Features of innovative applications in the service industry and exploration of their effect on firm efficiency

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Abstract

In today’s economic and global environment, it has become imperative for organizations to compete and keep pace to the changing needs of customers. Enhancing the innovative ability, preserving a sustainable growth, and increasing profitability play a vital role for organizations. One of the best ways to illustrate innovation is to consider examples where strategy, innovation, growth and internationalization effectively coexist. Turkish Airlines case of Turkey is suggested to be an example to illustrate innovation, to analyze the structure elements and the effects of it on growth for the service industry. The purpose of this study is to investigate and evaluate the innovation practices of Turkish Airlines and its effect on growth. After elaboration of the innovative developments of Turkish Airlines within the framework of four classifications of Oslo Manual (2005), the financial data related with growth is evaluated, taking into consideration pre and post innovative activities.

Keywords: Innovation; Innovative implementations; Firm performance and growth; Aviation industry

1. Introduction

Innovation can be considered as one of the fundamental instruments of growth strategies to enter new markets, to increase the market share and to gain a competitive advantage. Many researchers claim that it is innovation that enables an organization to respond to changing markets and thus, preserve and gain its competitiveness (Coakes and Smith, 2007). Therefore, innovation has become a major focus of attention for business throughout the world and is recognized as a key factor of a firm’s success and long-term growth. The concept has been investigated from different perspectives ranging from product, market, process and organization (Cre’pon et al., 1998).

The services market is dominated by fast changes as well. Apparently, a thorough understanding of innovation competencies for integrated service is necessary and is becoming more crucial under this economic and global change (Ko and Lu, 2010). Adegoke (2004) assumed that the applicability of innovation in service sector is harder than the
industrial sector. He defined innovativeness in terms of developing new products and services parallel with needs of customers and market, improving existing designs and services through innovative modifications.

Recently, different methodologies and techniques are used to measure and identify the dimensions of innovation (Ciptono, 2006; Hertog et al., 2010; Ko and Lu, 2010). One of the most internationally recognized and used work is implemented by the OECD, referred as Oslo Manual (2005). Oslo Manual addresses standards for definition and measurement of innovation. Oslo Manual (2005) definition of innovation can also be applied to service innovation as well (Rothkopf and Wald, 2011). Four different innovation classifications are presented in the manual. These are product innovation, process innovation, marketing innovation and organizational innovation.

Innovation is a major and growing driver of business change and its implications for growth are clear (Rossi et al., 2002). A vast amount of literature provides evidence of the close association between innovation and corporate performance together with growth (Damanpour et al., 1989; Deshpande et al., 1993; Thornhill, 2006; Wu et al., 2003; Hagedoorn and Clostdt, 2003; Rosenfield et al., 1985; Morgan et al., 2002; Venkatraman and Ramanujam, 1986; Narver and Slater, 1990).

European Innovation Scoreboard (EIS) is an instrument of the European Commission, developed under the Lisbon Strategy to provide a comparative assessment of the innovation performance of the European Union member states. It includes innovation indicators and trend analysis for European Union member countries, as well as non member countries including Turkey. According to the data of 2010 European Innovation Scoreboard (EIS), Turkey’s innovation performance stays in the range of modest innovators with a 4% growth in innovation performance. Thus, it can be said that academic studies involving exploratory research about innovative steps taken by successful Turkish firms can provide a useful insight for future innovative developments.

Since 2006, Turkish Airlines has taken innovative steps, which contribute to its growth. In particular, this study tries to explore the practices of a Turkish firm, Turkish Airlines in guidance to answer the question of what practical actions might be taken for sustainable growth. First, the innovative steps implemented by Turkish airlines is planned to be elaborated within the framework of four classifications of Oslo Manual (2005). Second, the financial data related with organizational growth is evaluated considering pre and post innovative activities.

2. Literature Review

2.1. Definition of Innovation

The word of innovation is derived from the Latin word novus, or new, and is alternatively defined as “a new idea, method or device” or “the process of introducing something new” (Gopalakrishnan and Damanpour, 1994, p. 95). There is a large and diverse body of literature available on innovation (Tan, 2004). Over the years, many scholars have defined innovation in slightly varying manners, concentrating on different aspects of it (Camison et al., 2004).

Some researchers handle the concept of innovation as an outcome and refer to it as simply any new implementation whether this is a new product, a method or a completely new invention. Damanpour (1996) defines innovation as “the generation, development, and implementation of new ideas or behaviors”. It includes any practices that are new to organizations, including equipments, products, services, processes, policies and projects (Kimberly and Avenisko, 1981). According to some scholars, innovation is defined as a business process (Cooper and Zmud, 1990). According to Narvekar and Jain (1996), innovation is the process of taking an original idea and converting it into measurable business value to an organization.

Some part of the literature focuses on the differences and interaction between concepts such as creativity, invention, and innovation. A widely accepted definition claims that creativity is the production of novel and useful ideas, whereas innovation is the successful implementation of creative ideas within an organization (Amabile et al., 1996; West, 2002). Innovation refers to the use of a novel idea or method, whereas invention refers more directly to the creation of the idea or method itself (Güleş and Bülbül, 2004). These definitions concentrate on the implementation feature of innovation as a distinguishing aspect of it.

The Organization for Economic Co-operation and Development's (OECD) document "The Measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data", also known as the Oslo Manual (2005), comprises one of the internationally accepted definition of innovation, which defines innovation both as an outcome and a process. An innovation is regarded as “the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations” (Oslo Manual, 2005). The minimum
requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the firm.

2.2. Types of Innovation

In the related literature, the types of innovation can be mainly summarized under three categorizations. Those classifications are (i) technical (technological)-administrative innovation, (ii) product-process-service innovation, and (iii) radical-incremental innovation.

Technical versus administrative innovations categorize innovations according to the core activities of the organization. Technical innovations are innovations including the application of science and/or engineering to develop technical applications or to accomplish a specific technical task (Narayanan and O'Connor, 2010). They may be product, services or process innovations. Technical innovations can be defined as “those that occur in the operating component and affect the technical system of an organization” (Damanpour et al., 1989). Administrative innovations are innovations that are related with an organization's structure or its administrative processes (Narayanan and O'Connor, 2010). Therefore, they are related to the management activities of the organization rather than the basic work activity (Kimberly and Evanisko, 1981). They can be considered as process-oriented rather than product-oriented.

The second type of categorization is product/process/service innovations. If the implemented innovation involves the formation of a new product or modifications on existing products, then these innovations fall into the category of product innovations. In contrast, the innovations which improve the process or the method of producing the same products are called process innovations (Narayanan and O'Connor, 2010). Service innovations are intangible methods of serving users with a new level of performance. They include new service concepts, a new way to interact with customers or a new way of service delivery.

The third type of categorization is radical versus incremental innovation (Wright et al., 2005). Radical innovations involve big and major changes in the products, whereas incremental innovations are small improvements. Incremental innovations comprise the applicability of existing knowledge. In contrast, radical innovations offer dramatic changes such as fundamental technological discoveries. Therefore, radical innovations are considered as much more costly and risky than incremental innovations, but can offer new benefits and higher performance to the customers.

Based on these classifications, it can be assumed that some innovations may fall into more than one category at a time. Innovation in general and service innovation in particular are diffuse concepts (Rothkopf and Wald, 2011). Garcia and Calantone (2002) reviewed the terminology used in research on technological innovation and considered both a marketing and technological perspective as well as a macro level and micro level perspective when identifying innovations and pinpointed how the innovation process may be unique for that particular innovation type. This may be a challenge for the transfer of knowledge from academic research to practice. They also identified Oslo Manual (2005) definition of innovation to best capture the essence of technological innovation. In general, this definition can also be applied to service innovation as well (Rothkopf and Wald, 2011). In this paper, OECD Oslo Manual (2005), which is the primary international basis of guidelines for defining and assessing innovation activities, also covering the mentioned categorizations, has been taken as the fundamental reference source to describe, identify and classify innovations at firm level. In the OECD Oslo Manual (2005), four different innovation types are presented. These are product innovation, process innovation, marketing innovation and organizational innovation.

Product innovation can be defined as “the introduction of a good or service that is new or significantly improved regarding its characteristics or intended uses; including significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics” (Oslo Manual, 2005; p.48). Product innovations can be based on both new knowledge and technologies, or on new uses or combinations of existing knowledge or technologies. It comprises both goods and services. Sandvik and Sandvik (2003) have classified product innovations as new products for the market and the firm. The success of the product innovations can be assessed by the demands of the customers and by its sales potential (Yavuz, 2010).

Process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products (Oslo Manual, 2005; p.49). Therefore, it can be claimed that process innovations are related with steps dealing with creating or developing products rather than the new products (Yavuz, 2010).

Marketing innovation can be described as “the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing” (Oslo Manual, 2005; p.49).
They serve the purpose of meeting customer needs, opening up new markets, or newly positioning a firm’s product on the market, with the intention of increasing the firm’s sales. It includes developing innovative methods to bring a new perspective to traditional customer-supplier relationship (Günday et al., 2011).

Finally, an organizational innovation is “the implementation of a new organizational method in the firm’s business practices, workplace organization or external relations” (Oslo Manual, 2005; p.51). Organizational innovations intend to increase firm performance by reducing administrative and transaction costs, improving workplace satisfaction, gaining access to non-tradable assets or reducing costs of supplies. Organizational innovations depend not only on strategic decisions applied by top management, but also on participative management as well (Sarros et al., 2008). It is also important to acknowledge that top managers influence organizational outcomes by establishing organizational culture, influencing organizational climate, and providing the opportunity for change and innovation (Damanpour and Schneider, 2006).

2.3. Innovation and Growth

In the related literature, innovation is found to be associated with increased corporate performance (Damanpour et al., 1989; Deshpande et al., 1993; Thornhill, 2006; Wu et al., 2003). A large number of studies focusing on that relationship have also found that innovation has links with different aspects of firm performance. These dimensions can be summarized particularly as innovative performance, production performance, market performance, and financial performance (Hagedoorn and Cloodt, 2003; Rosenfield, 1985; Morgan et al., 2002; Venkatraman and Ramamujam, 1986; Narver and Slater, 1990). These relationships are also supported by researches conducted in Turkey (Akman and Yılmaz, 2008; Günday et al., 2011; Yavuz, 2010).

There is found to be a close relationship between growth strategies in firms and innovation activities, such as developing new products and business models, improving processes, or generating new applications of existing features. According to Kylaheiko et al. (2011), firms grow either by launching new products (innovation) or by attracting new customers (internationalization) or by using a mixed strategy. Growth can be computed as the percentage growth in sales. Sustainable growth refers to “annual increase in sales that can be achieved based on target operating within environment limit overtime” (Rossi et al., 2002; p.118). It is also defined as the ability to continue over a period of time.

Through the sustainability of innovations, organizations also contribute to the sustainable development of the market and society as a whole (Schaltegger and Wagner, 2011). Therefore, exploratory studies, involving a review of practical innovative steps of Turkish firms may provide managerial implications for sustainable development of markets and society.

3. Methodology

3.1. Research Goal

Air transport is a lightly complex system consisting of interlinking distributed network made up of human operators, procedures and technological systems. Although it was established in 1933 with a fleet of only five airplanes, Turkish Airlines is today a four star airline with a fleet of 177 aircraft flying to 190 cities around the world, comprised of 40 domestic and 150 international destinations. One of the fastest growing airline companies, Turkish Airlines has received several passenger choice awards from the consumer ranking group, Skytrax. Based on 2011 results, Turkish Airlines has been chosen as the winner in 3 categories. These are "Best Airline Europe", "Best Premium Economy Seats" and "Best Airline Southern Europe". It was also given the Skytrax designation of "World's Best Economy Class On-board Catering" in 2010, and Skyscanner's "Best On-board Food 2011". The background of its growth can be traced back to the innovations which have accelerated after 2006s (Mekky and Dinor, 2012; THY, 2013).

The purpose of this study is to explore and evaluate the innovation practices of Turkish Airlines within the classification of Oslo Manual (2005) and to investigate their effect on organizational growth. In other words, the innovative steps taken by Turkish Airlines are planned to be examined within the categories of product, process, marketing and organizational innovation. Finally, financial data including percentage growth in sales will be elaborated taking into account pre and post innovative steps.

It can be said that cross sectional survey methods are generally used to assess the innovation and performance relationships (Damanpour et al., 2009). The exploratory research studies based on providing an insight to those
relationships are rare (Yavuz, 2010). Exploratory research often relies on secondary data such as reviewing available literature and/or data, or qualitative approaches. Based on the findings and propositions developed by qualitative and quantitative secondary data in this exploratory study, in future a case study may be recommended to be conducted taking into consideration the longitudinal data.

Previous studies had revealed the correlations between innovative performance and financial performance of the firms (Günday et al., 2011; Rothkopf and Wald, 2011; Aas and Pederson, 2011). In studies, different measures of performance are used to assess firms’ competitiveness, productivity and efficiency.

Frequently, financial measures such as profitability ratios are favored for performance evaluation (e.g. Cho and Pucik, 2005; Baer and Frese, 2003). Sustainable growth refers to annual increase in sales that can be achieved based on target operating within environment limit over time (Rossi et al., 2002). According to vast amount of literature about service innovations, innovative implementations tend to increase the operating result of a firm by either reducing operational costs or by increasing sales revenues or by increasing the profitability of the firm (Panesar and Markeset, 2008; Matear et al., 2004; Avlonitis et al., 2001).

3.2. Research Findings

Year 2006, can be considered as the starting point of innovative developments for Turkish Airlines. The reason is grounded on the fact that the public share within the Turkish Airlines, Inc. capital decreased below 50% with the public offering and the public corporation identity of Turkish Airlines, Inc. came to an end (THY, 2006). Furthermore, with respect to the analysis of Table 1, it is possible to elaborate on the accelerating innovative practices including service, process, marketing and organizational innovations. When the profitability ratios, sales figures and operational performance figures of Turkish Airlines are analyzed, it is possible to observe the reflections of positive effects of innovative efforts, excluding 2009, which was considered as the worst year for aviation industry due to the global crisis (Abs-Cbn News, 2010).

When the operational performance of Turkish Airlines is evaluated via revenue passengers, passenger load and destination, despite the global crisis affecting aviation sector in 2009, it can be observed that Turkish Airlines puts forward a successful trend. For passenger load, it reached its peak by 73.9% in 2008 as a possible result of innovative practices. With the start of innovations in 2006, the destination points increased by 23% in comparison to previous year. It is possible to say that it followed an increasing trend by 18% increase between years 2006 and 2009. The scatter plot of passenger load and destination point numbers are illustrated in Figure 1.

Fig. 1. (a) passenger load factor; (b) destination

When the sales figures of Turkish Airlines are analyzed, it is possible to detect a sustainable growth (Rossi et al., 2002), by accelerating constant increase in sales after 2006. The annual percentage increase in sales was 10.5% and 17.5% for periods 2003-2004 and 2004-2005, whereas it showed a remarkable increase for periods after 2006. The annual percentage increase in sales was 30.3%, 20%, 26% and 14% respectively for periods 2005-2006, 2006-2007, 2007-2008 and 2008-2009. The relatively decreased growth rate for the last period can be attributed to the global economic crisis affecting the global aviation sector. The scatter plots of annual percentage increase in sales are illustrated in Figure 2.
Table 1. The innovation practices of Turkish Airlines within the classification of Oslo Manual (2005)

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<td><strong>Product/ Service Innovations</strong></td>
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<td>Year 2006 (THY,2006)</td>
<td>Newly designed CIP (commercial important person) lounge was introduced encompassing both a historical structure and modern design.</td>
<td>The catering firm Turkish DO&amp;CO Inc. started serving food with the highest quality and freshest ingredients, prepared by well-trained chefs. The kitchen system was redesigned and the ‘Flying Chef’ concept was introduced.</td>
<td>Anadolu Jet, owned and operated by Turkish Airlines, launched its low-cost carrier flight services as a strategy to introduce a new service with economical travel option. With new designs and features, entertainment activities for passengers were enriched. Under a concept called “Who’s in the Kitchen?” THY DO&amp;CO began offering passengers a variety of cuisines that change on a weekly basis.</td>
<td>Cabin improvements such as ergonomic designs and new tool designs by R&amp;D (Research and Development) group were implemented. Turkey’s first mobile airline application, mobil.thy.com was initiated.</td>
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<td>Year 2007 (THY,2007)</td>
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<td><strong>Process Innovations</strong></td>
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<td>The mutual agreement protocol was signed between Turkish Airlines and Star Alliance as a process decision to improve customer satisfaction and global image by participating in global information sharing and auditing mechanisms. Maintenance facilities were redesigned to have high maintenance awareness and it became the first and only maintenance center of Turkey which has the ISO 14001 Environmental Management and OHSAS 18001 Occupational Health and Security Certificate. A new implementation, enabling the passengers to print their Boarding Cards from the internet was started. “Web banking” process was initiated as an alternative payment channel. The “PayFly” project, which provided the opportunity to buy tickets through payment from the websites of the customer’s banks, was started.</td>
<td>Plan and design of HABOM Project was started. It was planned to be the aviation maintenance repair center for the region with its design as a campus, research and development and production center. Network infrastructure was redesigned and internet access was established.</td>
<td>Turkish Airlines formally became the 20th member of the Star Alliance. Turkish Airlines shifted its in-house call center operations to outsourced service providers. Self check-in kiosks were introduced.</td>
<td>With the launch of mobil.thy.com, the sales channels were diversified by providing the opportunity to perform several procedures from the smart mobile phones. A modern engine center was built, featuring a green-building construction concept in which work health and safety precautions have been taken to the highest level. Turkish Airlines launched an ERP (Enterprise Resource Planning) project, to restructure business processes.</td>
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<td><strong>Marketing Innovations</strong></td>
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<td>Special Passenger Program Miles&amp;Smiles with 4 card system was introduced, providing opportunities such as the privilege of reservation assurance, collection of miles with family members in a single account etc.</td>
<td>A passenger log book was added to the website of the company to increase interaction with passengers and to improve online communications.</td>
<td>Online Customer Service Survey was implemented.</td>
<td>The net address for young people; “jetgene.net” was developed. Anadolu Jet supported the project with various promotions for young target customers. As a new promotion strategy, a TV commercial was initiated. Hollywood star Kevin Costner played in the commercial under the slogan ‘feel like a star’.</td>
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<td><strong>Marketing Innovations</strong></td>
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Organizational Innovations

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<th>Turkish Airlines received ISO 9001:2000 Quality Certificate, a system that aims “Customer Satisfaction”, “Zero Fault” and “Continuous Development” in all its activities.</th>
<th>Mystery customer and honorary observer projects were started as a new control and training need assessment technique. Integrated Management System was implemented, which included forming a quality delegation structure oriented around its divisions and management. Procedures were documented via customer relationship program. Promotion and performance management system was implemented.</th>
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To assess the firm’s profitability, return on assets was calculated by dividing annual net profit by averaged total assets. Return on assets is regarded as “a relevant measure of operating efficiency as it reflects a company’s long term financial strength” (Baer and Frese, 2003; p.54) and as an accurate evaluation of a company’s profit strength. According to literature, the increases in return on assets are found to be related with good performance in innovative implementations (Günday et al., 2011; Baer and Frese, 2003; Aas and Pederson, 2011). When the profitability ratios of Turkish Airlines are evaluated pre 2006 and post 2006, it is possible to observe an increasing trend, excluding year 2009 and a peak point in 2008, which can be considered as a year where reflections of innovative practices are seen on financial performance of the company. The return on assets was 0.15, 0.033, 0.04 respectively for the pre-innovation period of 2003-2005, whereas it started to show a remarkable increase for the post-innovation period after 2006 with 0.044, 0.062, 0.177, 0.067 increase. Furthermore, the other profitability ratios such as net profit margin and EBITDAR margin show a similar increasing trend. Net profit margin is calculated by finding the net profit as a percentage of the revenue. EBITDAR Margin refers to earnings before interest, taxes, depreciation, amortization, and rent and is calculated by determining gross earnings without inclusion of interest, taxes, depreciation, amortization, or rent (Reilly, 1988). The scatter plot of profitability ratios are illustrated in Figure 3.

The study reveals that there is likely to exist a positive relationship between innovativeness and change in sales, net profit margin, and return on assets as well as operational performance including number of destinations and passenger load factor. Taking into account the financial, sales and operational developments of Turkish Airlines with respect to pre and post innovative periods, it is possible to make the following proposition, holding the global economic conditions, external and environmental factors as control variables: The innovative practices of firms in terms of product/service, process, marketing and organizational innovations are significantly and positively related with financial performance and growth of the firm.

Fig. 2. net sales
4. Concluding Remarks

This exploratory study tries to link firm performance and innovativeness through an analysis of Turkish Airline’s innovative steps. In further studies, it is a necessity to validate the proposition by empirical research. In order to explore empirically what the main innovation drivers are and what the impact of innovations is on the performance of the firm, a questionnaire can be developed and a survey can be conducted designed to assess the correlation between firm’s innovativeness efforts and corporate performance. Furthermore, in-depth face to face interviews conducted with the executives of the corporation and evaluation of the performance reports prepared by the corporation after innovative steps can be useful for the construct and evaluation of the survey method. However, a certain amount of time might be necessary in order to observe the reflection of positive effects of innovative performance on financial performance (Günday et al., 2011). A time lag effect between innovations and financial performance is stated in the literature (Zahra and Sidhartha, 1993; Teece, 1988; West 1992 as cited in Günday et al., 2011). A longitudinal data analysis can be implemented to elucidate the time lag issue.

This study aims to provide an insight to the innovative steps implemented by Turkish Airlines within the framework of four classifications of Oslo Manual (2005) as a case example for the aviation service sector. Furthermore it tries to elaborate the various features of performance of the corporation pre and post innovative activities. This exploratory study, although not yet empirically tested, may be an indicator of the fact that innovation strategy is an important major driver of firm performance and should be used as an important business strategy.

Managers should analyze and manage product/service, process, marketing and organizational innovations in order to boost their operational and financial performance. Having an analysis of the exact nature and necessity of innovations may guide firms to develop their market, production and technology strategies, to be followed by appropriate action plans.

References


