate knowledge stores (organizational memory) and to make that knowledge actionable (organizational learning) potentially improves its competitive stature/position in global business environments (Davenport, DeLong, and Beers, 1998). Organizational strategy is necessary, but not sufficient, for implementing knowledge-based initiatives that will support and enable knowledge workers while also enhancing organizational performance, effectiveness, and competitive position (Jennex and Olfman, 2002, 2006). Knowledge systems should consider success factors, effectiveness metrics, and key performance indicators to assess the systems’ success and usefulness.

Given the prevalence of knowledge work and knowledge workers in global business environments, it becomes increasingly important to assess knowledge management systems and initiatives (Jennex and Olfman, 2002). Earlier work by Jennex, Smolnik, and Croasdell (2007, 2009) sought to define knowledge management success along with appropriate measures for assessing and measuring KM success. This work resulted in the definition:

“KM success is a multidimensional concept. It is defined by capturing the right knowledge, getting the right knowledge to the right user, and using this knowledge to improve organizational and/or individual performance. KM success is measured by means of the dimensions: impact on business processes, impact on KM strategy, leadership/management support, and knowledge content.”

This chapter presents research that validates the above success dimensions and examines metrics for assessing these dimensions. The research hypothesis is that KM projects/initiatives that are perceived to be successful will use more measures of success from each of the above dimensions. The converse
is also expected; those KM projects/initiatives perceived to be less successful or not successful will use significantly fewer measures that may not be from all of the above dimensions.

The contribution of this research is a validated knowledge management success model and a set of metrics that should be used by organizations for determining the success of their knowledge management projects and initiatives.

BACKGROUND

Knowledge is information combined with experience, context, interpretation, and reflection (Davenport, DeLong, and Beers, 1998). Knowledge management (KM) has been defined as the process of selectively applying knowledge from previous experiences of decision-making to current and future decision-making activities with the express purpose of improving organizational effectiveness (Jennex and Olfman, 2006). The goals for KM are to identify critical organizational knowledge assets, acquire those assets in an accessible repository, establish mechanisms for sharing the assets among organizational workers, apply the appropriate knowledge to specific decision domains, determine the effectiveness of knowledge application, and adjust knowledge artifacts to improve their effectiveness (Jennex and Olfman, 2006). Knowledge management systems (KMS) are IT-based systems designed to manage organizational knowledge by supporting and enhancing the creation, storage, retrieval, transfer, and application of knowledge (Alavi and Leidner, 2001). KMS support KM through the creation and enhancement of network based corporate memories and support for project teams.

Measuring the success of KM initiatives provides a basis for company valuations, stimulates management focus on what’s important, justifies investments in KM activities, and helps managers understand how KMS should be designed and implemented (Jennex and Olfman, 2006; Turban and Aronson, 2001). However, metrics for assessing KM success are not well understood or agreed on (Jennex and Olfman, 2005). Defining and demonstrating effective KM success metrics helps establish constructs and variables, and assists those who manage and perform knowledge work to understand how KM initiative should be designed and implemented. Such metrics identify critical success factors (CSFs) for designing and integrating knowledge into organizational processes (Alazami and Zairi, 2003; Conley and Zheng, 2009; Wong, 2005). They also help establish key performance indicators (KPIs) for assessing the outcomes associated with knowledge-based projects (Marr, Schiuma, and Neely, 2004).

LITERATURE REVIEW

The relative success of an organization can be explored in many ways. Historically, organizations have gauged success using some measure of financial performance such as profit, cash flow, or Return on Invest (ROI). However, financial reports are insufficient, because they do not necessarily reflect process performance, and project outcomes are more micro-levels in an organization. Assessing success is also seen as an organization’s ability to identify and track progress against business objectives, to identify opportunities for improvement, and to create benchmarks against internal and external standards (see, for example, (Palte, Hertlein, Smolnik, and Riempp, 2011)). Measurement plays a key role in quality and productivity improvement activities. Assessing performance and relative success within the organization is also an important step in developing a strategic business plan.
From a knowledge perspective, success can be considered via an organization’s ability to effectively utilize knowledge assets to affect performance and improve overall efficiency and effectiveness (Bose, 2004; Jennex, Smolnik, and Croasdell, 2007). Davenport et al. identify four objectives for knowledge-based projects: create knowledge repositories, improve knowledge access, enhance knowledge environments, and manage knowledge as an asset (Davenport, DeLong, and Beers, 1998). An organization’s ability to identify and leverage knowledge assets can support overall organizational success (O’Dell and Grayson, 1998). The benefits of successful KM include greater collaboration among workers, operational efficiencies, better decision making, and reduced risk (Jennex and Olfman, 2002). Project performance can be improved by using KM as a tool to capture and disseminate knowledge, thereby facilitating learning among team members and enabling action (Jennex and Weiss, 2002).

Establishing a KM strategy is essential for achieving KM success (Jennex and Olfman, 2002). Developing strategies leads to improved processes and procedures, better application of knowledge across functional areas, and greater overall effectiveness. The lack of strategy leads to failure in realizing the benefits of knowledge assets with the organization.

The following sections discuss dimensions of KM success, critical success factors in designing and implementing KMS, and key performance indicators to assess outcomes associated with the effectiveness and success of knowledge initiatives in organizations.

**Dimensions of KM Success**

KM projects are successful when there is a growth in resources attached to the project, a growth in knowledge content, a likelihood that a project would survive without the support of a particular individual or two, and some evidence of financial return (Davenport, DeLong, and Beers, 1998). Some common types of success in KM projects involve operational improvements for a particular process or function. Factors that lead to success for KM related projects include flexible knowledge structures, knowledge-friendly culture, clear purpose and language, and multiple channels for knowledge transfer (Davenport, DeLong, and Beers, 1998).

Jennex et al. modified DeLone and McLean’s IS Success Model to reflect dimensions of success for knowledge systems (Jennex, Olfman, Panthawi, and Park, 1998). Their model uses knowledge quality, information quality, and service quality as functional drivers for the use and impact of knowledge-based systems. Knowledge quality refers to the usefulness of knowledge artifacts in terms of their correctness and inclusion of contextual meaning. System quality refers to how well KMSs perform with regard to knowledge creation, storage, retrieval, and application. Service quality is a measurement of support for the systems in use. Performance impact is judged by the ability of these constructs to affect use of the systems and overall user satisfaction. Knowledge benefits are derived from the quality of the knowledge in the system and service dimensions associated with the system. Benefits are also a result of increased use and user satisfaction.

**KM Critical Success Factors**

Critical success factors (CSFs) are areas in which satisfactory results ensure successful competitive performance. They are the minimum key factors that an organization must have or do in order to achieve some goal (Alazami and Zairi, 2003). CSFs represent managerial areas that must be given special attention in order to achieve high performance.
Jennex and Olfman summarized CSFs as they related to knowledge systems (Jennex and Olfman, 2005). These factors include a strong technical infrastructure, automated and transparent knowledge capture mechanisms, an integrated enterprise wide system, management support, appropriate maintenance resources, appropriate training, a strong KM strategy, security mechanisms, models for knowledge intensive business processes, and incentives to use organizational knowledge systems. While these factors identify what is needed for successful KM, they do not establish measures for the success.

**KM Key Performance Indicators**

KM performance can be examined in terms of processes and outcomes. Process measures reflect improvements in process efficiencies, integration of decision artifacts in knowledge intensive business processes, and positive outcomes. In particular, process outcomes can be assessed in terms of productivity, satisfaction, and increases in knowledge sharing (Jennex, Smolnik, and Croasdell, 2009).

Key performance indicators (KPIs) are financial and non-financial metrics used to quantify objectives and reflect strategic performance. KPIs are often used to apply “value” to difficult to measure activities (Stanfield and Mullen, 2008). KPIs can used in KM to assess such things as: 1) the overall KM effort in the organization; 2) the success of KM activities such as knowledge sharing and the number of knowledge assets created; and 3) the effectiveness of KMS and KM tools for finding, accessing, and using KM artifacts (Stanfield and Mullen, 2008; Orth, Smolnik, and Jennex, 2009).

In order to be useful to the organization, KPIs must be aligned with corporate strategy and objectives (Scope Consulting, 2010). This is consistent with recommendations made by Jennex and Olfman in their analysis of CSFs for effective KM efforts (2005). KPIs should be both predictive (i.e., measure value as an indicator of business performance) and actionable. Monitoring KPIs should trigger action and positive change (Scope Consulting, 2010).

**PRIOR RESEARCH ACTIVITY**

The original inspiration for this research endeavor was the question of what determines when KM is successful. KM and KMS success are issues needing to be explored as identified during the KM Foundations workshop held at the Hawaii International Conference on System Sciences (HICSS-39) in January 2006. This workshop focused on trying to reach consensus definitions on basic issues in KM. KM success was discussed, and while a definition could not be agreed upon, consensus was reached that it was important for the credibility of the KM discipline that it be able to define KM success. This was a one-day workshop attended by approximately 35 KM researchers and chaired by two of the contributors of this book. Additionally, from the perspective of KM academics and practitioners, identifying the factors, constructs, and variables that define KM success is crucial to understanding how these initiatives and systems should be designed and implemented.

Motivated by the workshop’s results, a first survey was applied to look at how KM practitioners, researchers, KM students, and others interested in KM view what constitutes KM success (Jennex, Smolnik, and Croasdell, 2007). A series of perspectives on KM success, which were derived by analyzing responses by workshop attendees on how they defined KM success, were discussed. These perspectives were then turned into the survey that was used to gather opinions on what defined KM success. A second survey was subsequently used to refine these findings into a preliminary KM success definition.
Eventually, building on the two surveys’ data as well as on the analysis of the respondents’ comments, a refined KM success definition, as well as a list of KM success dimensions and measures, were found (Jennex, Smolnik, and Croasdell, 2009). The base definition of KM success is as follows:

“KM success is a multidimensional concept. It is defined by capturing the right knowledge, getting the right knowledge to the right user, and using this knowledge to improve organizational and/or individual performance. KM success is measured by means of the dimensions: impact on business processes, impact on strategy, leadership, and knowledge content.”

**METHODOLOGY**

The basic methodology is the use of a Likert-based survey to assess perceptions of success and observed results. The basic research model is shown in Figure 1. This figure illustrates the approach of having respondents use perceptions of a specific KM project/initiative to respond to items operationalizing the previously discussed dimensions of KM success.

**Survey Generation**

The survey was initially generated using the previously cited literature to generate a list of items representative of each dimension. Additional questions related to the primary function of the respondent (KM practitioner, KM manager, KM user, academic, KM researcher, and KM student), the experience level of the respondent (0-2 years, 3-5 years, 6-10 years, or over 10 years), and if the KM project/initiative being referred to was successful or not (7-point Likert scale).

The measures used to operationalize the dimensions were validated via an expert panel. Fifteen experts were given the items and asked to identify the dimension each belonged to and if more items were needed. Results of the expert panel were used to adjust the wording and placement of the items, and to clarify what each dimension meant. The final measures were:

*Figure 1. Research model*
Impact on Business Processes:

1. My last KM project improved the efficiency of the supported processes
2. My last KM project reduced costs for the supported business process
3. My last KM project had a positive return on investment for the supported processes
4. My last KM project improved the effectiveness of the supported processes.
5. My last KM project improved decision making in the supported processes
6. My last KM project improved resource allocation in the supported process

Impact on KM Strategy:

1. My last KM project resulted in changes to my organization’s KM goals
2. My last KM project resulted in the creation or modification of knowledge related key performance indicators
3. My last KM project resulted in changes to the way my organization assessed knowledge use in the organization
4. My last KM project resulted in changes in my organization’s incentives for using and sharing knowledge
5. My last KM projected resulted in my organization increasing its awareness/mapping of knowledge sources and users
6. My last KM projected resulted in increased resources for our KM systems and repositories
7. My last KM project resulted in the creation of new or additional knowledge capture processes

Leadership/Management Support:

1. My last KM project resulted in increased verbal/political support for KM by top management
2. My last KM project resulted in increased financial support for KM by top management
3. My last KM project resulted in increased awareness of KM by top management
4. My last KM project resulted in increased use/reliance on KM by top management

Knowledge Content:

1. My last KM project resulted in increased knowledge content in our repositories
2. My last KM project improved knowledge content quality of our repositories
3. My last KM project resulted in my increased use or intention to use of knowledge content
4. My last KM project resulted in others increased use or intention to use of knowledge content
5. My last KM project resulted in my increased identification of needed knowledge content and knowledge content sources
6. My last KM project resulted in others increased identification of needed knowledge content and knowledge content sources
7. My last KM project resulted in my increased demand and/or searching for knowledge content
8. My last KM project resulted in others increased demand and/or searching for knowledge content

Survey Distribution and Collection

Survey Monkey was used to post the survey and collect responses. Requests to respond to the survey (with the survey link) were posted on AISWorld list server, three KM practitioner list servers, and through individual invitations sent to KM researchers and practitioners known by the authors. Surveys were collected over a two month period with two reminders posted to the above list servers (responses were still being collected at the time of submission in an attempt to get a larger response base). A total of
144 surveys were collected, of which, 88 were usable. The large number of rejected surveys is based on many potential respondents starting the survey but realizing that they were not familiar with a specific KM project/initiative and that general opinions were not being requested. This was determined based on comments included in the responses and through list server postings to the authors.

Responses were not discarded if they were not complete. Responses that were substantially complete were used. No values were input for missing data as it is not known why the respondents did not complete the survey, although it is assumed it is because they did not know about that item.

**Data Analysis**

The 88 responses were divided into two analysis groups. Those respondents who responded agree (6) or strongly agree (7) that their last KM project/initiative was considered successful (57 responses) were placed in the successful group, while all other respondents (31 responses) were placed in the unsuccessful group. Respondents who responded slightly agree (5) to the success of their last KM project/initiative were placed in the unsuccessful group to help make the groups more equal in number and because it was felt that those who responded slightly agree may be biased against reporting their project/initiative as a failure.

The focus of this preface is to validate dimensions and to see if there are behaviors that are done more so by successful projects/initiatives than by those that are not. For this reason, a factor analysis on the item responses was not performed but is left as future research (a further reason was the desire to collect more response before this analysis is performed). Dimensions were analyzed using three methods: method 1 used the highest score for the associated items; method 2 used the average of the scores for the associated items; and method 3 used the total number of associated items met with an item score of 6 or 7 being needed to consider the item met. Scores were further analyzed to determine if the dimension was met for each response. Methods 1 and 2 determined the dimension was met if the score was greater than 5. Method 3 considered the dimension met if at least half of the items scores were greater than 5. Finally, responses were analyzed by determining how many dimensions were met and how many total items were met. Means for each of these were generated for each group and t-tests were used to determine if the differences between groups were significant. A final analysis that was done was the splitting of the success group into agree (41 responses) and strongly agree (16 responses) and t-tested to determine if the differences between these two groups were significant.

Responses that had missing data were analyzed as they were with no attempt made to interpolate data. This means that the generated means only include the values actually responded. This means that n is not always the total number of responses in the group.

**RESULTS**

The results were mostly as expected: the more successful the KM project/initiative the more the KM project/initiative measured items in more dimensions. This suggests that the model of KM success (Jennex, Smolnik, and Croasdell, 2009) is correct and that KM project/initiative managers should use multiple measures in each of the four dimensions in order to measure success. Specific results follow.
Two demographics were gathered, respondent position and experience level. These demographics are summarized in Tables 1 and 2. The tables show that there is nearly a 50-50 split between practitioners and researchers/academics/students. Additionally, the majority of respondents are experienced and only a few have 2 or fewer years of experience. It is interesting to note that practitioners were more apt to report on a successful KM project/initiative while the academic focused respondents were more apt to report on unsuccessful KM projects/initiatives.

**Dimension Results**

This section is focused on the analysis of the survey results with respect to validating the four dimensions of the research model. This was accomplished using three methods as previously discussed. The following tables provide the results for the dimensions:

The dimensions were analyzed by determining the number of dimensions that were “met.” A dimension was determined to be met if the high or average value was greater than 5.0 or if the number of items met was greater than or equal to half of the total items for the dimension. Table 6 summarizes the dimensions that were met and the total number of items met. Note that items that were not answered were not considered met.
Table 3. Highest value method (mean/(std. dev)/(n))

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Success Group</th>
<th>NonSuccess Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on Business Processes</td>
<td>6.4 (0.7285)</td>
<td>5.6 (1.3137)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(32)</td>
</tr>
<tr>
<td>Impact on KM Strategy</td>
<td>6.2 (0.9502)</td>
<td>5.8 (0.8980)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(31)</td>
</tr>
<tr>
<td>Leadership/ Management Support</td>
<td>6.0 (1.0516)</td>
<td>5.4 (1.3336)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(31)</td>
</tr>
<tr>
<td>Knowledge Content</td>
<td>6.3 (0.8536)</td>
<td>5.8 (1.0816)</td>
</tr>
<tr>
<td></td>
<td>(53)</td>
<td>(29)</td>
</tr>
</tbody>
</table>

Table 4. Average value method (mean/(std. dev)/(n))

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Success Group</th>
<th>NonSuccess Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on Business Processes</td>
<td>5.7 (0.7047)</td>
<td>4.7 (1.0573)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(32)</td>
</tr>
<tr>
<td>Impact on KM Strategy</td>
<td>5.0 (0.1150)</td>
<td>4.5 (0.8914)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(31)</td>
</tr>
<tr>
<td>Leadership/ Management Support</td>
<td>5.2 (1.1978)</td>
<td>4.4 (1.3052)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(31)</td>
</tr>
<tr>
<td>Knowledge Content</td>
<td>5.4 (0.9768)</td>
<td>4.7 (1.1217)</td>
</tr>
<tr>
<td></td>
<td>(53)</td>
<td>(29)</td>
</tr>
</tbody>
</table>

Table 5. Item count value method (mean/(std. dev) /(n))

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Success Group</th>
<th>NonSuccess Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on Business Processes</td>
<td>4.0 (1.6743)</td>
<td>2.1 (1.6412)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(32)</td>
</tr>
<tr>
<td>Impact on KM Strategy</td>
<td>3.3 (2.3433)</td>
<td>2.0 (1.8439)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(31)</td>
</tr>
<tr>
<td>Leadership/ Management Support</td>
<td>1.9 (1.4914)</td>
<td>1.3 (1.3757)</td>
</tr>
<tr>
<td></td>
<td>(57)</td>
<td>(31)</td>
</tr>
<tr>
<td>Knowledge Content</td>
<td>4.6 (2.6129)</td>
<td>2.6 (2.2294)</td>
</tr>
<tr>
<td></td>
<td>(53)</td>
<td>(29)</td>
</tr>
</tbody>
</table>
Significance tests using a 1-sided t-test assuming unequal variance were used to determine if the differences listed in Table 6 between the two groups were significant. Table 7 lists the results of these tests, and it should be noted that all differences were considered significant at 0.01.

**DISCUSSION**

The results were as expected in that more successful KM projects/initiatives used more measures of success in more dimensions than non-successful KM projects/initiatives. What this really means is that organizations who are successful with KM projects/initiatives are more aware of the impacts that KM has on their organization and thus implement more measures to ensure those impacts are observed and met. The implications are many. The first is that an organization needs to fully understand the impact knowledge use has on their organization. What is meant here is that knowledge is not simply a commodity that is used to make a process better. It is also something that spurs innovation and competitiveness, and successful use of knowledge leads to more and varied use, more desire to identify, capture, and make available key knowledge, more awareness of the value of knowledge, and the acquisition of a knowledge inventory that can be applied to current and future activities. This is exactly what was expected when Jennex, Smolnik, and Croasdell proposed their definition of KM success:

“KM success is a multidimensional concept. It is defined by capturing the right knowledge, getting the right knowledge to the right user, and using this knowledge to improve organizational and/or individual performance. KM success is measured by means of the dimensions: impact on business processes, impact on KM strategy, leadership/management support, and knowledge content” (Jennex, Smolnik, and Croasdell, 2007, 2009).
However, the above results are not sufficient to validate the four dimensions listed in the above dimension since it appears that successful KM projects/initiatives may only use around three of the dimensions. Also, the results are not sufficient to validate the items used to represent the dimensions as it also appears that successful KM projects/initiatives may only use 7 to 21 of the items surveyed. One explanation is that since the items are each representative of the dimensions, organizations only need to use a few, or perhaps only one measure in each dimension, to measure adequately and achieve success. This would indicate that the high value measure of dimension success is the one that should be used to assess the data.

Another explanation is that the criteria for “meeting” a dimension are too high. The high and average score had to be greater than 5 for the dimension to be met, while for the item count method, half or more of the items had to have a score of greater than 5 for the dimension to be met.

Lowering the criteria for determining if a dimension is met to items scores greater than 4 is justified as any score over 4 reflects a degree of agreement; the criteria of meeting half or more of the items for a dimension to be met is admittedly arbitrary. However, it is not chosen to do so. It is felt that success should be obvious and readily observable. This is the basis for using scores over 5 (slightly agree). Additionally, the items were taken from the literature and all have been used by KM projects/initiatives. It is believed that all items could and perhaps should be observed by successful KM projects/initiatives.

To confirm these basic beliefs on KM success, the data was further analyzed grouping on the actual scores on agreement of KM success, i.e. the group who responded 7, the group who responded 6, the group responding 5, the group responding 4, and, due to the very low number of unsuccessful KM project/initiative responses, the group responding 1, 2, or 3. This analysis provides a fascinating insight. The first comparison was done between the 6 and 7 groups. This was done as it was perceived that “best practices” could be derived from the 7 group. The results are shown in Table 8:

All differences between the groups were significant. Additionally, the 7 group reflects the expected findings in that all three methods reflect more than three dimensions being met, and it shows a large number of items being met. This is the expected results of the study and led to the conclusion that the KM success model (Jennex, Smolnik, and Croasdell, 2007, 2009) is valid, and the items used to operationalize the dimensions are acceptable.

Data tables for the other analyses are not provided due to page limitations. However, only two significant differences were found: between the 6 – 5 groups on the average score for dimensions met and for the total items met. This lack of significance is likely due to the small number of responses with respect to KM projects/initiatives perceived to be unsuccessful. Further research will attempt to collect sufficient

<table>
<thead>
<tr>
<th>Method</th>
<th>7 Group n=16</th>
<th>6 Group n=41</th>
<th>t-test data</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Value</td>
<td>3.8 (0.5439)</td>
<td>3.2 (1.0701)</td>
<td>t_{51}=2.9787 p&lt;0.01</td>
</tr>
<tr>
<td>Average Value</td>
<td>3.5 (1.0328)</td>
<td>2.3 (1.3233)</td>
<td>t_{35}=3.7243 p&lt;0.01</td>
</tr>
<tr>
<td>Item Count</td>
<td>3.4 (0.8851)</td>
<td>2.3 (1.3398)</td>
<td>t_{41}=2.9997 p&lt;0.01</td>
</tr>
<tr>
<td>Total Items (25 possible)</td>
<td>17.4 (6.1207)</td>
<td>11.9 (6.3332)</td>
<td>t_{28}=3.0513 p&lt;0.01</td>
</tr>
</tbody>
</table>
responses from perceived unsuccessful KM projects/initiatives to make this analysis meaningful. No significant differences were found between the other group pairings, as these groups all reflect mild to no success, and thus, the items and dimensions are not expected to be observed.

A final point of discussion is to visualize what the findings mean. Figure 2 and figure 3 visualize the results using the average value for dimensions met and total items met (as these were the significant differences between groups 7, 6, and 5).

These figures show the findings of this study: the more successful a KM project/initiative is perceived to be, the more dimensions from the KM success definition (Jennex, Smolnik, and Croasdell, 2007, 2009) are met, and the more item measures from this study are met. This is a significant finding with implications for practice. First, though, why these findings occurred must be discussed.

Why more dimensions and more items for successful KM projects? This study postulates that KM does not exist in an organizational vacuum. KM cannot be bolted onto an organization nor can it be done independent of the organization. Knowledge use and value only occurs within context of the users and the organization. To be successful with KM, organizations need to fully understand what knowledge is needed, who needs it, how it is used, and why it is used. Successful KM projects/initiatives understand this and so look for knowledge use and value in a large variety of ways. Knowledge use, and thus, KM, must impact the processes that they support. Improved processes impact leadership/management, whose purpose is to guide the organization to perform at its best. Improved knowledge use drives the KM or-
ganization to modify their KM strategy to reflect that which is working. Finally, like any resource, the organization strives to accumulate useful knowledge. The KM success definition recognizes that KM success is in getting the right knowledge to the right people at the right time. The dimensions recognize that being successful with KM will be reflected in these definitions as discussed above.

Understanding the impact of successful KM leads to the implication of this study: KM project managers/initiative leaders need to do thorough business cases and analyses up front so that they fully understand the impacts their KM projects/initiatives will have on the organization. This study helps by providing 25 measures that should be looked at for these business cases and analyses and as potential measures of success. In all cases, this study should drive KM project managers/initiative leaders to consider using many measures in multiple dimensions. This should be done regardless of the scope of the project/initiative, as this study believes that these dimensions and item measures apply regardless of the scope of the project or initiative.

**CONCLUSION**

The conclusion of this study is that the KM success definition, including its four dimensions of impact on business processes, impact on KM strategy, leadership/management support, and knowledge content, are a valid definition and measure of KM success. The second conclusion is that the set of 25 items representing the success dimensions are a good set for use by organizations as success measures. They are where organizations, practitioners, and researchers should be looking for KM success. The third conclusion is that organizations implementing KM projects/initiatives should use multiple measures in all four dimensions to ensure all benefits of the project/initiative are recognized and measured.

These are considered to be highly generalizable conclusions due to the respondents’ demographics. Half are practitioners, and only 9% reported themselves as KM students. This is not to imply that a KM student is not a valid respondent; many KM practitioners return to school to further their academic training, and in many cases, these are the responders to KM surveys. What makes this set of responders especially valid is their experience. Sixty-four percent of responders have over 6 years of KM experience, and 42.7% have over 10 years. Couple this with only 13.5% reporting their experience level at 0-2 years, and this respondent pool has a very high level of experience. It is expected that these respondents possess a great deal of insight and should provide accurate responses with respect to the project they are responding.

**Limitations**

The major limitation of the study is the low number of responses reflecting KM projects/initiatives that are perceived to be unsuccessful. While this limitation is significant for obtaining the full picture of KM success, it is not considered a threat to the validity of the current findings due to the significant differences observed between projects perceived to have various degrees of success. This limitation is being mitigated by continuing data collection.

A second limitation is the use of perceived success as a control for classifying perceptions on the items measuring success. This is an acceptable risk as it is difficult for respondents to obtain hard measures of success, if such measures even exist.
Areas for Future Research

The main area for future research is to conduct a factor analysis and test the model to fully validate that the survey items used are a fully validated set of success measures. Also, the set of 25 measures used in the survey is not considered to be an exhaustive list, nor is considered to be set. It is expected that the set of measures will be an evolving set as research and practice evolve. Future research should continue to look at this set of success measures and evolve it as necessary.

Another area for future research is to tie these measures into the proposed model for measuring KM value proposed by Fischer, Hertlein, Smolnik, and Jennex (2011). This should be done using the integrative KM model using key performance indicators (KPIs) and KM critical success factors (CSFs) as proposed by Orth, Smolnik, and Jennex (2009).

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REFERENCES


