



# SME ERP system sourcing strategies: a case study

Deb Sledgianowski and Mohammed H.A. Tafti  
*Department of Information Technology and Quantitative Methods,  
Frank G. Zarb School of Business, Hofstra University,  
Hempstead, New York, USA, and*

Jim Kierstead  
*Kanebridge Corporation, Oakland, New Jersey, USA*

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## Abstract

**Purpose** – The purpose of this paper is to identify ERP system sourcing strategies available to SMEs and to provide insights from a case study of the practices applied and decisions made by an SME in using a hybrid of sourcing resources to implement the successful conversion of their legacy ERP system to a new information technology (IT) environment.

**Design/methodology/approach** – This research is a case study utilizing various data sources including face-to-face interviews, informal conversations, and e-mails with members of the case company. Company software applications and documents were examined and employees were observed in action. The analysis compares characteristics of the client-vendor relationship of the case company with findings from relevant outsourcing literature.

**Findings** – This case study identified, among others, the following practices that were critical to the case company in their outsourcing endeavors: attending networking events for SMEs, obtaining formal contract for ownership of intellectual property, utilizing local vendor contact point for communication with offshore contact point, and utilizing vendor's skill-set for specialized resources.

**Practical implications** – This case study relates practice with theory, providing a reference for both academia and practitioners.

**Originality/value** – The decision making and practices described in this paper provide insights that may be useful to organizations considering IT software implementations. ERP systems are increasingly more affordable for SMEs and offshore outsourcing is becoming more accessible; therefore, SMEs considering these options may benefit from Kanebridge's experience.

**Keywords** Outsourcing, Manufacturing resource planning, Small to medium-sized enterprises

**Paper type** Case study

## Introduction

ERP systems enable the enterprise to streamline and integrate virtually all operations and functions from order processing to vendor and customer relationship management. These relatively expensive and sophisticated computer-based systems were afforded only by large business organizations in the past. But recently, as they proved to be very effective in providing large enterprises significant competitive advantage over those that did not implement ERP solutions, they became more available and affordable for SMEs as well (Olsen and Saetre, 2007).

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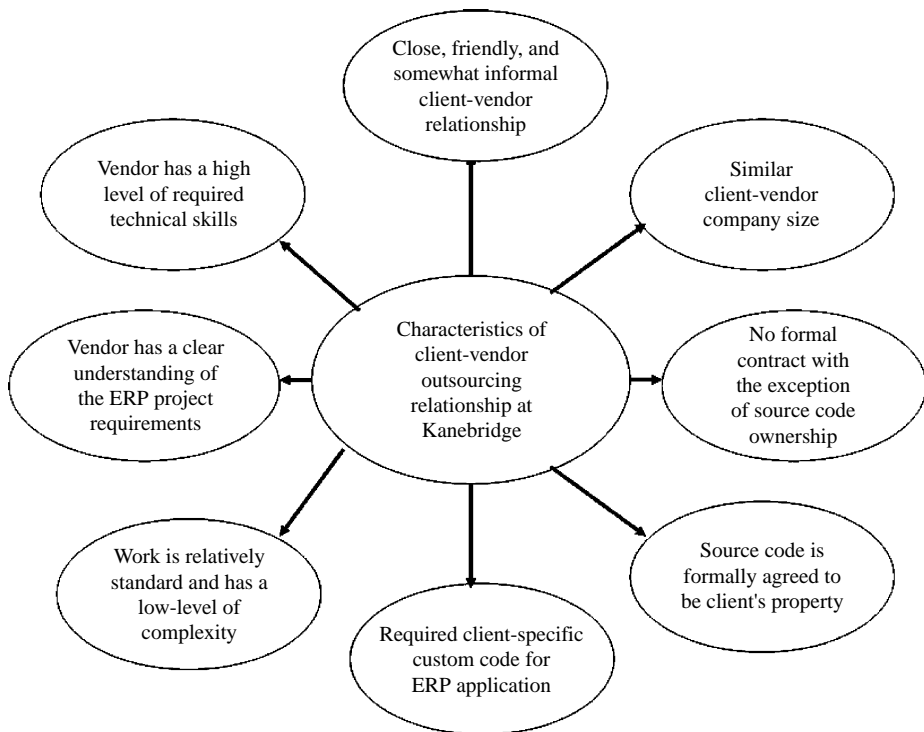
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On the one hand, the advent of the internet and open systems has brought about several options for SMEs in sourcing information technology (IT) solutions such as ERP that until recently, have only been within the reach of large organizations. On the other hand, several new providers of ERP solutions have joined SAP and other providers to offer various options for SMEs in implementing their ERP systems (DePompa, 2003). These recent developments have opened new windows of opportunities for SMEs in ERP sourcing strategies including the use of outsourced software (Bryson and Sullivan, 2003).

This paper discusses case study research conducted at Kanebridge Corporation ([www.kanebridge.com](http://www.kanebridge.com)). Kanebridge, a medium-sized company, recently underwent a decision-making process to determine whether they should “make or buy” a mission-critical enterprise system. They decided to make the system, which was a rewrite of their existing system, but their decision process led them to use a new software development environment and IT infrastructure in their first-ever major offshoring endeavor.

A goal of this research is to identify practices applied during an SME’s experience with outsourcing a software development project. We identified eight characteristics (Figure 1) associated with Kanebridge’s client-vendor outsourcing relationship which we analyze and compare to findings from relevant outsourcing literature.

Kanebridge has successfully implemented an offshore application development relationship enabling them to achieve their application implementation project goals within their allotted time and cost. Information obtained for this case study was



**Figure 1.**  
Characteristics of  
client-vendor outsourcing  
relationship

collected during 2005-2007 from various data sources including face-to-face interviews, informal conversations, and e-mails with members of the case company including the functional area managers for IT, purchasing, sales, and operations. Company software applications and documents were examined and employees were observed in action.

Sharing the practices applied and decisions made by the case company may provide valuable information to both practitioners and academicians concerned with ERP system implementation and sourcing strategies. After a brief literature review on SME sourcing strategies, the company's background and IT environment are discussed. Following this is a discussion of select IT activities and functions since Kanebridge's inception in 1975 that led to their decision to use both insourcing and outsourcing of IT human resources to develop their custom ERP system. Lastly, the conclusion and discussion is presented.

### **SME sourcing strategies: a brief literature review**

Effective planning and utilization of IT resources involves analysis of available IT sourcing options to effectively respond to environmental changes and exploit IT for gaining competitive advantage. SMEs are subject to similar outsourcing decision considerations as large businesses to ensure their ongoing survival. This includes choosing the optimal software sourcing option when implementing new enterprise software systems. Organizations need to weigh their options relative to their capabilities.

Sourcing strategies involve a range of options. One side of the sourcing-option spectrum is "total insourcing" which involves production, operation, and maintenance of software completely by the company's staff within the boundary of the enterprise. The other side is "total outsourcing" which is allocation of over 80 percent of the IT budget to external vendors (Barthelemy and Geyer, 2004; Lacity and Willcocks, 1998). Between these two options, there exists a large variety of sourcing strategies involving some combination of insourcing and outsourcing. Among these variations, three ERP system sourcing options have emerged as likely alternatives for SMEs:

- (1) implementing a purchased or leased packaged software system on-site;
- (2) implementing an application service provider (ASP) model offering a packaged system delivered and supported by a remote data center; and
- (3) outsourcing development of a custom system which is then implemented on-site.

ERP systems consist of multiple modules that integrate enterprise-wide back office operations for functional areas such as sales and distribution, materials management, and financial and cost accounting. Packaged ERP systems leverage collective "best practices" to provide transformational changes to business processes and operational efficiencies. ERP system vendors such as SAP and Oracle, having saturated the market for large-sized enterprises, have expanded into the mid-sized business market with scaled-down (and less expensive) ERP solutions. SMEs may have a greater need for information-integrating ERP solutions because they typically lack the resources and robustness of larger businesses to stay competitive (Shehab *et al.*, 2004). SMEs usually have limited resources, so implementing an ERP system can be prohibitive. An alternative approach to purchasing a packaged ERP system is to utilize an ASP or "software as a service" model (Lee *et al.*, 2004).

Leasing software from an ASP is a form of outsourcing whereby ERP functionality is delivered over the internet without the expense of hardware and software

installations, software upgrades, and maintenance. While this may be advantageous for an SME because they do not require on-site ERP expertise to maintain the system, this may be a disadvantage of ERP outsourcing since the control of daily operations is usually done by a third-party (DePompa, 2003) who may have other priorities.

The sourcing options of purchasing a packaged system or leasing the system from an ASP assume that a decision to buy has been made for the acquisition of the software. Chen and Soliman (2002) developed a make-or-buy decision tree which can be used to determine whether an organization should develop and maintain an application in-house, use traditional outsourcing to develop and maintain the application, outsource the application using an ASP solution, or use a hybrid of the preceding solutions. Their decision model considers an organization's analysis of factors, like whether the application is mission-critical and how easily it can be used elsewhere by competitors, cost factors such as production cost advantages and transaction costs, their experience with the technologies involved, and the maturity of those technologies.

Transaction cost economics suggest that the production costs associated with in-house software development relative to transaction costs associated with acquiring software services from the market favor a buy decision when it comes to SMEs, due to the lack of in-house expertise and resources for in-house development of such a system (Rooks and Snijders, 2001). But, exceptions to this occur in favor of the make decision when the software to be developed is perceived as strategic, and in-house expertise exists. Sourcing options for development of a custom ERP system include outsourcing all or part of the custom software development. Two outsourcing options are insourcing and offshoring.

Outsourcing, as a major IT and business strategy, has become a commonplace practice in recent years (Fish and Seydel, 2006). According to Gartner, approximately 90 percent of all new businesses in the USA are SMEs and the trend is toward their increasing use of outsourcing (Mears, 2006). Offshore outsourcing (offshoring) of software development is when a company procures programming or other development processes from a supplier providing human resources that are located in a foreign country. Skills that are most likely to be offshored are those that do not require close interaction between the client and offshore service supplier or sharing of a common knowledge base with the client's business users; such as programming (Bullen *et al.*, 2007). Given the lack of resources that small to medium-sized enterprises have relative to larger organizations, offshoring can be a major undertaking for these firms and is not as prevalent as it is in larger firms (Carmel and Nicholson, 2005).

Organizations generally expect to reduce their overall IT costs, focus on their core competencies, and gain superior technical resources when outsourcing part or all of their IT functions. Among all reasons to outsource, the one that has emerged as the prime reason in recent years is to gain competitive advantage through partnership by sharing information and knowledge (Fish and Seydel, 2006). However, without a careful consideration of the various risks associated with outsourcing, any gain in the above areas can be offset by significant risks involved. Some of the risks associated with outsourcing include loss of IT expertise, hidden costs, inappropriate contract, limitation of control and loss of privacy and security. In the Kanebridge case, the risk factor has been addressed and mitigated by management in various ways including provisions to retain intellectual property right to source code, choosing a vendor of similar size as well as establishing close professional relationships, and making sure

the vendor has a clear and accurate understanding of their ERP project objectives. These areas are among the eight characteristics (Figure 1) discussed in this paper.

**Case study: background**

*Company background*

Kanebridge Corporation is a leading wholesale distributor of industrial fasteners (nuts, bolts, screws, etc.). They are a privately held corporation with 70 employees headquartered in Oakland, NJ with branches in California and Illinois. Their current annual sales exceed \$13.5 million (the company requested to withhold specific financial data).

The company was incorporated in 1975 by owners Joe McGrath and Bobby Williams who saw a demand for in-stock fasteners contained in smaller package sizes which could be delivered in less time than it took for the traditional made-to-order manufacturing process (6-8 weeks) to be completed. Over the years, the company's niche expanded to carrying a wide range of fastener types available for same day shipping. This service requires exceptional business intelligence, capable of forecasting inventory requirements to provide a 98 percent level of availability.

*The IT environment at Kanebridge*

Kanebridge is a leader in their industry in IT usage. The company has the typical characteristics of SMEs most likely to adopt IT (Chuang *et al.*, 2007).

Table I illustrates a time line of important IT actions and decisions at Kanebridge. In the early 1980s, Kanebridge collaborated with Dymax Systems, a software development company, to help them develop a turnkey logistics system for the fastener distribution industry. This logistics system contained many of the integrated back-office functionalities of ERP.

This collaboration worked well for both sides; Kanebridge was able to purchase custom developed leading edge software at close to packaged software prices and Dymax was able to design their information systems based on a leading fastener distributor's business processes.

Year	IT activity/decision	Description
1976	Inception	Automated inventory and sales tracking
1981	Logistics system	Collaborated with Dymax Systems to develop their logistics system, a precursor of ERP
1983	IT function established	Kanebridge decides to maintain and enhance logistics system in-house
1993	ERP implementation	Used Cognos' PowerHouse 4GL tool to develop and implement custom ERP on HP AlphaServer
2002	Vendors announce sun setting of products (a major impetus for change leading to the outsourcing decision)	HP's announcement of phasing out the AlphaServer, and the resulting Cognos' decision to mature their PowerHouse 4GL product on OpenVMS leads Kanebridge to consider various IT sourcing options
2003	Make or buy? Going offshore	Decided to "make" software using new development environment with in-house and offshored contract software developers

**Table I.**  
Timeline for Kanebridge's selected IT activities and decisions

As Kanebridge's sales grew and their business transactions increased, they needed to make some decisions about their IT resources. Kanebridge knew that any competitive advantage they were realizing from the Dymax turnkey logistics system would quickly diminish as the system became publicly available to any other company in the fastener distribution industry that wanted to buy it. Additionally, like other SMEs, they realized the growing importance of managing their supply chain and supplier performance (Vokurka and Zank, 2006). Kanebridge had to decide whether to continue using the Dymax logistics system as-is, contract with Dymax to make enhancements to it as Kanebridge further evolved their business processes, or hire their own full-time IT department for software development and support.

#### *The IT function at Kanebridge*

The decision Kanebridge made was to part ways with Dymax and create their own IT department. In 1983, Jim Kierstead was appointed to head the IT department, responsible for sustaining the company's investment in the Dymax Systems. Kanebridge's strategy was to modify the existing applications when enhancements were necessary or would improve functionality. The system was used throughout the 1980s, but its limitations and extensive modifications were taking their toll on its functionality and performance. A decision was made to rewrite the system to enhance it with additional integrating functionality, so that it was truly an enterprise-wide resource planning system.

At the time of this decision in 1993, Kanebridge had the necessary IT skill-set, but developing a new system would require increased productivity from their IT staff. They did not want to increase their headcount because after the system was developed, there would not be full-time work available to sustain the positions. They considered hiring contract workers, but based on previous experience, Kanebridge believed the company had the capability to rewrite the system themselves if they had a software development environment to help generate the code. Kanebridge was satisfied with their hardware and operating system platform so they looked at software development products that ran on that environment. They decided that Cognos' PowerHouse 4GL was a suitable tool for them to use to develop their new ERP system. The new ERP system was fully implemented by 1995.

#### *Impetus for change*

The initial motivation behind Kanebridge having to contemplate the fate of their ERP system, yet again, came from the realization that their hardware platform and software environment would no longer be supported by the vendors who provided them. The hardware vendor announced that they were sun-setting sales and support of their AlphaServer. As a result of that news, Cognos announced they were maturing their PowerHouse 4GL product on this platform. Kanebridge had to consider their options. At the time of their announcement, Cognos offered only one option that would work for Kanebridge – to migrate PowerHouse applications from their AlphaServers running OpenVMS to another server-type running UNIX or Windows (Cognos, 2006). This option was not a simple port to a new platform; rather, it required examining the code for exceptions that require intervention, such as procedure calls to the operating system and data type mapping. This combination of vendor announcements and resulting migration options was the impetus that motivated Kanebridge to reconsider their hardware, operating system, and software development environment.

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**Case study: deciding on a course of action***A new look at the “make-buy” decision*

Kanebridge took the vendor announcements as an opportunity to evaluate their IT sourcing strategy.

Kanebridge's IT history included 30 years of in-house custom software development. Was it time for them to consider replacing their custom ERP system with a purchased ERP package? Packaged software systems have made great strides since Kanebridge's earlier decision to custom-build. ERP vendors, having saturated the market for large-sized enterprises, have expanded into the SME market with scaled down ERP solutions. At the low end of the price range, Kanebridge could expect automated distribution and financial processes, but any other functionality is considered an “add-on” module with add-on costs. Implementation can be both costly and risky. Some of the questions Kanebridge considered were:

- How much will they have to change their present business processes to accommodate a new ERP software package?
- How easy is it to write custom code for the package and what is the difficulty in installing vendor updates to packages that have been customized?
- What software development environment does the software package use and is it proprietary? For example, SAP uses a proprietary language called ABAP which requires skill in that particular language and configuration tools in order to customize the code.

A key factor weighing in on their consideration was that while many of Kanebridge's routine procedures are common to packaged software, there are many unique aspects to their business processes that provide them with competitive advantage that would require custom coding. For example, Kanebridge was unable to find any packaged software that could replicate their inventory forecasting logic. They did not think SAP or similar packaged systems were flexible enough to easily customize to accommodate their different business practices. They were uncertain how a packaged ERP system could satisfy their core requirements while fitting with their organizational strategy, a key element in ERP system selection (Al-Mashari *et al.*, 2006). Kanebridge was unfamiliar with SAP's ABAP proprietary language and they thought that if they had to learn a new programming language to maintain a packaged software solution, they might as well learn a non-proprietary language such as Java.

In 2003, Kanebridge made the decision to rewrite their system using Java. Java's open source and cross-platform capabilities contributed greatly to their decision. They decided to consider using outsourced help in the software development process, mainly because they wanted to get the project done quickly and their IT manager was the only Kanebridge employee with the necessary skills needed for the new development environment. Kanebridge's history was to develop custom software in-house, but they were concerned that there was no Java software development environment comparable to the environment they had with PowerHouse. Having the PowerHouse development environment was a key factor in the success of their previous software development project.

*The decision to outsource development*

Kanebridge's President Joe McGrath first met the President of SourceCode Inc. at a meeting of small business owners. SourceCode Inc. is a software consulting company headquartered in Tarrytown, NY, not far from Kanebridge's headquarters. The two company presidents became acquaintances and informally talked about Kanebridge's legacy ERP system conversion project. SourceCode's President suggested that his company could provide Kanebridge with contract program developers to help them quickly complete the project, at a third of the cost to develop it onshore.

SourceCode submitted a bid for the project based primarily on lines of code and number of screens. The two companies could not agree on a fixed price fee structure, but they eventually agreed on a time-and-material fee structure. A time-and-material fee structure is considered more risky for the client since it puts the responsibility to expedite the work on the client. A fixed price fee structure puts the responsibility to expedite on the outsourcing vendor, since they have incentive to finish the project as soon as possible, rather than collecting billable hours as with a time-and-material based fee structure.

The time-and-material fee structure worked well for Kanebridge because it motivated them to look for productivity tools to save time and money. This resulted in the development of a custom software tool to convert PowerHouse code into Java code. Kanebridge rewarded the outsourced programmer who developed the conversion tool with a bonus payment.

Interestingly, Kanebridge and SourceCode did not use a formal contract. Rather, their agreement was based on a handshake. This was due in part to the pre-existing relationship between the two companies and the element of trust they shared. According to Kierstead, the other reason there was not a formal contract was the inherent motivation for both parties to keep their end of the agreement because SourceCode was getting their billable hours and Kanebridge was getting seasoned Java programmers with ongoing experience working on the Kanebridge project; a win-win situation. Two critical issues to Kanebridge, though, were they had a legally binding agreement with SourceCode that any code developed during the project belongs to Kanebridge and each developer signed a non-disclosure agreement.

Kanebridge is very satisfied with their relationship with SourceCode. According to Kanebridge President McGrath:

The SourceCode team is a pleasure to work with. I'm impressed with their "Customer First" attitude. I truly believe that having SourceCode as a long time strategic partner is a sound and stable business decision (SourceCode Inc., 2007).

*Offshoring*

Shortly into the project Kanebridge was ready to utilize additional outsourced Java developers. Two developers from SourceCode were added to the project to work at Kanebridge's NJ location, for a total of three onshore consultants. SourceCode recommended that Kanebridge use their offshore services for additional developers. They decided to "start small" and added developers in pairs as needed until there was a total of six offshore developers working in India.

The SourceCode onshore project leader handled most communication with the India developers. The offshore project team worked in two groups of three members each. Each group worked on a different module of the system. They were able to gain



productivity using a “follow-the-sun” strategy, leveraging the 9 and 1/2 hour time difference by sending programming specifications at the end of the onshore work day and receiving the code back from India the next morning. While Kanebridge was able to take advantage of the time difference to increase productivity, offshore productivity levels were two-thirds that of onshore. But, this was more than offset by the hourly wage of the offshore workers relative to the onshore workers, which was one-third the cost. While cost savings may be the primary reason for US firms to outsource (Rottman and Lacity, 2006), for Kanebridge it was secondary to their need for a specific skill-set; although cost saving was the primary benefit of their offshoring.

Jennex and Adalakun (2003) suggest that traditional offshore application development applications tend to be highly structured with little or no changes to the requirements specifications, with minimal interaction and project management from the client. This was the case with Kanebridge and SourceCode; traditional offshore programming assignments were tasked to the India project team. When the programs from India were ready for testing, the testing occurred onshore and any resulting coding issues were resolved in NJ. The code did not go back to India to be fixed. This enabled problems to be fixed right away so end-users could continue testing without much time lapse.

The outsourcing literature suggests that the quality of work received from offshore developers may be lower than work produced onshore (Davis, G.B., *et al.*, 2006; Rottman and Lacity, 2006). Kanebridge found the code they received from the offshore programmers had a level of defects comparable to code developed onshore. Cusumano *et al.* (2003) suggest that programmers are less prone to coding defects if there are limited design and code changes. This was the case at Kanebridge because the offshore programmers only worked on converting the existing code, with minimal design changes being introduced. Where Kanebridge did find a difference between onshore and offshore work was with the quality of the code. The offshore programmers were very good at the work they did, but Kierstead only give them coding assignments having limited coding complexity that were easy to communicate without face-to-face meetings. The onshore programmers were able to do more complex design and coding because they became familiar with the domain of Kanebridge’s business processes and the legacy system that being converted. Kanebridge held frequent face-to-face design and code reviews with them to help the knowledge transfer process. This knowledge transfer capability was missing between the onshore and offshore development teams due to location and time differences.

### Discussion and conclusion

Kanebridge’s decision to make their ERP system, rather than buy a packaged solution and implement it in-house or through an ASP, and their ensuing sourcing experience may prove useful to IT and business leaders of other SMEs as they look to leverage IT to enable and drive their business strategies. The practices and decisions of Kanebridge may provide useful insight for organizations to consider when implementing software development projects. The first part of this section summarizes the rationale behind Kanebridge’s decision to make their software solution rather than buy it and the second part discusses the practices they applied.

The maturity of Kanebridge’s IT resources greatly influenced their decisions to make their ERP system and to utilize outsourcing. Karimi *et al.* (2007), using a

resource-based view, identified knowledge, relationship, and IT infrastructure as three classes of IT resources that are critical to building ERP capabilities, which can result in successful ERP implementation outcomes. "Knowledge resources" refers to expertise and experience used for building IT capability (Karimi *et al.*, 2007). Kanebridge had two successful enterprise system implementations from which to gain project management and business process knowledge. Also, although they had no experience dealing with foreign consultants, the company did gain expertise in dealing with consultants which was learned from their experience with Dymax.

"Relationship resources" refers to the sharing of risk and responsibility between the IT and business functions (Karimi *et al.*, 2007). Kanebridge had top management support, and interdepartmental cooperation and communication during the entire project, both critical success factors to ERP implementations (Plant and Willcocks, 2007) and IT projects (Karlsen *et al.*, 2006). "Reliable IT infrastructure resources," the third element identified by Karimi *et al.* (2007) critical to ERP capabilities, did not add to Kanebridge's capabilities, but rather increased risk since their entire hardware and software architecture was changed as part of the implementation.

Comparing Kanebridge's decision-making analysis with Chen and Soliman's (2002) make-or-buy decision tree discussed earlier, Kanebridge closely followed the suggested path for developing and maintaining the solution in-house: The ERP system was seen as a core competency of the organization. Production cost advantages were unfavorable because Kanebridge did not think they would find a suitable proprietary ERP system cheaper than it would cost to develop and maintain a custom system. The transaction costs associated with the effort, time, and costs to develop in-house were seen to favor an in-house solution since Kanebridge was very accustomed to developing their own software solutions, and in fact it was embedded in their culture. A highly customized ERP system is seen as a very specific asset to an organization, which according to Chen and Soliman is an attribute contributing to the decision to develop and maintain a system in-house, which was the case at Kanebridge. The organization's internal expertise with implementing and maintaining the primary packaged system alternative was low, since the packaged system they had considered was written in a proprietary language which they had no experience with. The decision tree suggests that lack of internal expertise with a particular packaged solution favors a decision to develop in-house. These five critical factors contributed Kanebridge's decision to forego buying a packaged ERP solution, using traditional outsourcing for development, or using an ASP solution, and to instead develop and maintain an in-house solution.

The following is a discussion of the practices used by Kanebridge as related to some of the findings in relevant literature. A summary of the characteristics identified, compared to the literature, is presented in Table II:

- *Client-vendor relationship.* This case demonstrated that networking events for small business owners would facilitate successful business relationships. This is consistent with the observations by Davis, A. *et al.* (2006) in their study of voluntary association memberships. In Kanebridge's case, constructive interactions during networking events (Kern and Willcocks, 2002) have led to a successful outsourcing deal with SourceCode Inc. Furthermore, Kanebridge and SourceCode view each other as a "long time strategic partner."

Critical factor	As practiced at Kanebridge	As suggested by literature	References
Client-vendor relationship	Close, friendly, and somewhat informal; originated via "social networking"	Networking events facilitates outsourcing business relationship. As the client-vendor relationship evolves over time, the client "cultivates loose, trust-based, network like relationships" with vendors	Chou <i>et al.</i> (2006), Davis, G.B. <i>et al.</i> (2006), Kern and Willcocks (2002) and Mirani (2006)
Company size	Kanebridge (client) and SourceCode Inc. (vendor) are of similar size	SMEs tend to use vendor companies of a similar size	Fox (2006), Kobayashi-Hillary, (2004/2005) and Paul (2007)
Contract	No formal contract; mainly based on hand shakes and mutual trust	To be successful, every detail must be spelled out in the contract to minimize risks; Critical to the ERP outsourcing relationship.	Bryson and Sullivan (2003), Chou <i>et al.</i> (2006), Jennex and Adalakum (2003) and Koh <i>et al.</i> (2004)
Intellectual property	Critical issue was to formally define the ownership of source code	However, mutual trust, usually developed through social and professional networking can act as a close substitute for formal institutional support and contract	Aubert <i>et al.</i> (2004) and Walden (2005)
Unique custom functionality	Much custom logic	Theory suggests that a client prefers compensation rather than to have property rights. However, negotiation power is as important in the division of assets as value creation	Chen and Soliman (2002) and Keil and Tiwana (2006)
Complexity of the outsourced work	Highly structured (required minor changes to specifications)	Assets that are highly specific to an organization are less available in the marketplace and more costly	Jennex and Adalakum (2003), Kishore <i>et al.</i> (2005), Mirani (2006) and Xue <i>et al.</i> (2005)
Communication	Client required vendor project leader to learn and fully understand the company's outsourcing objectives	Traditional outsourcing involved highly structured application development; trend is toward less-structured projects requiring greater client contact, clarity of outsourcing mission, and project management	Xue <i>et al.</i> (2005)
Vendor's skills and capabilities	Critical for vendor to have needed skill (i.e. java programming)	Clear communication of objectives can lead to a higher level of team commitment and judgement of trust. Clear information exchange and communication of diverse knowledge can lead to a higher level of team performance	Aubert <i>et al.</i> (2004)

**Table II.**  
Comparative illustration  
of critical outsourcing  
factors

This “alliance” form of client-vendor relationship is a mature stage of an outsourcing relationship.

- *Company size.* Kanebridge’s Kierstead believes that one reason their outsourcing relationship worked so well is because the two companies are similar in size. He prefers to work with vendors similar in size because they often provide better customer service than the larger vendors, who may give preference to more lucrative contracts. While no empirical research to date has conclusively established a significant advantage from outsourcing client-vendor size parity, the prescriptive literature suggests that SMEs tend to use vendor companies of a similar size (Fox, 2006; Kobayashi-Hillary, 2006). In this type of client-vendor relationship, the client company’s ability to monitor vendor’s performance and reduce the risk of non-compliance is enhanced (Wonseok *et al.*, 2006). Some, however, argue that this is because SMEs have difficulties in reaching out to large IT outsourcers (Paul, 2007).
- *Outsourcing contract.* Kanebridge has a successful collaboration with their outsourcing vendor, SourceCode, without the use of a formal contract. This is not a recommended best practice particularly for large outsourcing deals. The outsourcing literature generally considers a detailed and comprehensive contract as a requisite condition for outsourcing success (Bryson and Sullivan, 2003; Jennex and Adalakun, 2003). However, there exists some empirical evidence supporting the notion that good-faith partnership and mutual trust, as practiced by Kanebridge, are critical to outsourcing success (Koh *et al.*, 2004). Social network and prior favorable relationships can help reduce the transaction cost of having to prepare highly comprehensive contracts, and “act as substitutes for formal institutional support” (Chou *et al.*, 2006). A level of trust can reduce the transaction costs inherent in a relationship between two parties. If one side does not trust the other side, then resources that could be utilized elsewhere may be consumed to manage the risk that the other party will not keep their side of the agreement. The fact that there was a pre-existing relationship between the principles of the two companies created a trusting environment where Kanebridge felt comfortable that neither side would break their implied agreement.
- *Intellectual property.* According to transaction-cost theory, the collaboration between a client and its outsourcing partner creates a value (or asset) the ownership of which must be agreed upon by both sides (Aubert *et al.*, 2004). In the area of IT outsourcing, software development results in creation of source code that is considered as a significant intellectual property. Therefore, it is very important that the IT outsourcing contracts specify ownership of this intellectual property (Walden, 2005). Although no general outsourcing contract has been signed between the two companies as discussed above, Kanebridge insisted on, and received a signed document assigning the intellectual property right of the resulting source code to Kanebridge. This arrangement provides a considerable edge to Kanebridge in reducing their risks of offshoring particularly in light of recent international agreements, such as NAFTA, that include protecting intellectual property among their main objectives.
- *Custom functionality.* The common wisdom in software development is to develop a solid business case for not implementing a commercially available software

package (Keil and Tiwana, 2006; Lucas, 2005). If an existing package will solve your business problem, then it can be a much faster and cheaper solution than insourcing or outsourcing application development. This general guideline is even more relevant in the case of ERP implementation particularly in an SME environment because the cost of the customization process is generally higher than the cost of the ERP acquisition (Chen and Soliman, 2002; Quiescenti *et al.*, 2006). In the case of Kanebridge, once they realized no existing ERP package would provide their unique custom functionality, which is a core competency, they stopped analyzing alternative solutions. They wanted the flexibility to be able to easily modify the code as their business processing needs evolve.

- *Task complexity.* One of the main determinants of IT sourcing strategy is degree of task complexity. Organizations tend to choose more structured and less complex applications to outsource and keep complex ones for in-house development (Jennex and Adalakun, 2003; Kishore *et al.*, 2005). The ERP programs outsourced by Kanebridge were highly structured requiring minor changes to specifications. As the organizations that engage in outsourcing gain further experience, more complex projects requiring greater client contact and project management are selected to be outsourced (Mirani, 2006; Xue *et al.*, 2005).
- *Communication.* In their outsourcing deal, Kanebridge required the vendor's project leader to learn and fully understand the company's outsourcing needs and objectives. SourceCode provided an onshore contact point at Kanebridge's headquarters to ensure the availability of someone who understood the offshore culture and who can effectively facilitate interaction among diverse backgrounds of offshore developers. This is highly consistent with research findings in the outsourcing literature regarding the positive impact of information exchange and clear communication of diverse knowledge on the level of team performance.
- *Vendor's skills.* One of the main reasons of IT outsourcing is to take advantage of the vendor's technical skills (Aubert *et al.*, 2004). Kanebridge's expectations from their outsourcing vendor included not only proper level of technical skills, but also a clear understanding of their ERP project objectives. It was critical that the outsourced IT staff were experienced Java programmers proficient with the software development products being used. Having a project contact point knowledgeable of Kanebridge's ERP needs and the technology being used, who could successfully communicate project requirements with the offshore project team, was a critical factor leading to a successful outsourcing venture. In the case of IS outsourcing, if the provider does not fully understand what the business is all about the customer's needs may not be properly met.

This case represents a successful endeavor by a medium-sized business to effectively manage their IT resources for efficiently solving a business problem and, in doing so, preserving an information system that provides them with a competitive advantage and establishing a new software development environment. Several important management implications from this case provide valuable lessons in the area of SME outsourcing. First, management bestowed the necessary leadership, had a highly active involvement in the process, and learned how outsourcing can be used as a tool to provide selected resources as needed. Management's active leadership role is considered as a critical factor in successful outsourcing projects. In the case of Kanebridge, top management

involvement in various roles including vendor selection, negotiations, liaison, and monitoring has contributed to the success of their ERP outsourcing project. Second, top management role in establishing an effective client-vendor relationship is critical to the success of SME outsourcing ventures. The commencement of the Kanebridge-SourceCode relationship through initial top management meetings has obviously contributed to a successful collaboration between the two companies. Third, mutual client-vendor trust can lead to effective outsourcing partnership despite inadequacies in, or lack of, a detailed outsourcing contract. While a detailed, comprehensive formal contract is highly recommended throughout the literature, having a close and trust-based relationship can act as a proxy to formal contracts, and could lower the risks that precipitate the need for outsourcing contracts (Chou *et al.*, 2006; Koh *et al.*, 2004).

The project was recently completed – within the planned scope, budget, and time frame. The monetary scope of the project was approximately \$150,000 for the hardware and software and \$1 million for the consulting services. This is comparable to the cost of IT investments made by other small businesses, according to a recent CIO survey (Prewitt and Cosgrove Ware, 2007).

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#### Corresponding author

Deb Sledgianowski can be contacted at: [Deb.sledgianowski@hofstra.edu](mailto:Deb.sledgianowski@hofstra.edu)

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