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- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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A CONCEPTUAL MODEL FOR VENDOR SELECTION IN IT OUTSOURCING: AN APPROACH INSPIRED BY THE MONEYBALL THEORY

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ABSTRACT

Moneyball theory is about fielding a successful baseball team on a limited budget. This theory states that some player's attributes are usually undervalued in the baseball market while other attributes are overvalued. Under the gaze of the Moneyball theory, a judicious evaluation of attributes provides means for finding value in places where competitors are not looking. We used the Moneyball theory to study the vendor selection problem in IT Outsourcing. We model the vendor selection problem from the teambuilding perspective as a multi-objective optimization problem, where one organization requires multiple services from different vendors in a multiple sourcing network. The discovered model and the corresponding methods will be useful to the academicians, practitioners, and managers for making appropiate policy formulations for IT outsourcing.

KEYWORDS

Moneyball theory, IT outsourcing, vendor selection, IT management.

INTRODUCTION

The Moneyball theory was shaped for fielding a successful baseball team on a limited budget. This theory states that some player's attributes are usually undervalued in the baseball market while other attributes are overvalued. Beside the management of baseball teams, Moneyball theory has been applied in other areas such as human resources and management. Overall, it is an interesting theory that can be applied to resource management, i.e., Moneyball can be used to make important decisions on what resources are needed at some point, within a budget.

In the competitive world of innovation and IT (Information Technology), organizations are trying to develop new products on their industry, making optimal use of the human capital available to them on a global scale. In today's global economy, which is driven by knowledge as services, more IT Companies are pushed to outsource services in order to increase profits. A study performed by Deloitte consulting (Tihanyi, 2005) revealed that participants originally engaged in outsourcing activities for a variety of reasons: cost savings, ease of execution, flexibility, and lack of in-house capability. In contrast with these ideas, the study highlights that instead of simplifying operations, many companies have found that outsourcing activities can introduce unexpected complexity, add cost and friction into the value chain, and require deeper management skills. The results present a fundamental stage of what the problem may be when deciding to outsource IT capabilities.

IT OUTSOURCING

Since 90's there were companies trying to deal with business and technology changes occurring rapidly and also cut Information Technology (IT) costs (Sadiq, 2010). From that perspective, managers started to think on important decisions concerning outsourcing as they realize the uncertainty involved in that decision. Outsourcing is defined as having work that was formerly done inside the organization performed by an external organization (Sadiq, 2010). Outsourcing contract is viewed as repurchasing through supply contracts the products or results of certain activities by firms delegated for such activities (Michela & Carlotta, 2011).

Some common tasks that organizations have been outsourcing are credit collection, salaries and contribution, computer services, customer service and research and development. Outsourcing is a concept that can be used in any department of an organization. For example, a common outsourcing decision on large companies is to select a vendor for taking care of their call center. In this case, they are no longer worries about customer services related to calls performed which in a large company may be high (Michela & Carlotta, 2011).

Christopher & Tanwar (2012) studied Knowledge Management Systems on the process of outsourcing. They stated that when a company decides to outsource customer service, it faces the complex task of training a whole new group of employees on the particulars of an unfamiliar product line. Also, it is challenging to deal with people from diverse backgrounds, experience, education, and age. This can be the critical point where a Knowledge Management System needs to be taken into account, which can make the transition easier, while significantly lowering the cost of training. This aspect can be used as a negotiating point to lower the price of outsourcing contracts. A Knowledge Management System is like 'the legs of a three-legged stool, if one is missing the stool will collapse' (Christopher & Tanwar, 2012).

In our research, we are going to focus solely on outsourcing IT services. In order to keep with competitive advantage in one specific area, organizations decided to focus on their product or service and rely on IT specialists to take care of their IT infrastructure, applications and/or services. This help organizations concentrate more on their competencies (Ziolkiewicz, 2011). Different researches had been performed in order to understand why companies outsource IT services. Wang (2008) cited several studies to specify expected benefits and reasons to outsource. Some of these benefits and reasons are cost reduction, improved cost control, improved technology or technical services, focus business on core competencies, access to new technologies and technical talents, and improved flexibility.

Additional to these benefits, outsourcing of IT involve risks, both for the client and the vendor who is the service provider (Sadiq, 2010). Agrawal and Haleem (2012) performed a study of IT risks and they concluded that a 10-year contract with an IT outsource vendor may actually restrict flexibility and increase costs and renegotiating any contract could become far more expensive than changing internal commitments. They found evidence to support the improved performance by firms that provide short-term and low-weight contracts to vendors (Agrawal & Haleem, 2012). This research empirically supports the link between IT outsourcing implementation and firm's operational and financial performance in different type of outsourcing contracts. Outsourcing with a single vendor, under a fixed-priced, exchange-based, and long-term contract may sometimes make sense at the beginning of the contract, but not make sense three years later (Agrawal & Haleem, 2012).

One aspect of outsourcing is the employee's perspective while a second one may be related to the vendor's perspective of IT outsourcing. Sadiq (2010) performed a research with data collected from employees located in Saudi Arabia to explore the employees' attitude towards outsourcing IT services. Although outsourcing may be related to job displacing, the research found that respondents on that country do not see much threat to job security and also proved that outsourcing played a positive role in career advancement. This finding may be explained by the fact that in Saudi Arabia there is a tendency to hire displaced employees or just transferred them to the outsourcing company. Also, the study identified commitment from vendors as a factor in outsourcing decision, specifically if the vendor is committed to success of customer and/or if the vendor is committed to success of employees.

One study was performed from two complementary surveys carried out in late 2007. The first group involved 3,014 human resources managers and the other more than 6,000 United States workers from different occupations. Within technology services and telecommunications industries, over 40% of firms reported offshoring some type of work. Of the five occupations with the highest displacement rates, all but machine operators were technology-related which supports the perception than US IT workers have high rates of displacement related to outsourcing (Tambe & Hitt, 2010). The study also suggested that workers who do not provide personal services are being displaced at a higher rate.

Levina and Ross (2003) explored a vendor-client proposition that help us to understand outsourcing of IT projects. Their proposition explained that an IT application management vendor can deliver value through experience-based competencies, which defines client satisfaction, improves reputation and this lead to increase number of projects controlled by the vendor. Finally, the project enhances the vendor core competencies and helps build a client-vendor relationship. Although this vendor-client proposition has shown as a real approach, not every organization will have the same experience about IT outsourcing. For example, evidence has shown that complete IT outsourcing has not always ended with a cost reduction. In addition to costs, outsourcing is becoming more a strategic decision (Ziolkiewicz, 2011). Wang (2008) concluded that firms must do more that outsource their IT and managers must understand that potential benefits of IT outsourcing do not reduce the importance of maintaining in-house IT capability. This can be supported by a study where 70% of outsourcing clients presented at some point significant negative experiences with outsourcing and also 25% of clients who participate in the study brought outsourcing services back in-house (Tihanyi, 2005). This study also revealed 57% of participants absorbed costs for services they believed were included in the contracts with vendors. When the organization decides to outsource, the contract must be specific enough to clearly regulate every key aspect and at the same time flexible enough to allow the parties to face the consequences of unforeseen events without conflicts arising (Michela & Carlotta, 2011). It is necessary to define the evaluation criteria for the performances and what will happen if these criteria are not fulfilled. Cooperation between the vendor and the organization is needed. The most important and complex phase in the IT outsourcing is the selection of the vendor after considering the impact of the decision to outsource on the achievement of the mission and strategies of the organization, including costs, quality, flexibility, and the meeting of deadlines (Michela & Carlotta, 2011).

Undoubtedly, outsourcing is related to Knowledge Management. Christopher and Tanwar (2012) highlight some important challenges on Knowledge Management, which may be associated to the outsourcing vendor selection. The first challenge quite interesting is that many countries get into outsourcing, thereby increasing competition. The second challenge is the need to a change in culture from 'knowledge is power' to 'knowledge-sharing is power'. The third challenge is that continuously changing information and business environment puts pressure on employees to learn and perform with a very narrow margin of error. Therefore, companies who avoid outsourcing at all might become followers rather than leaders in the market.

The variation in outsourcing behavior from company to company is what made researchers to examine the determinants by which companies decide to outsource its IT services (Dibbern, 2012). There are some factors already identified for IT outsourcing and they are divided on contextual and motivational factors but are not independent of each other. Motivational factors are those reflecting motivations for or against outsourcing and contextual factors are those reflecting the IT outsourcing context. Although these factors have been identified on IT, they are not related to the Moneyball theory which is the focus on our research. So, the Moneyball theory is discussed in the next section to be able to complete our factor's identification process based on this theory.

The relationship between the industry characteristics and the IT outsourcing is an interesting study presented in (Qu, 2011). The study found valuable results related to IT outsourcing and industry characteristics. First, they found that industry munificence is positively associated with IT outsourcing and it can be explained because the development of in-house IT infrastructures may be too time-consuming to support the typical rapid expansion in munificent industries, so the reliance on IT outsourcing will be high in such industries. They also demonstrated that industry dynamism is positively associated with IT outsourcing because it offers more flexibility. The study suggests that organizations should consider utilizing IT outsourcing to improve performance. The author also states "that managers should be mindful about duplicating other firms' outsourcing decisions, as firms from diverse industries are motivated to use IT outsourcing for various reasons" (Qu, 2011). Functions with strategic importance should be kept inside (Ziolkiewicz, 2011). Viewing IT outsourcing as a strategic decision makes us bring the Moneyball theory in order to evaluate the vendor selection process, when to outsource, what factors to consider to compare within vendors, and how to assign a value to each factor. The Moneyball theory will be discussed later on.

THE MONEYBALL THEORY

Michael Lewis wrote the book titled "*Moneyball: The Art of Winning and Unfair Game*" to explain how the low-budget team in baseball wins so many games. Moneyball theory was originally used on a group of undervalued professional baseball players and executives, many of whom had been discarded as low competitive players for moneyed franchises in the Major League Baseball (Lewis, 2004). Some arguments made by professionals related to baseball were that the baseball game was ceasing to be an athletic competition and becoming a financial one. Lewis stated in the book that the financial disparities meant that only the rich teams could afford the best players and the poor team was almost certain to fail. The key point addressed by Lewis in his Moneyball theory was not focused on how much money you have but on how well you spend it. Traditionally, a baseball team manager was looking five tools on their team players: the

abilities to run, throw, field, hit, and hit with power. Oakland's manager, Billy Beane, started looking for inefficiencies in the financial distribution on the team and also examined every aspect in the team building process. Lewis stated that Oakland's players were all the victims of an unthinking prejudice rooted in baseball's traditions (2004). To eliminate this prejudice, Billy Beane allowed them to demonstrate their true worth.

Based on the original Moneyball theory, we may emphasize that it is a technique used by a baseball team's manager with a limited budget who decided to use a non-traditional process to select each of the players. The most valuable players are usually the one who costs more. In order to deal with the limited budget, the Moneyball theory used a different approach to assign value to each player and also optimize the team's performance. The team resulted more successful than its opponents. As stated by Wolfe (2006), the Moneyball theory must not be seen only about baseball; it is also about human resource management, innovation, resistance to change, competitive advantage and achieving excellence. There are business people whose mind just sees value on something that has already been tested and provided evidence for what it can do. They are not open to new talents or will not tolerate giving a chance to a new opportunity, in terms of personnel capacity or technology. Resistance to change will prevent some managers from deciding to outsource. But, as explained by the Moneyball theory, there may be resources inside or outside the organization that may be undervalued or overvalued by management and if they are identified and used better they may bring benefits in form of knowledge, economic saving or any other type of advantage.

As explained above, each baseball team manager evaluates their team members based on different values. Based on this, it seems important to identify values and risks involved with IT outsourcing because values must be exploited and risks should be minimized, even when they may not be eliminated at all. Agrawal and Haleem (2012) identified some risks of IT outsourcing based on different literature and evidence. They mentioned the following risks: lack of organizational learning and loss of innovative capacity, eventual competition from supplier, high cost of switching of IT vendors, loss of control, harmful to employee morale, hidden costs, and technological complexity.

Cloud computing is emerging as a new strategy on IT outsourcing (Flinders, 2012). It considered that the cloud model breaks the customer/supplier relationship which is important to deliver value to customers (Levina and Ross, 2003). Outsourcing IT services or hardware definitely is critical decision that require, especially in small-size organizations, where a limited budget is almost a rule, and managers need to focus on finding a balance between complete IT outsourcing or in-house and evaluate which one will bring more advantages. Evaluation of factors on IT vendors will be inspired on the Moneyball theory, optimizing resources in-house, dealing with a limited budget and also using an outsource IT vendor.

The Moneyball theory has been briefly analyzed in the context of business for team building. Armstrong (2012) suggested that every large organization would gain long-term benefits by applying the Moneyball theory on recruitment of human resources. Managers of an organization may believe that their experience will help them select the best candidate for a job position, but in order to do the tasks they may also need to be able to forecast the employee's performance. The organization may develop a predictive model to evaluate important job skills and characteristics. If organizations use models for personnel selection, they gain an advantage over competitors that refuse to do so (Armstrong, 2012).

It may be also possible to apply the Moneyball theory for team building in the context of IT outsourcing. It is not a good idea to select a single vendor for IT services and it is better to select different vendors for different purposes and/or applications (Agrawal and Haleem, 2012). A long-term contract with a single vendor will not have the best solution, neither outsourcing a strategic function of the company. Therefore, this vendor selection process is a team building process where the company must evaluate each vendor option for all the functions that may benefit from outsourcing. Some factors affect the final outcome of the outsourcing process, vendors must be committed to the company and there are some risks needed to afford no matter which vendor is finally selected. Risks are not eliminated when deciding to outsource, but the Moneyball theory may help in identifying different ways in which those risks may be reduced. Based on the literature discussed above, we identified some factors which have to be considered in order to apply the Moneyball theory for the vendor selection process in IT outsourcing.

CONCEPTUAL FRAMEWORK

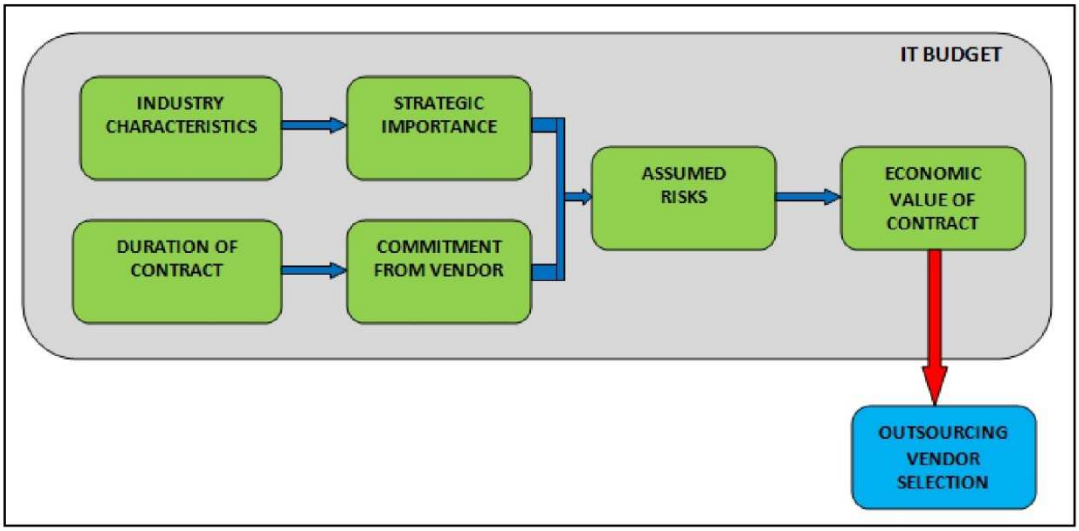
In order to develop a conceptual model for vendor selection in IT outsourcing we had identified different factors throughout the literature. Each of them had been associated to the outsourcing process in IT and will finally have an impact on the outsourcing results for each organization. As a result, our conceptual model includes the factors shown in Table 1.

TABLE 1: FACTORS TO CONSIDER WHEN OUTSOURCING IT SERVICES

Factor to Consider	Description	Literature Source
Duration of Contract	Long-term contract with an IT outsource vendor restrict flexibility and increase costs. IT outsourcing improved performance by firms that provide short-term contract.	Agrawal and Haleem (2012)
Industry Characteristics	Industry dynamism is positively associated with IT outsourcing because it offers more flexibility. Industries are motivated to use IT outsourcing for various reasons.	Qu (2011)
Assumed Risks	Companies may present some risks when outsourcing IT, for example: lack of organizational learning and loss of innovative capacity, eventual competition from supplier, high cost of switching of IT vendors, loss of control, harmful to employee morale, hidden costs, and technological complexity.	Agrawal and Haleem (2012)
Economic Value of Contract	Companies and vendors must clearly define on their contract what is included as part of the contract so companies do not absorb costs for services they believed were included in the contracts with vendors.	Tihanyi (2005)
Commitment from Vendors	The vendor must be committed to success of customer and/or committed to success of employees.	Sadiq (2010)
IT Budget	Companies must not focus on how much money they have but on how well they spend it.	Lewis (2004)
Strategic Importance	Functions with strategic importance should be kept inside.	Ziolkiewicz (2011)

Table 1 presents a brief summary of statements from previous literature which highlights the importance of considering them before making an outsourcing decision. Studies have shown findings which positively or negatively affect the outsourcing process. Based on the factors shown in Table 1, we made the conceptual model shown in Figure 1.

FIGURE 1: CONCEPTUAL MODEL FOR IT VENDOR SELECTION



In the following section we are going to explain each of the factors used on our conceptual model. In addition, we are going to describe the importance of each of the factors in the process of selecting an IT vendor to outsource.

INDUSTRY CHARACTERISTICS

Having the correct decisions depends of the type of business and how hard is hiring the right people or getting the specialized tools to develop the correct application. Flexible and dynamic organizations will tend to outsource IT services. Identifying the industry characteristics will help the organization determine the strategic importance of the function they want to outsource.

STRATEGIC IMPORTANCE

As stated in the literature, it is not a good idea to outsource every task in the organization because there is a risk to loss control over your business. Therefore, functions that represents a strategic advantage on the organization must be kept in-house. It is necessary to identify if the task or process the organization is trying to outsource represents a strategic function or not. It the function represents a strategic advantage in the organization, the risks involved will be higher because the organization may loss control and the competition may gain advantage over them.

DURATION OF CONTRACT

Organizations may select a vendor and agree to use the same vendor for a specific time period. The duration of the contract may be short-term or long-term. In our model, a short-term contract is any period of time up to three years. A long-term contract will be any contract more than three years. A long-term contract is also related to higher risks that the organization must assume because technology is a field of constant development and change. Long-term contract may use technology which has been replaced for a better one.

COMMITMENT FROM VENDORS

Organizations must select an IT outsource vendor who is committed either to the company's customers or employees. Vendors will help customers and/or employees to complete their daily tasks on the organization and employees need confidence on their vendors. Organizations need to be sure that vendors will be there every time they need help from them.

Vendors must offer some commitment with the organization, otherwise they will not be selected as an option. Vendor's commitment must be present regardless of the duration of the contract. But, in long-term contract organizations must look for vendors with high level of commitment and support to their business processes. Commitment is also necessary to reduce uncertainty.

ASSUMED RISK

When a company tries to get an outsource service there is a risk involved. Also it is possible to have service interruptions and lack of commitment related with the service. It is part of the contract to cover those risks. A company who contract services in order to outsource some of their own services may incur in some risks. Those risks must be assumed and should be known before they accept the contract. When the company makes an outsourcing long-term contract they are also increasing the assumed risk, which is related with the cost. So, the risks should be evaluated as they cannot be eliminated at all. The organization must evaluate the risks they want to deal with and this risk will depend on commitment from vendor, duration of contract, strategic importance and industry characteristics.

ECONOMIC VALUE OF THE CONTRACT

The organization must evaluate how much advantage may acquire from a contract, so they can get the best service and also selecting a cost-effective solution. One important decision is to get the most benefits without expending too much money. IT costs are high, because it requires to expend money in new equipment and by outsourcing this cost can be less.

Based on the Moneyball theory we may outsource using resources that presents the qualifications the company is looking for and also are not so expensive. It will be also important to clearly identify costs that are part of the contract and which costs are not covered on it. Companies need to be aware of the scope of the contract before they accept it.

IT BUDGET

As mentioned in the Moneyball theory, it is important to evaluate how well the organization will spend the money they have no matter if it is a limited budget. An outsourced vendor may provide the same kind of services without the cost related with IT services. Monitoring the experienced workers based on their capabilities may be more expensive. There are many consultants already retired or student with the capability to be developed which cost less than an expensive employee. Not only the budget depends on salaries, also a technology can be rented or acquire from vendors. If the company is small and does not need too much bandwidth or disk space they may share the space in servers located outside of the company. In that case they only pay for the space and bandwidth they use.

ANALYSIS FOR THE APPLICATION OF THE MODEL

The model presented in this research is not suitable for large organizations, because they must evaluate additional factors like different management levels and opinions, budget distribution between different facilities, hierarchy limitations for decision making process, among others. Therefore, the factors are intended to represent those needed to be evaluated in small or medium size organizations rather than large corporations. Companies need to be aware of different vendors available in the market as an IT solution because it may be a common mistake to select an IT outsource vendor known by their "brand name". Decisions to outsource is potentially biased by this brand, which make companies focus on only those companies which are recognized instead of giving the opportunity to new talents on outsourcing IT services. The Moneyball conceptual model will help the company to reduce bias on vendors with better brand name and just select the better option for what they need. As a simple example, small companies do not need to pay for 100 Gigabytes of Storage if they only need 5.

Companies need to select a vendor that is able to adjust to their needs, instead of having to adjust to what the vendor offers. Solutions provided by IT vendors should be tailored to the company business strategy.

The model is suitable for different situations. For example, an environment where the model may be useful is a new small business trying to enter into a specific market. Nowadays, almost all companies are trying to maintain databases in order to keep track of their customers, suppliers, inventory, employees or vendors. No matter what kind of business, they need IT technology or infrastructure. So, in this case the organization needs to decide if their budget allows them to have an IT department with servers and applications to support their daily operations. Otherwise, they may use the conceptual model inspired on the Moneyball theory to decide which functions are suitable for IT outsourcing and which vendor they must select. They must predict how each vendor manages uncertainty because a new business is always associated someway with it. The organization must evaluate performance metrics for the different outsourcing vendors available based on what they need, instead of looking only at the credentials of each vendor. This way, they will end with a better company-vendor relationship.

Also, current small businesses that are not IT specialists but need servers to support their databases may realize they are wasting physical resources instead of focusing on the service or product they provide to their customers. In most cases, companies buy servers with greater capabilities than what they really need, just in case their business grows so they don't need to buy additional servers. At the long run, this may result in waste of money and space. By using the conceptual model and the Moneyball theory they may decide for outsourcing, allowing their business to grow and focus on what they do better. Companies in this situation are subject to turn their datacenter to a vendor providing the storage service for what they really use instead of maintaining servers for what they expect to need in the nearby future. IT outsourcing in companies already established with servers may be better when they need to upgrade their servers or hardware, instead of substitute current equipment just to outsource the service.

Each business is unique in terms of what they need to be successful. In any case, it will be better to select a vendor for a short period of time so the company will be able to evaluate the interaction between them. Investing in a vendor, trusting them and give them access to the organization's data is not an easy process. Metrics should be used to evaluate and compare each option. The model presented may help the organization to evaluate and invest in vendors who are undervalued in the market for some reason but will bring your organization the best solution. Finally, the vendor selected need to embrace the organization's goal and objectives and commit to them. This will be the point of success or failure in the outsourcing decision.

CONCLUSIONS AND RECOMMENDATIONS

The literature presents several aspects that must be taken into consideration when evaluating outsourcing information technology services. The needs of each business are crucial to begin the assessment, as well as the company's budget. The technology changes rapidly and outsourcing IT services can be an option for many small and medium companies. The outsource strategy allows the company to focus on their most important goals or core business. The discovered model and the corresponding methods will be useful to the academicians, practitioners, and managers for making appropiate policy formulations for IT outsourcing

There are many benefits and reasons to outsource IT services, and it always involve risks for both (client and service provider). Some former employees of the company or retirees can be taken into consideration in the evaluation process of candidates; because they already know the company's philosophy, the employees, needs and goals, and the procedures. And most important, the company is fully aware of the competencies of these former employees and which of these are what they need to hire.

When making a contract for outsourcing of services, it is advisable to establish a short-term contract because it gives you the option to evaluate and make changes if the execution and results do not meet the company's expectations or needs have changed. The pros and cons should also be evaluated because technology-outsourcing services not always result in cost reduction. At the time of evaluating alternatives, using the Moneyball theory can help predict which vendor or applicant will be most effective or successful in meeting the needs of the company and keep the performance in a high level outcome.

A future recommendation is to conduct a study on small and medium companies in Puerto Rico to further validate the factors identified in our conceptual model, which are crucial in evaluating companies or independent resources to outsource IT services. The evaluation would be done by considering company size, business needs, type of business, budget available for this purpose, level of confidentiality, current costs for IT services, IT resources currently used, among others. Also, strategies or theories applied in the evaluation of vendors may be subject of study (for example, the Moneyball theory).

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