# OUTSOURCING SERVICES FOR INFORMATION AND COMMUNICATION TECHNOLOGY - ICT: A CASE STUDY IN A PRIVATE UNIVERSITY

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## ABSTRACT

This research aims to analyze the sourcing of services of Information and Communication Technologies - ICT. It covers a company of Brazilian private sector, an exploratory study addressing the reasons for outsourcing or insourcing - backsourcing of ICT services and describes the strategies used for recruitment and development of the business model of sourcing. We use the case study method, which was applied to a large-sized private university. Data were collected through interviews with directors and managers who experienced the ICT sourcing process during the past 21 years. The issues discussed were the reasons for outsourcing or insourcing - backsourcing, the strategies for recruitment and development of sourcing model. The research deepened the understanding of ICT sourcing model and identified a relation between sourcing model and cost reduction of ICT services, as well as the fact that organizations seeking for better skills usually adopt selective outsourcing.

**Words Key:** Outsourcing, Insourcing, Information and Communication Technology (ICT)

## 1. INTRODUCTION

Information technology - IT is becoming increasingly so, an essential instrument of our culture and the globalized market, the administrator has to deal with a series of new ideas and new rules to remain competitive. The information must be provided with greater objectivity, clarity and with easy access, to be used quickly and dynamically. These organizations are associated with increased use of Information and Communication Technology - ICT.

Souza et al. (2008, p. 209) affirm that the transformation by which the world today is passing has been characterized as the transition from industrial society to an information society or knowledge.

According Beal (2002), "The main benefit that information technology brings to organizations is its ability to improve the quality and availability of information and knowledge relevant to the company, its customers and suppliers. The most modern information systems offer businesses unprecedented opportunities for the improvement of internal processes and services to the final consumer".

According Gisbert et al. (1996) the concept of ICT is defined as the new set of tools, media and channels for the treatment and access to information that they have a new character, promoting a technological and cultural change.

Cabero (1996) considers that the Information and Communication Technologies have the characteristics:

- the immateriality;
- interactivity;
- to instantly and a;
- innovation.

Bartolomé & Aliaga (2005) believe the concept of ICT should have a broad sense and as such defines them as a set of tools and services that capture, store and transmit the information with the help of electronic media.

In light of the new ICTs, many administrators believe in outsourcing of IT. Outsource the activities of management of ICT to improve competitiveness is the main driver. The overall reduction of costs (Cristofoli et al., 2008), free themselves from active management of its IT infrastructure of today, is to focus increasingly on the management of

business (Sparrow, 2003), to improve productivity, improve the quality of service provided to these users (Cristofoli et al., 2008), are some of the reasons given so far.

In practice, companies transfer the responsibility of a service level metrics for accurate and transparent, the cost of technical training in diverse areas and costs of innovation.

Recent research conducted by the authors, suggests that when achieved the goals of multisourcing, companies achieve economies of scale - because that share resources and assets, apart from experience - as the expertise in technical areas and continued studies of the most innovative products market are placed in their respective businesses in accordance with what is established by its powers. Reasons such as financial flexibility, cultural alignment and a level of service that evolves with the growth of business are understood as new priorities.

The constant changes in the business environment and market services, decisions about the internal execution - or foreign insourcing - outsourcing of services may become ineffective with time in the generation of values for organizations.

The Journal Corporate Info (2005), reports that this new environment, organizations have to balance an appropriate mix between service providers in internal and external dynamics and to be periodically reviewed in light of changes in the business environment and market.

The aim of this article is to analyze the sourcing of ICT services of a university in the Brazilian private sector. From this context, this article presents three specific goals: (1) identify the reasons why organizations to insourcing or outsourcing of IT services, (2) describe the strategies of recruitment and development of sourcing model, and (3) analyze the relationship between these characteristics.

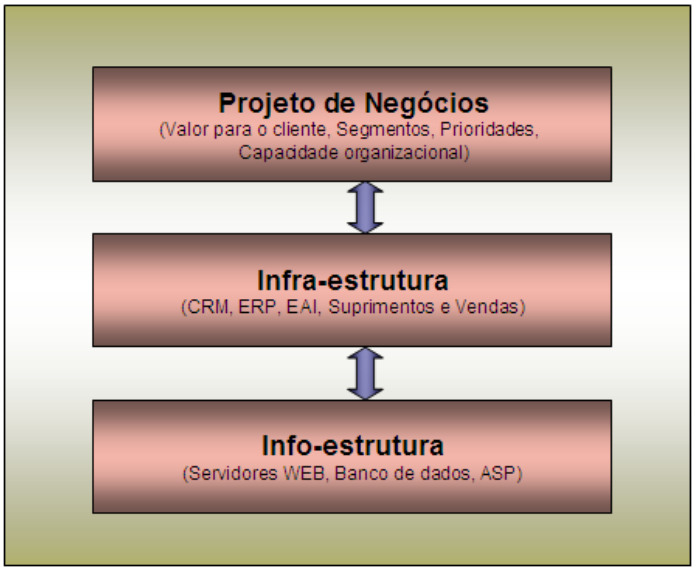
## 2. LITERATURE REVIEW

According Kalakota & Robinson (2002, p.112), the administration must pay close attention to three layers of decision threaded (Figure 1).

"In an environment in which multiple variables - technology, customer requirements, supply chains - are changing at the same time, the old weapons of differentiation - low cost, quality and process of incremental improvement - are

playing a minor role in sustaining growth. The design business is no longer an optional part of business strategy, by contrast, is the principal".

Figure 1 - Representation of the layers of decision




Source: Kalakota & Robinson (2002) - adapted

The terminology used in the studies of IT outsourcing is not always clear. To Cristofoli et al. (2008), the terms related to outsourcing are defined as:

- Outsourcing: is the transfer of part or all of the management of assets, resources or activities that do not represent the main business of the organization for one or more suppliers.
- Insourcing: the internal management of assets, resources or activities.
- Backsourcing: the transfer of outsourced services for the internal management.
- Sourcing: how is the total work required to create and deliver IT services is done internally and externally as it is acquired.

Some reasons why the outsourcing of ICT organizations were cited by Prado & Takaoka (2002) as: reduction of cost, access to knowledge and technology; fluctuations in the workload, provision of service; routine activities, management of human resources; activities with high degree of particularity.

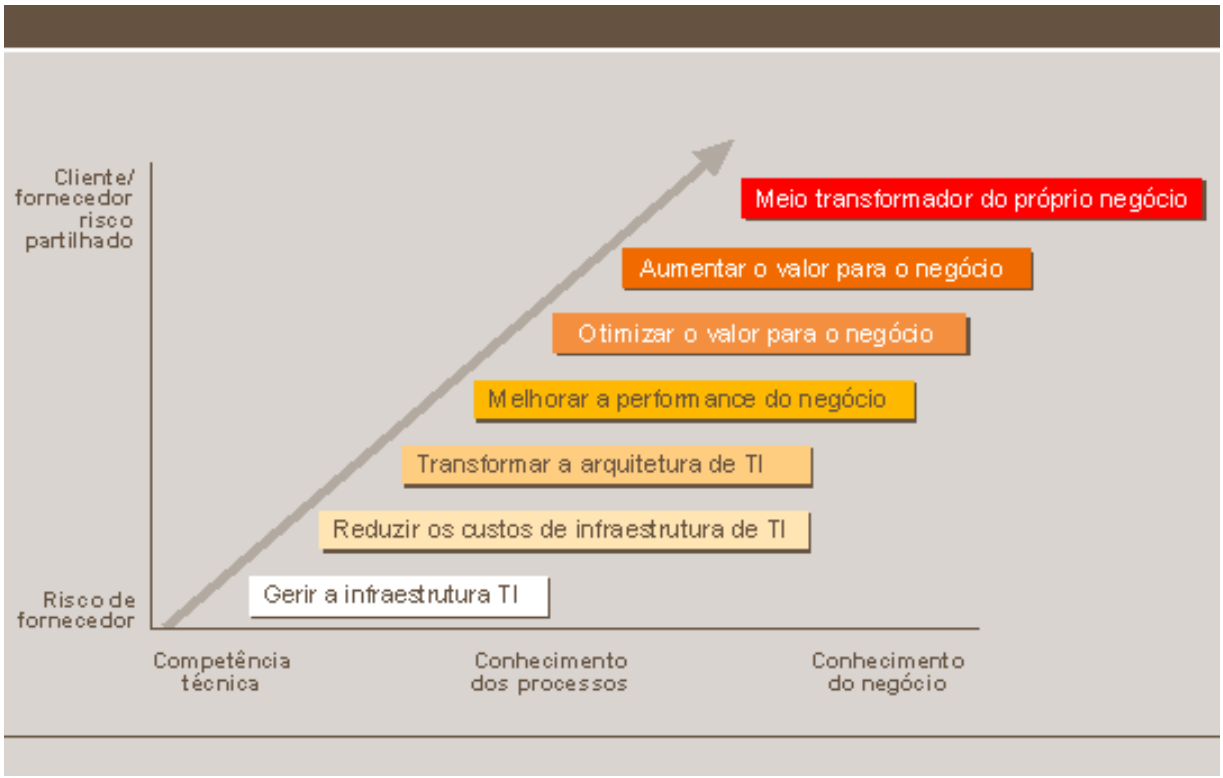
The outsourcing as a means of reducing costs began as a means to stabilize and normalize the environment for ICT, is an effective way to reduce costs and focus resources on core activities of the business - core business. Similar

reasons for the outsourcing of IT can be found in other studies (Bernstorff & Cunha, 1999; Klepper & Jones, 1998; Vidal 1997; Wang, 1995).

As a means to ensure the productivity and competitiveness, the ICT service has to be integrated with the goals of the company, through the use of tools and processes more productive, making the client company to become more competitive market in which it operates.

We can now determine that the outsourcing is a processor to increase the value generated by the business. Figure 2 represents the trend of outsourcing of ICT.

Figure 2 - Evolution of Outsourcing in ICT




Source: Fujitsu - Adapted from Gartner

In relation to recruitment strategies, we can say that is an important part of the process of outsourcing.

According Lacity & Willcocks (2001), the organization began to redefine their strategies for engagement in search of adding more value to the outsourced services, and are adopting new strategies, among which are:

- Value added: relationship is based on sharing risks and rewards.
- Purchase of reciprocal actions: seeking more partners join.

- Multi-supply: seeks to outsource services to more than one supplier, through a unique alliance, or by creating a new company.
- Resources of another country: the goal is to get money out of the country of operation of the organization, with the advantage of reducing cost and time.
- Co-supply: the supplier is paid by the performance obtained by the client.
- Procedures for business: it is an extension of the scope of the outsourcing of IT, outsourcing the business process as a whole.
- Company independent: the idea is to transform an internal IT department into a standalone company, getting rid of bureaucracy associated with a function of support.

The same authors also emphasize that companies have learned from the experiences of outsourcing and are adopting innovative alternatives:

- Contract detailed written by the client. Organizations began to attach to the invitation letter of the selection process contract containing detailed information necessary to draft a proposal.
- Services not covered by the contract. Organizations are more aware of the risk of the contracted services to become a monopoly supplier. Because of this, began to include contractual clauses specifying that they can drive processes of competition for services not covered by the contract.
- Easing of prices. Aiming to reduce the disadvantages of fixed-price contracts, the organizations have created some mechanisms such as: Association of the price of the supplier to the market price, adjust the fixed rate to the fluctuation of the cost, profit participation in the supplier and contractual monitoring cost of the supplier with setting percentages of participation.
- Start of long-term relationships with short-term contracts. Represents an alternative to avoid the risk of taking long-term contracts where there is significant uncertainty regarding the success of the partnership.

The conclusion of a contract takes effort, time and resources, because a good contract is important for the success of outsourcing. However, Goles & Chin (2005) argue that the drafting of a contract is not sufficient to ensure the success of outsourcing and the relationship between supplier and customer plays an important role in the outcome. A good management of the outsourcing relationship is what the organization needs to ensure that the contract for outsourcing will add value to the business.

According Cristofoli et al. (2008), we can say that the reasons that lead organizations to outsource ICT based services have changed over time and that the reduction of cost, the desire to transfer to third routine activities; improvement in providing services and information security are among the main reasons. However, the evaluation of the decision of sourcing is particularly problematic in light of the difficulty of identifying the hidden costs, compare the internal and external values in a single base, and the difficulty associated with the creation of an effective system of measurement of providers (Willcocks et al., 1995).

For Cohen & Young (2005), traditionally there were only two models of sourcing: insourcing and outsourcing. However the increased competitiveness, created a range of alternatives that recognize the dynamics needed to organizations.

As research conducted by Cristofoli et al. (2008), organizations tend to adopt the model of selective outsourcing in search of better results. This change of model coincides with the vision of Cohen & Young (2005), which attach to the selective outsourcing model where you get the best results.

## 3. RESEARCH METHODOLOGY

According to Yin (1994), there are three factors that determine the type of the search strategy being used: the type of research question, the degree of control that the researcher has on the behavioral events, and the degree of focus on contemporary or historical events. This research aims at analyzing the sourcing of IT services, through the study of contemporary events, which require no control. As a result, the strategy of case study was adequate. Moreover, it shows especially useful in the generation and construction of theories, where there are few data or theories, and permits, responding to the researcher, in a flexible way, the new discoveries made during the collection of new data (Eisenhardt, 1989).

The case fits in this situation, it was case of sourcing that have pioneering spirit within the education sector, was conducted by large-sized company that used innovative strategies for recruitment, and with 21 years experience in outsourcing.

It is the identification of persons and organization participating in the case. However, situations are accepted that this identification is not possible. In this research, for reasons of secrecy is not identified the organization and the participants. It is, however, that no information relevant to the study was omitted.

## 4. PRESENTATION AND ANALYSIS OF CASE

The research examines the process of provision of ICT in an enterprise of large Brazilian private education sector, for a period of 21 years. Interviews were conducted in November of 2008 with people who occupy positions of directors and management, experiencing the whole process of outsourcing of ICT services over the period studied, identifying changes in the business environment of the company and its consequence in adoption of models of sourcing. Data collected in the interviews were summarized in three topics: description of business; history of outsourcing of ICT within companies, and analysis of sourcing. The issues discussed are the reasons for outsourcing or insourcing, the strategies for recruitment and development of sourcing model.

### 4.1 Description Of Business

#### 4.1.1 - Company Y

The first educational institution of the Y company was created in England in 1748. In Brazil, have its origins more than 70 years. In 1997 gained the status of University, expanding the number of colleges and courses offered. Currently, the company has four Y Campi. There are more than 21,900 nursing students, and 16,200 in graduate presence and more than 5,700 graduate in the distance. It has 1,689 employees with 800 teachers.

The environment for ICT is composed of two data centers, totaling 142 servers with a network that integrates the corporate campuses. Also, the infrastructure for IT also provides an environment for centralized storage and backup. The Directorate of Information Technology - DTI, is to provide educational infrastructure innovative, high quality and availability. Therefore, the target of availability was 99.9%. That's because you need to ensure quality services for more than 21 thousand students who use a portal for interaction disciplines versus teachers, sharing content,

tracking the academic progress, notes, deeds, etc. Through this portal, students can also make requests online to the secretary or verify their academic financial situation, for example.

The area of TI currently has 52 employees. The total expense of the area of IT is between 2 and 2.2% of revenues. Currently the Company Y has infrastructure in most of IBM and Dell in addition to various other systems of low platform, with more than 142 different systems for different areas of the institution.

### 4.2 History of Outsourcing of IT within the Company

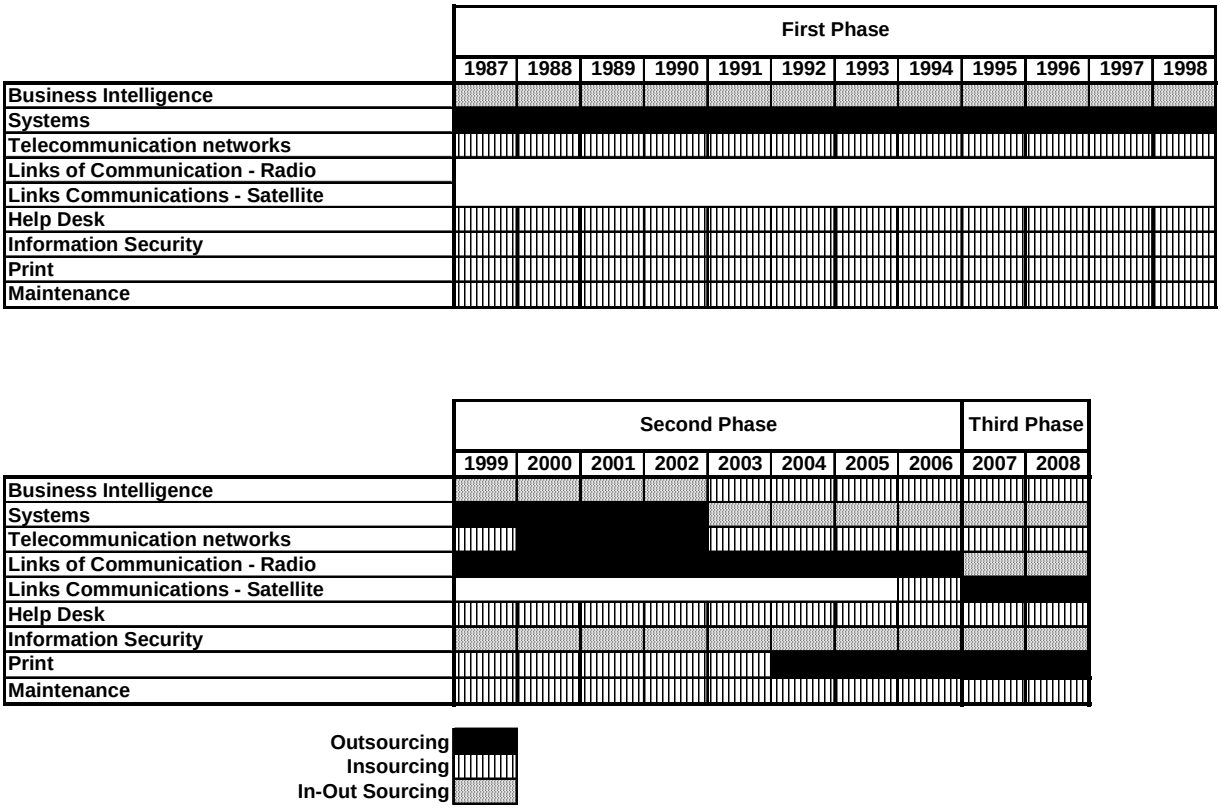
#### 4.2.1 - Company Y

Company Y has a history of 21 years of outsourcing of IT services, featuring a variety of models for sourcing of IT services.

For a better description of these models, we classified this long period of outsourcing in three distinct phases, which began in the second half of the 80s and persist to this date.

- First phase. Corresponds to the second half of the 80s, as illustrated in Figure 3 below represented, more precisely in 1987 and lasted until the year 1998 and was understood by the outsourcing of the development of academic and financial control. And this time the company had an infrastructure made up of a mini computer with 20 Edis 600 XT microcomputers connected and operating as dumb terminals and a relational database Zim. All the management and activities designated as the intelligence of the business were made by the Company Y and the partner company that developed the systems. The Help Desk service and maintenance of equipment were conducted internally. In the years 1989 and 1990 was no extension of administrative systems, and products purchased from third party systems of accounting and payroll more than the purchase of a server. The share of management and activities designated as the intelligence of the business continued to be held together.

Figure 3 - Sourcing of ICT services




Source: developed by the authors

- Second phase. It covers the end of the 90s. At the end of that decade the Company Y lived a strong growth in terms of the offering of new courses. This environment of growth resulted in the acquisition of an academic system with greater functionality. In 2001, there was the purchase of the ERP market (Interquadram) together with the hiring of a software house to develop a management system for academic / financial - called Logos. It came on the air in 2003 and after deployment, the Company Y took control in development. In the same time, the company outsourced Y for three years the implementation of the communication network among campuses, where in 2004 after the period of greatest need for operation, there was the insourcing of these activities.

  Enjoying the success of the courses and launched the exponential growth (15 faculties and 39 graduate programs and technology presence, 11 graduate programs and technological distance, 06 master's programs, 02 doctoral programs, 01 post-doctoral programs, 28 courses Lato Sensu), the company expanded the Y technological infrastructure, reaching numbers of 142 different software, 29 laboratories,

89 multimedia classrooms, 09 multimedia auditorium, 2600 microcomputers, 6800 network points, 142 servers, 775 branches and 180 trunks ).

In light of these investments in infrastructure, the Company Y has run a good part of all IT services, except the link for satellite communications and printing services, where this new model has allowed it had better results and reduces cost.

- Third phase. Corresponds to the years 2007 and 2008. In this period there was a new development in the model of sourcing, which provided access to new capabilities and reducing cost. It was made of outsourcing some activities of IT. All the management and activities designated as the intelligence of the business began to be implemented internally. Moreover, it has contract with other suppliers, or ceased to be a unique and exclusive supplier.

### 4.3 Analysis of Sourcing

#### 4.3.1 - Company Y

Analyzing the sourcing of IT services over time is possible to identify various types of sourcing used by Company Y.

Throughout its history, the Company adopted the Y never insourcing total, or at any time these 21 years of existence of the Board of Technology and Information, all services were provided by teams of internal IT and the same way, the Company And also never held a total outsourcing.

The three phases make a move in search of better training, access to knowledge and technology more cost effective.

Figure 4 combines the models of the sourcing phases discussed in Company Y.

Figure 4 - Evolution of the Enterprise Sourcing Model Y

| According stages in the Company Y | Period Analysis | Sourcing Models |
|---|---|---|
| First Phase | 1987 - 1998 | Shared Service |
| Second Phase | 1999 - 2006 | Shared Services - Extension |
| Third Phase | 2007 - 2008 | Shared Services - Selective Outsourcing |

Source: developed by the authors.

Analyzing the changes of stages it was:

Change of phase 1 to phase 2.

- Reasons for outsourcing or insourcing: change in the Company Y sought the expansion of outsourcing primarily in terms of achieving greater information security and availability of IT services. The reduction in cost was not one of the reasons for outsourcing recruitment.
- Strategy and the evolution of sourcing. We chose to model shared service, through the hiring of a software house for the development of systems.

Change of phase 2 to phase 3.

- Reasons for outsourcing or insourcing: The Company Y further expanded the services by choosing insourcing and outsourcing of certain activities of IT, with the goal remains the management of IT services, recognized as strategic for the company. Went to take more than one supplier, seeking access to knowledge and technologies that enhance the competitive advantage of the company. The reduction in cost was also a goal set in the process of change.
- Recruitment strategy and the evolution of sourcing. The model adopted remained the shared service. The strategy is to keep the area of intelligence in the IT Company Y, while the services outsourced routine and standardized, widely offered by the IT market, maintaining a composition from multiple vendors that offer better service at lower cost.

## 5. CONCLUSION

The objective was to analyze the sourcing of ICT services. This objective was achieved through an exploratory research, using the strategy of case study applied to a large company in the education sector, which was a case revealing. We stress that the research captured the past and the evolution of the model adopted by sourcing organization studied, and despite having the procedure followed with methodological rigor, has some limitations, among them are the reduced ability to make scientific generalizations and lack of other sources of information that could reduce the bias of the researchers and increase the methodological rigor (YIN, 1994).

Figure 5 presents a comparative table, highlighting the reasons for adoption of outsourcing, the strategies for recruitment and sourcing model adopted during the period studied.

Figure 5 - Evolution of the Enterprise Sourcing Model Y

**Comparative table of Sourcing Strategies**

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|---|---|---|
| **Reasons for Adoption** | Availability of services | Availability of services | Availability of services | Availability of services | Availability of services | Availability of services | Availability of services |
| **Procurement Strategy** | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing |
| **Sourcing Model** | | | | | | | |
| Business Intelligence | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing |
| Systems | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing |
| Telecommunication networks | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Links of Communication - Radio | Não existia | Não existia | Não existia | Não existia | Não existia | Não existia | Não existia |
| Links Communications - Satellite | Não existia | Não existia | Não existia | Não existia | Não existia | Não existia | Não existia |
| Help Desk | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Information Security | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Print | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Maintenance | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|
| **Reasons for Adoption** | Availability of services | Availability of services | Availability of services | Availability of services | Availability of services | Safety and Availability of Services | Safety and Availability of Services |
| **Procurement Strategy** | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing |
| **Sourcing Model** | | | | | | | |
| Business Intelligence | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing |
| Systems | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing |
| Telecommunication networks | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Outsourcing |
| Links of Communication - Radio | Não existia | Não existia | Não existia | Não existia | Não existia | Outsourcing | Outsourcing |
| Links Communications - Satellite | Não existia | Não existia | Não existia | Não existia | Não existia | Não existia | Não existia |
| Help Desk | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Information Security | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | In-Outsourcing | In-Outsourcing |
| Print | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Maintenance | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|
| **Reasons for Adoption** | Safety and Availability of Services | Safety and Availability of Services | Safety and Availability of Services | Safety and Availability of Services | Safety and Availability of Services | Safety and Availability of Services | Access to Knowledge and Technology and Cost Reduction | Access to Knowledge and Technology and Cost Reduction |
| **Procurement Strategy** | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing | Insourcing; Outsourcing - Shared services and In-Outsourcing |
| **Sourcing Model** | | | | | | | | |
| Business Intelligence | In-Outsourcing | In-Outsourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Systems | Outsourcing | Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing |
| Telecommunication networks | Outsourcing | Outsourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Links of Communication - Radio | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing | In-Outsourcing | In-Outsourcing |
| Links Communications - Satellite | Não existia | Não existia | Não existia | Não existia | Não existia | Insourcing | Outsourcing | Outsourcing |
| Help Desk | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |
| Information Security | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing | In-Outsourcing |
| Print | Insourcing | Insourcing | Insourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing | Outsourcing |
| Maintenance | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing | Insourcing |

Source: developed by the authors.

The various models of sourcing used by the company, led to several instances of outsourcing and insourcing. However the reasons for adoption of these models were:

- Outsourcing. In the first phase, the concerns about reduction of cost were not a constant in all the models adopted and it was mainly the expansion of outsourcing in terms of achieving greater information security and availability of ICT.

  In Phase 2, the Company Y decided to remain with the management of IT services from those recognized as strategic for the company.
- Insourcing: backsourcing been made in certain activities in the IT function of the organization to bring back the intellectual capital, according to the protection and encouragement. Concerns with low cost have become a constant.

The 21 years studied divided into three stages clearly show an evolution in search of better training, access to knowledge and technology. The company sought Y best skills, adopting innovative strategies for recruitment and sourcing of various models:

- Strategies for recruitment and Sourcing Models. The organization, since the mid 80's, it was used to share the strategies involving the intelligence services of the business, and that only after 2003 and has held a backsourcing into all actions involving core business. The first phase is marked by a strong insourcing, leaving only the external developments of systems that after 2003 it was decided to outsource a part. The strategies adopted after the second stage, clearly show that the company Y followed a similar trend to that of some world-class corporations.

The increasing adoption of outsourcing in-along with the model of selective outsourcing in search of better training, coincides with the vision of Cohen and Young (2005), which attach to the selective outsourcing model where you get the best skills.

### 5.1 Relationship Between the Characteristics Analyzed

Confirming the research conducted by Cristofoli, Prado and Takaoka (2008), we stress as a significant contribution of this work, the fact it has found evidence suggesting that some large organizations are changing their model of sourcing, leading to outsource services based ICT. Among the main reasons are the reduction of cost, the desire to transfer to third routine activities; improvements in service delivery and information security.

The choice of selective outsourcing confirms the view of Quinn and Hilmer (1994), in which the organization's own resources should be concentrating on their core competencies and outsource the activities that do not have a strategic need. This view is shared by May (1998), which states that the effectiveness of a process of outsourcing is the identification and retention of skills that are and may be outsourced activities that fall outside these core competencies.

Moreover, it was possible to identify, in the case examined, a relationship between the model of outsourcing and the reduction of total cost as the reason for outsourcing, as well as between the model of selective outsourcing and search for best skills.

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