

Deriving managerial benefit from knowledge search: A paradigm shift?

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Abstract

A conceptual model of knowledge/information (K/I) search and transfer was developed; it was based on three concepts: managers' preferences for internal versus external sources, the importance of relationships between sources and recipients, and the derived managerial benefit. The results of an empirical study demonstrated a high degree of explained variance in managerial benefit and suggested managers' preferences for external sources over internal ones. They also supported the notion that managers use internal, known knowledge search to enhance their reputation and status. These results suggested a shift away from the conventional wisdom of internal preference that is reflected in theories of in-group favoritism and out-group derogation.

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1. Introduction

Knowledge management (KM) systems not only facilitate the collection, storage, and dispersion of knowledge within the organization, but also include investments that involve knowledge exchange with suppliers, customers, and partners. KM continues to be a rapidly growing field. Within KM one of the fastest growing industries is that of information search. Information search is expected to have annual growth rates of 17% through 2008 raising revenues to an

estimated US\$ 59.6 billion in 2008 from US\$ 38 billion in 2005.

In addition, spontaneous and unstructured transfers of knowledge routinely take place between managers both inside and outside the organization [23]. These exchanges result in the generation of new organizational knowledge, providing a basis for product, service, and process changes and organizational renewal [35,29]. Some even argue that the process by which managers generate and exploit new knowledge to satisfy their customers' desires is the essence of the organization [62].

Knowledge seeking, knowledge acquisition and knowledge transfer are important sub-processes of knowledge management. Each deals with some phase of the process used by a manager when seeking out facts, advice, opinions or the expertise in order to make a decision or address an issue. Problem-solving

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usually involves both search and access to previously-created knowledge [51]. Knowledge acquisition is associated with seeking and finding knowledge and internalizing it, for example from an electronic discussion board [3]. Knowledge transfer refers to the focused and intentional communication of knowledge from a source to a recipient to serve specific purposes [42].

Knowledge seeking often precedes transfer, since a seeker must identify a source before knowledge can be transferred. “Information seeking” is a related construct that focuses on obtaining facts (information) rather than knowledge [11]. In our study we focus on the combined seeking–transfer process through which one identifies a problem to be addressed or a need for knowledge or information, locates a source and then is the recipient of knowledge or information transfer from that source.

While a distinction between knowledge and information is often useful [2], a manager trying to make better decisions usually does not know in advance exactly which form it may take. The seeker may have to rely on opinions and judgments from which data may be inferred.

For instance, if an editor is trying to assess the potential market for a proposed textbook, several levels of knowledge or information (K/I) might prove to be useful. Among them are:

- subjective judgments made internally (e.g., by a sales representative), that the number of college and university courses in the topic area is growing rapidly,
- “hard” data from external sources reflecting this,
- external data concerning the growth of expenditures by industry in the area,
- the advice of a consulting editor specializing in the field. This assessment might reflect knowledge of the new area or underlying knowledge of the centrality, or marginal nature, of it.

Thus, the need for information – the market potential of a new book – may be assessed or estimated through several surrogate information measures. If numerical data are not available, the seeker may have to rely on judgments.

Generally, managers with a problem follow a complex process that combines consideration of content quality and feasibility [10] using both systematic and heuristic means [15]. Moreover, managers, who are often unaware of the result of their actions on the organization, may not know exactly what they want [27]. As a result, the actions are often done in an

evolutionary manner [43]. The interactions are often complex consisting of the gathering of information and the sharing of understandings with others [36]. The plausibility of that which is gained is usually formulated in the manager’s sense-making, rather than in referential categorizing [9].

2. Conceptual foundations

Ancona and Caldwell [4] emphasized the importance of horizontal communications within teams to provide “a general scanning of the market and technical environment” as one phase of a cycle of “external activity, internal processes and performance”. These phases map well onto the behavior of individual managers in K/I seeking and transfer.

The basic foundations are:

- (1) considering the *internal versus external* behavior of managers,
- (2) focusing on the *relational aspects* of behavior,
- (3) measuring the *managerial benefit* derived from it.

2.1. External versus internal sources

A great deal has been written about managerial preferences for internal or external K/I sources (e.g., [1,6,59]), but little empirical research has been undertaken. Much that has been conceptualized or empirically studied has focused on characteristics of the K/I itself, such as its “stickiness” [34,61,64].

Traditionally, managers who primarily searched internally were accused of being subject to the “NIH” not-invented-here syndrome [41] or of living in their own “reality distortion field”, in which otherwise rational managers become committed to ideas or points of views without regard to their practicality [13]. Indeed, Phillips et al. [53] demonstrated that organizational social norms can impose conformity which, at times, results in the rejection of externally-sourced ideas.

However, recent work challenges a preference for internal sources perhaps because the proximity of a knowledge or information sources can “reduce the perceived value of internal knowledge” [49]. This may be because of one’s awareness of flaws in the internal knowledge and/or imperfections in the process of its development, which lessens its perceived uniqueness [59].

The distinction between internal and external sources is ancient. Plato distinguished between “actual speech” – a lively personal dialogue – and “written

speech”, in which questions are answered in a stilted and passionless manner [50]. In organizational terms, “actual speech” has traditionally related to internal sources and “written speech” to external ones.

Allard and Holsapple [3] describe knowledge acquisition as involving “identifying knowledge in the external environment and transforming it so that it can be used subsequently in the organization” and knowledge selection to be a similar process relating to internal sources.

Some research has even suggested that individuals in teams categorize their work processes primarily as internal versus external rather than as more traditional work-phase categories [33].

Although some case studies have suggested that managers prefer external to internal sources, theories of in-group favoritism and out-group derogation (e.g., [11]) suggest otherwise and other studies confirm this (e.g., [22]). Indeed, even Menon and Pfeffer [49], whose research demonstrated a preference for outside sources, said that “. . . we cannot yet conclude that external knowledge is valued more than internal knowledge” [49].

2.2. *Relational aspects of seeking and transfer*

In the past, some researchers have equated knowledge transfer and knowledge sharing (e.g., [39]), but recently clear distinctions have been made between sharing and transfer [42] adopting a source and recipient generic model of transfer [44].

Menon and Blount [48] have proposed a relational model of knowledge valuation in which the “relationships between actors communicating knowledge and actors receiving those communications produce social psychological forces that moderate how a new piece of knowledge is valued”. Pantelli [52] found that social cues are present in electronic communications. Our model seeks to stake out an intermediate position between the “garbage can” model [19] – which posits a time-dependent random matching process among actors, problems and solutions – and a purely rational model in which those having K/I needs carefully evaluate all available K/I alternatives and choose the “best” that is available. Another well-known alternative is Simon’s “theory of bounded rationality” which relaxes the consideration of “all” alternatives in the rational model [58].

In our study, we measured the relational dimension by determining whether the K/I source was “known” or “unknown” to the seeker.

2.3. *Managerial benefits*

The theory and results of a relatively few studies suggest contradictory theoretical and empirical results concerning preferences and behaviors in the area of knowledge seeking and transfer. Only a few studies have investigated the effects of search and transfer on managerial benefits, or performance, although many have suggested that this relationship exists. Ancona and Caldwell showed how both internal and external activities and processes could be combined to ensure team success. They also showed that the types of external communications influenced performance.

We concluded that there is a need for a study of external and internal K/I seeking behavior in terms of managerial benefits.

The measurement of managerial benefit generally falls into two broad areas—measures of efficiency (EY) or effectiveness (ES). Ryan and Harrison [56] interviewed 50 decision-makers in a variety of industries and found that the benefits from a wide range of information systems were productivity (EY) and improved decision-making ability (ES). Researchers have measured managerial benefits in efficiency terms in a variety of ways such as the productivity of teams in their solving of complex technical problems [38] or using a “productivity” measure that indicated the percentage of time that a decision support system was used in a decision-making situation [8]. Similar productivity measures have been used for systems such as e-mail (e.g., [21]).

Podoluy [54] focused on effectiveness in assessing the impact of information gathering systems on decision-making. In an information systems context, Zmud and Ginzberg [69] measured benefits in specific areas of IS use—support of cost reduction, management, strategy planning and competitive thrust. “Decision quality” [24], quality-of-work-life [32], and changes in decision behavior [28] have also been assessed. Thus, managerial benefit may be conceptualized in a variety of ways such as increased productivity (EY), improved problem-solving (ES), better choices (ES) and better job performance (EY and/or ES).

3. **Conceptual framework and research model**

The 2×2 matrix in Fig. 1 shows our conceptual framework. It contrasts internal and external sources and known and unknown knowledge source preferences. The top-left element (internal-known) reflects the mechanisms for using in-group sources. We operationalized this in terms of department and

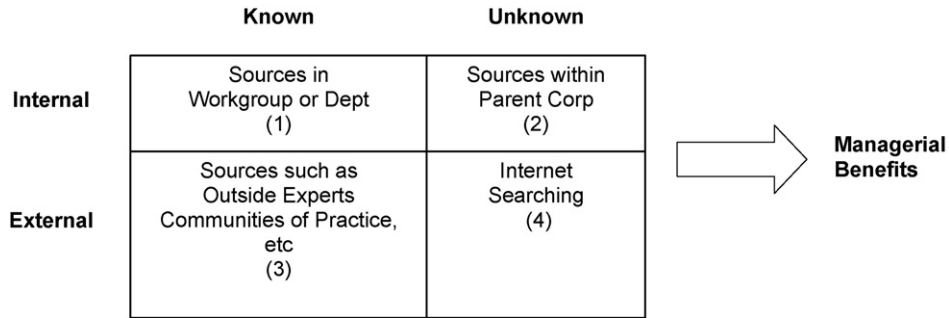


Fig. 1. Conceptual framework for K/I search-acquisition.

company sources. The top-right box reflects internal, unknown sources, operationalized here as outside the department/company but within the parent corporation. The bottom-left element reflects external, known preferences, operationalized as personal contact with outside experts. The bottom-right element primarily reflects Internet searching involving unknown sources. This division of the external sources into one source of more specific knowledge and another of more general knowledge is consistent with Xu et al. [68].

Fig. 2 portrays our research model. On the left, there are four constructs related to the elements of the conceptual framework. Three of these are directly related to the dependent construct: managerial benefit, which reflects both efficiency and effectiveness (improvements in job performance, productivity and solutions to problems).

The topmost construct (internal-known) is reflected in internally-focused benefits such as image in the organization and shared rewards [37,45,46]. Gladstein [33] found that internal interactions were primarily related to satisfaction and team-related performance, and that external interactions were associated with sales revenues. This suggested the direct links of external K/I

seeking-transfer with managerial benefit and an indirect link through a mediator construct that involves how others impute value to a search and transfer and to the person who performs it. This indirect link has been found to reflect managers’ desires to fulfill and extend their organizational members’ shared values [20] to become known as a valuable employee and to increase his or her social status; this can be a long term investment.

So, internal impact is treated as a mediator between internal-known sources and managerial benefits; it has also been shown to have a direct relationship with managerial benefit.

The research questions that are addressed here therefore are:

- (1) Does utilization of internal-known sources of K/I contribute to a manager’s internal impact?
- (2) How do such internal impacts and choices among the other relation-based sources relate to the overall benefit that a manager derives from K/I search and transfer?

4. Research method

4.1. Survey design

A survey sample method was used. The people surveyed were practitioner managers from companies who were then part-time MBA and executive MBA students at the University of Pittsburgh’s Katz Graduate School of Business. The goal was to examine the actions of organizational managers who utilized both internal and external sources for K/I in the performance of their job.

The first step in the process was to create indicators for each construct that reflected the underlying theory.

Two survey instruments were administered. The first was intended to elicit the sample’s K/I seeking behavior

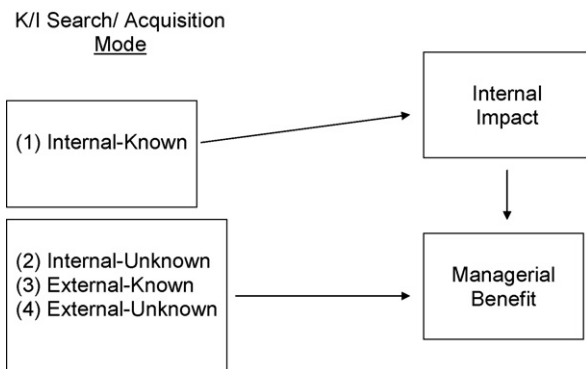


Fig. 2. Research model (numbers refer to the conceptual model of Fig. 1).

in a technological context. The data collection started as a conversation with each manager to assist him or her understanding the meaning of the items [60].

The second questionnaire, administered 8 weeks later, involved only the items for the dependent variable, managerial benefit. Its purpose was to ensure that no shading effects existed in the answers to the first instrument [30].

The survey instruments were developed carefully [25] and refined and pre-tested in cooperation with experts who possessed both research and field experience and executives having similar organizational backgrounds to the subjects.

The items were developed to be reflective (effect) indicators of the functions of the latent variable. Therefore, changes in the latent variable were reflected in changes of the observable indicators.

The initial item set was developed from a literature review. The resulting pool was evaluated by factor analysis in order to develop the indicators that represented the essential elements of the constructs. The items were worded and arranged to facilitate recall and to motivate the subject to respond accurately [47]. The items were varied by type and subject in order to make the exercise interesting [65]. Items were both yes/no and a five-point Likert-scale (Disagree Strongly to Agree Strongly).

The survey instruments were e-mailed to possible respondents with suggestions developed by Dillman [25].

4.2. Sample characteristics

All respondents were active managers of organizations who voluntarily agreed to respond. A total of 159 subjects were available; 121 (76%) returned the surveys. Four of the respondents indicated that they had no managerial experience; so their responses were not used. Of the remainder, 34 failed to answer the complete questionnaire and their responses were deleted, leaving 97 (61.6%) for analysis.

Their demographic data revealed that their ages ranged from 22 to 52 with a mean of 31 years. The subjects had mean job tenure of 5 years with their present company and searched for K/I approximately 3 h/day; 78 made decisions on problems that they considered as requiring new and unique solutions, and 60 made decisions that involved large expenditures.

5. Analysis and results

The model was assessed using Partial Least Squares (PLS), a second-generation multivariate technique

designed for the estimation and assessment of structural models [31,66]. Like covariance structure analysis approaches, PLS simultaneously estimates both loadings and path coefficients. It also has, as its primary objective, the maximization of variance explained for the endogenous constructs in a model [17,18,40].

We used PLS because it

- (1) requires less stringent assumptions about the randomness of the sample and the normality of the distribution of variables [67],
- (2) accommodates smaller sample sizes [5],
- (3) is more appropriate when the objective is maximizing the variance explained in dependent constructs,
- (4) is more robust in dealing with complex causal relationships [57].

One limitation of PLS is that the parameter estimates can be less than optimal when the sample size is small [7]. This limitation was addressed through use of a bootstrapping re-sampling procedure [5,17].

The assessment of a PLS model generally begins with an assessment of the quality of the measurement model, followed by an interpretation of the structural model results. Assessment of the measurement model involves examination of the individual item reliabilities, convergent validity, and discriminant validity, with adjustments made to ensure acceptable measurement properties. Means, standard deviations, and Cronbach's alpha values are reported for each construct in Table 1.

5.1. Analysis of potential methods bias

In our study we were unable to use several informants for each firm; this increases the possibility of method bias; where significant statistical relationships between variables are due to the method used to measure the variables rather than any true relationships between the constructs [63]. We addressed method bias with two strategies; the first was proactive within the development and construction of the instruments and the time difference between the executions of the two instruments. Second, where potential bias could exist, statistical measurement was performed that indicated minimal effect. Specifically:

- We developed the instruments to minimize potential bias utilizing methods and structures from McLaughlin and Dillman.
- We had lengthy meetings with over twenty managers from various companies and within different industries during item development. The pre-test was

Table 1
Means, standard deviation, and internal consistency

Construct	Indicators	Means	S.D.	Fornell and Bookstein
Internal-known	Share K/I in company	0.871	0.036	0.819
	E-mail in company	0.959	0.020	
Internal impact	Improves image in company	0.357	0.049	0.809
	Department perform better	4.204	0.095	
Internal-unknown	E-mail to parent corporation	0.510	0.050	0.881
	E-mail to parent corporation	0.571	0.050	
	K/I related to job	0.326	0.047	
External-known	Outside experts	0.582	0.050	0.885
	Internet contacts	3.040	0.138	
	K/I direct related—Internet	3.306	0.127	
External-unknown	Searching—facts	0.806	0.040	0.887
	Searching—ideas	0.735	0.045	
	Searching—impressions	0.571	0.050	
Managerial benefit	Improve job perform	3.949	0.115	0.906
	Improve productivity	3.724	0.115	
	Improve problem-solving	0.806	0.040	
	Improve techniques	0.408	0.050	

performed in a single-site, large manufacturing organization to improve the instrument.

- Our constructs were developed to minimize shading bias by defining the performance as the benefit managers received from the systems rather than how well managers performed using their search approach.
- We distributed a second instrument of dependent variables to gather data, thus minimizing variable shading due to feelings of consistency resulting from expected relationships.
- The results of the second instrument, when compared to the results of the dependent variables in the first instrument, were found to have a Cronbach alpha of 0.77 indicating little or method bias [55].

5.2. Control variables

Variables commonly employed in other managerial and information system studies were captured and investigated. We found no effect from variables such as age, education, department of responsibility, and job responsibility. Only job tenure of less than 1 year had a statistical significance. We recalculated the PLS tables and found that statistically significant differences existed. Managers with more than 1 year tenure did not have significant contribution to their managerial benefit from internal-known sources; they gained more from their external-known sources. The only “demographic” factor that showed any influence was gender;

males tend to prefer external sources while females prefer internal ones.

5.3. Measurement model assessment

In general, any item with a loading of 0.70 or above can be considered acceptable, since this indicates that there is more shared variance between the construct and its measure than error variance [14]. In the early stages of scale development, item loadings can be as low as 0.5 [16], but this threshold is less acceptable for established scales. Upon initial inspection of the indicator loadings we found that those within the external-known construct, largely involving communication with suppliers and customers, were below the 0.5 loading, whereas all other loadings were above it.

In order to establish convergent validity of a construct, it is necessary to show that the construct's indicator items are all related to the same construct. This can be shown by using the internal consistency measure proposed by Fornell and Bookstein. Their measure calculated the construct independent of the number of indicators and used the observed loadings to give a more accurate relative importance of each measure. They suggested that internal consistency values of at least 0.70 were required to conclude that convergent validity had been attained. Measures of internal consistency for the model are shown in Table 1, which also abstracts the essence of the content of each

Table 2
Discriminant validity

Constructs						
Internal–unknown	0.844					
External–known	0.313	0.856				
External–unknown	0.289	0.606	0.851			
Managerial benefit	0.473	0.692	0.646	0.843		
Internal–known	0.280	0.261	0.230	0.331	0.840	
Internal impact	0.277	0.395	0.295	0.460	0.443	0.825

The bold diagonal elements are the square root of the variance shared between the constructs and their measures (i.e., the average variance extracted). Off the diagonal elements are the correlations between constructs. For discriminant validity, the diagonal elements should be larger than any other corresponding row or column entry.

item. All five of the constructs exhibited adequate convergent validity.

To establish discriminant validity, one must demonstrate that the measures of a construct are more closely related to one another than those of other constructs in the model. This can be assessed by determining the correlations between constructs and comparing them with the average variance extracted for each construct [26]. Specifically, the root average variance extracted for a construct (shown on the diagonal of Table 2) should be greater than any of

the cross-correlations between that construct and others. All six constructs show adequate discriminant validity.

5.4. Structural model assessment

Since the estimated measurement model demonstrated acceptable reliability, convergent validity, and discriminant validity, it was appropriate to turn to an assessment of the structural model. This involved examination of both the overall predictive power of the model and the individual path coefficients.

Fig. 3 shows that the model explained the variability in managerial knowledge benefit, with 64.1% of the variance explained. These levels are comparable to those observed in other firm-level studies using PLS (e.g., [40]).

The size of the path coefficients can be interpreted as standardized betas resulting from OLS regression. The statistical significance of the estimates was examined by using the *t*-statistics obtained from bootstrap resampling. Table 3 shows the individual path coefficients, along with *t*-values and significance levels. All paths are significant and positive and in the predicted direction. These coefficients are also summarized in Fig. 3.

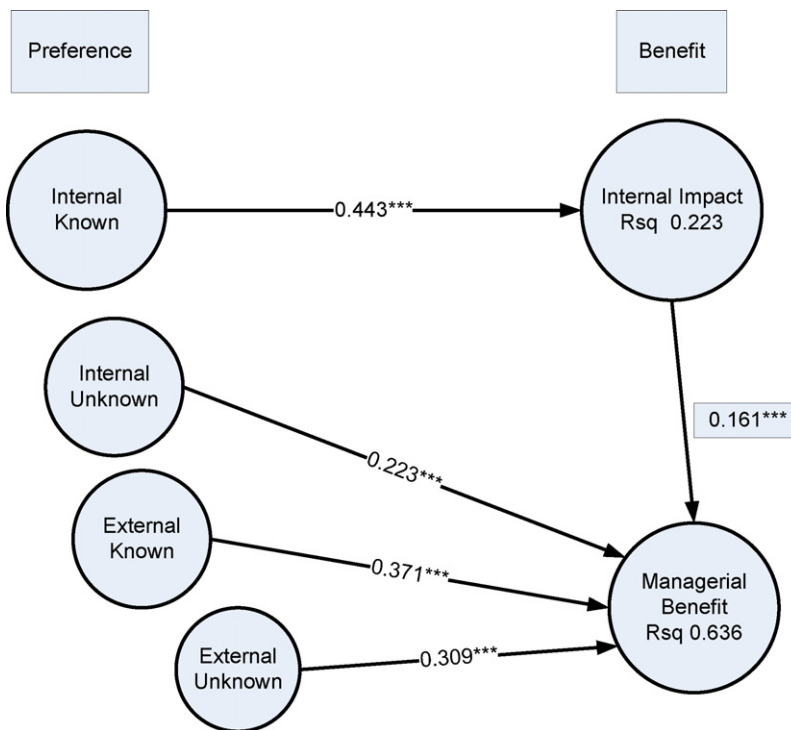


Fig. 3. Model of managerial benefit.

Table 3
Estimated path coefficients—full sample

Path	Expected	Estimated coefficient	t-Value	Significance
Internal-known to internal impact	+	0.443	4.746	<0.001
Internal impact to managerial benefit	+	0.161	2.376	<0.001
Internal-unknown to managerial benefit	+	0.223	2.461	<0.001
External-known to managerial benefit	+	0.371	4.441	<0.001
External-unknown to managerial benefit	+	0.309	3.783	<0.001

6. Results

As predicted, known sources within a manager's business unit contributed to a manager's internal impact ($\beta = 0.423$, $p < 0.001$). A manager's internal impact contributed, in turn, to a larger overall managerial benefit. Knowledge gained from securing of K/I from unknown sources within the corporation, and from external-known and unknown sources all improve the managerial benefit by ($\beta = 0.227$, $p < 0.001$), ($\beta = 0.372$, $p < 0.001$), and ($\beta = 0.301$, $p < 0.001$), respectively.

A major result was the high *R*-squared (explained variance) in managerial benefit. Such a large explained variance is unusual and validates the model's explanatory power.

The size and significance of the beta between internal-known and internal impact validates prior studies used in hypothesizing this mediator. This confirms the results of Gladstein, Constant et al., and Lakhani and von Hippel. It also indirectly confirms the notions of Hall and Graham and Lerner and Tirole that relate to such behaviors being seen as long term investments made by the individual.

The relatively larger betas on the two external source relationships with managerial benefits serve to confirm the unconventional wisdom of Menon and Pfeffer that external sources are generally preferred to internal ones. This complements their finding by suggesting that such preferences may be well founded in terms of the greater managerial benefits that they produce.

The relatively less significance of internal-unknown sources of managerial benefits probably reflects the dominance of the Internet over intranets, except in instances of well-understood business information, such as policies, procedures, and practices.

7. Summary

A research model was developed on the basis of three elements: the internal versus external source preferences of managers for knowledge and information, the

importance of relationships (known sources versus unknown sources), and the managerial benefit that is derived from search and transfer. A mediating variable, internal impact, was also assessed for the internal-known relationship to managerial benefit.

All hypothesized relationships proved to be significant and the overall predictive power of the model was substantial. The model therefore provides a useful approach to considering how managers search for and find knowledge and information and the benefits that they derive from them.

It is possible that the results demonstrated here collectively show a major paradigm shift for knowledge and information search and use—one that may be heavily influenced by the Internet and which obviates the old verities concerning the “not-invented-here” syndrome and the insularities of organizational managers.

References

- [1] E. Abrahamson, Management fashion, *Academy of Management Review* 21, 1996, pp. 254–285.
- [2] M. Alavi, D. Leidner, Knowledge management and knowledge management systems: conceptual foundation and an agenda for research, *MIS Quarterly* (March), 2002, pp. 107–136.
- [3] S. Allard, C.W. Holsapple, Knowledge management as a key for e-business competitiveness: from the knowledge chain to KM audits, *Journal of Computer Information Systems* 42 (special issue (5)), 2002, pp. 19–25.
- [4] D.G. Ancona, D.F. Caldwell, Bridging the boundary: external activity and performance in organizational teams, *Administrative Science Quarterly* 37, 1992, pp. 634–665.
- [5] J.C. Anderson, D.W. Gerbing, Structural equation modeling in practice: a review and recommended two-step approach, *Psychological Bulletin* 103, 1988, pp. 411–423.
- [6] A.G. Athos, R.T. Pascale, *The Art of Japanese Management*, Simon and Schuster, New York, 1981.
- [7] D.R. Barclay, R. Thompson, C. Higgins, The partial least squares approach to casual modeling: personal computer adoption and use as an illustration, *Technology Studies: Special Issue of Research Methodology* 2, 1995, pp. 285–324.
- [8] H. Barki, S.L. Huff, Change, attitude to change, and decision support system success, *Information and Management* 9 (5), 1985, pp. 261–268.
- [9] M. Billig, *Arguing and Thinking*, second ed., Cambridge University Press, Cambridge, 1996.

- [10] S. Borgatti, R. Cross, A social network view of organizational learning: relational and structural dimensions of 'know who', *Management Science* 49, 2003, pp. 432–445.
- [11] S.P. Borgatti, R. Cross, A relational view of information seeking and learning in social networks, *Management Science* 49 (4), 2003, p. 432.
- [13] P. Burrows, Apple; yes, Steve, you fixed it. congrats! now what's act two? *Business Week* 3692, 2000, pp. 102–112.
- [14] E.G. Carmines, R.A. Zeller, *Reliability and Validity Assessment*, Sage Publications, Inc., Beverly Hills, CA, 1979.
- [15] S. Chen, S. Chaiken, The heuristic-systematic model in its broader context, in: S. Chaiken, Y. Trope (Eds.), *Dual-process Theories in Social and Cognitive Psychology*, Guilford Press, New York, 1999, pp. 73–96.
- [16] W. Chin, Issues and opinion on structural modeling, *MIS Quarterly* 22 (March), 1998, pp. 7–16.
- [17] W. Chin, The partial least squares approach to structural equation modeling, in: G. Marcoulides (Ed.), *Modern Methods for Business Research*, Lawrence Erlbaum, Mahwah, NJ, 1998 pp. 237–246.
- [18] W. Chin, B.L. Marcolin, P.R. Newsted, A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and voice mail emotion/adoption study, 1996. <http://disc-nt.cba.edu/chin/ICIS96.pdf>.
- [19] M.D. Cohen, J.P. March, J.P. Olsen, A garbage can model of organizational choice, *Administrative Science Quarterly* 17, 1972, pp. 1–25.
- [20] D. Constant, S. Kiesler, L. Sproull, What's mine is ours, or is it? A study of attitudes about information sharing *Information Systems Research* 5 (4), 1994, pp. 400–422.
- [21] V.P. Crawford, A theory of disagreement in bargaining, *Econometrica* 50 (3), 1982, pp. 607–639.
- [22] E.D. Darr, L. Argote, D. Epple, The acquisition, transfer, and depreciation of knowledge in service organizations: productivity in franchises, *Management Sciences* 41, 1995, pp. 1750–1762.
- [23] T. Davenport, L. Prusak, *Working with knowledge*, *Executive Excellence* 15 (9), 1998, p. 10.
- [24] G.W. Dickson, G. DeSanctis, D.J. McBride, Understanding the effectiveness of computer graphics for decision support: a cumulative ..., *Communications of the ACM* 29 (1), 1986, pp. 40–48.
- [25] D.A. Dillman, *Mail and Internet Surveys: The Tailored Design Method*, John Wiley, New York, 2000.
- [26] L.E. Duxbury, C.A. Higgins, Gender differences in work-family conflict, *Journal of Applied Psychology* 76, 1991, pp. 60–74.
- [27] R.G. Eccles, N. Nohria, J.D. Berkley, *Beyond the Hype: Rediscovering the Essence of Management*, Harvard Business School Press, Boston, MA, 1992.
- [28] P. Ein-Dor, E. Segev, *A Paradigm for Management Information Systems*, Greenwood Publishing Group, 1981.
- [29] D. Epple, L. Argote, R. Devadas, Organizational learning curves: a method for investigating intra-plant transfer of knowledge acquired through learning by doing, *Organization Science* 2 (1), 1991, p. 58.
- [30] R.G. Fichman, C.F. Kemerer, The assimilation of software process innovations: an organizational learning perspective, *Management Science* 43 (10), 1997, p. 1345.
- [31] C. Fornell, F.L. Bookstein, Two structural equation models: LISREL and PLS applied to exist-voice theory, *Journal of Marketing Research* 19 (4), 1982, pp. 440–452.
- [32] E.J. Garrity, G.L. Sanders, *Information Systems Success Measurement*, Idea Group, 1998.
- [33] D.L. Gladstein, Groups in context: a model of task group effectiveness, *Administrative Science Quarterly* 29 (4), 1984, p. 499.
- [34] P.S. Goodman, E.D. Darr, Exchanging best practices through computer-aided systems, *Academic Management Executive* 10, 1996, pp. 7–19.
- [35] R.M. Grant, P. Almeida, J. Song, Knowledge and the multinational enterprise, in: C.C.J.M. Millar, G.M. Robert, C.J. Choi (Eds.), *International Business: Emerging Issues and Emerging Markets*, Macmillan Press/St. Martin's Press, New York, 2000 .
- [36] S.E. Green, A rhetorical theory of diffusion, *Academy of Management Review* 29 (4), 2004, pp. 653–669.
- [37] H. Hall, D. Graham, Creation and recreation: motivating collaboration to generate knowledge capital in online communities, *International Journal of Information Management* 24 (3), 2004, p. 235.
- [38] M.T. Hansen, J.M. Podolny, J. Pfeffer, So many ties, so little time: a task contingency perspective on the value of social capital in organizations, *Research in the Sociology of Organizations* 18, 2000, pp. 21–57.
- [39] G.P. Huber, Organizational learning: the contributing processes and the literatures, *Organization Science* 2, 1991, pp. 88–115.
- [40] J. Hulland, Use of partial least squares (PLS) in strategic management research: a review of four recent studies, *Strategic Management Journal* 20, 1999, pp. 195–204.
- [41] R. Katz, T.J. Allen, Investigating the not invented here (NIH) syndrome: a look at the performance, tenure, and communication patterns of 50 R&D project groups, *R&D Management* 12, 1982, pp. 7–19.
- [42] W.R. King, Knowledge Transfer, in: D. Schwartz (Ed.), *Encyclopedia of Knowledge Management*, Idea Group Publishing, 2005
- [43] W.R. King, J.L. Kugler, The impact of rhetorical strategies on innovation decisions: an experimental study, *OMEGA* 28 (5), 2000, pp. 485–499.
- [44] D.G. Ko, L. Kirsch, W.R. King, Antecedents of knowledge transfer from consultants to clients in enterprise systems implementations, *MIS Quarterly* 29 (1), 2005, pp. 1–27.
- [45] K.R. Lakhani, E. von Hippel, How open source software works: "free" user-to-user assistance, *Research Policy* 32 (6), 2003, pp. 923–943.
- [46] J. Lerner, J. Tirole, Some simple economics of open source, *Journal of Industrial Economics* 50 (2), 2002, p. 197.
- [47] M.E. McLaughlin, Controlling method effects in self-report instruments, *Academy of Management, Research Methods Division, Research Methods Forum* 4, Summer 1999.
- [48] T. Menon, S. Blount, The messenger bias: a relational model of knowledge valuation, *Research in Organizational Behavior* 25, 2003, pp. 137–187.
- [49] T. Menon, J. Pfeffer, Valuing internal vs. external knowledge: explaining the preference for outsiders, *Management Science* 49 (4), 2003, pp. 497–513.
- [50] A. Müller-Merbach, Personal communication based on draft materials provided to Knowledge Management Research and Practice, 2004.
- [51] A. Newell, H. Simon, *Human Problem Solving*, Prentice-Hall, Englewood Cliffs, NJ, 1972.
- [52] N. Pantelli, Richness, power cues, and email text, *Information & Management* 40, 2002, pp. 75–86.
- [53] K.W. Phillips, E.A. Mannix, M.A. Neale, D. Gruenfeld, Diverse groups and information sharing: the effects of congruent ties,

- Journal of Experimental Social Psychology 40 (4), 2004, pp. 497–510.
- [54] J.M. Podoluy, Networks as the pipes and prisms of the market, *American Journal of Sociology* 107, 2001, pp. 33–60.
- [55] P.M. Podsakoff, S.B. MacKenzie, L. Jeong-Yeon, N.P. Podsakoff, Common method biases in behavioral research: a critical review of the literature and recommended remedies, *Journal of Applied Psychology* 88 (5), 2003, p. 879.
- [56] S.D. Ryan, D.A. Harrison, Considering social subsystem costs and benefits in information technology investment decisions: a view from the field on anticipated payoffs, *Journal of Management Information Systems* 16 (4), 2000, p. 11.
- [57] S. Sambamurthy, W. Chin, The effects of group attitudes toward alternative GDSS design on the decision-making performance of computer-supported groups, *Decision Sciences* 25, 1994, pp. 215–241.
- [58] H.A. Simon, *The New Science of Management Decision*, Harper & Brothers, New York, 1960.
- [59] D.K. Smith, R.C. Alexander, *Fumbling the Future*, Morrow, New York, 1988.
- [60] S. Sudman, N.M. Bradburd, N. Schwarz, *Thinking About Answers*, Jossey-Bass Publishers, San Francisco, 1996.
- [61] G. Szulanski, Exploring internal stickiness: impediments to the transfer of best practices within the firm, *Strategic Management* 17, 1996, pp. 27–43.
- [62] D. Teece, Capturing value from knowledge assets: the new economy, markets for know-how, and intangible assets, *California Management Review* 40 (3), 1998, pp. 55–79.
- [63] N. Venkatraman, V. Ramanujam, Measurement of business economic performance: an examination of method convergence, *Journal of Management* 13, 1987, pp. 109–122.
- [64] E. von Hippel, Sticky information and the locus of problem solving: Implications for innovation, *Management Science* 40, 1994, pp. 429–439.
- [65] D.P. Warwick, C.A. Lininger, *The Sample Survey: Theory and Practice*, McGraw-Hill, New York, 1975.
- [66] H. Wold, Systems under indirect observation using PLS, in: C. Fornell (Ed.), *A Second Generation of Multivariate Analysis vol. 1: Methods*, Praeger, New York, 1982, pp. 325–347.
- [67] H. Wold, Systems analysis by partial least squares, in: P. Nijkamp, L. Leitner, N. Wrigley (Eds.), *Measuring the Unmeasurable*, Marinus Nijhoff, Dordrecht, 1985, pp. 221–251.
- [68] X.M. Xu, G.R. Kaye, Y. Duan, UK executives' vision in business environment for information scanning a cross industry study, *Information & Management* 40, 2003, pp. 381–389.

- [69] R.W. Zmud, M. Ginzberg, Evolving criteria for information system assessment, in: N. Bjorn-Anderson, G.B. Davis (Eds.), *Information System Assessment*, North-Holland, Amsterdam, 1987, pp. 41–52.



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