2003

What knowledge managers really do: An empirical and comparative analysis

Arben Asllani
University of Tennessee-Chattanooga,, beniasllani@utc.edu

Fred Luthans
University of Nebraska - Lincoln, fluthans1@unl.edu

Published in *Journal of Knowledge Management* 7:3 (2003), pp 53–66.
doi 10.1108/13673270310485622

What knowledge managers really do: An empirical and comparative analysis

Arben Asllani and Fred Luthans

Arben Asllani is a Professor of Management in the Department of Management, University of Tennessee-Chattanooga, Chattanooga, TN, USA (beniasllani@utc.edu).
Fred Luthans is a Professor of Management in the Department of Management, College of Business, University of Nebraska–Lincoln, Lincoln, NE, USA (luthans1@unl.edu).

Abstract
The advent of information technology has generated not only interest in how to acquire, store and "mine" data, but also how to manage knowledge. Yet, there is still considerable confusion and a lack of understanding of what today's knowledge managers really do. Continuing a stream of previous research on the behavior activities of traditional managers, this study investigated the relative amount of time today's knowledge managers (N = 307) spend on traditional management functions, communications, human resources and networking. Besides identifying what knowledge managers really do, this study examined what successful knowledge managers do. Comparisons are then made with managers in the 1980s. Finally, the role that information technology plays in knowledge managers carrying out their managerial activities was assessed. The implications of some surprising findings and conclusions end the paper.

Keywords: Knowledge management, individual behavior, managers

Introduction

The dramatic changes of the past few years have "blown to bits" the traditional view of the economy and management strategy. As Drucker

(1994) and others such as Evans and Wurster (2000) have argued, in the new economy, knowledge becomes the primary resource and competitive advantage for individual managers and their organizations. In particular, digitization of the economy, coupled with the rise in the value of the ''knowledge'' component, clearly suggests that an understanding of knowledge management is critical to individual and organizational success. Yet, now well into the new millennium, we are still not sure what knowledge management involves. Several years ago, Blacker *et al.* (1993) suggested that research on knowledge work in general should be focused on what people do, rather than what they know. Although we do not know what today's knowledge managers (KMs) really do, we do know that today's knowledge-based economy has created a new organizational culture and a new set of managerial values and behaviors (Oxbrow, 2000).

The purpose of this study is to identify the day-to-day managerial activities of knowledge managers. Specifically, the following research questions were investigated: What do knowledge managers really do in general and what do the successful one's do in particular? How do the activities of knowledge managers compare to traditional managers in the old economy? What role does information technology play in the traditional set of managerial roles and activities? In order to answer these questions, we first provide an overview and current status of knowledge management and its importance in today's organizations. This background serves as the point of departure for the design of the study used to answer the research questions. The final section outlines results of the study along with interpretations, conclusions and implications.

Knowledge management in today's organizations

Strategy experts will now generally agree that competitive advantage is not a matter of equipment, bricks and mortar, but instead is human capital and knowledge. Information technology plays a vital role in acquiring, storing and ''mining'' this knowledge, but human talent, experience, motivation and skills (i.e. human capital) originate, share and use the knowledge to make the organization effective (Davenport, 1999; Cohen and Backer, 1999). The challenge facing today's managers is to manage both the technological and human

aspects of knowledge. Although this challenge is now recognized, the current status of knowledge management is judged to be lacking and generally ineffective.

According to a recent KPMG study (1998), only 2 percent of respondents considered knowledge management to be just a fad that would soon be forgotten. This is in sharp contrast to a 1997 survey, where 33 percent thought knowledge management was a fad (Wah, 1999). However, other surveys clearly indicate that recognizing the importance of knowledge management and having a specific program in place does not necessarily mean that this will lead to success. For example, one survey shows that only 18 percent of respondents consider they have an effective knowledge management program in their organization (Wah, 1999). Recent research finds that despite the availability of comprehensive reports and extensive databases, most managers still make decisions based on their interactions with others who they believe are knowledgeable about issues (Malhorta, 2000). Moreover, even though considerable attention is being given to information technology and developing information systems, the human side of organizations still tends to be given low priority (Luthans and Stajkovic, 1999; Pfeffer and Sutton, 2000; Stewart, 2000). All the evidence points to a need for developing a better and more accurate understanding and effective implementation of knowledge management (Malhorta, 2000).

A Special Issue of the *Journal of Management Information Systems* published in the summer of 2001 and edited by Davenport and Grover (2001) provides a significant step toward the definition of knowledge management. Here, knowledge is described as a particularly high-value form of information. There are two factors that make knowledge a ''high-value'' component. First, knowledge is the latest form of the continuum starting with data, encompassing information and ending with knowledge. Second, knowledge has the most human contribution and the ability to integrate and frame the information within the context of human experience, expertise, and judgment (Grover and Davenport, 2001).

The above description by Grover and Davenport serves as our operating definition of knowledge. As such, knowledge managers are not only those people who process and organize data into information via information technology tools, but also those people who oversee the work of knowledge workers. In the second role, the major concern is

coordinating the process of having the right knowledge person, with the right type of information, at the right time, and at the right place.

Knowledge managers plan, organize, and coordinate a mix of knowledge, information, and data, and people or knowledge workers who own the expertise. However, knowledge does not behave like the traditional economic resources of land, labor, and capital. In fact, when knowledge is transferred from one person to another, the original owner does not relinquish it. As a result, the better these ''unique'' resources are used, the more they are shared and used, the more knowledge is created and the more competitive advantage is achieved.

Earl (2001) also provides a comprehensive view of today's knowledge management when he proposes seven schools of knowledge management. The first three schools (systems, cartographic, and process) are labeled ''technocrat'' because they are based on information technology systems. The fourth school (commercial) is labeled ''economic'' since it is commercial in orientation. The above four schools are directly related to the use of information technology to provide competitive advantage for the organization. The last three schools (knowledge communities, spatial, and strategic) are labeled organizational, since they describe the use of organizational structures, or networks, to share knowledge. Although indirectly related to information technology, the last three schools of knowledge management are mostly concerned with the use of traditional managerial methods: such as planning, decision-making, human resource activities, and networking.

Grover and Davenport (2001) provide two complementary frameworks that highlight potential opportunities for building a research agenda in the area of knowledge management: a process and a transactional perspective. Authors suggest that the process framework includes culture of creation, sharing, and use of knowledge. Organizational culture is considered as ''perhaps the most significant hurdle to effective knowledge management'' (Gold *et al.*, 2001). Process perspective also includes identifying organizational, managerial, and individual behavior that will realize knowledge-based benefits. These aspects of knowledge management provide an ''ambitious agenda for practice-oriented knowledge management research'' and we believe that our paper provides an original contribution in the process of identifying the major managerial activities of today's knowledge managers.

Knowledge managers in today's organization

Knowledge management encompasses a variety of disciplines. That is why it is difficult to one single knowledge management model. Present research has identified the purpose of knowledge management activity as developing strategies, policies, and practices that optimize the knowledge resources of an organization (Barclay and Kaye, 2000). However, research still needs to explore the answers to the following two questions: Who is a knowledge manager in today's organization and what are typical knowledge managerial activities from a behavioral perspective?

Traditional definition of ''manager'' as the one who oversees the work of the others does not always hold true in the case of knowledge managers. In a typical organizational structure, first line operators are not considered as managers, since they do not manage other workers. However, today even the simplest work process includes some data processing or computer operated machines. First line workers are often refereed as knowledge workers who use and manage knowledge. As such, workers can still be considered as knowledge manager when they manage knowledge. Knowledge component is an explicit concern that is reflected in strategy, policy, and practice at all levels of an organization (Barclay and Murray, 1997; Barclay and Pinelli, 1997).

In most organizations, managers perform employee performance assessment, budgets, shift schedules, hiring, and so on. A resource based theory on traditional management suggests that the primary focus of a typical manager is the process of planning, organizing, coordinating, and controlling all organizational resources. Since the primary focus of knowledge managers is ''information and human knowledge'', one can conclude that although knowledge managers operate in all levels of organization, not all managers in the organization can be considered as being knowledge managers. Research on knowledge management suggests that there are two types of knowledge: explicit and tacit (Nonaka, 1991; Grover and Davenport, 2001). While explicit knowledge can be codified, tacit knowledge is embedded in the human brain and cannot be easily transferred into business processes. Based on the literature and for the purpose of this paper, we will consider as knowledge managers two major groups of employees:

(1) Explicit knowledge managers – in this group of managers, we include all employees in the organization who carry over such processes as knowledge generation, knowledge codification, and knowledge transfer or realization. Information technology managers are primary representatives of explicit knowledge managers. The creation of the chief information officer (CIO)position as a new managerial function in today's organization shows how important is knowledge management, and especially explicit knowledge management for Western companies.

(2) Tacit knowledge managers – tacit knowledge implies that the primary mode of knowledge transfer is direct communication between people. Tacit knowledge managers are mostly focused with the process of providing necessary interaction between knowledge workers or experts. They are also concerned with finding the expertise and making it available at the right place and at the right time. Human resource managers are one example of tacit knowledge managers.

Beside information technology related knowledge management, one must note that knowledge management is not a formal organizational function. It is more an emerging organizational role, mostly identified by specific managerial activities and behaviors manifested by employees at all levels of organization. While knowledge component becomes important, knowledge managerial activities become dominant, and knowledge organizational culture emerges.

Knowledge managerial activities

We use our previous research findings on 1980s old economy ''real managers'' (see Luthans and Lockwood, 1984; Luthans *et al.*, 1985; Luthans, 1988; Luthans *et al.*, 1988) for categories and comparisons to study managerial activities of today's knowledge managers. Understanding the differences in today's knowledge managers with traditional managers will provide more insights in the discussion about knowledge management. Table I provides an intuitive comparison between explicit and tacit knowledge managerial activities and shows possible traditional managerial activities and their observed behavior, as they may be present in the day-to-day work of today's knowledge managers. Based on the definition of knowledge managers, as provided in the previous section, our indication shows that

communication activities usually are observed in the daily activities of information technology (explicit) managers. A critical part of knowledge managerial activities requires sharing explicit knowledge more freely than is customary. As such, one can expect that communication activities may become very important explicit managerial activities in knowledge organizations. Good and effective communication leads to trust and information. Committed knowledge workers will trust their managers and are willing to work with the company to create intellectual capital (Horibe, 1999).

Networking activities are usually observed to those (tacit) knowledge managers who coordinate and manage people who have knowledge and expertise. Networking activities promote dialog between individuals or groups, which are the basis for the creation of new ideas and can therefore be viewed as having the potential for creating or extracting tacit knowledge (Gold *et al.*, 2001).

Traditional and human resource management activities are most likely to be observed in both cases of knowledge managers. Human resource management remains an important component in the daily activities of knowledge managers. In order to encourage new knowledge, today's managers need to help knowledge workers understand that their knowledge is connected to the overall strategic direction of the company. They must allow employees a greater degree of freedom for the possibility of a breakthrough to come forward with both their tacit and explicit knowledge.

Tacit knowledge managers will use information technology to increase the efficiency of the daily traditional managerial activities. Today's managers will use different communication tools (video conferencing, e-mail, and bulletin boards), shared information spaces (bulletin boards, specialized databases, and distributed hypertext systems), workflow management (e-mail, specialized databases, and workflow management systems), and teamwork (distributed hypertext systems, planning systems, group editors, and decision support systems) (Borghoff and Pareschi, 1998).

Although the activities described in Table I may remain the same, the nature and relative frequencies of the activities should change under knowledge management. However, the information provided in Table I is hypothetical and only serves as the basis for a more empirical analysis in the next section of the paper.

The design of the study

To obtain data on what knowledge managers do, we used a Web-based questionnaire posted on two different online community bulletin boards. One community relevant to the study consisted of information technology experts and the other included a discussion group on knowledge management. In order to ensure adequate statistical representation, questionnaires were also sent to 500 managers with IT education and/or responsibilities. A copy of the survey is available at http://spacer.uncfsufiedu/f_beni/KMsurvey/survey.asp

The measurement categories used in this survey have demonstrated both face and construct validity (see Luthans and Lockwood, 1984). However, to assess the relevance of these categories in the present information technology, new economy environment, 19 MBA students studying IT and MIS were asked to complete the survey in a pilot study in order to provide feedback and analysis prior to the final design and wording of the questionnaire. Also, retrospective analysis of the relationships between several items in the survey, as shown in Table V, suggest that the survey did provide a fair representation of the activities of today's knowledge managers and the amount of information technology used to carry out these activities.

A total of 307 knowledge managers responded to the survey. 109 of them completed the online survey and 198 returned the mailed questionnaires, as such a 39.5 percent return rate was observed. Figures 1-3 depict the demographics of all respondents. The distribution of responses suggests a good representation of knowledge managers across managerial functions, positions and levels in the organization, and experience. The sample shows an equal distribution of knowledge managers working in general management/human resources (about one-third) and sales/marketing (about one-third). The remaining have functional positions in finance (14 percent) and information systems *per se* (11.4 percent).

Most of these knowledge managers (30 percent) reported as being at the middle level of their organizations. Respondents at the top level of their organizations versus first line supervisors were 20 and 17 percent respectively. Approximately one third of the respondents did not indicate any managerial level. Accordingly, those with no reported level were not considered in our analysis each time the managerial

level was used as a variable. In these cases the sample size was reduced to 207. With respect to managerial experience, about half of the respondents have worked for their respective company for less than five years while about 22 percent have been with their company for more than ten years.

As in the previous research of real managers, (see Luthans, 1988; Luthans *et al.*, 1988), the leader observation system (LOS) categories developed by Luthans and Lockwood (1984) were used to measure the frequencies of KMs activities. These categories were traditional management activities (e.g. planning, decision-making and controlling), communication activities, human resources activities (e.g. motivating, managing conflict, staffing and training/developing), and networking activities (e.g. interacting with outsiders and socializing/ politicking). In addition to the previous study of real managers, another dimension was added for measuring the KMs: the main information technology used to carry out each of the KMs activities was obtained. Specifically, respondents were asked to select between information technology, traditional techniques or both. This latter data allowed us to reflect the degree of IT used in today's knowledge management.

Measures of IT used

We measured the amount of information technology utilized (ITU) by knowledge managers with the following index:

$$ITU = \frac{\sum_{i=1}^{n} t_i \times k_i}{\sum_{i=1}^{n} t_i}$$

where:

ITU = represents a normalized (0 to 1) value indicating the amount of information technology a manager utilizes during his/her daily work;

n = number of activities observed;

t_i = represents the amount of time a manager spends in activity i; and

k_i = 0 if activity i is mostly exercised through traditional methods,
0.5 if activity i is mostly exercised through both methods,
1 if activity i is mostly exercised through IT.

Another information technology measure used in our study was the availability of information technology (AIT). AIT counts how many information technology applications, information systems or other IT software is available in the organization (question 8 in the survey). A third IT measure was called usage of information technology (UIT). This represents how many information technology applications, information systems or other IT software are known and used by the managers in the organization (question 9 in the survey).

Besides the three IT measures, we also used a previously defined measure of a manager's success. This success measure was used in the previous real managers study (Luthans, 1988; Luthans *et al.*, 1988, 1985) and is a hybrid of ''the managerial achievement quotient'' (Hall, 1976) and ''promotion index'' (McCall and Segrist, 1980). The managerial success index MSI is computed as follows:

$$MSI = \frac{5(3 - level)}{Organizational\ tenure}$$

The measures were tested for reliability. First, the 11 items measuring the amount of time the KM spent during a normal working day in various activities (LOS factors) had a reliability (Cronbach alpha) = 0.84. The reliability analysis on the 11 items that measured a combination of managerial activities and the IT method used to perform the activity (i.e. the components in the nominator of the *ITU* formula) had a Cronbach alpha = 0.83. These alphas are significantly high and within the conventionally acceptable range (Nunnally, 1978).

Results on KMs and comparisons with previous managers

Figure 4 shows the relative distribution of the four major categories of knowledge management activities as reported by the present sample and compares this to the data gathered in our ''real managers'' study (see Luthans, 1988; Luthans *et al.*, 1988). This comparison in Figure 2 is only descriptive and does not imply statistical inference.

Today's knowledge managers spend about the same amount of time (31 percent) in traditional management activities such as planning and coordinating, decision making, problem solving, monitoring and controlling performance than the real managers (32 percent) in the old economy. Interestingly, contrary to the findings in the previous study,

today's knowledge managers give much more attention (30 percent) to human resource activities than their earlier counterparts (20 percent). However, contrary to conventional wisdom of what KMs should be doing, their communication activities consisted of only 22 percent compared to the 29 percent found for the earlier real managers. Yet, before concluding that KMs are giving less attention to communication, another interpretation could be that they are successfully using information technology to reduce the time they spend carrying out such activities as exchanging and processing routine information. Finally, Figure 4 shows that KMs give about the same amount of time to networking (17 percent), as did the real managers (19 percent).

The findings for the relative frequencies of activities of KMs are supported by a factorial analysis. As shown in Table II, the value of test statistics for sphericity, based on a chi-squared transformation of the determinant of the correlation matrix, is large and the associated significance level is small. Thus, it appears unlikely that the population correlation matrix is an identity. Also, the measure of sampling adequacy (KMO = 0.876) is meritorious (Kaiser, 1974) and we can confidently proceed with the factor analysis.

Using principal component analysis, two main factors (eigenvalue 1) were extracted. The first principal component is the combination that accounts for about 30 percent of the variance in the sample. The second principal component accounts for about 22 percent of the variance. As shown in the rotated component matrix, those two major components, which together count for more than half of the variance in the sample, are strongly correlated with the knowledge management activities. Component 1 is primarily correlated with traditional managerial activities, such as decision-making (0.760), planning and coordinating (0.715), and controlling (0.693). This component is also correlated with communication activities such as exchanging information (0.766) and processing paperwork (0.588).

Human resource activities continue to be a significant part of the knowledge management activities. They are correlated with the first component (motivating and reinforcing 0.555) and the second component, respectively 0.742 for staffing and 0.624 for training and developing. Component 1 is also correlated with interacting with outsiders (0.588) and component 2 with socializing and politicking (0.672). This indicates that networking activities may count for the least variance in the sample data of knowledge management activities.

Both the descriptive and factorial analysis provides input into answering the important question of what knowledge managers really do. They do traditional management activities (planning, decision making and controlling) and human resource activities (motivating/reinforcing, staffing, and training/developing), and a little less communicating and networking.

The next step in our study design is to answer the second research question ''what do successful knowledge managers do''. As previously mentioned, success is measured in terms of the relative speed of promotion (level/tenure). Because we want to compare our results with the previous studies, stepwise regression analysis was conducted to analyze success. Table III represents the results of the regression analysis, where the dependent variable is the manager success index (MSI) and the independent variables are the four major activities: traditional, human resource, communication, and networking.

Similar to previous studies (Kotter, 1999; Luthans *et al.*, 1985), networking activities still have a statistically significant relationship to success. Specifically, the results show that networking activities, such as, socializing, politicking and interacting with outsiders, account for the largest relative contribution (about 50 percent of the variance) to knowledge manager success as defined as velocity of promotion. The second step of the regression analysis also indicates that communication activities have a significant impact in the promotional success of today's knowledge managers. Although this activity only accounts for negligible variation (about 1 percent), these findings indicate that exchanging and processing routine information may contribute to some of knowledge managers' success. Interestingly (as in the earlier study), even though KMs as a whole spend relatively more time in the traditional and HR activities than to the networking and communication activities, the reverse is true of the successful managers. The successful knowledge managers give relatively more attention to networking and secondarily communication activities than to the traditional and HR activities.

The role of IT in knowledge management

The above analysis begins to answer the question of what knowledge managers in general and the successful ones in particular do in their

day-to-day activities and how this compares to previous managers. Next, the analysis examined the role that IT plays in knowledge management. Specifically, the ITU index is used to measure the amount of information technology used by today's knowledge managers in their day-to-day activities. The question we analyzed was how the KMs who were relatively heavy users of IT performed their day-to-day activities.

The ITU measure was used to divide the respondents into two groups: KMs who greatly use IT (those with an ITU greater than 0.5) and KMs who do not emphasize the use of IT (those with an ITU less than 0.5). Factorial and stepwise regression analysis was then conducted on the KMs who give relatively more attention to the use of IT.

Table IV shows that the high IT users are more likely to spend their time and efforts performing traditional management activities (0.884), networking activities (0.814) and human resource activities (0.782). Even more than the KMs as a whole, the KMs who are greater users of IT spend far less time on communication activities (0.376). Interestingly, however, stepwise regression analysis for the heavy users of information technology suggests that communication activities are the only category of managerial activities that significantly contributes to their promotional success (MSI).

The last step in the statistical analysis was calculating the correlation among several variables, as shown in Table IV. Although there is a need for more in-depth investigation for the future, the data in Table V provides beginning insights for better understanding the impact that information technology may have on the knowledge management process. For example, there is no significant linear correlation between the knowledge manager's success and information technology usage (ITU index). Yet, the correlation analysis does suggest a significant correlation between the amount of information technology used (ITU index) and perceived information availability, perceived responsibility, and perceived efficiency. Also, as would be expected, there is a strong correlation between the amount of IT used and the perceived availability of information technology.

Implications and conclusions

Our representative sample of 307 knowledge managers comes from all levels and all functions of today's organizations. The analysis shows

that these KMs spend about the same amount of time as managers in the 1980s in traditional and networking activities, but relatively more time in HR activities and less time in the defined communication activities of exchanging and processing routine information. Besides for the first time having empirical findings of what KMs do in their day-to-day activities, this result of giving relatively more attention to HR activities has important implications. Perhaps KMs, which are often thought to be more concerned with technology at the sacrifice of the human factor, is not true. Maybe advanced information technology is actually freeing KMs up to give more attention to their people. In the new economy, KMs may recognize the value of their human capital and give more of their attention and effort in day-to-day activities to maintain and nurture their people.

The other surprising finding of KMs giving relatively less attention to communication activities also has interesting implications. Conventional wisdom would suggest that the very essence of KMs would dictate that they spend more, not less, time on communication activities. Yet, as mentioned earlier, the advanced information technology may be freeing up KMs of the routine communication activities (as measured in this study) and allow them to spend more time with human-oriented activities which hopefully includes sharing of knowledge. Whether this sharing is actually occurring was not determined in this study, but we did find that at least there might be newfound time to do this in their increased HR activities. In fact, this may be a major way KMs get ahead in their organizations. We found that only the network and communication activities (not the traditional and HR activities) had a significant impact on the promotional success of knowledge managers. This finding was especially true for the KMs who were found to be relatively heavy users of advanced information technology.

In conclusion, this study provided the first empirical evidence to help clarify exactly what today's KMs do in their day-to-day activities, how they compare to earlier managers, what activities relate to their success, and the role advanced information technology plays in knowledge management. Although we did find the usage of information technology was significantly related to perceived job responsibility and efficiency, future research needs to examine the relationship between the KMs' activities and their effectiveness.

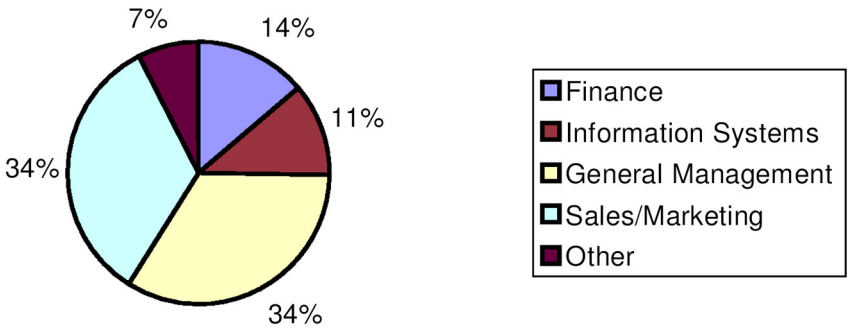

Figure 1. Classification of KMs according to their functional position

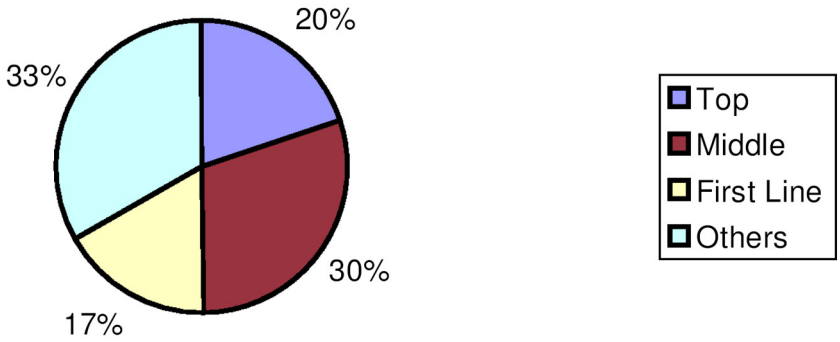

Figure 2. Classification of KMs according to their managerial level

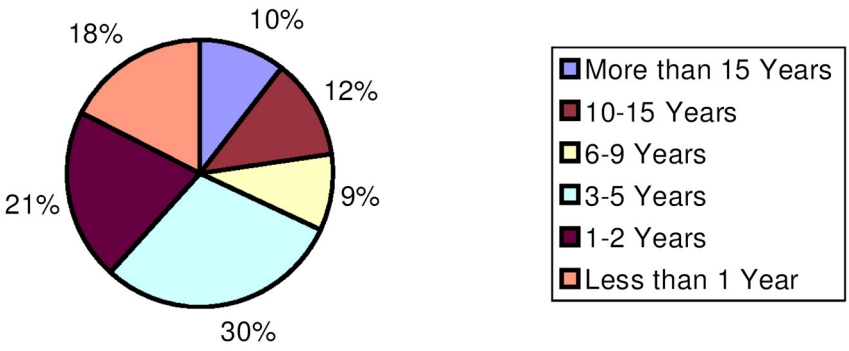

Figure 3. Classification of KMs according to their organizational tenure

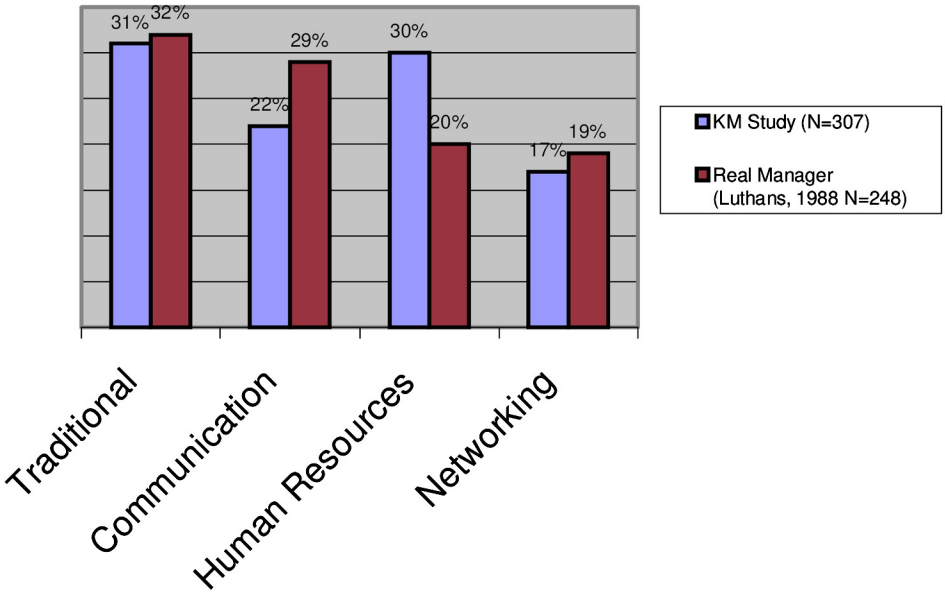

Figure 4. Descriptive summary of relative frequencies of managerial activities

Table I. Intuitive comparison between explicit and tacit k-managerial behaviors

Activities	*Definitions*	*Selected observed behaviors in real managers*	*Explicit KMs*	*Tacit KMs*
Communication	Exchange routine information and process paperwork	Answer procedural questions	X	
		Receive and disseminate requested information	X	
		Convey results of meetings	X	X
		Processing mail and giving or receiving information over the phone	X	
		Writing reports and memos	X	
		Routine financial reporting and bookkeeping	X	
Traditional management	Planning, decision-making and controlling	Setting goals and objectives	X	X
		Scheduling employees		X
		Assigning tasks		X
		Providing routine instructions	X	
		Inspecting work	X	X
		Monitoring data	X	X
Human resource management	Motivating/reinforcing, managing conflict, staffing, training/developing	Formal rewarding	X	X
		Providing feedback	X	X
		Developing job descriptions		X
		Reviewing applications and interviewing applicants		X
		Coaching and mentoring	X	X
		Walking subordinates through a task	X	X
Networking	Socializing/politicking, interacting	Non-work "chit-chat"		X
		Informal joking around		X
		Rumor and hear-say		X
		Politicking		X
		Dealing with customers		X
		Attending external meeting	X	X

Table II. Factor analysis for managerial activities

KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.871
Bartlett's test of sampling adequacy	Approx. Chi-	986.650
	Degree of freedom	55.000
	Significance	0.000

Total variance

	Initial			*Rotation sums of squared*		
Components	*Total*	*% variance*	*Cumulative %*	*Total*	*% variance*	*Cumulative %*
1	4.40	40.06	40.06	3.32	30.19	30.19
2	1.33	12.09	52.15	2.41	21.96	52.15
3	0.92	8.41	60.57			
4	0.81	7.37	67.94			
5	0.69	6.27	74.22			
6	0.63	5.72	79.95			
7	0.58	5.30	85.25			
8	0.49	4.51	89.77			
9	0.43	3.97	93.74			
10	0.39	3.54	97.29			
11	0.29	2.70	100.00			

Rotated component matrix

	Component	
	1	*2*
Information exchange	0.766	
Decision making	0.760	
Planning and coordinating	0.715	
Controlling	0.693	
Handling paperwork	0.588	
Interacting with outsiders	0.581	
Motivation and reinforcement	0.555	
Staffing	0.742	
Conflict management		0.697
Socializing and politicking		0.672
Training and developing		0.624

Extraction method: Principles component analysis
Rotation method: Varimax with Kaiser normalization

Table III. Stepwise regression analysis

Variables entered or removed-dependent variable: manager success index

Model	*Variables entered*	*Method*
1	Networking management activities	Stepwise (criteria: F-to enter> = 3.840, F-to-remove < = 2.710)
2	Communication activities	

Model summary

					Change statistics				
Model	*R*	*R-square*	*Adjusted R-square*	*St. error of the estimate*	*R-square change*	*F-change*	*df1*	*df2*	*Sig. F change*
1	0.709	0.503	0.501	2.0037	0.503	209.542	1	207	0.000
2	0.717	0.514	0.510	1.9856	0.011	4.792	1	206	0.030

Coefficient of regression

		Un-standardized coefficients		*Standardized coefficients*		
Model		*B*	*Std. error*		*t*	*Sig.*
1	Networking management activities	0.352	0.024	0.709	14.476	0.000
2	Networking management activities	0.216	0.067	0.435	3.236	0.001
	Communication activities	0.119	0.054	0.294	2.189	0.030

Table IV. Factor analysis and stepwise regression for successful KM activities (ITU >= 0.5)

Factor analysis-extraction method: principal component analysis

	Initial Eigenvalues			*Extraction sums of squared loadings*		
Component	*Total*	*% of variance*	*Cumulative %*	*Total*	*% of variance*	*Cumulative %*
1	2.197	54.923	54.923	2.197	54.923	54.923
2	0.965	24.122	79.045			
3	0.502	12.543	91.588			
4	0.336	8.412	100.00			

Management activities	*Component 1 is extracted*
Traditional	0.884
Communications	0.376
Human resources	0.782
Networking	0.814

Stepwise regression-dependent variable: manager success index

	Un-standardized coefficients		*Standardized coefficients*		
Model	*B*	*Std. error*	*Beta*	*t*	*Significance*
Communication activities	0.295	0.072	0.693	4.075	0.001

Table V. Pearson correlation coefficients between selected variables

	ITU index	MSI	Age	IT used	IT avail.	Unn. paper work	Perc. info. avail.	Perc. resp.	Perc. effic.	Exp.	Mgr. level
IT usage index	–	0.09	0.14*	0.36**	0.37**	0.00	0.17**	0.24**	0.26**	0.07	0.00
Manager success index	–	0.00	0.11	0.06	0.04	0.04	0.00	0.01	0.00	0.00	
Age (in a scale of 1-5)	–	0.11*	0.13*	0.00	0.07	0.11*	0.15**	0.49**	0.06		
IT used by manager	–	0.70*	0.00	0.10	0.13*	0.13*	0.09	0.00			
IT available	–	0.00	0.13*	0.17*	0.18*	0.12*	0.00				
Unnecessary paperwork	–	0.00	0.00	0.04	0.00	0.00					
Perceived Information available	–	0.82**	0.77**	0.00	0.00						
Perceived responsibility	–	0.93**	0.00	0.00							
Perceived efficiency	–	0.00	0.00								
Experience	–	0.12									
Manager level	–										

* Correlation is significant at 0.05 level
** Correlation is significant at 0.01 level

References

Barclay, R.O. and Kaye, S.E. (2000), "Knowledge management and intelligence functions: A symbiotic relationship", in *Millennium Intelligence: Understanding and Conducing Competitive Intelligence in the Digital Age*, CyberAge Books, Medford, NJ, pp. 155-69.

Barclay, R.O. and Murray, P. (1997), "What is knowledge management?"; http://www.knowledge-at-work.com/whatis.htm

Barclay, R.O. and Pinelli, T.E. (1997), "Diffusing federally funded aeronautical research and technology toward a knowledge management structure", *Knowledge Diffusion in the US Aerospace Industry: Managing Knowledge for Competitive Advantage*, Ablex Publishing Corporation, Greenwich, CT, pp. 891-948.

Blackler, F., Reed, M. and Whitaker, A. (1993), "Epilogue: An agenda for research", *Journal of Management Studies*, Vol. 30 No. 6, pp. 851-62.

Borghoff, M. and Pareschi, R. (Eds) (1998), *Information Technology for Knowledge Management*, Springer- Verlag, Berlin-Heidelberg.

Cohen, S.L. and Backer, N.K. (1999), "Making and mining intellectual capital", *Training and Development Journal*, September, pp. 46-50.

Davenport, T.H. (1999), *Human Capital: What it is and why People Invest it*, Jossey-Bass, San Francisco, CA.

Davenport, T.H. and Grover, V. (2001), "Knowledge management", *Journal of Management Information Systems*, Vol. 18 No. 1, Special Issue.

Drucker, P.F. (1994), "The theory of business", *Harvard Business Review*, September-October, pp. 95-104.

Earl. M. (2001), ''Knowledge management strategies: Toward a taxonomy'', *Journal of Management Information Systems*, Vol. 18 No 1, pp. 215 33.

Evans, P. and Wurster, T.C. (2000), *Blown to Bits: How the New Economics of Information Transforms Strategy*, Harvard Business School Publication Press, Boston MA.

Gold, A.H., Malhorta, A. and Segars, A.H. (2001), ''Knowledge management: An organizational capabilities perspective'', *Journal of Management Information Systems*, Vol. 18 No. 1, pp. 185-214.

Grover, V. and Davenport, T.H. (2001), ''General perspectives on knowledge management: Fostering a research agenda'', *Journal of Management Information Systems*, Vol. 18 No. 1, pp. 5-21.

Hall, J. (1976), ''To achieve or not: The manager's choice'', *California Management Review*, Vol. 18, pp. 5-18.

Horibe, F. (1999), *Managing Knowledge Workers: New Skills and Attitudes to Unlock the Intellectual Capital in your Organization*, John Wiley, New York, NY.

Kaiser, H.F. (1974), ''An index of factorial simplicity'', *Psychometrika*, Vol. 39, pp. 31-6.

Kotter, J.P. (1999), ''What effective general managers really do?'', *Harvard Business Review*, Vol. 77 No. 2, pp. 145-58.

KPMG (1998), ''Knowledge management: Research report'', available at www.brintficom.

Luthans, F. (1988), ''Successful vs. effective real managers'', *Academy of Management Executive*, May, pp. 127-32.

Luthans, F. and Stajkovic, A.D. (1999), ''Reinforce for performance: The need to go beyond pay and even rewards'', *The Academy of Management Executive*, Vol. 13 No. 2, pp. 49-57.

Luthans, F. and Lockwood, D.L. (1984), ''Toward an observation system for measuring leader behavior in natural settings'', in Hunt, J.B., Hosking, D., Schriesheim, C. and Stewart, R., *Leaders and Managers: International Perspectives on Managerial Behavior and Leadership*, Pergamon Press, New York, NY, pp. 117-41.

Luthans, F., Rosenkrantz, S.A. and Hennessey, H. (1985), ''What do successful managers really do? An observational study of managerial activities'', *Journal of Applied Behavioral Science*, Vol. 21, pp. 255-70.

Luthans, F., Hodgetts, R.M. and Rosenkrantz, S. A. (1988), *Real Managers*, Ballinger, Cambridge, MA.

Malhorta, Y.(2000), ''Knowledge management for e-business performance: Advancing information strategy to Internet time'', *Information Strategy, the Executive Journal*, Vol. 16 No. 4, pp. 5-16.

McCall, M.W. Jr. and Segrist, C.A. (1980), ''In pursuit of the manager's job: Building on Mintzberg'', Technical report No. 14, Center for Creative Leadership, Greensboro, NC.

Nonaka, I. (1991), ''The knowledge-creating company'', *Harvard Business Review*, Vol. 79 No. 6, pp. 96-104.

Nunnally, J. (1978), *Psychometric Theory*, 2nd ed., McGraw-Hill, New York, NY.

Oxbrow, N. (May 2000), ''KM's future in the e-world'', *Information World Review*, Vol. 158, p. 18.

Pfeffer, J. and Sutton, R.I. (2000), *The Knowing-doing Gap*, Harvard Business School Press, Boston, MA.

Stewart, T.A. (2000), ''The house that knowledge built'', *Fortune*, Vol. 142 No. 7, pp. 278-80.

Stewart, T.A. (2000), ''Software preserves knowledge, people pass it on'', *Fortune*, Vol. 142 No. 5, pp. 390-92.

Wah, L. (1999), "Behind the buzz", *Management Review,* April, pp. 17-26.