Research paper

Outsourcing decision support: a survey of benefits, risks, and decision factors

Tibor Kremic
NASA Glenn Research Center, Cleveland, Ohio, USA, and

Oya Icmeli Tukel and Walter O. Rom
Operations Management Department, College of Business Administration, Cleveland State University, Cleveland, Ohio, USA

Abstract

Purpose – The purpose of this study is twofold. The first is to provide a structured review of the vast amount of outsourcing literature that has accumulated in the past two decades using a decision support framework. The second purpose is to statistically analyze the contents of the studies to identify commonalities as well as gaps, in order to suggest directions for future research.

Design/methodology/approach – The contents of more than 200 publications are analyzed using a variety of approaches. A decision support framework is used to first classify whether the studies address outsourcing benefits, risks, motivations or factors. Next, each classification is further described by the type of benefits, risks, etc. Additional relevant contents such as type of organization, and the location of the outsourcing practice are also considered. Multivariate analyses consisting of cross tabulations, chi-square testing and cluster analysis are used for categorizing the studies with the aim of identifying relationships among the studies which are not apparent when they are considered individually.

Findings – A number of trends and relationships are identified. For example, most studies focus on US for-profit organizations and are typically theoretical, discussing benefits, risks and motivators. On the other hand, the research on outsourcing practices of non-profit organizations, where objectives for outsourcing are typically politically driven, is found to be scarce. Furthermore, the results of the cluster analysis indicate that the studies can be grouped into six clusters where the five small clusters are characterized by strong relationships with a few variables while the large cluster is characterized by variables that are not addressed in the studies.

Practical implications – Outsourcing has become commonplace in today's businesses. In addition to outsourcing in profit seeking organizations, there is considerable outsourcing effort in governmental and non-profit organizations also. It is not easy for managers who are exploring outsourcing opportunities for the very first time and academicians who want to build upon existing studies to search the literature to find what they are looking for. This study addresses this difficulty by providing different classifications of the literature based on a variety of research criteria.

Originality/value – This study is a first attempt to organize the outsourcing literature using statistical as well as decision support tools. Using cluster analysis and discriminant analysis to explore the relationships among the contents of the studies is a new approach.

Keywords Outsourcing, Publications, Multivariate analysis, Decision support systems

Paper type Literature review

Introduction

Outsourcing is a common practice among both private and public organizations and is a major element in business strategy. Perhaps most organizations now outsource some of the functions they used to perform themselves. Due to widespread outsourcing practices, it has become a frequent topic in the literature. Numerous reasons why outsourcing is initiated have been identified by researchers. Organizations may expect to achieve many different benefits through successful outsourcing, although there are significant risks that may be realized if outsourcing is not successful. There is an abundance of outsourcing literature where many benefits, risks, motivators, and decision factors have been presented although the relationships, commonalities and disparity among the contents of these studies have not been investigated.

The purpose of this study is twofold. First we review the outsourcing literature with the objective of identifying those references that may provide guidance for managers and researchers. The review of the literature is organized based on the outsourcing decision framework given in Figure 1 (Kremic and Tukel, 2003). The figure depicts the typical elements of the outsourcing decision and shows where the motivators, benefits, risks, and factors are typically encountered in such decisions.

Second, the studies in the literature are analyzed based on their content. The aim is to categorize and identify relationships among the studies which are not apparent when the studies are considered individually. The topics discussed in the studies are described by a set of variables and then statistical procedures are applied. The intention here is

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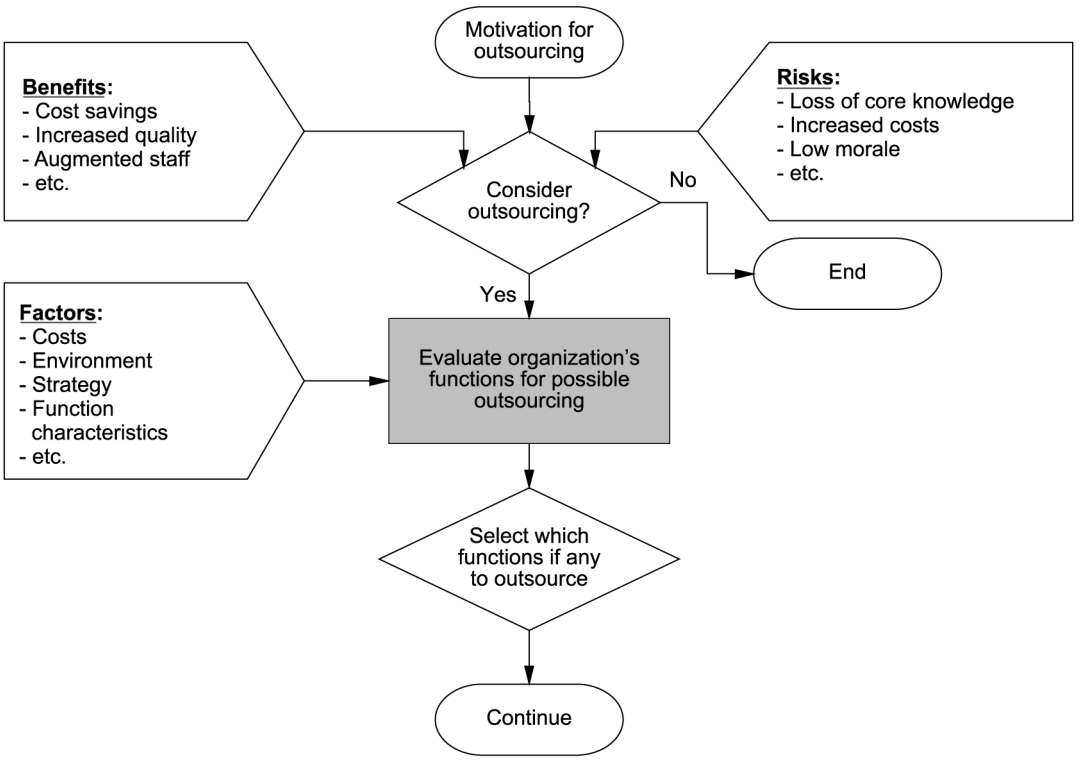
Figure 1 Outsourcing decision framework



to identify which topics are commonly discussed together as well as the combinations which seldom appear. In addition, we attempt to form groupings of the studies based on their content, with the objective of identifying areas that need exploration.

The organization of the paper is as follows. We first review the reasons that outsourcing is initiated. What are the outsourcing motivators that are identified in literature? This question is addressed in the second section and may help managers determine if outsourcing is an appropriate option in their situation. The next sections are devoted to identifying the benefits and risks that are commonly expected with outsourcing. A detailed discussion on factors which may impact outsourcing decisions is also provided and followed by the multivariate analyses and the reports on the findings. The last section presents the general conclusions and highlights possible areas for further research.

Motivations for outsourcing

There are three major categories of motivations for outsourcing: cost, strategy, and politics. The first two commonly drive outsourcing by private industry. Political agendas often drive outsourcing by public organizations (Kakabadse and Kakabadse, 2000a). While there may be three categories, outsourcing activities are likely to be initiated for more than one reason and in fact, may be driven by elements from all three categories. For example, the outsourcing of taxing and health services for the British government was driven by elements from both the cost and political categories (Willcocks and Currie, 1997). The political climate favored privatization because of the belief that private firms are more efficient and provide better service than the public counterparts. Cutting the cost of providing services also drove the British government's outsourcing efforts.

Each of the three major categories is discussed in more detail in the following sub-sections.

Cost driven outsourcing

Much of the literature identifies the desire to save costs as an explanation for why outsourcing occurs (Arnold, 2000; Aubert *et al.*, 1996; Bienstock and Mentzer, 1999; Bergsman, 1994; Brandes *et al.*, 1997; Fan, 2000; Kriss, 1996; Laarhoven *et al.*, 2000; Vining and Globerman, 1999; Willcocks *et al.*, 1995). In theory, outsourcing for cost reasons can occur when suppliers' costs are low enough that even with added overhead, profit, and transaction costs suppliers can still deliver a service for a lower price (Bers, 1992; Harler, 2000). One may wonder how an organization can achieve enough savings to cover an additional layer of overhead and still meet profit requirements yet perform a function for less than another organization already doing the function. Specialization and economies of scale are mechanisms used to achieve this level of efficiency (Klainguti, 2000; Ashe, 1996; Kakabadse and Kakabadse, 2000a; Quinn *et al.*, 1990a, b; Roberts, V. 2001). In fact, cost savings due to outsourcing can be quite significant. In a survey of 7500 public organizations in Australia, the outsourcing of cleaning services saved an average of 46 percent over in-house performance of the service (Domberger and Fernandez, 1999).

A desire to save indirect costs may also drive outsourcing. Having fewer employees requires less infrastructure and support systems (Fontes, 2000; Hubbard, 1993) which may result in a more nimble and efficient organization. Some organizations outsource to achieve better cost control

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(Alexander and Young, 1996; Sheehan, 1993) while others try to shift fixed costs into variable costs (Anderson, 1997; *Chemical Week*, 2000). These are just a few examples of the potential savings that organizations are hoping to realize with outsourcing.

Although organizations may outsource for cost related reasons, there are no guarantees that expected savings will be realized. There is increasing evidence that cost savings have been overestimated and costs are sometimes higher after outsourcing (Bryce and Useem, 1998; Cole-Gomolski, 1998; Pepper, 1996); Vining and Globerman, 1999; Welch and Nayak, 1992). As an example, again in the survey by Domberger and Fernandez mentioned above, the outsourcing of IT resulted in an average 9 percent increase in costs (Domberger and Fernandez, 1999).

In addition to not realizing the costs that originally drove the outsourcing initiative, there are also some additional indirect and social costs that may be incurred (Gillett, 1994), (Maltz and Ellram, 1997). Indirect costs may include contract monitoring and oversight, contract generation and procurement, intangibles, and transition costs. Capital expenses incurred by the relationship should also be calculated (Hubbard, 1993; Bounfour, 1999; Burzawa, 1994; Cole-Gomolski, 1999; Kakabadse and Kakabadse, 2000a; Vining and Globerman, 1999).

The social costs of outsourcing may be difficult to quantify but they can be significant. Outsourcing may result in low morale, high absenteeism, lower productivity, etc. (Eisele, 1994; Kakabadse and Kakabadse, 2000a; Walsh, 1996). Further the social costs are not necessarily limited to the organization. Lafferty's and Roan's (2000) study suggests that the education and skill level of a whole class of workers may be declining due to outsourcing of public services. Contractors are less willing to pay for employee education and development.

The message in the literature is that the desire for cost savings may drive many outsourcing initiatives. The literature shows that significant savings can result. However, savings are not a given. Apparently the effects of outsourcing on an organization's cost are not yet fully understood and perhaps the variables and their relationships are more complex than expected.

Strategy-driven outsourcing

More recently the main drivers for outsourcing appear to be shifting from cost to strategic issues such as core competence and flexibility (DiRomualdo and Gurbaxani, 1998; Elmuti and Kathawala, 2000; Harris and Giunipero, 1998; Lankford and Parsa, 1999; Meckbach, 1998; Muscato, 1998; Mullin, 1996; Quinn, 1999; Roberts, V. 2001; Wright, 2001). In general, the literature supports outsourcing as a strategy, which may offer improved business performance on numerous dimensions (Brandes *et al.*, 1997; Dekkers, 2000; Klopack, 2000; McIvor, 2000b; Moran, 1997; Old, 1998; Prahalad and Hamel, 1990; Quinn *et al.*, 1990a, b). Perhaps the most often cited strategic reason for outsourcing is to allow the organization to better focus on its core competencies (Sislian and Satir, 2000; Quinn and Hilmer, 1994; Quinn, 1999). Because of intense competition, organizations are forced to reassess and redirect scarce resources (*Works Management*, 1999; Drtina, 1994; Jennings, 1997; Ketler and Walstrom, 1993; Kriss, 1996; Leavy, 1996; Ngwenyama and Bryson, 1999; Quinn, 1999; Razzaque and Chen, 1998). Resources are typically redirected to where they make the greatest positive impact, namely the organization's core functions.

In addition to refocusing resources onto core competencies, other strategy issues which encourage the consideration of outsourcing are restructuring, rapid organizational growth, changing technology, and the need for greater flexibility to manage demand swings (Eisele, 1994; Iyer and Kusnierz, 1996; Kakabadse and Kakabadse, 2000a; Lankford and Parsa, 1999; Large, 1999; Livingston, 1992; Pinnington and Woolcock, 1995). Flexibility appears to be an important driver not just from a scale perspective but also regarding the scope of product or service. Organizations need to react quicker to customer requirements and outsourcing is seen as a vehicle to accomplish this. Outsourcing may also be perceived as a way to reduce the organization's risk by sharing it with suppliers and at the same time acquire the positive attributes of those suppliers. The partnerships that result from outsourcing may enable an organization to be a world-class performer for a whole suite of products and services where it could only be an average performer by itself. This strategy results in a so-called "virtual organization" where functions are outsourced to multiple vendors under one agreement. Together the suppliers perform an integrated set of services.

There are, however, potential pitfalls when outsourcing for strategic reasons. Organizations may "give away the crown jewels" if they are not careful (Gillett, 1994). IBM is used as a frequent example of a company that outsourced the "wrong" things (the operating system). If organizations outsource the wrong functions they may develop gaps in their learning or knowledge base which may preclude them from future opportunities (Earl, 1996; Prahalad and Hamel, 1990). In a study of the aeronautics industry Paoli identifies a limit of the virtual organization concept (Paoli and Prencipe, 1999). Specifically, in highly integrated and evolutionary technologies, applying the traditional core competence tests may result in outsourcing too many or the wrong functions. Literature also indicates that in industries with complex technologies and systems, internal synergies may be lost when some functions are outsourced. This could result in less productivity or efficiency among the remaining functions (Quinn and Hilmer, 1994).

Politically-driven outsourcing

There are several reasons why a public organization may behave differently than a private firm and therefore may have different outsourcing motivators. For example, Avery (2000) argues that the performance of a service by the public laboratory is not based on market demand or profitability. The issues may be more social than economic. He uses the example of the public organization detecting a virus or health hazard, whereas the private organization would be in the business of treating the infected for a fee. Even when the services appear to be identical, the products may be very different. Industry performs a service to make money whereas the public organization attempts to ensure general well being; a different goal and mission. So while cost and strategy may drive private firms, the desire for the general well being of citizens may drive outsourcing by public organizations.

Other factors that may be drive outsourcing by public organizations include the agendas of elected officials, public opinion, and current national or international trends (Avery, 2000).

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Because public organizations are sometimes perceived as inefficient and bureaucratic, political candidates may promote outsourcing ideas, particularly at election time, to demonstrate their willingness to make positive changes in the district. Once laws are enacted, the public organization has no choice but comply. In such situations the outsourcing drivers are the governing laws and executive orders; another recognized reason for outsourcing by public organizations (Kakabadse and Kakabadse, 2000a).

Yet another reason for public sector outsourcing may be better accountability. Deakin and Walsh (1996) find that managers in public organizations generally realize an accountability improvement in the particular function being outsourced. However, the managers also believe that there is a simultaneous decline in accountability to the public. The explanation is that a supplier works for the government and performs the functions to satisfy the government representative whereas a government employee works for the public and keeps their interests primary.

Willcocks and Currie (1997), and Willcocks *et al.* (1995) write on information technology (IT) outsourcing and find that in public organizations one of the four primary drivers for outsourcing IT is the bandwagon effect. Apparently operating "like a business" has appeal for the public organization. The authors also identify manager's preference to divest of troublesome functions as another major reason to outsource.

In summary, there is enough evidence in the literature to suggest that outsourcing by public organizations may be initiated for reasons quite different from private industry. While the reasons may be different, the desired benefits are often similar. The expected benefits are discussed in the next section.

Expected benefits of outsourcing

The rapid growth of outsourcing suggests that both public and private organizations expect benefits from outsourcing. Naturally different organizations in different circumstances will expect different benefits. For example, all organizations may expect costs savings even though in government outsourcing, the typical cost savings are only about half of what the private sector achieves (Kakabadse and Kakabadse, 2000a). It is impossible to exhaustively list every conceivable benefit but many of the desired benefits are general enough that they are shared across organizations. Rather than discussing potential benefits individually in detail, they are summarized in Table I along with a list of references.

As the table shows, the expected benefits of outsourcing may include realizing the same or better service at a lower overall cost, increased flexibility and/or quality, access to the latest technology and best talent, and the ability to re-focus scarce resources onto core functions. For the political organization, additional expected benefits may include better accountability and management, and a better political posture. There also appears to be an expected benefit of mimicking competitors or "getting rid" of troublesome functions (Willcocks and Currie, 1997).

Potential risks of outsourcing

The literature also discusses numerous risks associated with outsourcing. Because outsourcing is a rather recent tool of managers the complete costs are not yet known, which posses a risk in itself. The literature warns that there is an initial tendency to overstate benefits and that the suppliers are likely to perform better in the beginning of a contract to make good first impressions (Schwyn, 1999).

The lack of methodology is believed to cause some outsourcing failures (Bounfour, 1999; Lonsdale, 1999). This thinking is supported by Lonsdale who suggests that outsourcing failures are not due to an inherent problem with outsourcing but rather the lack of guiding methodology for managers (Lonsdale, 1999). Another difficulty encountered with outsourcing, particularly in the US (GAO, 1997), is the lack of skills within public organizations to manage and monitor outsourced functions. While not discussed in detail, (Earl, 1996) identifies 11 risks with outsourcing IT; many of them have applicability to the outsourcing of other functions as well.

While it is recognized that all the potential risks of outsourcing are not currently known, an attempt is made to identify some of the known risks in Table II.

The outsourcing literature referenced in the table warns of the following potential risks: unrealized savings with a potential for increased costs, employee moral problems, over dependence on a supplier, lost corporate knowledge and future opportunities, and dissatisfied customers. It is also noted that outsourcing may fail because of inadequate requirements definition, a poor contract, lack of guidance in planning or managing an outsourcing initiative, or because of poor supplier relations.

Potential factors to consider

In addition to benefits and risks, outsourcing literature also discusses factors which may impact outsourcing decisions. The factors are discussed individually in the following paragraphs. The factors are grouped into four categories, strategy, cost, function characteristics, and environment.

Core competence is a strategic factor that has attracted much attention and is often linked to the outsourcing decision. Core competence is what an organization uses to sustain a competitive advantage. Core competencies in turn are utilized by core functions. There is debate in literature as to exactly what a core function is but it is widely recognized that how core a function is should have bearing on whether or not to outsource it (Quinn, 1999; Drtina, 1994; Jenster and Pedersen, 2000; Quinn, 2000; Large, 1999; Lankford and Parsa, 1999; Kakabadse and Kakabadse, 2000a; Prahalad and Hamel, 1990; Dekkers, 2000; Elliott and Torkko, 1996; Brandes *et al.*, 1997; McIvor, 2000a). Quinn suggests that "those activities – usually intellectually-based service activities or systems – that the company performs better than any other enterprise" are core (Quinn, 1999). In general, a function that is more core to the organization is less likely to be outsourced.

A second strategy factor is critical knowledge. There are some functions in an organization that may not in-and-of themselves be "core" but the unique data or technology they generate and feed into other processes is critical. Similarly, there are functions in organizations which generate data or knowledge that the organization wants to be cognizant of and in control of. The critical knowledge factor is intended to describe this type of function. In general, if a function provides critical knowledge it is less likely to be outsourced.

Table I Expected benefits sought from outsourcing

Expected benefit	References
Cost savings	Adler (2000), Antonucci *et al.* (1998), Champy (1996), Crone (1992), Drtina (1994), Dubbs (1992), Fan (2000), Gordon and Walsh (1997), Hendry (1995), Hubbard (1993), Jennings (2002), Kakabadse and Kakabadse (2000a), Kriss (1996), Krizner (2000), Laabs (1993a, b), Laarhoven *et al.* (2000), Lankford and Parsa (1999), Large (1999), LaRock (1993), Lawes (1994), Lee (1994), McCray and Clark (999), Mehling (1998), Quinn and Hilmer (1994), Razzaque and Chen (1998), Roberts, V. (2001), Tefft (1998), Tully (1993), Vining and Globerman (1999), Willcocks and Currie (1997), Willcocks *et al.* (1995)
Reduced capital expenditures	Hubbard (1993), Kakabadse and Kakabadse (2000a), Lawes (1994), McEachern (1996), Muscato (1998), Razzaque and Chen (1998), Tully (1993)
Capital infusion	Blumberg (1998), Gordon and Walsh (1997), McEachern (1996)
Transfer fixed costs to variable	Blumberg (1998), Kakabadse and Kakabadse (2000a), Kelleher (1990), Razzaque and Chen (1998)
Quality improvement	Blumberg (1998), Campbell (1995), Champy (1996), Hubbard (1993), Jennings (1997), Jennings (2002), Kakabadse and Kakabadse (2000a), Kriss (1996), Laabs (1993a, b), Lee (1994), McEachern (1996), Mehling (1998), Roberts, V. (2001), Tefft (1998), Willcocks *et al.* (1995)
Increased speed	Drew (1995), Dubbs (1992), Jennings (1997), Kakabadse and Kakabadse (2000a), Kriss (1996), Krizner (2000), Quinn and Hilmer (1994), Razzaque and Chen (1998)
Greater flexibility	Antonucci *et al.* (1998), Campbell (1995), Drtina (1994), Gordon and Walsh (1997), Jennings (1997), Jennings (2002), Kakabadse and Kakabadse (2000a, b), Muscato (1998), Quinn and Hilmer (1994), Quinn (1999), Muscato (1998), Razzaque and Chen (1998), Roberts, V. (2001), Tully (1993), Willcocks *et al.* (1995)
Access to latest technology/ infrastructure	Antonucci *et al.* (1998), Campbell (1995), Champy (1996), Crone (1992), Drtina (1994), Gordon and Walsh (1997), Kakabadse and Kakabadse (2000a), Lankford and Parsa (1999), McEachern (1996), Mehling (1998), Muscato (1998), Roberts, V. (2001), Wright (2001)
Access to skills and talent	Blumberg (1998), Campbell (1995), Gordon and Walsh (1997), Hill (1994), Hines and Rich (1998), Jennings (1997), Lankford and Parsa (1999), Large (1999), Lawes (1994), Mans (1998), McEachern (1996), Moran (1997), Muscato (1998), Razzaque and Chen (1998), Richardson (1997), Willcocks *et al.* (1995), Wright (2001)
Augment staff	Burzawa (1994), Gibson (1993), Gilbert (1999), Jennings (1997), Kakabadse and Kakabadse (2000a, b), Large (1999), Lawes (1994), Razzaque and Chen (1998), Richardson (1997), Tefft (1998), Willcocks *et al.* (1995), Wright (2001)
Increase focus on core functions	Adler (2000), Antonucci (1998), Blumberg (1998), Champy (1996), Crone (1992), Hubbard (1993), Jennings (2002), Kakabadse and Kakabadse (2000a, b), Laabs (1993a, b), Lankford and Parsa (1999), Large (1999), Lawes (1994), Leavy (1996), McIvor and McHugh (2000), Mehling (1998), Moran (1997), Quinn and Hilmer (1994), Roberts, V. (2001), Willcocks *et al.* (1995), Wolosky (1997), Wright (2001)
Get rid of problem functions	McIvor (2000a), Willcocks and Currie (1997), Willcocks (1995)
Copy competitors	Willcocks and Currie (1997), Willcocks *et al.* (1995)
Reduce politic pressures or scrutiny	Gordon and Walsh (1997), Hendry (1995), Kakabadse and Kakabadse (2000a), Willcocks and Currie (1997), Willcocks *et al.* (1995)
Legal compliance	Gordon and Walsh (1997), Kakabadse and Kakabadse (2000a)
Better accountability/management	Domberger and Fernandez (1999), Hubbard (1993), Mehling (1998), Willcocks *et al.* (1995)

Lack of internal human resources is another factor identified within the strategy category. Public organizations may be particularly impacted by lack of resources. They are historically more restricted in their hiring and termination practices than private-sector organizations. There are often strict guidelines on the number of civil servants that can be employed. When public organizations are restricted from hiring employees to replace those retiring or exiting, there is more workload for those remaining. Further, employees that left took their knowledge and skills with them, leaving a void in the organization. The organization must make strategic decisions about how to re-locate the workforce that remains. There may be cases when the best alternative for the public organization is to acquire the needed skills from outside sources. In both public and private firms access to the people with specialized skills may be an issue. In general, a function is more likely to be outsourced if there is a lack of internal human resources to perform it (Green, 2000).

The impact on quality is the next strategy factor to consider. The quality of an organization's services establishes reputation and can create demand. If the organization is currently recognized in the industry for a high level of quality then there may be concern by decision makers or customers that outsourcing the function could harm quality. However, if the organization's quality is not held in high regard, then outsourcing the function may be seen as a potential improvement. Therefore quality is a relevant factor and can be either a positive or a negative influence on outsourcing (Anderson, 1997).

Flexibility is the last factor identified in this category. Flexibility, as discussed here, is intended to include demand flexibility, operational flexibility, resource flexibility, or the flexibility of a number of other strategic elements. Like quality, flexibility can be impacted positively or negatively by outsourcing. Long contracts outsourced into a limited market have sometimes resulted in a loss of flexibility (Antonucci *et al.*, 1998; Bryce and Useem, 1998). However, large

Table II Potential risks of outsourcing

Potential risk	References
Unrealized savings or hidden costs	Alexander and Young (1996), (*Journal of Accountancy*, 1996), (*Works Management*, 1999), Antonucci *et al.* (1998), Brown (1997), Dubbs (1992), Earl (1996), Elliot (1995), Hendry (1995), Jennings (1997), Jones (1993), Kakabadse and Kakabadse (2000a, b), Lonsdale (1999), McEachern (1996), Prahalad and Hamel (1990), Quinn and Hilmer (1994), Willcocks *et al.* (1995)
Less flexibility	*Management Accounting* (1998), Antonucci *et al.* (1998), Bryce and Useem (1998), Gordon and Walsh (1997), McCray and Clark (1999), Roberts, V. (2001), Tefft (1998), Willcocks and Currie (1997)
Poor contract or poor selection of partner	*Management Accounting* (1997, 1998), Crone (1992), Domberger and Fernandez (1999), Gordon and Walsh (1997), Hill (1994), Jorgensen (1996), Klopack (2000), Krizner (2000), Lee and Kim (1999), Mullin (1996), Willcocks *et al.* (1995)
Loss of knowledge/skills and/or corporate memory and the difficulty in reacquiring a function	Campbell (1995), Earl (1996), Gilbert (1999), Jennings (1997), Kakabadse and Kakabadse (2000a, b), Kelleher (1990), Leavy (1996), McEachern (1996), McIvor (2000a), Paoli and Prencipe (1999), Prahalad and Hamel (1990), Quinn and Hilmer (1994), Quinn (1999), Roberts, V. (2001), Willcocks and Currie (1997), Willcocks *et al.* (1995)
Loss of control/core competence	Anthes (1991), Antonucci *et al.* (1998), Elliot (1995), Jennings (1997), Kakabadse and Kakabadse (2000a, b), Katz (1995), (Klopack (2000), Leavy (1996), Lonsdale (1999), McEachern (1996), Ngwenyama and Bryson (1999), Quinn and Hilmer (1994), Razzaque and Chen (1998), Roberts, V. (2001)
Power shift to supplier	Antonucci *et al.* (1998), Campbell (1995), Kakabadse and Kakabadse (2000a), Katz (1995), Lonsdale (1999), Quinn (1999), Quinn (1999), Roberts, V. (2001), Willcocks and Currie (1997)
Supplier problems (poor performance or bad relations, opportunistic behavior, not giving access to best talent or technology)	Avery (2000), Baden-Fuller *et al.* (2000), Brown (1997), Bryce and Useem (1998), Earl (1996), Elliot (1995), Iyer and Kusnierz (1996), Kakabadse and Kakabadse (2000a), Katz (1995), Laabs (1998), Lawes (1994), Lonsdale (1999), Mans (1998), Quinn and Hilmer (1994), Razzaque and Chen (1998), Roberts, V. (2001), Vining and Globerman (1999), Willcocks and Currie (1997), Willcocks *et al.* (1995), Willis (1996)
Losing customers, opportunities, or reputation	Blumberg (1998), Brown (1997), Kakabadse and Kakabadse (2000a), Quinn and Hilmer (1994), Roberts, V. (2001)
Uncertainty/changing environment	Earl (1996), Gordon and Walsh (1997), Lawes (1994), Lonsdale (1999), Willcocks and Currie (1997)
Poor morale/employee issues	Blumberg (1998), Gordon and Walsh (1997), Kakabadse and Kakabadse (2000a), Quinn (1999), Razzaque and Chen (1998), Story (2000)
Other:	
Loss of synergy	Campbell (1995), Willcocks and Currie (1997)
Create competitor	Klopack (2000)
Conflict of interest	Avery (2000), Gordon and Walsh (1997)
Security issues	Graham (1996), Peltier (1996)
False sense of irresponsibility	Roberts, P. (2001), Sherter (1997), Widger (1996)
Legal obstacles	Gordon and Walsh (1997), Graham (1996)
Skill erosion	Lafferty and Roan (2000)

bureaucratic organizations may improve on their flexibility by outsourcing. According to the literature, organizations sometimes consider outsourcing in an effort to increase flexibility.

The next factor category is cost. There is some literature that suggests that most outsourcing is primarily motivated by the organization's efforts to reduce costs (Meckbach, 1998; Hendry, 1995; Welch and Nayak, 1992). If a function is to be outsourced for cost reasons, then it is assumed that the current in-house costs are higher than the expected costs for purchasing the service. However, there is significant uncertainty about the expected savings generated by outsourcing. Cost savings may not be as high as sometimes reported. Literature also suggests that determining accurate in-house costs to compare to can be difficult. Despite the uncertainty, many organizations outsource to reduce costs and therefore the higher the internal cost to perform the function relative to the expected cost of purchasing the service the more likely the function is to be outsourced.

The next factor category relates to the characteristics of the functions themselves. Some functions simply lend themselves better to being outsourced. Function characteristics, such as complexity, degree of integration, structure etc., unlike the strategy or cost factors, are generally not unique to an organization.

Several factors have been identified that fall into this category, the first being complexity. Complexity refers to the difficulty of recognizing or understanding the variables and the interactions that surround a function. An example of a complex function may be basic research in any of the sciences. Often it is not known what is being sought and therefore there may not be a specific expected outcome. Because outsourcing is the purchasing of a service under contract it generally assumes that both the outsourcer and supplier know what is to be delivered and under what terms (Prencipe, 1997). It may be more difficult to articulate the requirements and terms for complex functions. It also requires a greater investment by a supplier to learn to perform complex functions. In general, the more complex a function is the less of a candidate it is for outsourcing.

Integration is another function characteristic that influences the outsourcing decision. Integration refers to the degree the

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function is linked into other functions and systems within the organization. The more integrated the function is the more interactions and communication channels there are to maintain and monitor. It is often difficult to achieve effective communication and coordination within an organization. Moving a function across organizational boundaries and perhaps adding several new layers of departmental boundaries won't make the task any easier. Differing organizational cultures and goals may also impede successful interaction with the relocated function. Therefore a function that is heavily integrated is less of a candidate to outsource (Prencipe, 1997; Paoli and Prencipe, 1999).

The next function characteristic is asset specificity. This describes the case where durable equipment or products are generated by the outsourcing arrangement and they have little value outside of that function. Asset specificity is an outsourcing issue because the supplier has little incentive to put resources into maintaining or upgrading the durable items because they have no value for him apart from the agreement. Ultimately the supplier has greater leverage to charge higher rates. In general, the greater the asset specificity the less of a candidate the function is for outsourcing.

The structure of a function also impacts the decision to outsource it. Structure relates to the degree the function follows a predictable pattern; a pattern which may be defined in a checklist. The more structured a function is the easier it is for a less experienced person to perform it with proper instructions. A more structured function is a better candidate for outsourcing.

The number of employees impacted is likely to influence the decision to outsource a function. Displaced employees are a sensitive issue, whether the organization's goals are to displace as many as possible or as few as possible. If an organization is seeking to divest of employees, then a function utilizing a relatively large number of personnel will be attractive for outsourcing; however that same function may be an unlikely candidate if the organization wants to minimize the number of employees impacted. The determination whether the number of employees impacted has a positive or negative effect on the outsourcing decision is made on a case by case basis.

The final category of factors relate to the internal and external environment faced by the organization.

For organizations with unique missions or specialized skills there may be only a few if any outside suppliers possessing those skills. An example is maintenance of the Hubble Space Telescope. There are not many organizations that could assume this function. A function that requires skills that are difficult to find externally is less likely to be outsourced (Antonucci *et al.*, 1998).

Political pressures have undeniable influence on public sector organizations. As mentioned in the second section, public organizations don't necessarily make decisions based on cost and profit. The agendas of elected officials, public opinion, and current national or international trends may all influence the actions of the public organization. There may be certain functions or types of functions that are particularly visible in the public eye and therefore may receive increased outsourcing pressure. Airport security is a recent example of a function being pulled back in-house by the government.

The internal political environment may also influence the outsourcing decision. The opinions of influential people within the organization may have bearing on decisions even though they may not have any formal outsourcing decision authority. The perceptions of employees, unions, or union leaders may also influence whether a function should be outsourced.

Another environmental factor is the preference of the managers that do have formal influence on the outsourcing decision. For example, a manager may favor a certain function and want it to stay in-house. That function is less likely to be outsourced than one that doesn't have the manager's preference. The degree to which preferences influence a decision may be difficult to predict. Further, the influence may be hidden in supporting documents or ancillary decisions and thus may be difficult to identify. None-the-less manager preference is an environmental factor to consider.

The fifth environmental factor identified is the legal environment. Legal factors relate to the degree the candidate functions are "tied up" in current legal arrangements. Legal factors may be union agreements, contracts with other suppliers, or other rules and regulations that govern the performance of a function, such as veteran preferences and minority initiatives. In general, the more legal hurdles to overcome the less likely the function is to be outsourced.

The next environmental factor identified is the actions of competitors. Willcocks and Currie document that one of the reasons that many firms try outsourcing is because others are doing it (Willcocks and Currie, 1997). The unwritten assumption appears to be that if the competitors are doing it, it must be good. In general, if the organization's competitors are actively outsourcing a function it is more likely to be outsourced.

The potential for conflict of interest is another environmental factor to consider. The outsourcing of some functions may result in a situation where the supplier has to act contrary to their other interests. An example is when a supplier is placed into a role where they could create work for themselves. Consider a supplier that has been given the responsibility of strategic planning and recommending of IT systems for an organization. If that supplier also made or developed IT systems, then there may be speculation by the organization when the supplier recommends its own products for upgrades. The question may be asked: "Are the upgrades really needed or is the recommendation based more on a desire to generate additional business"? In general, functions are less likely to be outsourced as the potential for conflicts of interest increases (Graham, 1996).

The degree of uncertainty is the last factor. If the environment or disposition of a function is highly uncertain it may be more difficult to successfully outsource that function; especially at a fair rate into a firm long-term contract. When the inputs, requirements, or costs associated with a function are uncertain, a potential supplier will have a difficult time assessing what is a fair price to charge. Consequently, they will demand a higher rate to assume the extra risk. In addition to higher rates, there are likely to be more problems with such functions during the course of the arrangement. Greater uncertainty may also make it more difficult to define the requirements and expectations. In cultures where formal arrangements are the norm, loose definition often results in change orders, unexpected costs, and sometimes a negative impact on relationships. In general, successful outsourcing of highly uncertain functions is more difficult.

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Multivariate analyses of the literature

In this section we report on the cross-tabulation and the cluster analyses which were conducted on the outsourcing literature. Both methods are used for categorizing the literature and highlighting disparity and trends in the results presented in these studies.

The database

A total of 210 studies in the last two decades are included in the database, with well over half being between the years 1996 to 2000. The studies in the database appeared in academic journals and e-journals. The keywords in the outsourcing decision framework provided in the second section are used in the search process.

Based on the forgoing discussion and Tables I and II, a total of 29 variables are identified and each paper is classified based on whether a particular variable is present or not. The variables describe the studies and are derived from the decision framework presented in Figure 1. Seventeen of the 29 variables relate to outsourcing benefits, risks, motivations and factors. Five variables relate to outsourcing benefits: does the study discuss cost savings, or focus on core competence, flexibility, access to technology, and access to skills? Another five variables relate to risks associated with outsourcing: loss of core competence, supplier problems, employee morale, loss of skills, and unrealized savings. Motivation to outsource is represented by three variables: cost driven, strategy driven, and politically driven. Factors which may impact the decision of which function to outsource are represented by four variables: strategy, cost, function characteristics, and business environment. The rest of the variables provide additional descriptions of the studies. Three of them are used to define the location of the study: does the study discuss outsourcing practices in Europe, in the USA, or in other regions? Another three variables are for the type of study: case, theoretical, and decision support tool. The type of organization is also defined by three variables: for-profit, non-profit, and governmental organizations. Finally four more variables are included in the analysis to further describe the studies: human resources issues related to outsourcing, the impact of knowledge management, general core competence issues, and the impact of R&D strategy on outsourcing. For each study each of these variables can have a value of zero or one depending on whether that study deals with the corresponding variable. This results in a matrix with a total of 210 $\times$ 29 entries.

Cross-tabulation analysis

In order to combine and compare the information provided in the database and thus identify the relationships between the contents of the studies we first constructed pivot tables using Microsoft EXCEL software package. A pivot table report is a means of organizing the data with the purpose of identifying trends and commonalities. Using the 29 variables as pivot table fields the cross tabulations are constructed and the counts of studies that satisfy both conditions on various corresponding variables are determined. The significant findings of the tables are as follows:

- Of the 210 studies 80 of them (38 percent) specify the type of organization, with 56 percent addressing for-profit organizations.
- Of the 85 studies that state cost savings as the main outsourcing benefit, 57 percent of them refer to for-profit organizations compared to only 2 percent for non-profit organizations.
- No studies in the database indicate that non-profit organizations outsource in order to access technology or to access skills and talent.
- There are twice as many studies which discuss supplier problems as those which address unrealized savings. Both risk categories are more commonly associated with governmental organizations as opposed to for-profit organizations.
- Of the 85 studies which refer to cost reduction as a main driver for outsourcing, 53 percent of them are aimed at for profit organizations whereas for the 95 studies with strategy as the main driver 58 percent of them are aimed at for-profits. On the other hand, 75 percent of the 12 studies which discuss political motivations refer to governmental organizations.
- Only one third of the 32 studies which discuss cost being a major factor that affects the decision of which functions to outsource refers to for-profit organizations while two thirds refer to governmental organizations. Note also that out of a total 33 governmental studies only 12 of them study the outsourcing efforts of US governmental organizations.
- Of the total studies in the database, 79 percent are of theoretical type, and 56 percent of them refer to for-profit organizations, while only 2 percent of them investigate non-profits. There are a total of 18 case studies in the dataset with 62 percent considering for-profits and 38 percent dealing with governmental organizations.
- All three types of studies (case, theoretical, and decision support) concentrate on US organizations.
- The studies discussing outsourcing benefits are twice as likely to refer to the US practices compared to European. The largest difference occurs when the expected benefit is access to skills. The number of studies referring to US practices is four times those of Europe. Among the numerous risks associated with outsourcing, the supplier problems are discussed more often when US practices are considered. The risk of unrealized savings is discussed more often in the European studies.
- When the motivation for outsourcing is cost driven (85 studies), 80 percent of them report cost savings as a benefit that they seek. In addition, 81 percent of the 37 studies which discuss the risk of not realizing the expected savings also discuss cost savings as an outsourcing benefit.

Chi-square test

The second analysis is a chi-square testing of the relationship between the variables in the database. For the purposes of the chi-square test we defined several binary variables: *B*, *R*, *M*, and *F*. *B* refers to whether or not any of the five benefit variables are discussed in the study. Similarly *R*, *M*, and *F* refer to whether or not any of the risks, motivations or factor variables are discussed.

The results are presented in Table III. The chi-square tests on the pair-wise associations are all highly significant and positive, indicating that papers which discuss one of the *B*, *R*, *M*, *F* tend to also discuss each of the others. For example, when a paper discusses outsourcing benefits it is more likely that it also discusses risks and on the other hand if it does not

Table III The significant relationships identified by chi-square testing

	B		R		M		F	
	Yes	No	Yes	No	Yes	No	Yes	No
B			56	47	81	22	35	68
			27	80	29	78	20	87
R					61	22	34	49
					49	78	21	106
M							40	70
							15	85
KM	0	39	3	36	2	37	2	37
	102	68	80	91	108	63	53	118
DSS	9	26	6	29	11	24		
	94	81	77	98	99	76		
Government	21	12	21	12				
	82	95	62	115				
USA	47	32						
	56	75						
Europe			25	16				
			58	111				
For-profits	33	12						
	72	95						

discuss benefits, then it is also less likely that it will discuss risks. In the table only the statistically significant relationships are presented. The first row, which corresponds to benefits (*B*) and the second column corresponding to risks (*R*) contains the count of the studies for each possible combination of the two variables. For example, 56 studies discuss both benefits and risks while 47 studies discuss benefits but not risks. The value of the chi-square statistic for testing the independence of *B* and *R* is then 18.1 which is highly significant indicating that when a study discusses benefits it also tends to discuss risks. This pattern applies to all the other pairs in the table.

Next, we performed chi-square tests comparing the rest of the variables to *B*, *R*, *M*, *F*. Most of the relationships were not statistically significant. Among the significant ones are Knowledge Management (KM) with each of *B*, *R*, *M*, *F*, and Decision Support (DSS) with each of *B*, *R*, and *M*. In each case here the relationship is strongly negative. That is, when knowledge management is discussed then it is less likely that any of *B*, *R*, *M*, *F* is discussed. Similarly, when the study type is decision support it is much less likely that any of *B*, *R*, *M* is discussed. We find several other significant relationships involving the variables Government, For-profits and Location (USA, Europe). Government has a positive relationship with *B* and *R*, for-profits has a positive relationship with *B*, US has a positive relationship with *B* while Europe has a positive relationship with *R*.

Note that the results of chi-square testing provide statistical support to the findings based on the pivot table analysis.

Cluster analysis

In the foregoing analysis we examined the relationships between the variables describing the content of the papers. Next, we will group the papers based on these variables. For this purpose we use cluster analysis available in SAS (SAS, 1999). Each study is considered to be a point in the multi-dimensional space determined by the values of the variables. These points are then clustered, based on the distance between them. Using the MODECLUS procedure in SAS we were able to choose parameters which lead to different numbers of final clusters. Although the possible number of clusters varied from three to several dozen we chose the six cluster solution as providing a suitable balance between an overly detailed classification and an overly aggregated one.

Portrayal of clusters

Stepwise discriminant analysis was then used to investigate which variables are important in determining the membership of the clusters. The stepwise discriminant analysis is commonly used to evaluate differences among groups of observations. We used the SAS STEPDISC procedure which also provides the relative importance of each of the variables in predicting group membership. Table IV summarizes the important variables for each of the clusters and how the clusters relate to them, i.e. a positive, or a negative correlation. The variables in the tables are ranked from the most important (in terms of the value of the *F* statistic) to the least important in forming the cluster. The largest cluster contains 127 studies and is determined by values on ten variables. Note that the small clusters are characterized by strong relationships with a few variables while the large cluster is characterized by variables that are not addressed in the studies.

The common characteristics of cluster 1 are that the studies discuss decision support systems and are theoretical. However cost as a motivator for outsourcing is not discussed nor is knowledge management or functional characteristics as a factor in deciding what to outsource. In cluster 2 studies discuss both knowledge management and human resources issues without linking it to a specific location. Furthermore they are not case type studies. The primary common characteristic of studies in cluster 3 is that they discuss access to technology as a benefit of outsourcing and loss of employee morale as a risk. The cluster also tends to contain studies addressing non-profit organizations as well as those discussing access to skilled workers as an outsourcing benefit. Cluster 4 consists of case studies where strategy as a factor affecting what to outsource is not discussed. In Cluster 5 function characteristics as a factor is the common topic while risk of unrealized savings and risk of loss of knowledge are not.

The relationship with the primary variables determining membership in cluster 6 is negative. This indicates that studies in this cluster tend not to discuss decision support tools or access to technology as a benefit or any of the human resources issues. However, they do tend to discuss cost driven motives, core competence issues related to outsourcing and the outsourcing practices taking place in Europe and other locations but not the USA.

Conclusion

Multivariate analysis of the literature is instrumental in identifying commonalities, patterns, and gaps in the outsourcing literature. In general outsourcing studies are of theoretical type, discussing benefits, risks and motivators for for-profit, US organizations. European studies focus more on risks related to outsourcing and address governmental entities. The studies addressing knowledge management tend not to cover benefits, risks or motivators related to

Table IV The results of cluster analysis

Cluster 1 size = 23
Aggarwal and Mirani (1999), Bonczek *et al.* (1981), Chari and Baker (1998), Cole-Gomolski (1999), Crowe *et al.* (1997), Eierman *et al.* (1995), Fuara (2001), Harris and Giunipero (1998), Ho and Sculli (1997), Khoong (1995), Kosaka and Hirouchi (1982), Madu *et al.* (1995), Multinovich and Vlahovich (1984), Ntuen and Chestnut (1995), Pearson and Shim (1995), Raghunathan (1996), Salkin and Mathur (1989), Sislian and Satir (2000), Tayles and Drury (2001), Tully (1993), Wagner (1968)

Variable	F-value (significance)	Direction
Decision support	202.5 (<0.0001)	Positive
Theoretical type	21.1 (<0.0001)	Positive
Cost driven (motive)	18.5 (<0.0001)	Negative
Knowledge management	6.2 (0.01)	Negative
Function characteristics (factor)	6.3 (0.01)	Negative

Cluster 2 size = 17
Blumentritt and Johnston (1999), Crone (1992), Davenport *et al.* (1998), Dawson (2000), De Long and Fahey (2000), Fan *et al.* (2000), Gold *et al.* (2001), Green (2000), Hackbarth and Grover (1999), Hansen *et al.* (1999), Hauschild *et al.* (2001), Laabs (1998), Lee (2000), Lee and Kim (1999), Raisinghani (2000), Ruber (2000), Van den Bosch *et al.* (1999)

Variable	F-value (significance)	Direction
Knowledge management	64.6 (<0.0001)	Positive
Human resources	43.9 (<0.0001)	Positive
Other locations	14.7 (0.0002)	Negative
Case type	10.1 (0.002)	Negative

Cluster 3 size = 20
Akomode *et al.* (1998), Antonucci *et al.* (1998), Bounfour (1999), Campbell (1995), Chen and Soliman (2002), Crone (1992), Domberger and Fernandez (1999), Downey (1995), Eisele (1994), Elliott and Torkko (1996), Elmuti and Kathawala (2000), Harler (2000), Kakabadse and Kakabadse (2000a), Lawes (1994), Livingston (1992), McEachern (1996), Muscato (1998), Pepper (1996), Quinn (1999), Wolosky (1997)

Variable	F-value (significance)	Direction
Access to technology (benefit)	476.0 (<0.0001)	Positive
Morale (risk)	52.0 (<0.0001)	Positive
Non profit organizations	12.8 (0.0004)	Positive
Access to skill (benefit)	10.1 (0.002)	Positive

Cluster 4 size = 10
Albino *et al.* (2001), Becerra-Fernandez and Sabherwal (2001), Bienstock and Mentzer (1999), Brown and Woodland (1999), Chait (1999), Madey *et al.* (1987), McIvor (2000b), McIvor *et al.* (2000), Michellone and Zollo (2000), Niehaus (1995)

Variable	F-value (significance)	Direction
Case type	237.7 (<0.0001)	Positive
Strategy (factor)	17.6 (0.0001)	Negative

Cluster 5 size = 13
Dekkers (2000) Gillett (1994) Jenster and Pedersen (2000) Ketler and Walstrom (1993) Laios and Moschuris (1999) Laios and Moschuris (1997) Lonsdale (1999) Maltz and Ellram (1997) McCray and Clark (1999) Moran (1997) Rao and Young (1994) Welch and Nayak (1992) Yang and Huang (2000)

Variable	F-value (significance)	Direction
Function characteristics (factor)	97.4 (<0.0001)	Positive
Unrealized savings (risk)	20.9 (<0.0001)	Negative
Loss of knowledge (risk)	12.0 (0.0006)	Negative

Cluster 6 size = 127
Adler (2000), Alexander and Young (1996), Anderson (1997), (Journal of Accountancy (1996), Management Accounting (1997, 1998), Works Management (1999), Management Accounting-London (1999), Anthes (1991), Bers (1992), Bergsman (1994), Bakker and Jones (1995), Ashe (1996), Aubert *et al.* (1996), Chemical Week (2000), Arnold (2000), Avery (2000), Baden-Fuller *et al.* (2000), Bright (1993), Brandes *et al.* (1997), Blumberg (1998), Burzawa (1994), Champy (1996), Chu *et al.* (1996), Brown (1997), Bryce and Useem (1998), Carayannis (1998), Cole-Gomolski (1998), Collinson (2001), Dubbs (1992), Drtina (1994), Drew (1995), DiRomualdo and Gurbaxani (1998), Daniels *et al.* (1999), Dickey (1999), Earl (1996), Dykeman (1998), Dunford (2000), Elliot (1995), Fan (2000), Gibson (1993), GAO (1997), Ferris (1999), Gilbert (1999), Fontes (2000), Graham (1996), Gordon and Walsh (1997), Walsh (1996), Green (1995), Hill (1994), Hendry (1995), Hiebeler (1997), Greengard (1998), Griffiths and Boisot (1998), Hines and Rich (1998), Hubbard (1993), Jones (1993), Iyer and Kusnierz (1996), Jorgensen (1996), Jennings (1997), Jennings (2002), Kelleher (1990), Katz (1995), Kriss (1996), Kakabadse and Kakabadse (2000a), Klainguti (2000), Klopack (2000), Prahalad and Hamel (1990), Nonaka (1991), Laabs (1993a, b), LaRock (1993), Meyer and Utterback (1993), Nemeth (1993), Lee (1994), Long and Vickers-Koch (1995), Nonaka and Takeuchi (1995), Pinnington and Woolcock (1995), Leavy (1996), Mullin (1996), Peltier (1996), OECD (1997), Post (1997), Prencipe (1997), Mans (1998), Meckbach (1998), Mehling (1998), O'Dell and Grayson (1998), Old (1998), Lankford and Parsa (1999), Large (1999), Lewis (1999), Ngwenyama and Bryson (1999), Paoli and Prencipe (1999), Pitt and Clarke (1999), Krizner (2000), Lafferty and Roan (2000), McAdam and Reid (2000), Quinn (2000), Lee (2001), Quinn *et al.* (1990a, b), Quinn and Hilmer (1994), Richardson (1997), Razzaque and Chen (1998), Riesenberger (1998), Roberts, V. (2001), Sheehan (1993), Simpson (1994), Willcocks *et al.* (1995), Unland and Kleiner (1996), Walsh (1996), Widger (1996), Willis (1996), Sherter (1997), Skinner and Bond (1997), Willcocks and Currie (1997), Tefft (1998), Roodhooft and Warlop (1999), Rothwell and Lindholm (1999), Sage and Rouse (1999), Schwyn (1999), Vining and Globerman (1999), Roehling *et al.* (2000), Smith and Waymack (2000), Story (2000), Roberts (2001), Schulz and Jobe (2001), Wright (2001)

Variable	F-value (significance)	Direction
Decision support	38.8 (<0.0001)	Negative
Access to technology (benefit)	29.7 (<0.0001)	Negative
Cost driven (motive)	29.9 (<0.0001)	Positive
Human resources	22.9 (<0.0001)	Negative
Other locations	11.8 (0.0007)	Positive
Core competence	8.9 (0.0032)	Positive
Europe	7.1 (0.0082)	Positive

outsourcing, a pattern which holds for studies addressing decision support issues also.

It is also important to note that most studies do not consider the distinct position of non-profit organizations when it comes to outsourcing practices. Non-profit organizations do not typically have cost reduction as a primary objective. They are typically politically driven. This observation should be a motivation for researchers to expand the treatment of non-profits. The cluster analysis indicates that approximately 40 percent of the studies can be characterized based on a strong relationship to relatively few of the variables. These variables usually do not relate to motivators, type of organization, or location.

Organizations are doing more outsourcing than ever before and managers are in desperate need of information in an organized form that will help them identify opportunities, challenges, and decision factors related to outsourcing. There is an abundance of information related to outsourcing in the literature that is waiting to be put into a more structured form for better decision support. With this study we attempt to accomplish this task. A comprehensive list of recent outsourcing studies is presented and analyzed statistically based on their content. The analysis helped identify emerging paths as well as less visited areas in the literature. Our general observation based on this analysis is that literature is rich in terms of presenting the possible benefits, risks, and strategic issues to outsourcing. However, when it comes to offering tools and guidelines in terms of decision support, the literature is lacking and needs additional work.

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About the authors

Tibor Kremic is the Program Manager, NASA Glenn Research Center, Cleveland, Ohio, USA.

Oya Icmeli Tukel is an Associate Professor in the Operations Management Department, College of Business Administration, Cleveland State University, Cleveland, Ohio, USA. She is the corresponding author and can be contacted at: o.icmeli@ scuohio.edu

Walter O. Rom is a Professor in the Operations Management Department, College of Business Administration, Cleveland State University, Cleveland, Ohio, USA.