

# Exploring Knowledge Management Success

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## ABSTRACT

*Discussions at previous HICSS conferences have shown that there is no general agreement on definitions of Knowledge Management (KM) and Knowledge Management Systems (KMS) success. A deep understanding of these concepts would help to design and implement efficient KM initiatives and systems. We present an exploratory research study to begin and facilitate a debate that will hopefully lead to a consensus definition of KM and KMS success. We chose an expert panel approach followed by an exploratory survey to approach the KM and KMS success definition. The research shows only a few points of consensus. However, we present some areas of agreement as well as of disagreement, which are a good starting point for further discussions on KM and KMS success.*

## 1. INTRODUCTION

Knowledge Management (KM) and Knowledge Management System (KMS) success is an issue needing to be explored. The Knowledge Management Foundations workshop held at the Hawaii International Conference on System Sciences (HICSS-39) in January 2006 discussed this issue and reached agreement that it is important for the credibility of the KM discipline that we be able to define KM success. 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. It is the purpose of this paper to initiate discussion on this topic and present results of a survey looking at how KM practitioners, academics, and students view what constitutes KM success. The paper presents some background on KM success and then a series of perspectives on KM/KMS success. These perspectives were derived by looking at responses to questions asking academics and practitioners how they defined KM/KMS success. The paper then concludes by presenting the results of an exploratory survey on KM/KMS success beliefs and attitudes. It is hoped that this paper will begin the debate that will lead to a consensus definition of KM/KMS success.

## 2. BACKGROUND ON KM SUCCESS

Jennex (2003) summarized various definitions of KM to propose that KM success be defined as reusing knowledge to improve organizational effectiveness by providing the appropriate knowledge to those that need it when it is needed. KM is expected to have a positive impact on the organization that improves organizational effectiveness. DeLone and McLean use the terms success and effectiveness interchangeably and one of the perspectives proposed in this paper does the same for KM (DeLone and McLean, 1992 and 2003).

Jennex and Olman (2005) summarized and synthesized the literature on KM/KMS critical success factors, CSF, into a ordered set of 12 KM CSFs. CSFs were ordered based on the number of studies identifying the CSF. The following CSFs were identified from 17 studies looking at over 200 KM projects:

- A Knowledge Strategy that identifies users, sources, processes, storage strategy, knowledge and links to knowledge for the KMS.
- Motivation and Commitment of users including incentives and training
- Integrated Technical Infrastructure including networks, databases/repositories, computers, software, KMS experts
- An organizational culture and structure that supports learning and the sharing and use of knowledge

- A common enterprise wide knowledge structure that is clearly articulated and easily understood
- Senior Management support including allocation of resources, leadership, and providing training
- Learning Organization
- There is a clear goal and purpose for the KMS
- Measures are established to assess the impacts of the KMS and the use of knowledge as well as verifying that the right knowledge is being captured
- The search, retrieval, and visualization functions of the KMS support easy knowledge use
- Work processes are designed that incorporate knowledge capture and use
- Security/protection of knowledge

However, these CSFs do not define KM/KMS success; they just say what is needed to be successful. Without a definition of KM/KMS success it is difficult to measure actual success.

## 3. PERSPECTIVES ON KM/KMS SUCCESS

The KM workshop at the 2006 HICSS found that there were several perspectives on KM success. This section briefly summarizes these perspectives.

### 3.1. KM Success and Effectiveness

One perspective on KM success is that KM success and KM effectiveness are interchangeable and imply the same construct or variable. This is based on the view that effectiveness is a manifestation of success.

An example would be increasing decision making effectiveness to generate a positive impact on the organization resulting in successful KM. This perspective uses both process and outcome measures.

### 3.2. KM and KMS Success as Interchangeable

Another perspective is that KM and KMS success is interchangeable. KMS success can be defined as making KMS components more effective by improving search speed, accuracy, etc. As an example, a KMS that enhances search and retrieval functions enhances decision making effectiveness by improving the ability of the decision maker to find and retrieve appropriate knowledge in a more timely manner. The implication is that by increasing KMS effectiveness, KMS success is enhanced and decision making capability is enhanced leading to positive impacts on the organization. This is how KM success is defined and it is concluded that enhancing KMS effectiveness makes the KMS more successful as well as being a reflection of KM success. The Jennex and Olman (2006) KM Success Model, based on the DeLone and McLean IS Success Model (2003), combines KM and KMS success and utilizes this perspective.

### 3.3. KM and KMS Success as Separate

As opposed to the previous section, this perspective views KM and KMS success as separate measures. It is based on a narrow system view that allows for KMS success that does not translate into KM success. KMS are often seen as a sub-function of KM comprising technical and organizational instruments to implement KM. Thus, KMS success addresses implementation and operation factors in terms

of system or process metrics whereas KM success is an assessment of the value that these systems and processes provide to an organization. KM focuses therefore more on the outcome, while KMS focus more on the process. These perspectives are introduced in the following sections.

### 3.4. KM Success as a Process Measure

This perspective views KM success as a process measure. KM success could be therefore described in terms of the efficient achievement of well defined organizational and process goals by means of the systematic employment of both organizational instruments and information and communication technologies for a targeted creation and utilization of knowledge as well as for making knowledge available. KM is a support function to improve knowledge-intensive business processes. An example would be supporting the technology forecasting process in an IT consulting firm by technical components of a KMS [6]. Complementary, the effective implementation of knowledge processes (i.e. acquisition, creation, sharing, and codification) is seen as a part of KM success. This perspective focuses therefore on measuring how much KM contributes to improving the effectiveness of business and knowledge processes.

### 3.5. KM Success as an Outcome Measure

In contrast, this perspective views KM success as an outcome measure. KM success is therefore seen as a measure of the various outcomes of knowledge process capabilities existing within an organization as a result of undertaken KM initiatives. Typical outcomes in terms of organizational performance are the enhancement of:

- product and service quality,
- productivity,
- innovative ability and activity,
- competitive capacity and position in the market,
- proximity to customers and customer satisfaction,
- employee satisfaction,
- communication and knowledge sharing, and
- knowledge transparency and retention.

### 3.6. KM Success as Combined Process and Outcome Measures

The last perspective views KM success as a combination of process and outcome measures. Respective descriptions of KM success focus on improved process effectiveness (cf. section 3.4.) as well as on achieving actionable outcomes (cf. section 3.5). Sections 3.1 and 3.3 contain examples for this combined approach.

## 4. METHODOLOGY

This paper is exploratory research with the goal of guiding the KM community towards a consensus definition of KM success. To achieve this, base data was obtained through an exploratory survey. The exploratory survey was generated through an expert panel approach. The 30 members of the editorial review board of the International Journal of Knowledge Management were asked to provide their definitions of KM success. Thirteen responses were received. These responses were used to generate an exploratory survey on KM success. The exploratory survey used 5 point Likert scale items to solicit agreement on various perspectives and proposed KM success definitions. The perspectives were generated by analyzing the responses of the expert board. These responses were found to be grouped two ways. The first grouping of responses looked at the measures used to determine KM success. Three groupings were observed: process based measures, outcome based measures, and combined process and outcome based measures. The second grouping of responses was in two groupings: those that combined KM and KMS success measures and those that viewed KM and KMS success as separate measures. A final observation was that many proposed definitions used success and effectiveness interchangeably.

The exploratory survey also collected data on the KM expertise and focus of the respondent. Also, the survey had text boxes that allowed for free form input on additional KM success factors or measures, KM success definitions, and thoughts on differences between KM and KMS success.

The exploratory survey was administered using a web form with data collected and stored automatically. Survey respondents were solicited via broadcast emails to the ISWorld and DSI email list servers, to lists of KM researchers maintained by the

authors, and to the editorial review board and list of authors for the International Journal of Knowledge Management. An initial request was sent followed by a second request approximately one week later.

One hundred and three usable survey responses were received. Thirteen were from KM practitioners, 70 were from KM researchers, 6 were from KM students, and 14 were from academics interested in KM but not active KM researchers. Likert items were analyzed using means and standard deviations as no hypotheses have been proposed and need testing.

The results of the exploratory survey were used to generate a second survey. This survey presented a composite definition of KM success and a set of measures for each of the indicated dimensions. A 7 point Likert scale was used to solicit agreement on the composite definition and each set of measures. Additionally, as in the exploratory survey items were provided for collecting data on KM expertise and respondent focus. Also, each set of measures had boxes where respondents could indicate measures they would add or remove from each set of measures.

The second survey was also administered using a web form with respondents solicited in the same manner as the exploratory survey. One hundred and ninety-four usable survey responses were received. Sixteen were from KM practitioners, 114 were from KM researchers, 23 from KM students, and 41 were from others including academics interested in KM but not active KM researchers. Likert items were analyzed using means and standard deviations as no hypotheses have been proposed and need testing.

## 5. FINDINGS

There was little consensus on KM success perspective or definition from the first survey while we did find agreement on a definition of KM success and measures of success in the second survey. The results of the first survey are summarized in tables 1-3 while the results of the second survey are presented in Table 4. Table 1 looks at opinions with respect to the perspectives on KM success. The only perspective that tends to have any consensus agreement is that KM success is a combination of process and outcome measures and is NOT just process or just outcomes. We are undecided if success and effectiveness are equivalent measures and tend to be undecided to slightly against the idea that KM and KMS success are equivalent.

Table 2 summarizes opinions on five suggested components of KM and KMS success definitions. There appears to be consensus on using organization specific subjective measures derived for KM process capabilities. Examples of these capabilities include knowledge reuse, quality, relevance, effectiveness of acquisition, search, and application of knowledge, etc. There also appears to be consensus that any KM success definition should include providing the appropriate knowledge when needed. Additionally, there is consensus that use is not a good measure of KMS success. It is interesting to note that practitioners and students support the use of

Table 1. Opinions on KM success perspectives, mean (std dev)

	Overall	Research	Practice	Academ	Stud
Success = Effectiveness	3.1 (1.4)	3 (1.4)	3.3 (1.3)	3.2 (1.5)	3.7 (0.5)
KM = KMS Success	2.6 (1.5)	2.5 (1.4)	3.2 (1.6)	3.4 (1.5)	2.2 (1)
KM = KMS Measures	2.6 (1.4)	2.4 (1.4)	3.2 (1.6)	3 (1.4)	2.4 (0.9)
KM Success = Process	2 (1)	1.9 (0.9)	2.2 (1.1)	1.9 (0.8)	3 (1.3)
KM Success = Outcomes	2 (1)	2 (1)	2.2 (1.4)	1.7 (0.8)	2.3 (1)
KM Success = Process & Outcomes	4 (0.9)	3.9 (1)	3.8 (1)	4.3 (0.6)	4.2 (0.8)

Overall n = 103, researcher n = 70, practitioner n=13, academics n=14, and student n=6

Values are rounded to 2 significant digits

Table 2. Opinions on KM and KMS success definition components, mean (std dev)

Overall	Research	Practice	Academics	Students
Subjective measure of various outcomes of KM processes capabilities" should be included in a definition of KM success				
4.1 (0.8)	4 (0.9)	4.3 (0.8)	4.2 (0.9)	4.5 (0.8)
Achieving direct returns from learning and projection" should be included in a definition of KM success				
3.8 (1)	3.7 (1)	3.6 (1)	4 (1)	4.3 (0.5)
Success of KMS should be measured in terms of pure usage statistics" should be included in a definition of KM success				
2.5 (1.2)	2.5 (1.2)	2.2 (1.1)	2.6 (1.2)	2.8 (1.2)
Success of KMS should be measured in terms of "firm performance" should be included in a definition of KM success				
3.7 (1)	3.6 (1.1)	4.1 (1)	3.5 (0.8)	4 (0.9)
Providing the appropriate knowledge when "needed" should be included in a definition of KM success				
4.2 (0.9)	4.2 (0.9)	4.3 (0.9)	4.4 (0.6)	4.3 (0.5)

Overall n = 103, researcher n = 70, practitioner n=13, academics n=14, and student n=6

Values are rounded to 2 significant digits

firm performance measures as indicators of KM success while there is less support for these measures from researchers and academics. It is also interesting to note that academics and students tend to support the use of measures reflecting direct returns from organizational and individual learning and application of knowledge while researchers and practitioners are less favorable to them.

Table 3 summarizes opinions on five suggested definitions of KM and KMS success. There appears to be little consensus on these definitions other than a general neutrality on KM success as the flow of knowledge and KMS success as improving effectiveness of the KMS components. However, there are some inter-

Table 3. Opinions on KM and KMS success definitions, mean (std dev)

Overall	Research	Practice	Academics	Students
KMS success can be defined as making KMS components more effective by improving search speed, accuracy, etc.				
3 (1.2)	2.8 (1.1)	3.6 (1.2)	3.1 (1.1)	3.2 (1)
KM success is the ability to leverage knowledge resources to achieve actionable outcomes.				
4 (1)	4 (1)	4.3 (0.9)	3.9 (0.9)	3.7 (1)
KM success is reusing knowledge to improve organizational effectiveness by providing the appropriate knowledge to those that need it when it is needed.				
3.9 (1)	3.8 (1.1)	4.4 (0.91)	4.1 (0.7)	3.8 (0.4)
KM success is knowledge - tacit and explicit alike - circulates freely throughout the organization, with no debilitating clumping, clotting or hemorrhaging.				
3 (1.2)	2.8 (1.2)	3.2 (1.5)	3.4 (0.8)	2.7 (1)
KM success is the efficient achievement of well defined organizational and process goals by means of the systematic employment of both organizational instruments and information and communication technologies for a targeted creation and utilization of knowledge as well as for making knowledge available.				
3.7 (1.2)	3.5 (1.3)	4.2 (1.1)	3.8 (0.9)	3.8 (1.2)

Overall n = 103, researcher n = 70, practitioner n=13, academics n=14, and student n=6

Values are rounded to 2 significant digits

Table 4. Opinions on KM and KMS success definition and sets of measures, mean (std dev)

Overall	Research	Practice	Academics	Students
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 using the dimensions of impact on business processes, strategy, leadership, efficiency and effectiveness of KM processes, efficiency and effectiveness of the KM system, organizational culture, and knowledge content.				
5.4 (1.4)	5.3 (1.5)	6.1 (1.4)	5.6 (1.4)	5.5 (1.2)
Impact on business process measures.				
5.5 (1.3)	5.3 (1.4)	5.8 (1.4)	5.7 (1.2)	5.7 (1.0)
Strategy measures				
5.3 (1.4)	5.1 (1.6)	6.1 (0.6)	5.3 (1.4)	5.7 (1.0)
Leadership measures				
5.2 (1.5)	5.1 (1.5)	5.3 (1.5)	5.3 (1.3)	5.4 (1.6)
KM process effectiveness and efficiency measures				
5.7 (1.3)	5.5 (1.4)	6.2 (0.8)	5.8 (1.3)	5.7 (1.4)
KM system effectiveness and efficiency measures				
5.6 (1.3)	5.5 (1.4)	6.0 (0.7)	5.8 (1.2)	5.4 (1.3)
Learning culture measures				
5.6 (1.2)	5.5 (1.4)	6.0 (0.8)	5.7 (1.1)	5.6 (1.2)
Knowledge content measures				
5.4 (1.4)	5.2 (1.5)	6.0 (1.0)	5.7 (1.2)	5.5 (1.3)

Overall n = 194, researcher n = 114, practitioner n=16, others n=41, and student n=23

Values are rounded to 2 significant digits

esting observations. KM success as the ability to leverage knowledge resources to achieve actionable outcomes is overall supported with the strongest support coming from practitioners. This is interesting but not surprising as practitioners tend to favor definitions and measures that are objective, readily measurable, and have an obvious impact on the organization. This is also why practitioners favor KM success as reusing knowledge to improve organizational effectiveness and KM success as the efficient achievement of well defined organizational goals for targeted creation and utilization of knowledge.

Table 4 summarizes opinions from the second survey on a proposed success definition generated from the first survey and sets of measures for the dimensions listed in the proposed definition. There appears to be some level of consensus on the proposed definition and measures. However, we don't consider it strong consensus given that the mean response is between agree and somewhat agree. Still, this is considered a strong beginning to establishing a common definition and set of success measures.

## 6. DISCUSSION

This is exploratory research so few conclusions can be drawn. However, using two surveys has allowed us to reach some consensus on a KM success definition and set of success measures. The consensus KM success definition is:

*"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 using the dimensions of impact on business processes, strategy, leadership, efficiency and effectiveness of KM processes, efficiency and effectiveness of the KM system, organizational culture, and knowledge content."*

Also, there are a few points of consensus that can be identified from the initial survey:

- KM success and KMS success may not be the same thing.
- Usage is not a good measure of KM or KMS success.

Additionally, it is possible that there is a different focus on KM success between practitioners and researchers. Researchers do not seem to have a clear idea of KM success while practitioners appear focused on KM success as being tied to its impact on organizational performance and effectiveness. This can't be stated conclusively, the number of practitioner responses are too low (n=13) making this supposition. However, it isn't unexpected that practitioners would have a focus on organizational impact as a measure of KM and KMS success. Given that KM is an action discipline; researchers should accept this focus and incorporate it into their investigations.

There are some limitations to this research. It is quite possible that the reason little consensus has been observed is because KM and KMS success are complex constructs that are multi dimensional. It may be that KM and KMS success includes outcome measures, quality of knowledge, how well the KM processes function, organizational culture measures, usability measures, and strategy measures. This is consistent with the DeLone and McLean (1992, 2003) model of Information Systems success and there is much empirical evidence to support the correctness of this model. This model is also the basis of the Jennex and Olfman (2006) KM success model. It is quite likely that the exploratory survey used for this research, while generated using an expert panel, probably did not capture the multidimensional nature of the provided KM success definitions and therefore made it difficult for respondents to find statements they fully agreed with. This limitation was considered when generating the second survey and it appears that this has improved consensus with the KM success definition generated from the first survey.

## 7. CONCLUSIONS

It is difficult to reach any conclusions with this research; no hypotheses were proposed or tested. This is okay as the purpose of this paper is to start a focused discussion on KM and KMS success. The response to the exploratory survey shows this will happen as well as the minitrack focused on KM and KMS success and measurement at the Hawaii International Conference on System Sciences, HICSS.

To begin this dialogue it is important to identify areas of consensus and areas of disagreement. The following points are areas of agreement:

- KM and KMS success are likely different definitions (note that at least one of the authors greatly disagrees with this point).
- Use is a poor measure of KM and KMS success.
- KM success is likely a multidimensional construct that will include process and outcome measures.

- A base definition of KM success is: KM success is reusing knowledge to improve organizational effectiveness by providing the appropriate knowledge to those that need it when it is needed.

Additionally, a base definition of KM success can be established:

*"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 using the dimensions of impact on business processes, strategy, leadership, efficiency and effectiveness of KM processes, efficiency and effectiveness of the KM system, organizational culture, and knowledge content."*

Some areas of disagreement are in further need of discussion:

- KM success and effectiveness are likely the same and will be able to use the same measures.
- KM and KMS success are essentially the same (in deference to the authors and consistent with a Churchman view of a KMS and DeLone and McLean [1], [2]).
- The role of learning and firm performance in KM success.
- The role of outcome measures such as speed, accuracy, amount of knowledge stored and used, etc. in KM and KMS success.

It is expected that it will take a great deal of research before consensus is reached on what KM and KMS success is. It is concluded that this paper and these findings from an exploratory survey are a good starting point for this discussion.

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