The Role of DSS Technology in Knowledge Management

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Abstract

Decision making requires both information and knowledge. Information (or its absence) is central to decision making situations involving uncertainty and complexity, while knowledge (or its absence) is associated with problems of ambiguity and equivocality. This paper proposes that computer-based decision support technologies are appropriate to supporting decision making under conditions of uncertainty and complexity, while human-centric approaches may be more appropriate under conditions of ambiguity or equivocality. Both approaches, however, must be tightly integrated for organizational learning to occur. The framework is illustrated with a case study of the implementation of a decision support system used for price quoting in a leasing company.

Keywords

Knowledge management, decision support systems, uncertainty, complexity, ambiguity, equivocality

1. INTRODUCTION

Most organizations today view knowledge as a strategic resource, and the ability to bring that knowledge to bear on decision making a strategic capability (Zack 1999). These organizations have initiated a range of knowledge management (KM) programs whose primary focus has been on developing new applications of information technology to leverage codified knowledge (e.g., Davenport, Jarvenpaa, and Beers 1996, Goodman and Darr 1996). This represents in some ways an extension of work that has been in progress for years in the area of knowledge-based decision support systems and expert systems. However, there has been a backlash against this technology-centric approach to KM and decision support (Berkman 2001). Some organizations believe that the most valuable knowledge is their employees' tacit knowledge, augmented and shared via interpersonal interaction. To create and apply this "intellectual capital", those organizations rely on the "social capital" that develops from people interacting over time (Nahapiet and Ghoshal 1998). Rather than invest in information technology to capture and apply knowledge, many are experimenting with new organizational cultures, forms and reward systems to enhance social relationships (Quinn et al 1996). The practice of KM has thus seen two very different approaches emerge (Hansen et al 1999), one focused on technological management of explicit information and the other on social management of tacit knowledge.

While it is commonly accepted that both organizational and technological approaches to KM and decision support have value, success lies in knowing where and when each best fits. This requires understanding how decision making opportunities and challenges map to the resources and capabilities of the firm, especially regarding information technology. This, in turn, requires a more fine-grained description of the knowledge-processing and decision making "problems" to which information systems are offered as a solution. To this end I present a framework for categorizing information and knowledge-based problems faced by organizations. Using a case study of the implementation of a knowledge-based decision support system, I show how the technological and organizational approaches to decision support can be mapped to particular knowledge problems, and how the two approaches may be effectively combined to increase an organization's knowledge processing and decision making capacity. I then derive several propositions for further study.

2. FOUR KNOWLEDGE PROBLEMS

The strategic challenges faced by organizations are often framed in information- and knowledge-based terms such as uncertainty or complexity (e.g., Courtney et al 1997, Lawrence and Lorsch 1968). For example, the competitive landscape may be considered uncertain because an organization lacks enough information to predict competitors' actions. It may be considered complex because the number of relevant factors to consider is large, or the problems it poses cannot be addressed by familiar solutions. While these and related terms can serve as powerful indicators of an organization's knowledge or lack thereof, they have been inconsistently and

imprecisely defined in the management literature, so there are few coherent prescriptions on how to manage them. Consequently, organizations often implement KM solutions that may not be appropriate to their particular knowledge problems (Zack 2001). I propose that organizations face four unique challenges, each representing a particular form of information or knowledge-based indeterminacy, requiring a particular information or knowledge-processing capability (Figure 1):

1. *Uncertainty*: not having enough information;
2. *Complexity*: having more information than one can easily process;
3. *Ambiguity*: not having a conceptual framework for interpreting information;
4. *Equivocality*: having several competing or contradictory conceptual frameworks.

These knowledge problems can be described along two dimensions: 1) the nature of what is being processed (viz., information or knowledge), and 2) whether the solution is to acquire more or to place restrictions on what exists.

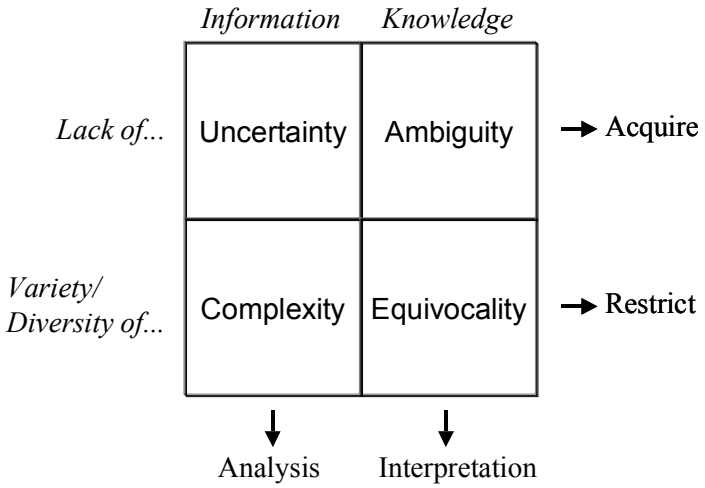

Figure 1: 'Four Problems' Framework

2.1 Information vs. Knowledge

Individuals and organizations continually observe and perceive their environment. Guided by what they already know, they punctuate and interpret their observations to form messages and to extract whatever meaning they can from those messages (Weick 1979, Von Krogh et al 1994). The meaning evoked by those messages may, in turn, alter what the individual or organization knows. I use the term data to represent raw, unpunctuated symbols or observations. I use the term information to mean observations that have been cognitively processed and punctuated into coherent messages (Davenport and Prusak 1998, Von Krogh et al 1994). I use the term knowledge to mean that which one believes to be true about the world (Boulding 1956), used to punctuate and interpret messages, and to build inferences and explanations about how and why things work (Kogut and Zander 1992). Knowledge, then, provides the context for creating and understanding information; and gleaning information from messages depends on what is already known.

Information, as message, is always made explicit in some way[1], while knowledge is tacit (Polanyi 1961), residing within the knower in an unarticulated and possibly inarticulable state. Articulating tacit knowledge is an act of communicating that knowledge via a message, and therefore "explicit knowledge" is information. "Knowing" goes beyond information (Bruner 1973).

The "four-problems" framework distinguishes between processing information vs. the richer knowledge structures for interpreting that information. Information processing is associated with managing situations within some established, agreed-on knowledge context, and is amenable to the analysis and communication of explicit facts and beliefs. Processing knowledge, on the other hand, is associated with creating, sharing, or negotiating meaning.

[1] Even a wink and a nod is an explicit message communicated to one observing them.

2.2 Restrictive vs. acquisitive processing

The four problems are also distinguished by the notion of restrictive vs. acquisitive processing. Complexity and equivocality require restriction. Complexity requires restricting or reducing factual information; equivocality calls for restricting diverse viewpoints or interpretations. In contrast, uncertainty requires acquiring (or estimating) information, while ambiguity requires acquiring knowledge or interpretive frames. Therefore restrictive processing is generally internally focused (i.e., processing existing information and knowledge), while acquisitive processing requires a search for more information or knowledge.

I now describe the four problems in more detail.

2.3 Uncertainty

Uncertainty represents not having enough information to describe a current state or to predict future states or the actions needed to achieve them (March 1977, Raiffa 1968). Organizations often experience uncertainty as the lack of enough information to make a decision or the inability to predict events upon which some decision depends (Galbraith 1974, March and Simon 1958). Uncertainty does not imply complex or vague situations or relationships; it exists even when the range of possibilities is small, simple and well defined—e.g., predicting the roll of the dice.

Uncertainty is reduced by acquiring additional information; or by acquiring, developing or improving the ability to predict, infer or estimate sufficiently well using incomplete information. Uncertainty is tolerated by using existing situational knowledge to predict, infer, estimate, or assume facts in place of missing information, with some resulting level of confidence and reliability (Bruner 1973); by developing the flexibility to respond to unanticipated events (Galbraith 1974, Thompson 1967), or by creating resource buffers (Galbraith 1974, Wildavsky 1983).

2.4 Complexity

Complexity is simply "a large number of parts that interact in a non-simple way" (Simon 1981, p. 195). It reflects the numerosity and diversity of situational elements (variables, issues, competitors, etc.) and the intricacy of their relationship (Simon 1981, Weaver 1948). Complex situations are not vague or unpredictable, but rather are clearly defined and potentially predictable situations whose length or intricacy of procedure or variety of elements and relationships is too large to cognitively process easily (Campbell 1988, Newell, Shaw and Simon 1962, Wood 1986).

Complexity varies with what is known and familiar to an organization and its members. What is complex for one organization may be simple for another that has greater experience or expertise (Huber 1984, Stabell 1978). Absent sufficient knowledge, complexity is mitigated by increased information processing capacity or by decomposing things into simpler parts (where possible), and then integrating those differentiated elements (Driver and Streufert 1969, Kogut and Zander 1992, Lawrence and Lorsch 1967).

2.5 Ambiguity

In contrast to the assumptions underlying uncertainty and complexity, situations or events are often neither clear nor understandable (Isenberg 1986, McCaskey 1982). Ambiguity represents an inability to interpret or make sense of something (Machlup 1980, MacKay 1969) either because a message does not activate a knowledge frame (surface ambiguity) or the interpretive knowledge does not exist (deep ambiguity).

Ambiguity can be resolved by reframing a message, by acquiring contextual or explanatory knowledge either from others or from one's own learning experiences, or by having an interpretation imposed by others. Ambiguity is not resolved by gathering more facts. It typically requires cycles of interpretation, explanation and social ratification (Schank 1987, Weick 1979). The key organizational capability is to provide for rich, interactive face-to-face conversation among a socially familiar yet intellectually diverse set of individuals.

2.6 Equivocality

Equivocality refers to multiple interpretations of the same thing (Daft and Macintosh 1981, Weick 1979). Each interpretation is individually unambiguous but collectively they differ and may be mutually exclusive or in conflict. Resolving equivocality requires cycles of interpretation, interactive discussion, and negotiation to converge on an interpretation (McCaskey 1982, Mintzberg et al1976, Weick 1979). However, overly precise or coherent policies, rules, procedures or systems for coordinating or communicating information may misrepresent the contradiction, confusion, or diversity of views inherent in a situation (Daft and Wiginton 1979, March 1977, Weick 1979).

2.7 Processing Load and Capacity

Strategic theories of organizing are grounded in the notion that organizations should match their internal resources and capabilities to external competitive opportunities and threats (Andrews 1971, Barney 1991, Grant 1991, Lawrence and Lorsch 1968, Thompson 1968). Organizational information processing models similarly suggest that an organization's information processing capacity must match its environmental information processing requirements or load (Galbraith 1974, Driver and Streufert 1969, Tushman and Nadler 1978). Organizations operating under too light an information-processing load are inefficient or unchallenged, and when overloaded, their performance degrades significantly (Meier 1963). Extending this argument to knowledge, I define load as the information and knowledge processing capacity an organization requires to manage the ambiguity, equivocality, uncertainty and complexity of its internal (task) and external (competitive) environment. This load is met by a combination of organizational, technological and intellectual resources and capabilities as discussed above.

3. THE ROLE OF INFORMATION TECHNOLOGY

Information technology can be viewed as a communication medium for transmitting information. Effective communication requires matching the richness and interactivity of the medium to the knowledge-problem at hand (Daft and Lengel 1986, Daft and Wiginton 1979, Zack 1993). Communicating and resolving ambiguity or equivocality requires media that allow for rich and varied expression in an interactive context, e.g., face-to-face conversation. Less expressive, more structured media such as e-mail effectively support communication about well-defined situations. The assumptions embedded in information systems in the form of labels, definitions, procedures, and causal relationships can impose false clarity on equivocal or ambiguous events, while overly rich communication applied to mutually well-understood situations may introduce unnecessary ambiguity or equivocality (Zack 1994).

Information technology, then, is used most effectively for managing uncertainty and complexity, where communicators share an understanding of the situation (Zack 1993). Appropriate tools include decision support systems and expert systems able to process large numbers of facts, variables and relationships; database management systems with large-capacity information storage, retrieval and manipulation capabilities; online document repositories; and computer-mediated communication systems that support rapid and flexible information search, routing, and communication.

Ambiguity and equivocality are best managed by face-to-face communication among a network of personal contacts that serve as a source of knowledge and expertise. Information technology can play an indirect role, e.g., by cataloging the expertise of organizational members thus helping to locate experts with whom one might need to hold a conversation. Computer-mediated communication can maintain continuity between face-to-face conversations, especially for those not co-located.

While the creation and exchange of knowledge requires rich conversational interaction and mutual learning experiences (e.g. Brown and Duguid 1991, Nonaka 1994), information received from information systems can also alter users' knowledge. Learning that results from processing information, however, tends to be incremental. No new knowledge frames have been introduced. Rather, the information activates existing knowledge, and any new insight is a refinement of what is currently known (Von Krogh et al 1994). Information technology, then, helps to move existing knowledge to higher stages (Bohn 1994), while conversational and experiential interaction is needed for creating and exchanging new knowledge frames. The two are complementary, and a KM architecture should include both. However, regardless of how information technology is applied, organizations must provide ample opportunity for interpersonal interaction and shared experience to build the social relations and communication mechanisms that allow deep knowledge to be exchanged and developed (Brown and Duguid 1991, Lave and Wenger 1991).

4. RESEARCH METHOD

Pricing is one of the most strategic issues an organization faces. I performed a longitudinal case study of the implementation of a proprietary decision support system used for pricing and quoting at the Industrial Uniform Leasing Corporation (Leasecorp)[2] to test and illustrate the framework described above. The implementation served as an action research opportunity (Baskerville and Wood-Harper 1996), in that the theoretical framework presented here was used as the basis for making significant changes to the structure and process of Leasecorp as part of the implementation. I observed the organization for a period of approximately one year, conducting repeated interviews with the president, VP Operations, managers of customer service, production, distribution and inventory management, and several clerical personnel who were system users. The framework

[2] pseudonym

was used to categorize and analyze interview and observational content. The results of the study were used to derive several propositions for future testing.

5. CASE STUDY DATA

The uniform rental industry has traditionally supplied the familiar blue work clothes worn primarily for soil protection by, for example, auto mechanics. As the service sector grew, appearance and styling became important, opening new markets. While Leasecorp provided traditional garments, they competed primarily on service and were rapidly adding customized appearance-based garment services whose pricing was more difficult.

5.1 Quoting before automation

Although Leasecorp's basic financial systems were computer-based, it relied heavily on intuition, judgment, and simple heuristics in place of hard information for most decision-making. Prices were determined via meetings among executive and departmental managers and other personnel as needed. The more novel, unpredictable or important the potential lease, the more people would be involved in creating the proposal. Several long-term employees were usually involved in every decision because of their accumulated knowledge. The typical quoting process prior to implementing the quoting decision support system was:

1. *Receive request for quote*: Typically the company would receive a telephone call. A salesperson, price analyst, or manager would gather information about the prospect's location, type of business, and general service needs.
2. *Pre-sales call meeting*: Based on the information and impressions from the initial call, the president, operations VP, managers of customer service and production, salespeople, and route drivers would meet to determine if the proposed service was similar to an existing one (to enable reusing used garments from inventory), if the prospect's location was near existing route (to minimize added delivery costs), and if the potential customer offered some unique strategic value (e.g., enhance reputation, fill unused capacity, block competitor, etc.). From this meeting would come a decision to propose a lease, based on garment similarities, location, and strategic value. A by-product of the meeting was an evolved, collective understanding of the terms "similar", "near", and "strategic."
3. *Sales call*: A salesperson would visit the prospective customer to discuss the service and terms, observe the work environment, and gain a general impression of the customer. The salesperson would also gather information regarding garment service, delivery, garment use, and creditworthiness. The salesperson would attempt to gather information that might help to predict expected garment wear, tear, loss, and theft as well as employee turnover.
4. *Post-sales call meeting:* The team involved in step two would reconvene to discuss the information gathered. Using intuition, they would attempt to predict garment costs, service demands, employee turnover, and creditworthiness. They would provide their intuitive feel for an appropriate market price for this service and come to some conclusion about the strategic value of the customer. Based on estimated garment costs, a price analyst would compute a base price using the heuristic of 4 x garment cost, amortized over the life of lease. The management team would determine adjustments to this base price, based on intuition regarding various lease cost factors and strategic value of the customer.

After a lease was signed, garments were issued and garment inventory and price information manually recorded. The information did not lend itself to analysis, thus the loop was never closed on evaluating the profitability of the lease.

5.2 The transition

The organization experienced a significant learning experience prior to implementing the quoting decision support system (QDSS). A richer conceptual model of Leasecorp's cost structure was developed with a large amount of management participation, and that new conceptual framework was explicitly captured in the QDSS.

The QDSS was based on a proprietary and flexible costing model. The system maintained an explicit set of (modifiable) parameters and default values, and required entering values for a set of variables describing attributes of the service. The output was a list of recommended unit prices for each type of service, at different predefined profit margins. Alternatively, the user could enter a price for each service and have the margin computed. Users could change values of parameters and variables, and perform "what if" sensitivity analysis. The system could print a price list for any defined service. The QDSS also served as a means to communicate

lease information and status and to coordinate the workflow among various departments involved in creating a lease.

Prior to implementing the QDSS, employees manually computed prices using simplified versions of the new model to gain familiarity and comfort with the new approach. By the time QDSS was installed, most had a working knowledge of the concepts.

5.3 Quoting after automation

Before QDSS, Leasecorp used one process – meetings – to price all leases, even highly routine ones. As the business grew, this approach placed a great strain on the lease-processing capacity of the organization, to the point where they were too busy to quote on many leases. The most significant impact of QDSS was that it enabled Leasecorp to better match its organizational resources and capabilities to the information and knowledge processing requirements of quoting and pricing. As part of this restructuring, Leasecorp began categorizing leases according to the four-problems framework and began mapping appropriate decision making processes and organizational responsibilities to each type of lease (Table 1). QDSS offered a resource to complement management meetings, which now focused on just the "difficult" leases, making more efficient use of Leasecorp's knowledge and expertise[3].

Problem	Lease description	Process
Ambiguity	An *ambiguous* lease was one for which a customer's requirements did not make immediate sense or were not well-understood, usually because they were for an entirely novel service. With no similar experience within the company or the industry, Leasecorp had no clear framework to define and evaluate the financial and operating aspects of the service.	*Ambiguous* leases were those that could not be specified sufficiently to use QDSS. They were discussed in management meetings to attempt to interpret and define the financial and operating aspects of the lease.
Equivocality	An *equivocal* lease was one where multiple interpretations or approaches were possible or emerged from discussions about an ambiguous lease.	*Equivocal* leases did not clearly fit the QDSS model. They were discussed in management meetings, to converge on one interpretation or to develop a smaller number of competing approaches. As more information and knowledge were gathered and discussed, interpretations would hopefully converge.
Uncertainty	An *uncertain* lease was one where the factors affecting price were known and identifiable, but their particular values were not specifiable with high certainty, usually because Leasecorp lacked sufficient historical information.	The pricing model embedded in QDSS provided a template or guide for identifying those factors whose values needed defining. Each department was responsible for estimating those values (or probable ranges) within its domain of expertise. QDSS integrated those values, maintained historical data, supported "what if…" profit sensitivity analysis and computed an overall price within some range of certainty. The results of sensitivity analysis might be returned to the departments for additional estimation, and discussion to coordinate the overall estimate of uncertainty might be required. Uncertain leases typically involved more experienced price analysts, as expertise was needed for estimating some values.

[3] Leasecorp also introduced computer-mediated communication, but discussing the role of that technology goes beyond the space limits of this paper.

Problem	Lease description	Process
Complexity	A *complex* lease was one where the pricing factors and their relationships were well-known and specifiable with relative certainty, but numerous and intricately related.	The QDSS parameter values, while numerous and interrelated, could be specified with a high level of confidence. QDSS automatically priced highly complex lease services and coordinated storing and integrating the input of multiple departments. The lease tracking functions of QDSS helped coordinate this process when multiple departments were involved. The primary customer-contact person monitored the lease progress via the system and entered most of the information. The costing algorithms embedded in QDSS substituted for the expertise formally needed to price complex leases, leveraging the more experienced analysts' knowledge and reserving these analysts for less specifiable pricing problems. Lower-level analysts performed most of the processing, and managers were rarely involved. Pricing complex leases provided training for entry-level pricing analysts and an opportunity to gain basic knowledge and experience
Certain simplicity	A *simple/certain* lease was one where the service was familiar, standard, routine, predictable and relatively simple.	QDSS generated a standard price list for the most typical set of lease attributes. QDSS defined a set of default values for standard services Simple price look-ups could be done using those default values. Simple certain leases could be quoted by almost anyone from a price list or a quick look-up in the QDSS. Managers and analysts were not involved in most cases.

Table 1 Quoting after Automation

6. LEARNING DYNAMICS

These lease categories, like the underlying knowledge itself, were not static, either within a transaction or over time. Typically an ambiguous opportunity would be discussed, and equivocality would emerge in the form of multiple interpretations. However, to create a lease and decide on terms, the transaction ultimately had to be unequivocally defined and documented. A lease might then reveal itself to be uncertain, complex, both or neither, and would be processed accordingly. Over time, some classes of novel leases became familiar and routine as Leasecorp repeatedly encountered them. These leases would eventually be migrated to more efficient lease-handling processes as the organization learned more. As the knowledge required to price them became more specifiable it was made explicit and embedded within QDSS.

As experiential data were accumulated, QDSS provided a means to close the loop on the learning process. The profitability and performance of an ambiguous or equivocal lease could be tracked, and management's interpretations evaluated and modified over time based on the information received from QDSS. The evolving knowledge used to estimate lease performance was articulated and embedded into the QDSS costing model, and QDSS reflected this learning in its evolving ability to handle complexity and uncertainty.

The leases handled by QDSS were still potentially uncertain; especially those recently migrated from ambiguous and equivocal categories. QDSS enabled systematic testing of the embedded and explicit pricing model by storing the results and comparing them to customer profitability reports generated by the financial information systems. This information, together with senior analysts' knowledge, enabled the analysts to continually refine their knowledge about the uncertainties of pricing. Leasecorp built an experience database that it could analyze within the context of what it already knew about garment leasing, to refine its knowledge about these lease factors and reduce their uncertainty. As they learned more, they were able to make this knowledge explicit and embed it into QDSS, and the formerly uncertain leases could now be classified as more predictable and migrated to the complex or simple classes and processed accordingly by lower-level analysts. As Leasecorp conceived and was able to articulate new cost categories, drivers and relationships from its learning experiences with ambiguous and equivocal leases; it modified QDSS to reflect the evolving cost model, thereby reducing the amount of complexity dealt with directly by price analysts. Eventually, enough would be learned and made explicit that some classes of uncertain or complex leases became standard, predictable transactions handled by clerical staff using price lists.

Occasionally an anomalous event would take place (e.g., an uncharacteristically high garment replacement rate for a particular customer type) and regenerate the cycle. The ambiguity would be discussed by senior management, possibly resulting in competing equivocal explanations leading to some change in the pricing approach for that lease class and ultimately some change in the QDSS. Over all, however, the continual migration of lease pricing from ambiguous to uncertain/complex to simple/certain, from applying tacit knowledge to using explicit information, and from human-centered to I/T-centered enabled a continual learning loop to function at Leasecorp. Organizational decision making capacity was continually freed for handling strategic novelty and learning, and the overall decision making capacity (and quote volume capacity) of the firm increased. Quotes were never turned down now because of a lack of quoting resources.

7. DISCUSSION AND CONCLUSION

QDSS and its conceptual model for structuring and processing lease information was relevant and meaningful only for those leases that could be interpreted within the context of Leasecorp's existing lease knowledge and experience. The interpretation and analysis of the historical information provided by QDSS was also limited by that existing knowledge. That information did, however, change Leasecorp's existing knowledge about leasing. They were able to refine their understanding of cost drivers such garment life and service demands and how they were associated with factors such as customer type, garment use, internal soil removal processes, etc. They were able to establish baseline performance measures for wholly novel leases and thus calibrate the validity of their interpretations of ambiguous and equivocal leases for which some discrete interpretation ultimately had to be made. While management discussions enabled a divergent and creative learning process, QDSS-based learning tended to be convergent (Schumacher 1977). When QDSS raised issues that appeared anomalous, management would convene a meeting to discuss and interpret the information. Thus, while QDSS was appropriate for handling uncertain and complex leases, meetings were more appropriate for addressing ambiguity and equivocality. The introduction of QDSS together with the restructuring of lease processing to differentiate and integrate social and technical approaches to information and knowledge processing significantly increased the decision making and information processing capacity and overall performance of Leasecorp. The key was in recognizing the strengths of each and integrating the two.

These observations lead to the following propositions

> ***P1****: The information processed by a decision support system is meaningful only within the context of the knowledge frames of the users/receivers of that information*
>
> ***P2****: The information communicated by a decision support system, if meaningful, can change the existing knowledge of the users/receivers of that information.*
>
> ***P3****: Decision support technology is more appropriate for managing complexity and uncertainty.*
>
> ***P4****: Face-to-face interaction is more appropriate for managing ambiguity and equivocality.*
>
> ***P5****: Appropriately matching organizational and technological resources and capabilities to the specific knowledge problems associated with decisions can increase an organization's decision making capacity and thus overall performance.*

8. EPILOGUE

Two years after implementing QDSS, Leasecorp became a leader in offering highly customized services to novel markets and enjoyed one of the fastest growth rates and highest profit margins in the industry. The knowledge that was developed by the organization from directly engaging strategic novelty, continually making that knowledge explicit in QDSS and migrating leases to the technology as learning increased, provided a distinct strategic advantage. The QDSS model focusing on customized service and pricing was unique in the industry and was continually renewed by a unique decision making and learning process that optimally integrated social and technical approaches to decision support. Competitors' models reflected their cost/volume focused knowledge and mindset prevalent in the industry. They faced a strong knowledge-based barrier to entry into Leasecorp's markets.

Three years after Leasecorp implemented QDSS, the industry volume leader, whose expertise was in low-cost, high-volume standard services, acquired Leasecorp. While their intention was to enter the more profitable custom market, they did not retain any of Leasecorp's managers, ignored the QDSS model, migrated all of the business to their existing processes and systems, and lost most of the acquired Leasecorp business within two years.

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