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# THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN SMEs: CASE STUDY OF THE TURISTRELA GROUP

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## ABSTRACT

*The aim of this study concerns the role of the application/adoption of Information and Communication Technologies (ICT) in small and medium-sized enterprises (SME). This investigation identifies the factors influencing the adoption of ICT in SMEs and the benefits and/or costs for this type of firm. Based on one SME – Turistrela, the case study method was chosen, with the data collection instruments being the interview and documentary analysis. Based on the results obtained, ICT were found to improve all processes and communication in the firm's various departments, as well as the connection with outside, from within the region to other countries. As ICT are already implemented worldwide, these have become fundamental for the success of Turistrela. The empirical evidence also shows that without these technologies, rapid communication and the processing and analysis of information would be difficult, and this type of activity in the selected firm would become more expensive and less effective.*

## KEYWORDS

*Information Technologies; SME; ICT; Communication; Turistrela*

## ECONLINT KEYS

*L200; L260; M150; O390*

## **1. INTRODUCTION**

According to Belussi and Garibaldo (1996), the importance of information and communication technology (ICT) in the economy has increased since the 1990s. Indeed, over time various changes have been seen in organizations, such as the growth of cognitive/relational work and modifications in patterns of competition, resulting from globalization and redefinition of relationships between firms, and consequently leading to more diverse situations. The authors emphasize these tendencies result in and stimulate increased spread of ICT, since this allows redefinition of connections at work and supports inter-firm relationships, permitting firms' insertion in a global context. In addition, relationships with the outside are simplified, giving organizations immediate access to information about the world market.

In today's highly competitive environment, SME do not have the resources available to compete with large firms. Consequently, to survive, many of these firms adopt information technology (IT), since this can help them to exploit opportunities and strengthen competitive capacities (Thong, 1999). Generally, the introduction and use of ICT provides organizations with internal effectiveness and efficiency, and so this use creates a more competitive environment in SME, both internally and externally (Salmeron and Bueno, 2006).

In the same line of thought, Rovere (1996) mentions that the convergence of telecommunications and computing is creating new opportunities for SME in diverse activities, such as on-line provision of services, application software and development, and electronic and multimedia editions. Besides this, if flexible production is based on SME in networks, IT becomes essential to improve these firms' competitiveness, easing the flow of information inside and outside the network.

It is also important to state that in the knowledge society, firms need to develop competitive advantages based on appropriate and intensive use of ICT, which is an essential element for success in today's market. This fact is especially relevant for SME, whose survival depends, among other factors, on efficient use of ICT to develop new organizational models, compete in new markets and so improve their internal and external communications (Sánchez et al., 2007).

The main thinkers in the field of communication allege that the digital revolution has created a society increasingly dependent on information and technology. Therefore, researchers foresee that access to information and competence in using the technology will become crucial in determining individual and organizational success (Premkumar and Roberts, 1999).

There can be little doubt that advanced information and communication technology is changing the way firms operate and do business, as well as inter-organizational relationships (Khazanchi, 2005). Indeed, evidence shows that ICT increasingly strengthens SME' participation in knowledge management, facilitating connectivity and helping them to create and deliver products and services on a global scale (Olatokun and Kebonye, 2010).

Nevertheless, and despite the great number of investigations about assessing and managing the benefits of IT, little attention has been paid to these topics in SME (Love and Irani, 2004). In fact, Morgan et al., (2006) suggest there are few studies about the factors influencing the adoption of IT in this type of firm.

Throughout this study, the role of the application/adoption of ICT in SME is dealt with in more detail. In so doing, the factors leading SME to adopt ICT are identified as well as the benefits and/or costs for SME in general, and for the firm analyzed – *Turistrela*. This study shows that technology has revolutionized SME in global markets and that ICT processes quickly, more simply and effectively all internal and external information, this technology already becoming indispensable for firms' success.

For a better understanding of the topic, this paper is structured as follows: first, ICT is dealt with based on a literature review, the second part analyzes forms of information and communication supported by technology in an SME – *Turistrela* and then some final considerations of the study are presented, indicating limitations and proposals for different lines of future investigation.

## **2. LITERATURE REVIEW**

### **2.1) IMPORTANCE AND CHALLENGES OF ICT IN SME**

The adoption of ICT is an important topic in various fields, including SME. ICT can reduce production and labour costs, add value to products and services and increase

firms' competitive advantage (Levy *et al.*, 2001). According to Lal (2005), ICT plays a fundamental part in reducing the uncertainties prevailing in the economy, through systems for processing and spreading information more quickly. For this reason, Khazanchi (2005) states that contingency theory is used to develop the notion of making IT appropriate and the relationship between factors and indicators of organizational performance.

Indeed, ICT enables access to information on the internet and the sites of economic agents that become the main cause of the uncertainty facing firms in implementing their production and marketing strategies. Therefore, attracted by the potential opportunities provided by this tool in the market and diversification of information, SME adopt ICT hoping to improve their performance (Olatokun and Kebonye, 2010).

According to Hamilton and Asundi (2008), SME discovered that the solution to problems of competition and making a profit in today's competitive global market requires innovation and investment in IT. These firms search more intensively for market niches to compete effectively and satisfy consumers. Consequently, these organizations, rather than investing to attract new consumers, invest in IT or innovate in the products and services they offer.

In current markets, firms' innovation is not possible without IT support. This has an increasingly significant impact on SME' operation, and is claimed to be essential for the survival and growth of economies in general (Berisha-Namani, 2009). According to Bharadwaj, quoted by Dibrell *et al.* (2008), firms that invest heavily in IT get ahead of competitors who show less competence in this area.

Thanks to technological innovation, results suggest that firms have a competitive advantage and this helps organizations to differentiate themselves in the market. In fact, SMEs are being increasingly recognized due to their innovative capacity, shown by the development of new products and processes (Dibrell *et al.*, 2008).

Any firm in a leading position is subject to constant technological change and its requirements. Certainly, ICT has favoured a multiplicity of changes in various industries. Therefore, during the last decades, a great challenge for SME has been the advance and growing development of these technologies (Cela, 2005).

Innovation in SME is different from in large firms (Audretsch, 2001), since SME have the capacity to respond to changes in demand thanks to their organizational flexibility. Besides, due to their close relationships with clients, small firms detect

market niches more efficiently and effectively than large firms do. In fact, there is complementarity between innovation initiatives and IT. Therefore, to optimize investment in innovation activities, this should be tied in with concentrating on information and communication technology (Dibrell *et al.*, 2008).

According to Rovere (1996), the resources favouring their activity presented by innovative SME can be improved with the use of IT. After introducing these technologies, these small firms generally have a greater capacity to produce new products, whereas large firms tend only to diversify the product range.

Although previous research originally showed relationships between IT costs and business profitability or productivity, later investigation has identified a positive relationship between these two aspects since the arrival of the Internet (Rhoads, quoted by Hamilton and Asundi, 2008).

Shiau *et al.* (2009) states that Enterprise Resource Planning (ERP) systems are a new type of IT for SME. According to Hitt *et al.* (2002), these systems are software integrating the main business and management processes within and outside the borders of the firm. These instruments support most commercial activities (purchasing, sales, finance, human resources, etc.) in firms, reducing stocks and costs, and integrating data.

According to Antlová (2009), adoption of ICT can bring SME a range of benefits in various areas, such as: better firm productivity and performance; the possibility of new organizational formats (for example, developing business networks); increasing the added value of products or services; entry into new markets; new products or services, changing business processes and use of new business channels.

However, Hitt *et al.* (2002) argue that SME sometimes show difficulty in implementing these systems effectively as they lack the necessary experience and resources. According to Macpherson *et al.* (2003), the result is a limitation in firms' development process. Besides, these authors suggest there is a lack of connection between SME and IT firms, and consequently much misunderstanding about the role of these technologies. According to the same authors, it is not clear if firms see IT as an opportunity or a threat and it cannot be assumed that use of IT in SMEs is always beneficial.

In the same connection, Antlová (2009) mentions there are some barriers which hinder or impede adoption of ICT. This author emphasizes the following barriers: (1) technological (security problems, insufficient infrastructure); (2) organizational

(management styles, resistance to change and lack of financing sources); (3) environmental (insufficient knowledge of the market) and (4) individual (insufficient knowledge and personal relationships in the organization).

Due to the nature of SME which, generally, do not have IT resources and skills (collaboration among employees, between departments, as well as their clients and suppliers (Nguyen, 2009)), they can benefit from a network relationship with other stakeholders when it is a question of adopting IT, and this can supply potential resources (Levy *et al.*, 2001). Within this network, there is a source of knowledge, where owners/managers strengthen their business through access to scarce resources such as skills, information and knowledge (Macpherson *et al.*, 2003). Through networks, it is possible to guarantee universal access to information services and also stimulate the spread of IT among SME (Rovere 1996). According to this author, adoption of IT in firm networks can lead to a stricter division of roles among SME, so restricting their flexibility.

In this context, Rovere (1996) argues that technological education in the workplace includes not only employee training, but also advice to administrators so that they introduce organizational techniques with a view to maximizing the benefits of implementing ICT. Demonstration centres are important for creating awareness about the potential benefits of these technologies, as they allow SME business-people and employees to experiment using ICT. However, Antlová (2009) states that SME tend to use computers more as tools and less as a means of communication, knowledge-sharing and strategic advantage.

Sánchez *et al.* (2007) stress that from the economic and managerial point of view, ICT has been considered as: (1) a social construction, (2) a provider of information, (3) a hardware and software infrastructure, and (4) a business and system process. Therefore, ICT should have a wide-ranging conception, to cover the information firms create and use, and increasingly convergent and linked technologies that process that information. Particularly, ICT is potentially valuable for SME development through more effective use and better integration in business processes, at the same time helping SME to make more efficient and relevant decisions with regard to performance.



## **2.2) FACTORS INFLUENCING THE ADOPTION OF ICT IN SME**

Besides the various advantages of ICT, different studies (e.g., Bassellier *et al.*, 2003; Bruque and Moyano, 2007) have attempted to find the factors that influence adoption of these technologies in SME. There is, in fact, a vast literature from different perspectives regarding these factors. The majority focus on top management, employees, external specialists and ICT suppliers, the firm's capacity to deal with new ICT, people and culture, and other firms inside the network (Nguyen, 2009).

Antlová (2009), quoting Levy and Powell, states that SME development goes through five stages characterized by various factors which are relevant in gradually influencing the adoption of ICT, these being: (1) *Beginning* (emphasis on profit, the need for transparency and speeded up administration. Investment in ICT is minimal); (2) *Survival* (growing number of clients, greater need to share data within the firm. Existing information systems are generally simple); (3) *Successful position in the market* (application of competitor pressure, quality certification, etc. there is now a need to use ICT); (4) *Expansion* (financial matters, electronic communication with clients and suppliers, existence of advanced information structures) and; (5) *Expiry* (need for innovation, change of management, employee training and education. Information becomes a strategy for firms, determining business success).

According to Schumpeter (1971), an entrepreneur must be someone able to make changes that are appropriate to the firm, in a context where access to innovation is provided. In this way, small firms can have easier and quicker access to the market, and so be able to compete with firms already in that market.

Premkumar and Roberts (1999) analyzed the adoption of four communication technologies (access to online data, e-mail, Electronic Data Interchange (EDI) and Internet) in small firms situated in rural communities in the USA. These authors discovered that the main determinants of adoption are the perceived advantage, support for top management, the size of the organization, external pressure (competition) and competitive pressure.

Similarly, Antlová (2009) states that an SME's development in ICT is also influenced by its economic environment, considering the impacts of the demand for products and services, with the need for the capacity to respond with flexibility to environmental changes and clients' wishes (for example, obtaining bar-codes for

merchandise, the requirement for electronic communication, etc.). For this, they need the right tools, not just employees' knowledge but also ICT.

Application of ICT is often limited to administrative and accounting functions (Isabella and Annunziata, 2008), not recognizing that a site serves as an on-line presentation for the firm, also allowing on-line commerce and/or spread of data to facilitate internal communication (Intranet) and external communication (Extranet), improving and facilitating relationships between the different productive units.

In this line of thought, Mehrtens *et al.* (2001) demonstrated that the perceived benefits, organizational help and external pressure significantly influenced adoption of the Internet. Chang and Cheung (2001) also state that social factors are the most important determinants of the intention to use the Internet, followed by short-term consequences and means of simplification.

For Isabella and Annunziata (2008), innovation based on ICT plays a crucial role and the Internet is the most obvious element, with its increasingly sophisticated software allowing firms to try out new forms of internal organization and redefine their value chains.

Helpman (1998) mentions that ICT are technologies for general use or innovations with a marked availability to be used, both in quantitative and qualitative terms, resulting in firms adopting new organizational models in order to obtain improved efficiency from scale economies.

Institutional theory considers environmental characteristics as one of the main factors forcing the application of IT in organizations. Structure, activities and modifications are not always made according to purely economic criteria, but sometimes to respond to environmental pressures, factors such as legitimacy, prestige or norms that can force the firm to adopt ICT (Raymond, 2001).

According to Antlová (2009), technological (firm image and competitive advantage), organizational (firm size and costs) and individual factors (the manager's knowledge, enthusiasm and innovation) are important in leading to the adoption of ICT. In addition, the implementation of ICT can also take place when the firm's existing hardware or software is insufficient or gradually becoming out-of-date. Other factors considered important are the impact on the market, the flexibility of employees, the capacity to innovate, a sufficient number of clients and independence in decision-making.

According to Hall, quoted by Nguyen (2009), the process of adopting IT is a change within the organization that affects its culture, and vice-versa. Attention must be paid to whether the organizational culture is open to accepting new challenging activities or if it is inflexible, i.e., not likely to accept change. Indeed, this process requires teamwork and acceptance in all functions within the firm. It requires support from the administration, clear communication with collaborators and their acceptance of changes (Macpherson *et al.*, 2003).

According to Salmeron and Bueno (2006), the loss of business opportunities, duplicated efforts and high costs are the factors indicated by this author as stimulating adoption of Information Systems regarding new technology.

Shiau *et al.* (2009) mention that in recent years many SME have used electronic commerce to improve their competitive capacity. According to Grandon and Pearson (2004), this commerce is nothing more than the process of buying and selling products or services by electronic transmission of data via the Internet and the WWW, offering sellers and buyers many benefits. The same authors state that the benefits are not only for large firms. Indeed, SME can also benefit from this technology. In addition, electronic commerce can “level the playing field” with large firms, offer independence of time and place, and ease of communication.

Many studies have sought to determine the factors of adopting e-commerce in SME. In this context, Mirchandani and Motwani (2001) state that top management’s enthusiasm, the compatibility of e-commerce with the firm’s work, the perceived relative advantage and employees’ knowledge are important conditions leading firms to adopt this technological method.

Olatokun and Kebonye (2010) claim that the type of commercial undertaking influences the adoption of e-commerce. Indeed, Teo and Tan (1998) studied the relationship between various types of firms (both national and foreign non-governmental organizations; product characteristics and number of categories, etc.) and adoption of the Internet. This study found that size as well as the firm’s type of activity influenced the adoption of e-commerce.

We find therefore that various causes have been shown to lead firms to recognize the importance of ICT, with their implementation as an essential tool nowadays. Table 1 below presents in summary form the various factors that influence the adoption of ICT.

<b>Factors</b>	<b>Authors (year)</b>
Improved efficiency.	Helpman (1998)
Type, size and firm's nature of activity.	Teo and Tan (1998)
Perceived advantage; Support for top management; Organization's size; External pressure (competition); Competitive pressure.	Premkumar and Roberts (1999)
Perceived benefits, help in organizing and external pressure.	Mehrtens <i>et al.</i> (2001)
Social factors, short-term consequences and ability to simplify.	Chang and Cheung (2001)
Environmental characteristics (legitimacy, prestige and/or norms).	Raymond (2001)
Top management's enthusiasm; Compatibility between e-commerce and the firm's activity; Employees' knowledge.	Mirchandani and Motwani (2001)
Loss of business opportunities; Duplication of efforts and high costs.	Salmeron and Bueno (2006)
Easier internal and external communication; Improve relationships between different departments; Innovation.	Isabella and Annunziata (2008)
Economic environment; Technological, organizational and individual factors; Insufficient or out-of-date hardware and software; Impact on the market; Employees' flexibility; Capacity to innovate; High number of clients and independence in decision-making.	Antlová (2009)
Adoption of e-commerce to improve competitive capacity.	Shiau <i>et al.</i> (2009)

Table 1: Factors determining adoption of ICT  
Source: Own elaboration

### **3. METHODOLOGY**

#### **3.1) TYPE OF STUDY AND CASE SELECTION**

To carry out this study, an inductive approach was adopted, meaning that the *case study* type was chosen. With this type of study, the aim was to understand how those in charge of an SME, in this case *Turistrela*, see the use of ICT in their organization. Therefore, the study was centred on the context under analysis and all the data obtained were of a qualitative nature. With this type of qualitative approach (case study), the intention was to understand the relevance of using ICT in an SME, with the main objective being identification of the ICT used and the factors influencing their adoption in this type of firm.

Lal (2005) mentions that although SME have been given considerable attention in the literature and investigation, there is no uniform definition of what constitutes those firms. Indeed, firm size can be measured in terms of total workforce, turnover, investment or number of business units. This study considers the number of employees as the main criterion for classing the firm as an SME. In addition, selection of this firm (case) was due to its geographical proximity, its importance in the region of Beira Interior and the ease of obtaining data, since one of the group investigators collaborates with the firm.

### **3.2) DATA COLLECTION**

In data collection to carry out this case study, primary sources were used. The main data-collecting instrument was an interview held face-to-face with someone directly related to the subject of study, namely the Financial Director of *Turistrela*. The interview lasted approximately 65 minutes and was held in June 2011.

The first contact was made previously when the interviewers were introduced to people who occupy, or at one time occupied, posts of coordination, management or leadership in *Turistrela* (SME situated in the Beira Interior region and using ICT in its activity).

The interview, being the main technique and method used in gathering information in the firm, was guided by an interview script (protocol), and carried out based on the objectives proposed for this case study. According to Bryman and Bell (2003), this specific method usually makes it possible to refer freely to interviewees' points of view, stories and perceptions. The characteristic flexibility of this method also allows pertinent areas to be investigated more thoroughly.

In fact, interviews are particularly useful in obtaining the narration of participants' experiences, since the interviewer can probe deeply into information regarding the subject of analysis (McNamara, 1999). This research also used secondary sources, namely journals, legislation and other company documents (documental analysis).

### **3.3) DATA ANALYSIS AND INTERPRETATION**

Analysis of the data collected was made in various stages. Firstly, the most important parts of the interview were selected, in order to treat them as separate

data. Then the various concepts of the transcription were related to the knowledge and objectives of the study, so as to clarify the subject of analysis. Secondly, the paragraphs with the various ideas were analyzed and directed by the statements, placing them with some coherence and progressing towards a greater uniformity of ideas. Thirdly, a selection of transcribed quotations was made for greater reliability in presentation of the analysis.

#### **4. CASE STUDY: THE *TURISTRELA* GROUP**

##### **4.1) CHARACTERIZATION OF THE FIRM**

The *Turistrela* firm is located in the Serra da Estrela mountains, in the central region of Portugal, where tourism is one of the main factors of regional development.

*Turistrela*, which today has around 90 employees, emerged in 1972 initially named “*Turistrela – Sociedade Anónima de Responsabilidade Lda. (Limited Company)*”, with the aim of exploiting tourism and sports (fundamentally winter sports) in a regime of exclusive concession in the area of the Serra da Estrela mountains.

Initially, this firm only held the concession for one tourist development in the Serra da Estrela (it had two ski-lifts – one at the summit and another nearby); it later acquired the Serra da Estrela Hotel which belonged to the Institute of Tourism; at the same time it was granted the buildings at the summit by the Portuguese Air Force, and later these buildings were granted to the Serra da Estrela National Park which together with *Turistrela* undertook their reconstruction.

In 2001, this company adopted the name “Turismo da Serra da Estrela, *Turistrela*, S.A.” A year later, this group acquired the Varanda dos Carqueijais Inn, therefore taking control of one more hotel unit. Simultaneously, buildings supporting the Summit Ski Resort were constructed.

##### **4.2) RESULTS AND DISCUSSION**

As already mentioned, the case study made in the *Turistrela* SME had as its main source of information an interview with the firm’s Financial Manager, who authorized its recording. “Rodolfo”, (48), holds a degree in Company Management, and has occupied the current post since 2002.

Analysis and discussion of the results of this study were made taking into consideration the proposed objectives and questions initially established, i.e., identification of the principle ICT implemented in *Turistrela*, the factors influencing their adoption and the benefits obtained by the SME under study.

#### **4.2.1) PRINCIPLE ICT USED BY TURISTRELA**

As its main ICT, *Turistrela* uses computer software that allows and facilitates management of all its organizational processes. These programs were chosen taking into account the specificities of the various activities carried out by the firm.

Indeed, “Rodolfo” states that *“there is a Hotel management programme named Fidelio of German origin, in an English version, which was only implemented in the Serra da Estrela Hotel in 1995, since the owners of Turistrela, at that time not the current owners, only owned that hotel. This program, besides operating in the front-office/reception, with the F and B Program (Economato – Back-Office) facilitated the entry and exit of stock, as well as introduction of data for the monthly inventory, and the annual inventory at the end of the year. In the Ski Resort, at this time everything was also done manually”*.

In fact, *Turistrela* uses the *Fidelio* hotel management program, which according to “Rodolfo”, has functions such as, *“controlling stock and drawing up monthly and annual inventories”*. The firm also used earlier the *Bilógica* program in the Varanda dos Carqueijais, which despite having basically the same use as *Fidelio*, had several differences. The interviewee states that *“in 1995, the current owners acquired the Varanda dos Carqueijais Inn at an auction, and implemented a hotel management program named Bilógica with very different characteristics from Fidelio, since it was possible to make all types of alterations, something Fidelio does not allow, and so this is considered to be the most reliable hotel management program on the market”*.

At the Ski Resort, *Turistrela* also uses a program it acquired from Skidata to control the sale of ski-passes, rent of equipment, trips on the chairlifts, ski-lifts, etc. At the same time, the firm does the accounting and processes salaries using the *Infologia* Program. According to the interviewee, in this specific area, *“at the beginning everything was done manually, with only one salary program being acquired later, to facilitate the employee’s work. At the time, the employee, who was in the office at the Serra da Estrela Hotel, besides the accounting had other functions*

*such as Treasury, Control of Sales and Internal Consumption, Salaries, Control of Staff Accommodation, among others. With the arrival of the present owners, Accounting and Salaries came to be done respectively in the Accounting and Human Resources Departments which they owned in the firm of Irmãos Costa Pais, S.A. When that firm was dissolved, Accounting and Salaries came to be done in the Central Offices of Turistrela, the SAGE program named Infologia being purchased for that purpose”.*

It is also worth pointing out that, according to the interviewee, despite ICT being present in all sectors of *Turistrela*, they are much more prevalent in the administrative and accounting department, which to some extent corroborates the perspective defended by Isabella and Annunziata (2008) who state that in many cases ICT is limited almost exclusively to these functions.

These computer programs, being appropriate for the sector in which they are used, make all the work processes of *Turistrela* quicker and more effective. In agreement with these results, we find the perspectives of Lal (2005) and Hitt *et al.*, (2002) who consider that data processing systems, integrated in the main business and management processes, perform a fundamental role in reducing the time needed to carry out organizational procedures.

#### **4.2.2) MAIN FACTORS INFLUENCING THE ADOPTION OF ICT**

Considering the development of the previous question, a set of ICT is already used in the daily management of *Turistrela*. In the interview with “Rodolfo”, various factors were found to influence their adoption.

The hotel business, being considered the most relevant part of their operations, was the first to use ICT, perhaps because the benefits of change were first perceived in this area, since it is the nerve centre of this firm’s activity. As the interviewee states, *“the first sector to use ICT was the Hotel business, since this was the main source of income”.*

The main reasons pointed out for using ICT, according to what “Rodolfo” says, are: *“(1) improving and speeding up services provided to guests and easier access to markets, (2) activities being carried out more quickly, (3) increasing the organization’s profitability, easing employees’ work with the Hotel and Ski-Resort Program”.*



These reasons are in agreement with the thinking of Shumpeter (1971), who argues that an entrepreneur must be able to create changes that are appropriate to the firm, as these facilitate access to markets, making firms more competitive. In addition, the perspective of Olatokun and Kebonye (2010) indicates that SME are attracted by the potential opportunities offered by ICT, in the hope to improve their performance.

In the same line of thought, Antlová (2009) states that changes taking place in SME with the implementation of ICT allow a more flexible response to changes in the environment and in clients' wishes.

#### **4.2.3) MAIN BENEFITS OBTAINED WITH THE ADOPTION OF ICT**

From the interview held, it was understood that various benefits have been obtained by *Turiestrela* through application and use of ICT, namely improved firm profitability and performance, increased productivity, reduced staff costs, better quality of services provided to guests, easier access to suppliers and easier access to information.

According to "Rodolfo", "*at the rebirth of the firm of "Turismo da Serra da Estrela, Turistrela, S.A." at the end of 1989, everything was done manually, for example, entering the room number, the guest's name, amount spent by the guest in the various sections, control of sales, etc.*" starting to use ICT only later, which made all the processes easier.

According to the interviewee, introduction of ICT (more precisely, computer programs) came to revolutionize this firm's *modus operandi*, allowing work processes to be streamlined, and so they were adopted.

The firm studied recognizes that ICT simplified communication in the whole organization, as information circulates transversally, reaching the department that needs it in time. Computerization of all processes allows each department access to the information it needs without having to turn to other sectors. For example, when the Finance Department needs some information about a collaborator, instead of going to the Human Resource Department, it obtains that information via the implemented ICT. The studies by Macpherson *et al.*, (2003) and Sánchez *et al.*, (2007) support this opinion, claiming that access to information becomes easier using ICT, as the technology is an information provider.

Considering that technologies vary depending on the area, according to the interviewee, *“they all brought benefits, each in its own area of operation”*, without highlighting any one technology in particular in terms of benefits. In fact, ICT help company management, facilitating it from operational activities to decision-making. These technologies *“allow control of the various collaborators’ activities and provide the necessary information in time for decision-making”* (“Rodolfo”).

These technologies facilitate work and allow tasks to be completed more quickly and effectively, making it possible to reduce costs. According to the interviewee *“if ICT had not been implemented, it would be necessary to increase the number of clerks, given the size the firm has reached, and so the firm would have increased staffing costs”*. Levy *et al.* (2001) and Salmeron and Bueno (2006) corroborate this idea, as they claim one of the major benefits obtained by using ICT is the reduction in production and labour costs.

ICT improved relations with the different internal and external parties involved, as it enabled management of those relationships with more quality and effectiveness, allowing them to be established and maintained at a distance. Here, the interviewee says that *“finally, it was no longer necessary to contact the various stakeholders directly (banks, public services, clients, suppliers, etc.), as use of ICT means they can be contacted virtually”*. Levy *et al.* (2001) also concluded that ICT use can facilitate organizations’ relationships with their stakeholders.

## **5. FINAL CONSIDERATIONS**

In the global market in which SME are forced to compete, ICT lets them reach markets which otherwise would be inaccessible, due to various obstacles such as distance, lack of resources, difficulty in accessing information and their limited size.

In this context, the SME studied, although small in size, was seen to invest in ICT, confirming that small firms in traditional sectors are really interested in improving their processes as a response to market evolution and new requirements in demand. It was also possible to confirm that this SME improved its profitability considerably, thanks to a process whereby almost exclusively manual procedures changed to the generalized use of ICT in its daily activities.

Throughout this study, the main reasons given for using ICT are found to be: improving communication between the organization’s different functions; easier

access to information; allowing all operations to be performed more quickly; reducing staff costs; improving the quality of services provided to clients; stimulating improved relationships with the various stakeholders; controlling procedures more efficiently; and making the right decisions more quickly.

It should also be pointed out that implementation of ICT in SME is of major importance in the process of the country's economic growth, since it allows the development of these small firms which merit special attention due to their role in creating employment and their potential for increased competitiveness.

The results are important in several ways. First, previous theoretical work has not paid enough attention to the perceived elements of importance to ICT in SME. There is a need to look into these aspects of ICT in SME in more detail, particularly within the tourism Portuguese context. Second, Portuguese local governments and other stakeholders in tourism sector also should consider the benefits to the role of the application/adoption ICT in SME in tourism context to address environment, health and social and cultural areas.

Identified as the main limitation of this study is the fact it analyzed the situation of just one SME, which although representative, does not allow generalization of the results obtained. So regarding future research, wider analyses become interesting and useful, investigating the role of ICT in different types of SME.

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