

*Exploration of the relationship between information systems (IS) activity and marketing activity in the case of 'X' Airlines in developing country*

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**Abstract**

Connecting IS/IT strategy with business strategy has become a crucial issue. The level of integration between business strategies requires explanation of interrelationships, in order to achieve business goals with the available resources and markets conditions. This research is a holistic examination of the relationship between IS, business strategy and marketing in 'X' Airlines. Marketing is considered as core activity. The research design involves qualitative method. It covers the literature on IS integration, a case study approach to understand 'how' and 'why' in using IS in 'X'. The research discusses existing frameworks, both theoretical and practical, of IS strategic integration. The results show that there are relationships of traditional kind as back office support of IS for business strategy and marketing within 'X'.

**Keywords:** Business strategy, Information systems/Information technology, Integration, Marketing, Case study.

**1 INTRODUCTION**

Technology has a strong impact on many types of industries and it is an important element in the economic field. Firms are in high competition in changeable environments and face uncertainty, complexity in industry and global influences (Turban et al, 2005; Chenhall, 2005). Organizations think deeply about building strategies to help them survive and grow, and integration of activities, collaboration and relationships may help them to achieve goals. Technology is crucial. A study by the U.S. Department of Commerce's Bureau of Economic Analysis showed that information technology expenditure represented less than 5% of the capital expenditures of American companies. With personal computers, this percentage was 15% in the early 1980s, more than 30% in the early 1990s and nearly 50% by the end of the decade. Now businesses over the world permanently spend more than \$2 trillions a year on IT (Carr, 2003). Applegate et al (1999) confirmed this in the third era of the IT environment in the 1990s. They suggest two reasons for managing technology as an integrated whole. Most IT applications need a comprehensive network of physical interconnections to develop projects. The adoption of technologies may be managed independently and could overcome difficulties and cost ineffectiveness. Pisello argues that managing information technology by aligning its investment with core business goals is more important than before (Carr, 2003). IS can be utilized to exchange information and knowledge in core activities such as marketing (Zhang, 2005). In order to succeed, integration needs to be measured. Strategic performance measurement systems (SPMS), such as balanced scorecards systems, can provide managers with feedback. This feedback may show them the connection between business activities and strategies (Chenhall, 2005).

**2 BUSINESS AND FUNCTIONAL STRATEGIES**

Strategy is an arrangement of activities to help organizations to deliver services or products in a way that satisfies customers or users, who have objectives

and constraints, or financial issues (important stakeholders). Strategy, by accident or design, attempts to develop resources, reach targets or deliver services or products (Haberberg and Rieple, 2001).

There are three levels of strategy: corporate, business and functional (Haberberg and Rieple, 2001; Joyce and Woods, 2001). Corporate strategy pertains in an organization with more than one business. Its aim is to determine the businesses that are suitable for the organization and to link them to others. A single business focuses on what to sell and to whom and on competitive advantage. Functional strategy relates to every activity within a business, and comprises marketing strategy, operation strategy and the like (Haberberg and Rieple, 2001). This study focuses on the marketing strategy, as "X" Airlines is a single business and involves many functions of IT and marketing.

Haberberg and Rieple (2001) observe that modern airlines have many specialized functions, comprising reservations, marketing, ticketing, operations, maintenance, human resources, purchasing and IT. Marketing staff sell services. Operational staff schedule flights and aircrew. Maintenance staff checks the aircraft. Staff also provides training and qualifications. Purchasing staff acquire flight provisions. IT staff run computing systems and services. The business strategy aims to integrate all functions and activities to add value to users. Flights should be on time, with high quality and full services, to obtain customer satisfaction. Any default activities may cause customer dissatisfaction. Many researchers (Grant and King, 1982; Hax and Majluf, 1984; and Haber and Schendel, 1978) indicate that maximizing competitive advantage should be the focus of business strategy (Henderson and Venkatraman, 1992), and every activity should have a target period of time, mostly short term. Activities may vary according to factors affecting future business (Haberberg and Rieple, 2001). King (1978) mentions that IS / IT strategy is a functional strategy (Henderson and Venkatraman, 1992).

Earl (1996) suggests that there are three domains in information strategy, IS strategy, which should be on demand and business driven, general management and ownership. However, when identifiable business or competitive strategy has been established, IS strategy can be formulated. IT strategy is supply oriented and functionally driven, IT professionals are more contributors than managers, at corporate or group level, where issues such as efficiency, business unit integration and corporate control find focus, and they formulate original IT strategy. Finally, information management (IM) strategy is more concerned with integration than management issues such as responsibilities, relationships, roles guiding personnel or functional actions and assessing subsequent performance. So, it contains control-oriented components.

Two plans, the IT strategic plan and IS operational plan, are the concern of IT strategy. The IT strategic plan is a plan that contains a group of long-term goals. These explain the IT infrastructure and major IS initiatives needed to obtain the goals of the firm. There are three objectives to meet this plan. These are in alignment with business strategy, providing for IT architecture and efficient allocation of IS development resources among competing projects. Furthermore, the mission of the IS department is stated by the IT strategic plan. This mission focuses on three issues: efficiency, effectiveness and competitiveness. Meanwhile, the IS operational plan consists of the mission of the IS function, the IS environment, the objectives of the IS function, the constraints on the IS function, the application portfolio and resource allocation, and project management (Turban et al, 2005).

Strategic information systems (SIS) support the organization through integration with strategic goals and by the ability to clearly increase performance and productivity (Haberberg and Rieple, 2001). Any IS has the ability to significantly change goals, processes, products or environmental relationships in which the business is driven to obtain competitive advantage (Haberberg and Rieple, 2001; Joyce and Woods, 2001).

### **3 IS AND MARKETING**

Marketing focus has changed from mass and segmented marketing to customization (Turban et al, 2005). IT/ IS has a high impact on marketing and sales (Applegate et al, 1999). There are three suggested groups of relationships between marketing channel systems and IT /IS. These are customer relations, distribution channels and in-store innovations, and marketing management (Turban et al, 2005). Parvatiyar and Sheth (2002) define customer relationship management (CRM) as “a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer. It involves the integration of marketing, sales, customer service and the supply chain functions of the organization to achieve greater efficiencies and effectiveness in delivering customer value” (Parvatiyar and Sheth, 2002: 5). Many studies point out that keeping customers may provide more sustainable competitive advantage than obtaining new ones, because it is less costly (Parvatiyar and Sheth, 2002). This means enhanced after sales service. A large number of companies use web technology as support for product or service maintenance. This cuts service costs and increases customer satisfaction (Applegate et al, 1999). CRM contains customer profiles, prospective customer lists and marketing databases, with customization, personalization, and advertising and promotions. So, there are many types of CRM applications, such as customers facing applications, customers touching applications, customer-centric intelligence applications and online networking applications (Turban et al, 2005). Electronic CRM (e-CRM) is also important as IT/ IS support. E-CRM means using any electronic touch-points, for instance web browsers and Internet, to manage customer relationships (Turban et al, 2005).

Distribution channels and in-store innovations are ways chosen to distribute products or services. IT strongly supports distribution in some industries, such as digital products and services (Turban et al, 2005). Books, newspapers, music and tickets for trains or buses, for example, are products or services that can be found on the Internet.

Marketing management is also supported by IT/IS. It is supported by building applications that help to make decisions in many companies. These applications involve pricing of products or services, sales person productivity, sales force automation, profitability analysis, sales analysis and trends, new products, services and market planning, and web based systems in marketing (Turban et al, 2005). All the above applications and relations work on the role of supply and demand so as to meet change in markets (Earl, 1996).

### **4 STRATEGIC ALIGNMENT AND IS INTEGRATION**

Management of information resources, in an efficient and effective way, may underpin the integration of IS / IT activities (Earl, 1996). This also may consider to evaluate IT infrastructures (Irani, 2002).It is said that IT / IS strategy must align with

overall business strategy in any relevant way. So, IT/ IS and other activities work to achieve the same targets. The main task of IT / IS strategy is to create information system applications which fit the goals and priorities of the firm (Turban et al, 2005). Most surveys aim to handle important issues in managing IS functions usually specialist and functional issues which may affect the effectiveness of the organization. How to achieve strategic advantage from IS / IT, how to align IS/ IT strategy with business strategy and how to organize IS/ IT function, are examples of general management issues, whereas how to plan and build IS / IT infrastructures is a functional issue. Both management issues and functional issues are strategic management issues (Eral, 1996). IT / IS activities have various impacts on industry over time (Applegate et al, 1999). A study by the National Computing Center (NCC) (2003) on 420 firms showed that those concerned with strategic issues kept IT / IS strategy aligned with business strategy (Turban et al, 2005).

Other researchers have also suggested that IS / IT is part of the strategy of firms, in accordance with IS/ IT roles. These roles are administrative, operational and competitive. The scope of IS/ IT automation is significant in accounting and control functions (the administrative role). This role requires the deployment of an efficient IS / IT platform for administration and control regarding the strategic management of the organization. The operational role is as complete as the administrative role. It creates and deploys technology within the organization and this in turn helps to achieve capability in automating the business processes of the administrative activities. The deployment of IT infrastructure is the requirement in this role. It helps in selecting the business strategy. The competitive role focuses on efficiency. This means increasing the capability of IT / IS attributes to achieve new sources of competitive advantage in the market by deployment of new IT / IS applications. This role has a significant impact on organizational transformation (Henderson and Venkatraman, 1992). It supports the organization ability to increase the IT/ IS capability.

## **5 RESEARCH METHODOLOGY**

The phenomenon of IT/IS relationships is a strategic issue. This means that it relates to business strategy. There are many dimensions, such as managerial, behavioural and technical, to cover. The result of the positive relationship requires the fit of IT/IS strategy with business strategy. Thus, there is a need to understand integration issues using the how and why questions, and to understand the factors that may affect integration (degree of measurement purpose) using the what questions. So, there is a need for case study strategy to be engaged.

### **5.1 RESEARCH DESIGN AND STRATEGY**

The case study is a research strategy in which real life IT/IS might be studied within an organization. A single case attempts to study and focus on relationships. As Chan et al (1992) say, 'to obtain a rich and detailed understanding of strategy from multiple viewpoints, consider the case studies or historical approaches' (Chan et al, 1992 p: 194). The researcher must spend time in 'the field' to understand the issues. The objective of this study is to investigate the link between IT activities and the marketing activities, within the company, regarding the importance of connecting IT

strategy with corporate strategy within the environment. This is accomplished by interviewing managers and IT staff.

## **5.2 DATA COLLECTION**

There were six interviewees, three from IT, namely the vice chief of information systems for strategy, the system manager for scheduling and the system manager for crew as the operational factor. Two managers were from marketing, namely the manager of research operations in marketing and the manager for pricing and tariffs. The vice general manager for maintenance of technical information was from operational activity. There was also one interview to collect some IT strategic documents. Semi-structured interviews were used and all interviews were recorded and transcribed for clarity. Then they were sent to the interviewers to review them for more validity. The maximum time for the interviews was one hour and the minimum was about fifteen minutes. All the data from the interviews and documents were linked together. The major analysis examined the relationship between IT activity and marketing activity from the interviewees' perspectives.

## **6 FINDINGS AND DISCUSSION FROM THE QUALITATIVE METHOD**

The analysis focuses on IT in relation to the coded points obtained from the interviews, namely cutting of costs, integration and coordination of strategies, centralization, flexibility, development methodology, customer relations, opportunities, culture, CIO relationships, and change.

In general, the findings show that, there are relationships between IT and business strategy and performance and marketing. The policies and roles come from strategy mission and vision. Implementation of strategy in a successful way comes from a good process of control. Those in control must understand the roles, policies and business processes by creating logical applications. Therefore, it is important to identify the core processes in the business that need logical applications, to meet the changes in environment, and to identify opportunities. This may also support innovation. There are two additional points to count. These are standardization and centralized or decentralized of management style. They are relevant to decision making and innovation processes, which are crucial in design structure. The more centralized system leads to slow decision-making. As an interviewee says, it makes it difficult to meet changes, regretfully, he says "we don't have a person who can make the quick decision in the suitable time in government organizations, for example, decision is very slow". However, it supports the control process. High level decision-making causes less flexibility, which is needed in the change processes. So, there is a need for stability between all these factors. There is a need for many systems such as decision support systems and executive support systems or there is a need for different levels of centralization. This is not an easy issue, because the implementation of strategy differs from one organization to another. All these points imply the integration of core activity applications. The high level of centralization and standards limit the employees. This means that the IT staff just work as technical

support to other activities, because if there is any innovation or hunting opportunities, there would be different views from the different administrative levels, at least, as one interviewee says: "we haven't reached these levels. As you know, the universal progress is very swift, whether from the companies of Information Technology or business. I don't think that we have the level that will enable us to create something new. Indeed, we attempt to reach what other companies have reached. We only import the best that other companies have created. We haven't reached a stage that is superior to companies abroad. We haven't become superior to them with what we have created".

Application and deployment of IT strategy through all levels in the firm, especially the administrative body, play a fundamental role in decision making processes, and design of roles. They help the team to set up their own objectives and measures to support the overall IT strategy. When a department produces a result, not the planned one, the instructions to take appropriate action mostly come from top management rather than from the same department. Indeed, strategies play a big role in supporting research and development processes to improve services, operations, tools used in communications, reports, notes and building a performance measurement system, and evaluating the employees' performance. IT people, however, can interact with other activities effectively. They aim to acquire information and knowledge from internal and external sources to achieve high quality business and build a formal system using databases and reports. A system of this kind can store information and knowledge acquired from experience.

However, there is an important point in relationship between the CIO and CEO. This relationship supports the strategy of IT, as shown in the literature review. From the findings, this may support the previous discussion 'that support is traditionally essential for survival', because the firm relies heavily on IT. When an interviewee, asked about creating a competitive advantage by IT, says, "it doesn't help really", another one says, "It is a main part in the corporation. Support must be 24 hours by 7 available in the system. Information must also be present, critical information too, and other many things including communications, the network, the "X" network, the network connecting the airports, reservation systems, transportation systems, human resources systems, flight operations, spare parts, the systems of technical service and plane maintenance, all must be available in the IT system. These are some examples. If IT breaks down for some minutes, the whole corporation will be affected, and so will the business centres. Therefore, it is a very critical and essential part in the business". One crucial point that needs to be mentioned is the impact of IT on the firm's culture. As one interviewee says, "there is a culture between sections. There are problems between sections. We attempt the solutions as much as we can. Nevertheless, we are only service provider to all the corporation's sections. Whoever wants the service, there it is. Sometimes, we need to impose things through the top management. Those are without exceptions, without argument, something like that. Things like that may always happen", so the support of CEO is very important to IT applications.

Marketing activity is an important part in the business strategy of "X". This activity has strong support from IT activity in many ways, such as sales, customer relationships and planning. The literature review covers some points, such as customer relationships, distribution and innovation, marketing management, e-CRM and change in markets against IT. The interview with the manager of pricing and

tariffs explained the point of customer relationships. As he says, "No, not in our society. [In our society] the customer does not have a direct contact. Generally speaking, there is no direct contact with the customer". But he mentions that there is intent to increase CRM. He says, " "Z" system is an example of CRM served by database. This system provides the members with benefits when they do the flight bookings. So, this system connects with the reservation system". He also mentions that connections with customers continue after selling the ticket. A text phone system, for example, reminds the customer of the flight's date and time. There is a new system that helps customers to obtain their boarding card automatically at boarding points. There is also a web page that offers many services such as scheduling flights, flight times and services provided by "X". There is a plan to introduce a system for e-tickets. This system and the web page are a distribution channel. Furthermore, the most important support of IT to marketing is reporting, because reports such as sales' reports help marketers to know all the information that they need to make decisions and plan. IT also supports flexibility and meeting change. For example, when British Airways stopped its flights to "A" country for political reasons, "X" had an opportunity, and increased its market share. IT helps to schedule flights to meet such opportunity. From these points, one may arrive at the fact that there is an important relationship between IT and marketing activity within "X".

## **6.1 GROWTH MEASUREMENT**

This measure is crucial, as the corporate mission is to be a world class airline. So, there are many points to account for in measuring the growth. The number of passengers, for example, shows sales growth. In 2001, there were 12.8 million passengers. This number increased to 13.5 million in 2002, 13.8 million in 2003 and 15 million in 2004. Another area in sales growth is cargo. There were 235 thousand tonnes carried in 2001, rising to 255 and 257 thousand tonnes in 2002 and 2003, respectively. In 2004, this number hit 280 thousand tones. This may a part of IS evaluation as has been suggested by Irani (2002), because as more deep analysis may support high level of evaluation.

## **7 RESEARCH SUMMARY**

"X" Airlines was the research case study. There is a concentration on IT and its relationships with marketing. For this, there is a need to know the business strategy and how it integrates. As mentioned in the literature review, there are many frameworks that integrate the firm's strategies. Earl's framework represents four parts of IT integration. These are information systems, information technology, information management and organization strategy. A method involving interviews and strategic documents were implemented for gathering the data.

The major findings express the hypotheses of the research. There are relationships between IT activity and each of the business strategies with its measurement of performance and, marketing activity, but this relationship sound as support instead of innovation and creative which are important for such industry.

### **7.1 LIMITATION OF THE RESEARCH**

The most important limitation is the number of interview. This type of research needs more time to collect data from a large number of employees in order to know the main contribution of IT and more access.

## 7.2 RECOMMENDATION FOR FUTURE WORK

This research investigated the relationship between IT and marketing within “X”. In other words it examined strategic issues for both business and IT alignment or integration. So, Future research could also consider human aspects of IT implementations and practices in “X”, because there are a huge number of employees who need to enhance their knowledge about IT applications, competitive advantage, innovation and technical support. From the interviews conducted, there is a difficulty in understanding some relevant aspects of IT such as innovation.

## 7.3 LESSONS LEARNT

In fact, some lessons were learnt:

- Implementing of project management skills is helpful, because there are a large number of projects, which need to be monitored, in IT, under its strategy. These skills can make the projects more successful and efficient by managing both time and resources.
- There is a need for more training and educational sessions for senior and middle levels of managers across activities in order to reach suitable skills of communication and the value of IS as business resource. To do so, there is a need for relates to IS as strategic point of view.
- Implementing a methodology of IS development may support the success of practical implementation, because it considers many points from others' thinking, who may be rich in knowledge and have broad points of views, as regards improvement. Implementation should be structured, built in a systematic way and understanding of circumstances and the environment.

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