

## **IT OUTSOURCING: METHODOLOGY FOR SELECTING SUPPLIERS CRITERION FOR COMPETITIVE ADVANTAGE**

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### **ABSTRACT**

The main reasons that motivate companies to outsource the services of Information Technology (IT) are: reducing costs, improving service quality and concentration on their core competencies. And the decision criteria of the contracting company are focused on those reasons. This article proposes a strategic criterion: the company should hire the supplier that best leverages their competitive advantages. This criterion implies the need to develop a specific methodology to this purpose, which is reported in this paper. To support it, the authors analyzed the models of Porter, Resource-Based View, Balanced Scorecard and the Fields and Weapons of the Competition, and making an option for the latter. The methodology was developed and applied to an Insurance Company and accepted by their leaders.

*Keywords:* Competitiveness, Competitive advantage, Fields and Weapons of the Competition, Outsourcing, Information Technology.

### **1. INTRODUCTION**

#### **1.1 Motivation, problem and objective of the study**

The motivation for the development of the methodology presented in this paper was the request of an insurance company to outsource services in the area of development and maintenance of application systems. From initial interviews, the idea to approach the problem from the focus of competitive advantage arose.

Of course, the prime question was: would a structured process for selecting suppliers of IT (Information Technology), by the criterion of competitive advantage, be able to guide the outsourcing decision, in order to help the Insurance Company to achieve their goals?

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Searching the literature, mainly the theories of Porter, Resource Based View (RBV) and Contador (discussed below), there was no methodology that could be fitted to answer the question. Therefore, it was necessary to develop a method to consider the peculiar characteristics of the situation. So, the objective of the study reported in this paper was to develop a methodology to select suppliers of IT outsourcing for development and maintenance of application systems in order to increase the competitive advantage of the contracting company, considering the strategic aspects of risk, technical and commercial issues. And the specific objectives deriving from the main purpose of the job were: 1) choose the most appropriate theoretical framework, 2) develop the methodology; 3) apply it to the Insurance Company and 4) to verify their acceptance by the senior managers in the organization.

Considering the favorable results obtained, it was decided to disseminate the work done and submit the methodology to the scientific community, so that it can be evaluated and improved, which is the purpose of this paper. Initially, it is convenient to present the thought that inspired the methodology and the process adopted.

## **1.2. Methodology**

According to Lee and Kim (1999), Hirschheim and Lacity (2000) and Barthelemy (2001), there are three main reasons why companies outsource IT services: reducing costs, improving quality of IT services and focus on company core competencies, the first being the most cited. Much of the literature, according to Leite (1997) and Gareiss and Weston (2002), consists of oriented decisions based on costs associated with TI outsourcing. According to Clark et al (1995) and De Looff (1997), the cost is the most important motivator of outsourcing due to the growth of the budget brought about by greater use of IT. And the dominant thinking that guides the current methodologies for suppliers selection of IT services, as Prado and Takaoka (2002), Reinhard and Bergamaschi (2008) and Meireles (2007), focuses, primarily, on the lowest price of the service and/or reduction the total value of IT services.

The thought which underlies the methodology presented here is different: the company should hire the supplier that can leverage their competitive advantages. Some examples clarify this thought: 1) if the company wants to gain competitive advantage in price, it should hire the one that offers the lowest price, provided it meets product (which may be a good or service) specifications; 2) if you want competitive advantage in product quality, you must hire the supplier which has the best quality in the process, 3) if you want to get it delivered, you should hire the supplier that has high speed in processing the good or service; 4) if you want to get it in the image, you shall hire the supplier that has the best image in the business environment. Obviously, the price charged by the supplier should be acceptable.

For the supply of goods or non-strategic services, that is, those which do not contribute to or compromise the competitive advantage of the contracting party, the criterion is the same: to choose the minimum cost, as low cost often leverages the competitive advantage. Note that this criterion is more complete than the cost to improve the quality of IT services and focus on company core competencies, because it covers these competencies and gives them specificity, indicating which set of supplier attributes is more interesting: low price, product quality, delivery or image, as cited in the previous example.

The inspiring thought of the methodology presented here is guided by Zaccarelli's statement (2000, p 91): "For managers to be effective, thinking in terms of

competitive advantage proved more valuable than thinking in terms of cost / benefit rate return on investment, benchmarking cost etc.. The competitive advantages have become the foundation of modern strategic thinking. Others techniques to support decision making process must be respected, but they should be relegated to the sidelines".

Authors of several competitive strategy theories support this thinking. Porter (1980, 1985), Peteraf (1993), Krogh and Ross (1995), Barney (1991), Hamel and Prahalad (1995) may disagree on many points, but they agree that the company's success is a consequence of their competitive advantages.

Nicholas Carr (2003), in his article "IT does not matter", presents IT as a resource that is undergoing a transformation process in the form of acquisition by organizations, due to abundant availability, prices and standardized facility for hiring and use. He says that, as computers and software become available to all, IT becomes a commodity and its strategic value disappears, and recommends that companies invest less in IT, no more exploiting their innovative potential, but directing its efforts to safety and reducing the risk of service interruption in its current computing environment.

Peter Keen, however, preferred to justify the strategic planning of IT resources highlighting the importance of choosing an appropriate management model. "When all companies have essentially the same access to IT resources, the competitive difference and economic benefits that companies can gain reside in IT management and not in technological differences" (Keen, cited by Devaraj and Kohli, 2002, p . 20). In this article, we intend to discuss another aspect to counteract, at least partially, the vision of Carr and those that focus mainly on lower costs. In our opinion, these authors are right when it concerns the supply of goods or services that are not strategic, those which do not contribute to or compromise the competitive advantage of the contracting party, as those which are simply operational. But the vision of these authors cannot be generalized, as IT, as well as other company resources, can contribute to the company's competitive advantage and then have strategic value. This thought was, still in an incipient form, the one that subsidized the method to align IT solutions to the organization's strategy with the aim to integrate the information systems and support the organization's strategy (De Sordi; Contador, 2005).

As discussed below, the methodology developed is based on the model "Fields and Weapons of the Competition" (Contador, 2008), described in section 4, which is a suitable model for qualitative understanding, analyzing and explaining how organizations compete. It proposes measures aimed to increase competitiveness and to formulate competitive strategies operating aligned to the company's business strategy.

### **1.3 Study's relevance and originality and organization of the paper**

To justify the importance and relevance of this study, we highlight the strategic approach, adopting the competitive advantage issue. Moreover, as explained in the previous subsection, the criterion of competitive advantage is more complete than the price or improvement the quality of IT services and focus on company's core competencies, because it covers and gives them specificity, which shows the set of supplier's attributes that most interest the company: low prices, product quality, delivery, image or others.

The methodology by the criterion of competitive advantage can be considered unique because it was not found in any review of the literature with this approach. What we found was the methodologies based on the company's strategic objectives

(Diromualdo; Gurbaxani, 1998), according to Strategic Planning (SP) discussed in 1960 and 1970. However, the SP is considered, by authors in the strategy field, as Porter (1980, 1985), Barney (1991), Mintzberg (1994) and Zaccarelli (2000), an inadequate tool for competition, which has been intensified since the 1980s.

In this paper, some concepts of IT outsourcing are recapitulated in section 2 and the works of authors who deal with competitive advantage are analyzed in Section 3. To justify the choice of the model “Fields and Weapons of the Competition”, as a theoretical study, the main concepts of this model are presented in section 4, the development and evaluation of the methodology are presented in section 5 and conclusions are described in section 6.

## **2. OUTSOURCING**

### **2.1. Concepts**

Lacity and Hirschheim (1993) argue that outsourcing means the use of external agents to perform one or more organizational activities. To Araujo (2001), outsourcing means transfer to others the responsibility for the execution of a certain task, becoming a permanent process that allows the company to concentrate on their core business. According to Williams (1998), to the extent that advances in electronic technologies continue to reduce the transaction costs involved in outsourcing, a larger number of companies are likely to transfer much of the internal IT operations to third parties. Milk (1997) states in his early research that IT has shown a strong tendency to be transferred to others firms. But, IT outsourcing presents some peculiar conditions, such as the time to meet IT demands and related risks to the environment outsourced, such as hidden costs, the expectation of high quality services, the rapid response to incidents, the lack of qualified personnel. He notes that the cost is no longer the main decision criterion, entering, instead, subjective assessments associated mainly with the company's brand, the global representation and the number of certified professionals.

Gareiss and Weston (2002), in a survey conducted in the United States with 700 professionals dedicated to the evaluation of outsourcing, concluded that the main goals of the option to outsourcing are: 1) cost reduction (65% of respondents), 2) increased operational knowledge (50%), 3) reduction of problems in IT management (50%), 4) flexibility to increase or decrease the capacity of IT (45%), and 5) reliability of services (50%) . Often it is argued, as do Lacity and Hirschheim (1993) and Klepper and Jones (1998), that in the outsourcing company, which has the IT technology as its core business, the cost of infrastructure and staff shared between contracting parties and the operation in larger scale tend to have greater ability to evolve.

Lee et alii (2003) argue that outsourcing has two stages. At first, it is treated as a commodity (client centric view) by decision models like make-or-buy, always focused on costs and limited solutions. In the second, when customer and supplier are more mature, the partnership should be established and outsourcing is treated on a basis of mutual interest with the adoption of more complex solutions in decision models like win-win.

Greaver (1999) emphasizes that outsourcing can be a significant error and difficult to reverse, especially when transferring people and processes to suppliers and contracts are not met, affecting essential services of the company. He concludes that

outsourcing is a strategic decision that requires a proactive attitude, expertise decisions and risk assessments.

Despite being increasingly adopted by organizations, IT outsourcing may lead to several problems for the contracting organization, because the process selection of suppliers is typically a "decision that involves multiple attributes analysis and multiple decision makers" (ALBERTIN, 2008). The study "10th Annual Global CEO (Chief Executive Officer) Survey" conducted at the World Economic Forum in 2007 (PwC, 2007b), with 226 CEOs, showed that: a) 69% of organizations did not achieve the expected benefits of IT outsourcing, b) 50% of them consider that the main barrier is the poor experience the IT provider, and c) 42% indicated that cost reduction is important, but access to talent and improvement of services are the most relevant.

## **2.2 IT Outsourcing in Brazil**

In Brazil, the advance of computerization in the last two decades, due to increase competition, globalization and open borders, has led about 98% of the organizations to outsource IT activities regarding cost reduction, access to talent and improvement of services. For 87% of them, the development and maintenance of IT applications is the most outsourced activity. It is clear that technological evolution contributes to the growth of outsourcing as many products and IT services have become commodities and allowed the companies to obtain economies of scale through external suppliers. (Meireles, 2007)

Prado and Takaoka (2002) concluded that there are seven main motivating factors for outsourcing in industrial enterprises from São Paulo, considering that cost reduction and access to knowledge and technology are the two more relevant factors.

The Brazilian market for IT outsourcing, considering the 50 largest IT providers, both domestic and international, is around US\$ 6.5 billion and the outsourcing to development and maintenance of application systems is 27% of this amount (Publicação Detalhe, 2008).

According to the The Survey Management IT in Brazilian Organizations) - (PwC, 2007a), held with 400 CIOs (Chief Information Officer), 68 belonging to the Brazilian industrial sector, the poor results are linked to the lack of a selection strategy of IT suppliers and the lack of a large, formal and structured process, since the conception involving multiple attributes analysis, also considering the lack of technical and commercial offers from the suppliers.

## **2.3. Procedure commonly used for IT supplier selection**

The current competition requires that the IT field should be aligned with the company's business strategy. (PwC, 2007a) According to Luftman (2003), Zorello (2005) plus Fernandes and Abreu (2008), a great alignment means that the organization applies IT resources in a proper and timely way, making it consistent with the goals, needs and business strategy.

The commonly process for IT supplier selection is carried out in four steps (PwC, 2007a): 1) solution planning; 2) preparation of Documents Purchase; 3) technical and commercial supplier evaluation and 4) final evaluation for the supplier selection.

1st step: Solution planning, with the purpose to define the strategy to IT supplier selection and to prepare an Acquisition Plan.

2nd step: Preparation of the Purchase Documents, that means to prepare the necessary documents which will give the base to selection and evaluation of the supplier.

These documents are used to request information, proposals and/or price quotations from possible suppliers. Its complexity and level of detail should be according to the value of the planning acquisition and to the associated risks. They should be structured as direct questions in a scheme that guarantees consistent and comparable answers, but must be flexible enough to allow that the suppliers present considerations and suggest the best way to satisfy the requirements. This can be done inviting suppliers to present a proposal that meets the requirements and, in a separate way, an alternative proposal.

There are several types of acquisition documents: Request for Proposal (RFP), Request of Quotation (RFQ), Request for Information (RFI), notice of supply, invite for negotiation, Invitation for Bid (IFB) and bidding documents

According to Laurindo (2000), the effective use of IT consists of implementing or developing systems aligned with the global strategy of the organization and, in this way, these systems should be adjusted to the users' needs, to the business field and to the company as a whole.

3rd step: technical and commercial evaluation from suppliers, this step is the goal is to evaluate the product adherence to the company's needs. This evaluation is done through questionnaires to be answered by IT business executives, in a way that allows a detailed supplier's evaluation.

4th step: final evaluation for the supplier selection, in this step the goal is to state the supplier to be hired. The supplier reputation, their proposal adherence to the company's needs and the service cost are decisive factors.

As can be noted, the methodology proposed here is restricted to Solution Planning (1st step), advocating the adoption of a supplier selection by the competitive advantage criteria. The proposal also coexists harmoniously with the hiring and management model of IT outsourcing, as proposed by Bergamaschi e Reinhard (2008).

### **3. CHOICE OF THEORETICAL REFERENCE**

To choose the theoretical framework that would support the development of methodology for the selection of suppliers by the criteria of competitive advantage, we analyzed the works of major authors who deal with competitive advantage: Porter (1980, 1985), Barney (1991), Hamel and Prahalad (1995), Kaplan and Norton (1992) and Contador (2008), The approaches of these authors were analyzed regarding: 1) competitive advantage, 2) competitive strategy (business and operational), and 3) how to align these strategies

The three American authors deal with competitive advantage without worrying about defining it precisely, giving the impression that they consider it a concept already known. Otherwise, Contador (2008, p 46) clearly distinguishes advantage from competitive advantage:

"Advantage is any factor or superior condition of the company in relation to a competitor or itself in a previous moment, which benefits the company."

"Competitive advantage is a position of superiority recognized and valued by the client, which makes a company to be more competitive than a competitor or itself in a previous moment."

The company's competitive business strategy, according to Porter (1980), is formulated from the five competitive forces that determine industry profitability (threat of new entrants, bargaining power of buyers, bargaining power of suppliers, threat of services or substitute products and rivalry among existing firms) and from three generic competitive strategies (cost leadership, differentiation and focus), resulting from the competitive advantage in low costs or differentiation. Contador (2008) uses the five forces just to understand the business in which the company operates and to assess the impact of each force in the alternative strategy. To formulate the competitive business strategy, Contador focuses on the fifth force, rivalry among existing firms and attributes of the product and the company's valued customers.

Concerning the three generic strategies, Contador (2008) establishes all the alternatives available to differentiate a company from others. These alternatives are represented by some of the 14 fields of competition combined with some of the 14 supporting fields (see subsection 4.2).

Barney (1991) and Hamel and Prahalad (1995) do not favor a competitive business strategy, focusing on internal factors that provide competitiveness to the company. Contador (2008, p 27) gives greater emphasis than they do to the environment (competitors, customers and other environmental factors) and to the competitive positioning of the company and its products.

To formulate the operational competitive strategy, Porter (1985) uses the value chain, which divides the company into various activities related to design, production, marketing and distribution, classified into primary activities and support activities. In this regard, Contador (2008) identifies, among the weapons, the ones that are used to compete and classify them into relevant, semi-relevant and irrelevant weapons, focusing on the analysis of relevant weapons to the company's competition fields. To Barney, the competitive strategy of a company is formulated from the analysis of resources and capabilities controlled by itself, to be valuable, rare, hard to imitate and organized. Contador distinguishes a company's resource from another's by means of a quantitative variable named intensity of the weapon, e.g., the materials system of a company can be better than another, and the intensity of the weapon shows this difference. To Hamel and Prahalad, the company's strategy is formulated from their core competencies.

For Kaplan and Norton (1992) and to Contador, the alignment of the strategies is a key to competitive success of the company. The first authors recommended the alignment of functional strategies with corporate strategy, formulated from the mission, values and vision of the company. Contador (2008, p.27) proposes to formulate a business competitive strategy from the company's competitive position and then define the competitive operational strategies, in accordance to the idea of alignment and making it unnecessary to future alignment.

Related to the nature of the approach, the American authors' model is a qualitative approach, while Contador's is a qualitative and quantitative model.

The analysis of the works cited in this article led the authors to choose the model of Weapons and Fields of Competition (Contador, 2008) to support the development of a methodology for selecting IT suppliers by the criterion of competitive advantage, considering both the competitive business and operational strategy to ensure an accurate alignment between these strategies and as a qualiquantitative approach, which gives more confidence to the results.

#### **4. MAIN CONCEPTS UNDERLYING THE MODEL OF FIELDS AND WEAPONS OF COMPETITION**

##### **4.1. Introduction to the Model of Fields and Weapons of Competition (FWC model)**

Since the methodology for IT supplier selection by the competitive advantage criteria, reported in this paper, is based on the model the Fields and Weapons of Competition, developed by Contador (2008), it is necessary to present the central points of this model.

The concepts of the model of Fields and Weapons of Competition were published in the *Revista de Administração da USP* (University of São Paulo Management Review) in 1995 (Contador, 1995a and 1995b). Sometime later, they were published in two chapters of the book ‘Modelo para aumentar a competitividade industrial’ (A model to increase industrial competitiveness) (Contador, 1996).

These concepts have evolved thanks to the research carried out by Contador (2008, p. 127-154) in organizations from various economic sectors and became a particularly suitable model to understand, analyze and explain how the organizations compete, proposing actions to increase the competitiveness and to formulate the business competitive strategy and its operational competitive strategies aligned to the business strategy.

According to Contador (2008, p.27), the FWC model combines two very distinct concepts: the concept that the company’s competitiveness derives predominantly from its positioning in the market, as Porter (1980) stated, and the view that it comes basically from its own internal factors, such as postulated by the authors of RBV, as Peteraf (1993), Krogh and Ross (1995) and Barney (1991).

Contador (2008, p. 28) highlights four important properties of the FWC model: “1) it explains all the possible competitive business strategy, represented by the competitive fields; 2) it has several mathematical variables that, combined with qualitative analyses, supports convincingly its propositions; 3) it has an explicit argument, a strong central idea that guides safely the process, expanding competitiveness and the formulation of business competitive strategy, perfectly aligned with each other, and 4) it is easy to understand”.

##### **4.2. Concepts, definition and configuration of the competitive and supporting fields**

Competition field is the imaginary locus of dispute in a market, among products or companies for client preference, where the company seeks to achieve and maintain competitive advantage, such as price and product quality. The competition fields represent the attributes of the product and the company, which are valued by clients (Contador, 2008, p. 18).



There are 14 competition fields, that is, there are 14 basic ways (in addition to other many combinations) for the company to differentiate itself – ways related to characteristics of their product and their own characteristics. The configuration of the competitive fields represents the 14 aggregate fields in 5 macrofields: Price Competition: 1. the price itself; 2. in terms of payment, and 3. in premium and/or promotion; Product Competition (goods or services): 4. In a product project; 5. in product quality, and 6. in product diversification; Customer Service Competition: 7. in customer service access; 8. in customer service project; and 9. in customer service quality; Time Competition: 10. in time to deliver the product; 11. in client term service; Image Competition: 12. from the product and the brand; 13. in terms of a reliable company, and 14. in social responsibility (Contador, 2008 p. 19).

There is also a supporting field. It is an auxiliary field which contributes to the achievement and maintenance of the company's competitive advantages, it represents either an attribute of the product or the company valued by the client and complements the company business competitive strategy. Its configuration is the same as the competition field. (Contador, 2008 p. 62).

### **4.3. Concepts and definition of weapon and competitive weapon**

Weapon is any activity performed or managed by a group of company employees with homogeneous assignments. Competition weapon is any activity executed or resource managed by a group of employees in the company with homogeneous assignments, used by the company to gain and/or to maintain competitive advantage (Contador, 2008, p. 77).

A company has a lot of weapons, such as a network of sale channels and distribution, a customer loyalty system, process engineering, materials system, competitive analysis, advertising, management information system, personal empowerment, etc.

The same weapon can be used to compete in more than one field, and to compete in one field, several weapons are necessary. The source of competitive advantage is in the weapons of the competition. It is through the action on competitive weapons that the company provides competitive effectiveness to its own products and to itself. (Contador, 2008, p. 21).

The weapons are classified by two criteria: 1) according to their nature, the weapons considered are: production, customer service, planning and support and 2) according to their relevance to the competition, the weapons are classified in terms of relevant, irrelevant and semi-relevant. (Contador, 2008, p.79).

Target, the same as target of the weapons, is the goal that a competition weapon should reach and serves to direct and to guide the efforts of a competition weapon. The target is determined by the competition field and, therefore, each field has its own target. There are nine targets: productivity, process quality, speed, flexibility, reliability, innovation, accessibility, desirability and social responsibility (Contador, 2008, P. 97)

### **4.4. The thesis, the constraints to competitiveness and the concept of competitive strategy**

The FWC model has a strong central thought that supports its design. Contador, 2008, P. 109): "For a company to be competitive, there is no more relevant condition

than having high performance only in a few weapons that provide competitive advantage in the competition fields chosen by each product/market combination”.

Specifying clearly where the company needs to have high performance to be more competitive is one of the strengths of the FWC model. It is this theory that provides the criteria, because it can express in one sentence the way for the company to become competitive or more competitive. This proposition was stated as a thesis, exactly by the necessity to be validated, as in fact it was, showing concern with methodological accuracy. (Contador, 2008, P. 109)

The FWC model proposes four constraints to competitiveness: 1) a suitable product for its intended market, 2) a proper choice of competition and supporting fields for each product/market combination, 3) proper use of weapons of the competition, which means to identify the weapons that are relevant, irrelevant, and semi-relevant to competition and supporting fields, setting the intensity of each one, and 4) the alignment of weapons to the competition and supporting fields. (Contador, 2008, p. 41)

To formulate the competitive business strategy (product positioning strategy in the market) means to define the product/market combination and to choose one or two competition fields and one or two supporting fields for each product/market combination. And formulating operational competitive strategies consists in defining the actions that must be performed in each weapon.

#### **4.5 The quantitative variables of the Model of Fields and Weapons of Competition (FWC model)**

The FWC model uses seven mathematical variables; two of them are primary, three are fundamental and two are tertiary. The two primary variables are: intensity and degree of competitiveness, which depend on the information obtained in the company. The three fundamental variables: average intensity, focus and dispersion are the essence of the quantitative sub model used in all applications of the FWC model and are calculated from the intensity of the weapon. The two tertiary variables, recovery and competitive power, are used to formulate the competitive strategy and calculated from the three fundamentals variables (Contador, 2008, p. 109). The definition of these variables is in subsection 5.4.

### **5. DEVELOPMENT OF METHODOLOGY FOR SELECTION OF SUPPLIERS BY THE CRITERIA OF COMPETITIVE ADVANTAGE BASED ON THE FWC MODEL**

#### **5.1 The business case study**

This methodology was developed and tested on a business environment of a multinational company in the Brazilian insurance industry, considering that a case study is useful for the prior development of theoretical propositions. The company's identity is kept confidential because of corporate restrictions as to the use of its brand name and mentioning of its executives.

The company is a national and traditional Institution that has been operating for over 80 years in the Brazilian insurance market, particularly in the areas of vehicles and health insurance. The company has an excellent image among its customers and

brokers, reinforced by performance awards, received in recent years, from accreditation agencies.

Currently, the company seeks to increase the business competitiveness through a strategy focused on developing new products for the consumer market segment, for special classes of personal risks and the in the activation of its sales channels.

Its competitive advantages to operate in a national market reside in a strong and traditional brand and products considered innovative by customers and competitors. We also must consider the quality indicators by SUSEP, which is the official department responsible for controlling and supervising the insurance market in Brazil.

Their IT operational strategies are consistent with its business strategy, because the Company Strategic Plan has the characteristics recommended by Weill and Ross (2004): it should provide an overview of concepts, methods and processes, technologies and tools needed to facilitate the implementation of business strategy and to support decisions, actions and processes in the organization, generating benefits to business. This alignment of strategies has proven to be essential for the strengthening of its competitive advantages, as evidenced by: 1) the intense activity in the advertising of their brands through constantly-renewed promotions, 2) channels that highlight their products and innovations launched in the market; 3) the knowledge that their workforce has about its customers and products portfolio, and 4) the dissemination of a culture in a way that employees feel part of the company's image.

It should be mentioned that, in order to justify the choice of this Insurance Company to perform the case study, it has a formal alignment between IT Strategic Plan and Strategic Business Plan. Companies with such a feature present a high level of maturity in IT management, as defined by COBIT (2010), version 4 (ITGI), that is, the processes of service delivery in accordance with best practices. According to Luftman (2003), Zorello (2005) and Abreu and Fernandes (2008), a good alignment means that the organization applies the IT resources in a consistent way with the goals, needs and business strategy.

So, choosing this Company Insurance, the methodological design of this study allowed us to obtain the necessary information for viewing, through the analysis and characterization the practices it uses to perform IT functions, a favorable environment to outsourcing.

Some additional information of the insurance company is found in Table 1.

Industry	Financial
Business field	Insurance
Revenue	R\$ 900 million
Number of employees	1,450
More than a line of business?	No
Geographical dispersion	Yes
Centralization IT	Yes
Computer structure	By type of systems
IT Equipment	Decentralized
Systems development	Centralized
IT decisions	Centralized
IT projects control	<i>Ad hoc</i>

**Table 1- Company Insurance Characteristics**

Source: Insurance Company

## METHODOLOGICAL PROCEDURES

### 5.2 Stages on development the methodology

As discussed in subsection 1.2, the methodology was inspired by the idea that the company should hire the supplier that best leverages their competitive advantages.

The methodology was developed and verified based on the company environment business through a case study, which, according to Yin (2005), is an empirical research that systematically ascertains a current phenomenon within its real life context and brings benefits from prior development of theoretical propositions to guide data collection and data analysis.

Once you have chosen the theoretical object of study, the methodology was developed in two stages: 1<sup>st</sup>) collecting and analyzing information, and 2<sup>nd</sup>) development and evaluation methodology. The methodology is basically based on the CAC, consisting in identifying the competition and supporting fields of the contractor and verifying if the possible suppliers have weapons more focused on targets related to these fields.

### 5.3 Stage 1: Collecting and analyzing information and data

In the present study, only the researchers participated in the data collection process, which was conducted through a questionnaire with 36 questions, disguised, semi-structured, obeying the logic of the FWC model. The researchers also analyzed

documents, made observations and conducted interviews with IT executives in the company, to understand and discuss the answers to the questions.

The study complied with the recommendations of Flick (2004) related to methodological procedures, which must be well established in previous studies of the organization and the object of study prior to data collection, and Eisenhardt (1989) regarding the use of various methods of collecting data, in order to enable consistency in the preparation the constructs of analysis and in hypotheses formulation.

The interviewer collected information necessary for understanding the outsourcing development process and maintenance of application systems, in order to develop a proper supplier selection methodology, by the criterion of competitive advantage.

The main objective of this step was to understand how it could be a decision process to outsource the development and maintenance of application systems. Thus, we conducted structured interviews with senior members of the Committee of Information Technology, the CIO (Chief Information Officer) and three departmental managers (systems, infrastructure and governance), which enabled researchers to understand in depth the answers given by respondents. In the interviews, the main points were explored: 1) understanding the processes of selection of suppliers, 2) expected benefits from IT outsourcing, 3) current status of IT and activities performed to the development and maintenance of application systems, and 4) perception of selection criteria, such as IT cost reduction, access to talent and improving IT service levels.

Also, these were collected: 1) documents used in the process of selecting IT suppliers for the activity of developing and maintaining applications systems, 2) the business plan (business case), 3) the expected results from outsourcing, 4) secondary data obtained in IT magazines and yearbooks, and 5) information necessary to accomplish stage 2 of the methodology.

To help the processing and information analysis, the researchers used the software Atlas-IT to document interviews and separate them into constructs of analysis, provided that, according to Lima (2005), using software considerably helps the data classification and organization.

To facilitate the understanding the current IT supplier selecting process, we used Microsoft VISIO software to graphically represent the process steps. The business plans (business case) and the expected results for the next phase of outsourcing were tabulated in Microsoft Excel worksheets for financial calculations and turn them into comparable values (present value), in order to provide the correct understanding.

#### **5.4 Stage 2: Development and evaluation the supplier selection methodology by the criterion of competitive advantage based on the FWC model.**

The methodology was developed and evaluated in eight steps:

Step 1: Defining the product/market combination;

Step 2: Identifying the competition and supporting fields;

Step 3: Identifying competition weapons ;

Step 4: Evaluating the intensity of competition weapons ;

Step 5: Determination of the weapons' relevance in every competition field;

Step 6: Calculation of the weapon's average intensity, focus and dispersion;

Step 7: Choice of the IT supplier that contributes most to competitive advantage of the Insurance Company, and

Step 8: Evaluation of the methodology by the leaders of the Insurance Company.

This methodology was applied to the analysis and comparison of a possible IT supplier. To facilitate understanding, the methodology was applied to the internal IT Department in the Insurance Company

### **Step 1: Defining the product/market combination.**

As a product can compete in different fields in each market segment, the concept "product/market combination" arose. This expression shows that if the product or the market varies, the combination will be another. The FWC model postulates that a combination of competition and supporting fields should be chosen for each product/market product. The company usually competes in one or two fields and elects one or two supporting fields (Contador, 2008, p. 66).

The product/market combination was determined, in this case, considering that the company aimed to outsource the existing development and maintenance structure to application systems. To this end, we used a document "Request for Proposal", describing the services to be outsourced.

Thus, it was defined as a product, the development and maintenance of systems applications and, as a market, the insurance companies operating in Brazil.

### **Step 2: Identifying the competition and supporting fields**

To this purpose, a questionnaire was prepared containing a description of the 14 competition fields. Performing the interviews with members of the Internal IT Department, with the IT Committee and with the CIO, the nomination of three fields was requested in order of importance. The answers indicated "product quality" as the competition field and "product delivery" and "price and payment terms" as the first and second supporting fields.

These answers were consistent with the research in order to identify where the company seeks to gain competitive advantage, which concluded that it aims to have quality products recognized, trying to deliver the product in a reduced period of time for a fair price. Therefore, the supplier of IT services should be able to contribute to strengthening these competitive advantages. To do so, and according to the thinking that supports the proposed methodology, the Insurance Company must choose between the IT Internal Department and IT supplier that possess competition weapons which are more aligned to the three fields mentioned.

### **Step 3: Identifying of competition weapons**

The identification of competition weapons followed this procedure: 1) selection of weapons among those that appear in the Appendix of the book "Fields and Weapons of Competition" (Contador 2008), The list in this book covers all activities and resources that has potential for weapons of the competition to the company; 2) validation and completion of the list, through consulting the CIO and members of the IT Internal Department and IT Committee; to the respondents, a brief description of selected weapons was showed and then they were asked if the Insurance Company used these weapons to compete. 3) description of the weapons contents, supported by the

information obtained from the company areas, and 4) interviewing the same people to design the universe of such weapons through content analysis, seeking to identify the weapons that had strategic content. For details, see subchapters 4.2 to 4.4 (Contador 2008).

This procedure resulted in the 36 competition weapons, shown in Table 2, which were grouped into four macrocriteria - Strategy, Risk, Technical and Commercial.

#### **Step 4: Evaluating the intensity of competition weapons**

To calculate the three fundamental variables of the FWC model, we need to know the intensity of each weapon in the company's competition, which requires evaluation of each one.

Intensity of the weapon is the intensity in which the weapon is used by the company, evaluated at five levels. It can also be defined as the power and scope of a weapon. It is a discrete variable with domain on a scale from 0 to 5 and should be evaluated as described by the company, where 0 corresponds to an unused weapon (Contador, 2008, p. 114).

To evaluate the intensity of each weapon, a questionnaire was prepared containing a description of 36 competition weapons (identified in step 3). The evaluation of the weapon intensity was made by comparison: for each weapon, the respondent was asked to identify, just mentally, which competitor was the strongest in this weapon and attributed 5 to this weapon. Next the interviewer had to write down in the column of Intensity of a Weapon, his/her evaluation of this weapon intensity in Insurance Company, ranging from zero to five.

#### **Step 5: Determination of weapon's relevance in every competition field**

The concept of relevance means that all the weapons in the competition represents the company's arsenal. In the military field, the weapons available in the arsenal are selected for a battle and, according to the type of combat, we use the appropriate weapons. All of them are combat arms (here called competition weapons), but only some of them will be employed - the selection will be determined by the type of combat (Contador, 2008, p. 91).

Similarly, from the arsenal of competition weapons, the weapons to compete in a field are removed. The weapon's relevance for the competitiveness (more specifically, to the competition and supporting fields) is the criterion to identify whether a competition weapon should not be used to compete in a field. That is, the competition or supporting field determines whether or not a competition weapon is relevant for the company to compete. By the criteria of relevance, the company's competition weapons are classified as relevant, irrelevant and semi-relevant weapons, for each field.

Relevant weapon is a weapon belonging to the set of competition weapons of a company that offers a high competitive advantage to compete in the chosen field. In other words, it is a necessary weapon for competition in a particular field. According to the FWC model, it is the high intensity of the relevant weapon that delivers a competitive advantage to the company.

Irrelevant weapon is a weapon belonging to the set of competition weapons of a company that gives it no competitive advantage in their competition or supporting field.

That is, according to the FWC model, it is a useless weapon in the competition to business competitive strategy and should have low intensity, requiring low investments.

Semi-relevant weapon is a weapon belonging to the set of competition weapons of a company that provides an average competitive advantage in their competition field. It has an intermediate importance between relevant and irrelevant weapons to the competition field and must have average intensity, not justifying a high investment.

Although Contador (2008, p 91) recommends the use of a prioritization matrix of weapons and the Nihans index to determine a weapon's relevance to the company in a certain field, this work used the "quick" method, which simply consisted of identifying within the set of 36 competition weapons of a company, identified in step 3, those which give advantage in the field under analysis.

So, the relevant weapons were identified for each of the three fields identified in step 2: product quality, product delivery and price and payment terms.

### **Step 6: Calculation of the weapon's average intensity, focus and dispersion**

In this methodology we use the three fundamental variables from the Model of Fields and Weapons of Competition: weapon's average intensity, focus and dispersion.

Average intensity of the weapons is the arithmetic mean intensity of all weapons of the competition (the relevant, irrelevant and semi-relevant) and it is independent from the competition field chosen by the company. It is a variable with normal distribution of probabilities, therefore continuous, ranging from 0 to 5 (Contador, 2008, p. 118).

Focus, or weapons' focus in the competition fields, measures the efforts applied to the weapons that provide competitive advantage in the chosen field or measures the efforts applied to relevant weapons in the field chosen to compete. Its value is calculated as the ratio of the total intensity of the relevant weapons and the sum of the maximum intensity can be achieved through such weapons. It is a variable with normal distribution of probabilities, therefore continuous, ranging from 0 and 1 (Contador, 2008, p. 117).

Dispersion, or weapons' dispersion in the competition field, measures the efforts applied to the weapons that do not provide competitive advantage in the chosen field or measures the efforts applied to irrelevant weapons in the competition field. It is the opposite of focus. Similarly to the focus, its value is calculated by the ratio of the total intensity of irrelevant weapons and the sum of the maximum intensity can be achieved through such weapons. It is a variable with normal distribution of probabilities, therefore continuous, ranging between 0 and 1 (Contador, 2008, p. 117).

However, considering that a competition weapon may be relevant to a field and irrelevant to another, the analysis of just one field, when the company operates in various fields, changes the value of the global focus and generates a high dispersion value as a consequence of irrelevant weapons to this field, but relevant to another.

To avoid this problem, it is necessary to calculate the global focus and dispersion, while considering the three fields of the competition identified. Considering that a relevant weapon to the competition field is more important to offer competitiveness to the company than a relevant weapon to the supporting field. Contador (2008, p. 403) suggested the use of weights: 1.67, 1.33 or 1.0, depending on the joint relevance of a competition weapon for the various fields chosen by the company.



In Table 2, the relevant weapons are indicated by weights: 1.67 or 1.33 or 1.0 in the Relevant column and zero in the Irrelevant column; irrelevant weapons are indicated by number 1 in the Irrelevant column and zero in the Relevant column, and the semi-relevant weapons by number zero in both columns.

Table 2 shows how to calculate the weapons' average intensity, the global focus and dispersion using an Excel spreadsheet. It is very important to note that: 1) these variables are related to the IT Internal Department in the Insurance Company, 2) the competition fields, object of analysis (product quality, delivery and price identified in step 2) are those in which the company decided to gain competitive advantage.

Table 2 shows the weapons' average intensity (2.42) obtained by dividing the sum of weapons intensity (87) by the number of weapons (36). The focus column is obtained by multiplying the Relevant column by Weapon Intensity column. The value of the focus (0.51) is the result of dividing the total of the respective column (84.05) by the sum of the Relevant column (32.69) multiplied by 5 (which is the maximum intensity value of a weapon). The value of dispersion (0.47) is obtained by dividing the sum of the respective column (29) by the sum of the column Relevant (12) multiplied by 5 (which is the maximum intensity value of a weapon).

**Table 2 - Calculation the weapons average intensity, the focus and dispersion for product quality, delivery time and price to the Insurance Company IT Internal Dept.**

IT Internal Dept.: Weapons Average Intensity, Focus and Dispersion						
Nº	Competition Weapon	Fields: quality, price and delivery time		Weapon Intensity	Score	
		Relevant	Irrelevant		Focus	Dispersion
	Strategy					
1	Global and regional training	1,33	0	2	2,66	0
2	Company's flexibility	1	0	3	3	0
3	Fast decision making	1	0	3	3	0
4	Partnership in business	0	1	2	0	2
5	Long-run relationship vision	1,33	0	3	3,99	0
6	Environment expertise	0	0	1	0	1
7	Data center location	0	1	1	0	1
8	Innovation models	1,33	0	3	3,99	0
9	Shareholder controlling and management committees	0	1	2	0	2
10	Corporate Governance	1,33	0	2	2,66	0
11	Economic and financial sustainability of the supplier	0	1	3	0	3
	Risk					
12	Service level - transition period	0	1	2	0	2
13	Service level - gain & pain share	1	0	2	2	0
14	Retention of critical resources	1,67	0	3	5,01	0
15	Business focus - long run planning	1,33	0	5	6,65	0
16	Insurance - stop operations	0	0	1	0	0
	Technical					
17	Team technical competence	1,67	0	3	5,01	0
18	Professional certifications	1,67	0	2	3,34	0
19	Company's certifications	1,67	0	1	1,67	0
20	Certificates of technical qualification	1,67	0	2	3,34	0
21	Industry understanding	1,67	0	4	6,68	0
22	Technology expertise	1,67	0	3	5,01	0
23	Management resources capability	1,67	0	3	5,01	0
24	Communication process and mangement crisis	1,67	0	2	3,34	0
25	Contracts Governance Model	0	1	3	0	3
26	Proven methodology	1,67	0	1	1,67	0
27	Method to return services	0	1	2	0	2
28	Methods and practices to manage outsourcing	1,67	0	2	3,34	0
	Commercial					
29	Financial values (present value)	1,67	0	3	5,01	0
30	Adherence to technical aspects	1,33	0	2	2,66	0
31	Adherence to commercial aspects	0	1	3	0	3
32	Contractual Issues	0	1	2	0	2
33	Accession to the baseline	1,67	0	3	5,01	0
34	Criteria for cancellation	0	1	2	0	2
35	Billing issues	0	1	2	0	2
36	Contractual productivity factor	0	1	4	0	4
	Total	32,69	12	87	84,05	29

Source: Authors

### Step 7: Choose the IT supplier that most contributes to competitive advantage

The research conducted by Contador (2008, ch. 6, p. 127-154) validated the central thesis underlying the Model of Fields and Weapons of Competition: "For a company to be competitive, there is no more relevant condition than having high performance only in a few weapons that provide competitive advantage in the competition fields chosen by each product/market combination".

This condition is measured by the focus, because it measures "performance only in those few weapons that give it a competitive advantage in the competition fields chosen for each product/market combination." In surveys conducted by Contador, the focus explains around 79% of the complex phenomenon in corporate competitiveness, and also found that the weapons average intensity has moderate influence on the competitiveness of firms and dispersion is not the influence.

Therefore, to leverage its competitive advantages, the company should hire suppliers that have more focus on all fields in which it decides to compete. That's the rule. The values in Table 3 support the decision.

This table shows the values of the average intensity of the weapons, global focus and dispersion for the IT Internal Department and to the IT Supplier. The procedure to calculate the figures for the Internal Department is fully explained in the previous steps. The same procedure was adopted to calculate the figures for the IT Supplier, obviously from the data provided by the IT company.

**Table 3 – Values for the weapons average intensity, focus and dispersion for the Insurance Company IT Internal Dept.**

	Weapons Average Intensity	Global Focus	Global Dispersion
IT Internal Dept.	2,42	0,51	0,47
IT Supplier	3,19	0,73	0,45

Source: Authors

The IT supplier has a much broader focus than the IT Internal Department can provide to company's competitive advantage. In addition, it is more qualified because it has a higher average intensity of the weapons, and is slightly more efficient because it has slightly less dispersion.

This analysis brings no doubt: the Insurance Company must hire the IT provider for development and maintenance of systems application, to leverage their competitive advantages in the fields of product quality, delivery time and price and payment terms.

### **Step 8: Evaluation of methodology by the Insurance Company leaders**

The shift in the focus to outsourcing services, from costs to competitive advantage, as well as the methodology presented here and the results of its application, were shown to the executive members in the Committee of Information Technology, to the CIO (Chief Information Officer) and also to the three department managers (systems, infrastructure and governance) of the company. They accepted the proposition in all terms and decided to outsource. Moreover, there were showed interest in knowing the methodology in detail and agreed that the methodology is appropriate, at least in the case of the Insurance Company.

## **6. CONCLUSIONS**

This article reports the methodology to supplier selection by the criterion of competitive advantage based on the Model of Fields and Weapons of Competition . It is explained how it was developed and shows its application in a real case of an Insurance Company.

The underlying philosophy for this methodology lies in the fact that the research carried out, for eight years by Contador (2008, ch. 6, p. 127-154), involving 176 companies, of all sizes, in six industries and six segments of the service sector, showed that the variable focus, and not the weapons average intensity or dispersion, is the one which explains why a company is more competitive than another. According to the research, the focus explains around 79% of the complex phenomenon of business competitiveness

In other words, the justification of this methodology lies in the validity the thesis proposed in the FWC model: “for a company to be competitive, there is no more relevant condition than having high performance only in a few weapons that provide competitive advantage in the competition fields chosen by each product/market

(Contador, 2008, p. 109). The positive evaluation from Insurance executives, over the results obtained, points out that the methodology leverages its competitive advantages. Note that the methodology arises from the business competitive strategy, represented by fields in which the Insurance Company decided to compete (regarding to the product/market combination), and aligns business operational strategies, represented by the competition weapons , to the business competitive strategy.

To apply the proposed methodology, the company must be convinced that the criterion of competitive advantage is better than others, based on price or quality improvement of IT services, or even in the core competencies of the supplier, which are the most common and usual criteria. This direction is better because, according to the authors who support and discuss competitive strategy, it helps the company to achieve their goals more consistently and sustainably, as set out in subsection 1.2.

Applying the methodology to a real case in an Insurance Company, it was showed that the option for outsourcing is really useful to the company because it will get benefits in terms of product quality, meeting deadlines and just in time implementation of business solutions, thus strengthening their competitive advantages.

The outsourcing service costs may be even higher, but the benefits to increase its competitiveness will result in more customers and therefore in a better financial return.

The methodology of supplier selection by the competitive advantage criterion, based on the model of Fields and Weapons of Competition, is relatively complex, but it certainly is more strategic than the usual and, therefore, capable to lead the company to success.

The study limitations are associated with the fact that only IT executives were interviewed and not, additionally, the business executives. If they had been included, it would have been possible to fully understand the problems associated with both sides of IT outsourcing: the IT area and the business executives, as the primary service users. In addition, a case study, in a company chosen for convenience, does not allow to generalize its results.

For future work, we suggest the application of the methodology in other companies that practice IT outsourcing to evaluate the impact of the thought centered on the competitive advantage in the IT suppliers' strategy and the adaptation of the proposed methodology for selecting suppliers in others business areas.

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