THE EFFECTS OF DYNAMIC PACKAGING SYSTEMS ON THE PERFORMANCE OF TRAVEL ORGANIZATIONS

SEMRA ÇALIŞKAN

BOGAZICI UNIVERSITY

2011

THE EFFECTS OF DYNAMIC PACKAGING SYSTEMS ON THE PERFORMANCE OF TRAVEL ORGANIZATIONS

Thesis submitted to the

Institute for Graduate Studies in the Social Sciences

In fulfillment of the requirements for the degree of

Master of Arts

in

Management Information Systems

by

Semra Çalışkan

Boğaziçi University

2011

The Effects of Dynamic Packaging Systems on the Performance of Travel Organizations

The thesis of Semra Çalışkan

has been approved by

Prof. Dr. Birgül Kutlu _____

(Thesis Advisor)

Prof. Dr. Meltem Özturan _____

Assistant Prof. Dilek Ünalan _____

January 2011

Thesis Abstract

Semra Çalışkan, “The Effects of Dynamic Packaging Systems on the Performance of Travel Organizations”

The purpose of this study is to evaluate the effects of Dynamic Packaging (DP) Systems on the performance of hotels and travel agencies.

This study is conducted in three main phases. In the first phase; in order to analyze information technology and DP systems, written documents are reviewed. In the second phase, hotels and travel agencies are selected as travel organizations. Two types of survey are designed for hotels and travel agencies separately. For the surveys, pilot studies are carried out. Then, the hotel survey is conducted with 3 stars, 4 stars, 5 stars and special class hotels from all regions of Turkey. And the travel agency survey is conducted with A class travel agencies from all regions of Turkey. In the last phase, the results of surveys are analyzed through SPSS 18 Statistics program. Descriptive statistics are used for first questions. Factor analysis is preferred for grouping the variables of expenses, revenues, contributions, difficulties and features of DP systems. One sample T-test is used in order to analyze propositions. It is concluded that DP systems have positive effects on room revenues, competitiveness, and brand loyalty of hotels. In travel agency study, DP systems have positive effects on the hotel and flight revenues, market position, the efficiency of operations, service / product range, supplier relationships, service quality and customer satisfaction.

Key words: Tourism, Dynamic Packaging (DP) Systems, Hotels, Travel Agencies, Online Travel Agencies (OTAs), Performance

Tez Özeti

Semra Çalışkan, “Dinamik Paketleme Sistemlerinin Seyahat Şirketlerinin Performansları Üzerine Etkileri”

Bu çalışmanın amacı, dinamik paketleme (DP) sistemlerinin otellerin ve seyahat acentalarının performansları üzerine etkilerini değerlendirmektir.

Çalışma üç aşamada yapılmıştır. Birinci aşamada bilgi teknolojilerini ve DP sistemlerini analiz etmek amacıyla yazılı dokümanlar incelenmiştir. İkinci aşamada oteller ve seyahat acentaları seyahat şirketleri olarak seçilmiş ve her ikisi için iki farklı anket düzenlenmiştir. Anketler için pilot çalışma yapılmıştır. Bu çalışma sonrasında otel anketi Türkiye’nin tüm bölgelerinden 3 yıldızlı, 4 yıldızlı, 5 yıldızlı ve özel sınıflı oteller ile yapılmıştır. Seyahat acentası anketi ise yine Türkiye’nin tüm bölgelerinden A sınıfı seyahat acentaları ile yapılmıştır. Son aşamada sonuçlar SPSS 18 istatistik programı kullanılarak analiz edilmiştir. İlk sorular için tanımlayıcı istatistikler kullanılmıştır. Giderler, gelirler, katkılar, zorluklar ve DP sistemlerinin özellikleri gibi değişkenleri gruplamak için faktör analizi tercih edilmiştir. Önerileri analiz etmek için One-sample T-test analizi kullanılmıştır. Sonuç olarak DP sistemlerinin otellerin oda gelirleri, rekabet gücü ve marka sadakati üzerinde olumlu etkisi olduğu tespit edilmiştir. Seyahat acentası çalışmasında ise, DP sistemlerinin seyahat acentalarının otel ve uçak satışları, pazardaki konumu, operasyon verimliliği, hizmet / ürün gamı, tedarikçi ilişkileri, hizmet kalitesi ve müşteri memnuniyeti üzerinde olumlu etkileri olduğu sonucuna varılmıştır.

Anahtar Sözcükler : Turizm, Dinamik Paketleme (DP) Sistemleri, Oteller, Seyahat Acentaları, Online Seyahat Acentaları (OTA), Performans

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ABBREVIATIONS

CRM	Customer Relationship Management
CRS	Central Reservation System
Cum.	Cumulative
DP	Dynamic Packaging / Dinamik Paketleme
DSS	Decision-support systems
eMediaries	Online Travel Intermediaries
ESS	Executive support systems
GDS	Global Distribution System
HTML	Hypertext Markup Language
ICT	Information Communication Technology
IT	Information Technology
MIS	Management information systems
OTA	Online Travel Agency
OWL	Web Ontology Language
SaaS	Software as a service
SMTEs	Small and Medium Tourism Enterprises
SOA	Service-oriented Architecture
SOAP	Simple Object Access Protocol
Std. Dev.	Standard Deviation
TA	Travel Agency
TO	Tour Operator
TPS	Transaction processing systems
UDDI	Universal Description, Discovery, and Integration
UNWTO (or WTO)	World Tourism Organization
W3C	World Wide Web Consortium
WSDL	Web Services Description language
WWW	World Wide Web
XML	Extensible Markup Language

CHAPTER 1

INTRODUCTION

Definition and Significance of the Problem

Booking travel products over the Internet has been increasing in recent years. But it is not an effective reservation process in terms of time, since products or services cannot be compared in a single online travel agency (OTA) or website due to the lack of sufficient information.

In travel industry, dynamic packaging (DP) is a business model applied mostly by OTAs. Travelers would combine different travel components and book in one reservation with the help of DP systems. Consumers see only total price of whole itinerary and make one payment. They would not see the individual rates of the travel components. DP systems assist the travelers while building their trips according to their preferences and past purchases (Cardoso and Lange, 2007).

DP systems provide a wide range of product/service types and information such as photographs, videos, travelers' comments and etc. So travelers would build their trips from a single OTA or website.

Because of the reasons stated above, DP becomes an inevitable business model for the tourism industry. Consequently, major OTAs have launched their DP systems at the beginning of the twenty-first century. The DP transactions get the considerable ratio of the gross sales of those online companies.

In Turkey, DP systems are not applied properly. But in the near future, the application of DP model will become prevalent. This new business model will change the distribution of the revenues among the actors in tourism industry. Therefore the performance of the tourism companies will be subject to change.

Goal of the Study

DP is very crucial business model for the consumers in terms of time consumption and value-added products and services. So tourism companies like OTAs, tour operators, hotels should adapt their structure for DP systems in order to compete their rivals. These systems are not cheap and they require technology investments. The companies should know the impacts of DP on their performance. This study aims to guide hotels and travel agencies in the decision of using DP model while observing the advantages and disadvantages of DP in terms of the performance of hotels and travel agencies.

CHAPTER 2

INFORMATION TECHNOLOGY (IT) AND TOURISM

Definition of Information Systems

According to Laudon and Laudon (2006);

> An information system can be defined technically as a set of interrelated components that collect, process, store, and distribute information to support decision making and control in an organization.

Information is a form of data that is meaningful and useful to human beings. According to Laudon and Laudon (2006), data are raw facts representing events in organizations on the physical environment.

Transaction processing systems (TPS) are software systems that performs and records the ordinary transactions necessary to do business, such as money transfers, supplier payments, inventory purchase and so on. The term management information systems (MIS) are another category of information systems for the middle management. MIS provide middle managers with reports on the business's current performance. Middle managers monitor and control the organization and forecast future performance (Laudon and Laudon, 2006).

Decision-support systems (DSS) help middle managers for non-ordinary decision making process. They concentrate on problems that are unique and unpredictable. In addition, executive support systems (ESS) support senior management makes these kinds of decisions. ESS addresses non-routine decisions requiring judgment, evaluation, and insight because there is no predefined procedure for solving the problem. Knowledge management systems (KMS) provide organizations to manage processes for capturing and applying knowledge and

expertise. KMS collect all knowledge and experience in the firm, and make it ready wherever and whenever it is needed to improve business processes (Laudon and Laudon, 2006).

E-business and E-commerce

Electronic business or e-business refers to the use of digital technology and the Internet to execute the major business processes in the business. According to Cardoso and Sheth (2005), e-business is defined as the transformation of main business processes through the use the Internet technologies. E-business consists of both internal and external activities of firms. There is a remarkable range for growth in trade through electronic interactions, simply because it can eliminate geographical distances in bringing buyers and sellers together (Cardoso and Sheth, 2005). It also includes electronic commerce, or e-commerce. E-commerce is the part of e-business that provides companies with the buying and selling of products and services over the Internet. It also consists of activities of supporting departments like such as advertising, marketing, customer support, security, delivery, and payment (Laudon and Laudon, 2006). As Venkatram (2000) proposes that existing business need to use the Internet to build on their current business model (as cited in Hakolahti and Kokkonen, 2006).

Expedia (2010) states that e-commerce trends in any market are closely dependent on the development of broadband Internet services and the availability and adoption of credit cards, both of which have continued to grow in Western Europe and are developing rapidly in parts of Eastern Europe. Buhalis and O'Connor (2005)

mentions that virtual organizations will allow tourism firms to build various products and services in response to customer request.

According to Bédard (2005), customized services will win less from e-commerce, at least in the near future. He also states that e-commerce has affected travel services and processes at three levels. First, the magnitude of the impact ties to the type of process. Second, the movement to self-services directly impacts on the employees and talents. Third, the growth of direct sales alters the current value chains and the role of factors in these chains.

Internet, IT and Tourism Information Systems

Internet is the world's largest and most widely used network. According to Laudon and Laudon (2006), internal business networks based on Internet technology are called intranets. Private intranets extended to outside users like suppliers are called extranets. The World Wide Web is a service provided by the Internet that uses universally accepted standards for storing, retrieving, formatting, and displaying information in a page format on the Internet. Jackson and Harris (2003) state that the Internet is influencing the way of doing business therefore firms must be prepared to continually re-organize and restructure themselves (as cited in Daniele et al., 2007).

Internet technologies such as WWW have many positive contributions to organizations. The WWW provides organizations with unlimited access to up to date information, independent of place and time. Other developments like Internet phone and Internet fax provides companies with improvements in communication with customers and personnel (Kuom and Oertel, 2006).

In tourism industry, there are a lot of diverse players and information usage is very intensive. Thus business networks in tourism have been early examples of business webs. As Tapscott et al. (2000) propose that "Business web (b-web) is a distinct system of suppliers, distributors, commerce service providers, infrastructure providers and customers that use Internet for their primary business communications and transactions" (as cited in Hakolahti and Kokkonen, 2006, p.455). Business webs as networks of relationships, link organization, customers and suppliers to build unique business organisms (Hakolahti and Kokkonen, 2006).

Buhalis and O'Connor (2005) state that travel companies can benefit from ICTs for creating awareness and promotion through newsletters, pop-ups and search engine optimization strategies. Travel companies build and maintain web sites through developing in-house or purchasing from an outside vendor. Another positive effect of ICTs is that they provide travel companies to have a global existence and partnerships around the world in an efficient and cost effective way.

As Cardoso (2005) stated, Tourism Information Systems (TIS) are a new category of software and business systems that help e-tourism organizations, such as airlines, accommodation companies, car rental companies, activity suppliers, travel agencies and tour operators. One type of these systems is related to information sources, such as Web sites, to build travel products and services. These web-sites have DP, travel planning, and price comparison functions.

Buhalis and Licata (2002) state that Internet provides all types of companies to sell and market products directly to consumers and to connect with new intermediaries expanding their value chain and make promotions through a combination of systems and partners (as cited in Buhalis and O'Connor, 2005). Despite heavy initial investments, ICTs can decrease management and production

costs by integrating internal data and processes. Operational and communication costs can be declined by integrating operational systems, increasing internal efficiencies, decreasing back office labor costs, reducing personal communications, and allowing consumers to have direct access to information (Buhalis and O'Connor, 2005).

With the emergence of the web, new online travel intermediaries such as Orbitz, Expedia and Lastminute have established. They have powerful and influential role in the value chain of tourism industry (Daniele et al., 2007). These players apply merchant model with DP systems effectively. They are in direct competition with the longer established tour operators such as TUI, My Travel, Thomas Cook and First Choice which are the leading players in leisure package holidays in Europe. These tour operators are redesigning their business processes and strategies (Daniele et al., 2007).

Barnes et al. (2003) propose that tourism organizations may obtain competitive advantage by managing information and knowledge through the Internet (as cited in Buhalis and Zoge, 2007). Kim et al. (2004) state that the Internet changed barriers to entry, altered switching costs, redesigned distribution channels, enabled price transparency and competition, whilst enhancing production efficiency (as cited in Buhalis and Zoge, 2007).

The Internet altered dramatically the strategic position of tourism companies and forced them to reevaluate their strategy (Buhalis and Zoge, 2007). E-tourism means the virtualization of all processes and value chains in the tourism industry. In addition, as Buhalis (2003) emphasizes that e-tourism helps travel companies to increase the competitiveness by benefiting from reestablishing internal processes and

developing partnerships via intranets and extranets (as cited in Buhalis and O'Connor, 2005).

Travelers see the Internet as the primary source of tourist destination information for travelers. About 95% of Web users use the Internet to get travel related information and about 93% of them visit tourism Web sites when building their trip plans. The ratio of increase in the number of people using the Internet for holiday and trip planning is more than 300% over the past five years (Cardoso, 2005).

The travel industry consisted of three big players: vendors, intermediaries and end-consumers before the emergence of Internet. Vendors (airlines, hotels, rail, ferries and car rental companies) used intermediaries such as Tour Operators (TOs) and Travel Agencies (TAs) for selling their products and services to the end-consumers (Buhalis and Zoge, 2007).

After the emergence of Internet, the balance between these players has changed. From the vendors' perspective, the Internet changed the way of doing business. Suppliers start to reach end-consumers directly. They also represent their products and services in real-time basis. The Internet provides vendors greater flexibility in their product and service range (Buhalis and Zoge, 2007). For instance, they can represent customized travel packages by the help of DP systems.

Real time representation provides direct and instant distribution. This leads to elimination of the traditional travel intermediaries. The traditional intermediaries should utilize Internet technologies for creating and distributing customized tourism products in order to survive in tourism industry (Buhalis and Zoge, 2007).

Consumers gain many benefits after the emergence of the Internet. Decline in prices is one of them, since customers can look at many web-sites to reach optimum

prices. So suppliers should set their prices at minimum level in order to be able to sell their products. For the survival in such a competitive industry, suppliers have price transparency strategies, fast and flexible systems and a wide range of product and service alternatives (Buhalis and Zoge, 2007). The main point for protecting their competitive advantage is to focus on their core competencies and to use the opportunities that technology proposes to improve their strategic position in the tourism value chain.

According to Forrester (2007), most of European online travelers research various aspects of their leisure trips via the Internet. About 40% are consumers who also reserve their travel online and 27% are online leisure travelers who research their travels online but buy via traditional ways (as cited in Expedia 2010).

Despite the heavy usage of Internet, there is a group of people who do not prefer the Internet for online shopping. As stated by Expedia (2010), a Eurostat survey of the EU (EU-25 excluding Belgium, France and Malta) indicates that the proportion of Internet users among 16-to-24 year olds is three times higher than among 55-to-64 year olds, at 75% versus 27% respectively. There is a considerable high risk perceived by customers in terms of online payment types. Mintel (2006) indicates that 18% of UK adults are worried about security when purchasing online (as cited in Expedia, 2010).

Information Technology (IT) includes all the hardware and software that a firm needs to use in order to reach its organization goals (Laudon and Laudon, 2006). In addition, there are different definitions of ICT (Information and Communication Technology) in tourism and/or the hospitality sector. One definition of ICT in general terms is as technologies that handle information and enable communication (Varini and Murphy, 2006). According to EU (2001), another definition is the use of

digital electronic methods and tools to accumulate, analyze, share and deliver information throughout the tourism value chain (as cited in Varini and Murphy, 2006).

According to Malaka and Zipf (2000), recent trends show that computers will soon be linked with many tools and inter-networking of devices will increase. The number of travel services in the Web increases day by day. Travelers may meet difficulties in collecting information about a destination, if every service provider has a different interface.

ICTs provide travelers to identify customize and buy travel products and support the globalization of the industry by enabling tools for developing, managing and delivering products and services worldwide (Buhalis and O'Connor, 2005). Buhalis (2003) proposes that increasingly, ICTs have a strategic role for the competitiveness of travel business and destinations (as cited in Buhalis and O'Connor, 2005). International competition is increasing and the creation of multinational travel businesses is accelerating by the developments in ICTs (Guzmán et al., 2008).

Computerized information and booking systems provide suppliers with the capability of acting in a global market. Airlines, hotels, travel agencies and tour operators develop their operations throughout the world. GDSs give them the possibility of reaching and meeting most of the international travel demand (Guzmán et al., 2008).

According to Lassnig and Markus (2007), ICT adoption, e-marketing and online sales is are important issues for tourism industry. They state in a study conducted in 2007 that, the tourism industry had average score regarding the overall use of ICT and e-business. Especially regarding the ICT infrastructure and the

adoption of e-integrated business processes, tourism businesses are still behind other industries. On the other hand, small tourism companies use ICT more than small companies from other industries. It can be stated that the gap between large and small companies in using ICT and e-business applications is somewhat smaller than in other industries. The study of Lassnig and Markus (2007) indicates that travel agencies and tour operators seem to be the strongest adopters of ICT and e-business in compared to accommodation and gastronomy companies. In addition, Varini and Murphy (2006) say that spending on technology is still a significant factor though the hospitality industry may spend less than the other sectors.

According to Kuom and Oertel (2006), improvements in information technology, services and applications will have a considerable impact on the travel industry in the existence of high competitiveness. Every player in that industry will be affected from changes in global distribution channels change and improvements in communication with business partners and consumers. Another issue is that the competitiveness and success of the tourism industry are related to the effects of social, economic and technological changes within society as a whole (Siricharoen, 2008).

Lee et al. state (2003) that the main software technology used in accommodation sector is the Property Management System, which is often integrated with other systems within and outside the hotel (as cited in Varini and Murphy, 2006). In addition, hotel chains utilize a Central Reservations System (CRS) / Global Distribution Systems (GDS) and Revenue Management Systems (RMS) which are integrated with the PMS and used by managers. RMS has a useful tool for revenues optimization and forecasting (Varini and Murphy, 2006).

Xiang et al. (2004) state that the first action of online room reservation is that the traveler plans and searches for a hotel room according the destination, price or room amenities and then picks up the hotel. Then he makes a reservation by Internet. When hotel staff receives the request, they first control availability of rooms. If there is an available room in hotel, they prepare the room and send acknowledgement. Finally the traveler arrives and checks in. The business process is quite simple; however, in order to achieve all these tasks, hotels need for an efficient and integrated hotel management system (Xiang et al., 2004).

Internet, IT and Intermediaries (Disintermediation, Reintermediation)

According to Buhalis and Zoge (2007), traditional travel agents have started to disappear from the tourism value chain in recent years. By the emergence of the Internet transparency in the marketplace and the competitiveness increased. The number of intermediaries decreased and disintermediation is experienced by tourism industry. Pitt et al. (1999) propose that since the geographical boundaries disappeared for hotels, airlines and other suppliers by the Internet, the need of travel agencies decreased (as cited in Buhalis and Zoge, 2007).

Travel industry are dramatically changing with the emergence of new value propositions, changes in the rules of competition, and the mobilization of people. Typical signs of this transformation are the challenges posed by disintermediation and reintermediation in the industry and in the linked information industries (Hakolahti and Kokkonen, 2006). According to Garkavenko et al. (2003), the capability of airlines and other service providers to present their products and services directly to consumers has increased the pressure on travel agents to retrieve

their traditional intermediary role (as cited in Bédard, 2005). On the other hand, the improvements in the Internet also led to reintermediation through the emergence of new online travel intermediaries such as travelocity.com (Buhalis and Zoge, 2007). Online travel agencies are the pioneers that focus on both the merchant model and DP. This gave rise to online intermediaries operating as both TAs and TOs (Daniele and Frew, 2005).

According to Buhalis and O'Connor (2005), ICT tools reinvent the packaging of tourism to a much more individual-focused activity, offering great opportunities for principals and intermediaries and enhancing the total quality of the final product (fitness to purpose). Equally, it is changing the structure of the industry to an ecosystem of individual but interrelated organisms and nodes all interconnected and interoperable.

According to Guzmán et al. (2008), the frequent use of the Internet has led to a new direct distribution channel between travel service providers and end-consumers, where there is no place for intermediaries. This gave rise to decrease in margins and commissions for travel agencies. New process begins for travel agencies. New version of travel agencies will start to appear (re-intermediation) and that traditional travel agencies start to prefer new technology. The online travel agencies can be a risk for traditional intermediaries as well as threaten the profitability of service provider. As stated by Schertler & Berger-Koch (1999), both traditional travel agencies and service providers should reconsider their competitive positioning and business model (as cited in Buhalis and Zoge, 2007).

After the introduction of the Internet, many businesses took advantage of improvements in the Internet and created their own reservation solutions and either developed or supported Internet portals. According to Go et al. (1999), last minute

agencies like lastminute.com and auction websites like priceline.com took also advantage of the Internet (as cited in Buhalis and Zoge, 2007).

Another important point is that intermediaries should use the improving data communication networks to their advantage. Sheldon (1999) states that when used properly, IT will support travel agencies in developing specialization, increased professionalism and improved travel counseling capabilities (as cited in Bédard, 2005). In order to attain long term survival, it is crucial that travel agents focus on the services they present to end-consumers. Technological advancement may lead to a temporary neglect of customer orientation (Bédard, 2005). A balance must be established between technological transformation and customer satisfaction.

Disintermediation and decrease commission and fees brings reduction in costs. Although investment costs of developing e-business applications, direct marketing and selling contribute to cost reduction much. As a result, service providers like hotels and airlines decrease the prices of their products and services. (Buhalis and O'Connor, 2005).

The emergence of the Internet is also leading to the introduction of DP systems that provides travel intermediaries to propose customized products. On the other hand, tour operators start to sell individual elements separately as well as package tours (Buhalis and Zoge, 2007).

According to Bédard (2005), travel agents need to reposition themselves from operational workers to information providers, and ordinary resellers to advisors, information distributors, developers of customized packages. As proposed by O'Brien (1999), in order to reduce the risk of disintermediation and to increase organization performance, they orientate to intelligent, knowledge-based activities such as counseling, information brokering, and package personalization (as cited in

Bédard, 2005). Smaller agencies need to create tailored products that are relevant to niche markets. Exploiting technology is important in order to provide specific products that obtain customer satisfaction (Bédard, 2005).

Chircu et al. (2001) note that Travelbids was the first OTA to establish a reverse auction system, where travel agencies would bid to earn profit from a customer, who request for quotation with specific travel demand (as cited in Granados et al., 2006). But it failed to stay in business during the Dotcom crisis. Then Travelocity and Expedia became successful, while other key players emerged with innovative selling mechanisms (Granados et al., 2006).

Internet, IT and Transportation

In airline industry, there is a competitive environment because of a number of factors that are interrelated with the Internet. Firstly, the Internet provides them to communicate directly with consumers. Airlines make differentiation in their products by Frequent Flyer Programs, e-ticketing and in-flight facilities (Buhalis and Zoge, 2007). Secondly, airlines reduce costs and avoid commission fees paid to travel agencies by the Internet. In addition, airlines can provide real-time representation of their products to end-customers. Customers increase their bargaining power since they can switch easily to another airline (Buhalis and Zoge, 2007).

The airline sector pioneered business-to-business (B2B) electronic markets in the late 1970s CRS technology (Granados et al., 2006). The airline industry also led the Internet revolution in the improvement of business-to-consumer (B2C) electronic markets. As proposed by O'Toole (2003); in 2003, about 16% of airline

tickets purchased online worldwide, led by North America with 40% (as cited in Granados et al., 2006).

As stated by Granados et al. (2006), the improvements of B2B and B2C electronic markets were affected by IT developments in the U.S. airline sector. After the deregulation in 1978, the airline companies have been able to set fares and schedules based on competitive and demand forces. Copeland et al. (1988) state that in a competitive environment, the airlines develop strategies (as cited in Granados et al., 2006). For instance, pricing strategy is one of them. The other one is the development of CRSs to automate the reservation process of airline tickets (Granados et al., 2006).

Duliba et al. (2001) propose that CRSs provide the electronic transfer of transaction information between the airlines' pricing departments and the sales departments of travel agencies. CRSs are installed by airlines at travel agency offices (as cited in Granados et al., 2006). As Copeland and McKenney (1988) note that skewing market information in favor of the airline owner of a given CRS can be another strategy of airlines (as cited in Granados et al., 2006).

Internet, IT and Accommodation

According to Buhalis and Zoge (2007), competition in the accommodation sector has been increased as transparency decreases switching costs and increase price comparisons. The Internet provides new ways of competing online through discounts and direct selling. It also enables to entry as far as distribution is concerned and supported a number of new hotel chains to enter the industry.

With the help of DP systems, hotels can offer customized products and services to the end-consumers according to their travel preferences. Overall, the Internet leads to increase in the bargaining power of hotels against their vendors and intermediaries like travel agencies and tour operators and reduce it against consumers. Therefore, innovative and dynamic hotels can exploit emerging technology as a competitive advantage (Buhalis and Zoge, 2007).

Web Services, Semantic Web and SOA

As defined by Laudon and Laudon (2006), “Web services refer to a set of loosely coupled software components that exchange information with each other using standard Web Communication standards and language”. They can transfer information between two different systems that are based on different operating systems or programming languages. XML is the key technology for Web Services, which stands for Extensible Markup Language.

Web services technology was developed in 1996 by the World Wide Web Consortium (W3C) as o more powerful and flexible markup language than Hypertext Markup Language (HTML) for Web pages (Laudon and Laudon; 2006). As defined by Laudon and Laudon (2006), “HTML is a page description language for specifying how text, graphics, video, and sound are placed on a Web page document”.

The main aim of Web Services is to encapsulate an organization’s activities within a proper interface and publish it as Web services. While in some cases Web services may be utilized in an isolated form, it is normal to expect Web services to be integrated as part of Web processes (Cardoso and Sheth, 2005).

It can be stated that the purpose of the Semantic Web is to provide software applications and people with understandable and useful the information on the Web. Siricharoen (2008) stated that the Semantic Web will be essential to the improvement of Web applications such as e-business, providing users with much more complex searching and browsing capabilities as well as support from intelligent agents.

E-tourism is the one of the great application industry for Semantic Web technologies and it is also a control opportunity for quality of Semantic Web technologies (Cardoso and Sheth, 2005).

As defined by Laudon and Laudon (2006), "SOAP (Simple Object Access Protocol), is a set of rules for structuring messages that enables applications to pass data and instructions to one another". Another definition made by Laudon and Laudon (2006) is "WSDL stands for Web Services Description Language; it is a common framework for describing the tasks performed by a Web Service and the commands and data it will accept so that it can be used by other applications".

The collection of Web services that are used to establish a company's software systems constitutes a service-oriented architecture (Laudon and Laudon, 2006). They define SOA as "a set of self-contained services that communicate with each other to create a working software application". Business tasks are achieved through executing a series of these services. Software engineers use these services multiple times in other applications. In the past, firms developed software systems for a specific need. After SOA, companies start to build software systems as parts that can be used for multiple software needs (Laudon and Laudon, 2006). For instance, a "payroll service" can be defined as the only program in the company responsible for calculating payroll information and reports. Whenever a different

application in the company needed payroll information, it would make reuse of payroll service.

SaaS

TEC (2010) states that “Software as a Service (SaaS) is a model of software deployment whereby a provider licenses an application to customers for use as a service on demand”. Software suppliers of SaaS may keep the application on their site or upload the application to the consumer site. They uninstall the application at the end of the contract (TEC, 2010). SaaS provides companies with cost reduction. They do not need to investment in complex and expensive software and huge equipments. Traudt and Amy (2005) state that “SaaS applications differ from earlier applications delivered over the Internet in that SaaS solutions were developed specifically to leverage web technologies such as the browser, thereby making them web-native”.

SaaS is a powerful technology because of the low cost of entry, less-risky investment, a secure data environment enabled by supplier, supplier motivation to overcome problems and upload by suppliers (Finch, 2006).

Ontology and Tourism

Sirichaoren (2008) defines ontology as “data models in terms of classes, subclasses, and properties”. The Internet has dramatically altered the creation way of travel packages. Customers can create packages from various online travel agencies and airlines. DP systems become prevalent by the heavy usage of the Web. Cardoso and

Sheth (2005) state that for the development of DP systems should be observed in detail in order to enhance the online vacation planning experience. By transitioning from a third-party service in most markets, DP engines can better customize its package proposals, pricing and distributing to consumer demand (Cardoso and Sheth, 2005).

In order to provide communication between systems, XML messages are used. After the improvements in technology, better communication techniques are needed. The ontology is one of them. Missikoff et al. (2003) state that ontology provider companies to keep their proprietary data format while exchanging information based on the ontology (as cited in Buhalis and O'Connor, 2005). The combination of three technologies that are XML, ontology, and heterogeneous information sources are used. Furthermore, the Internet provides the redesigning of the entire process of producing and distributing tourism products (Buhalis and O'Connor, 2005).

XML specification messages provided by OTA are not sufficient. There is a need for the development of tourism ontology. According to Cardoso and Sheth (2005), the development of tourism ontology requires autonomous and heterogeneous Web services, Web processes, applications, data, and components residing in distributed environments. A common vocabulary provided by tourism ontology will support exchanging information, meeting travel organizations and customer needs and communication traffic.

The e-tourism ontology organizes tourism related information and concepts. As Uschold and Gruninger (1996) state that the ontology will provide interoperability of different systems by the use of a common vocabulary and meanings for terms with respect to other terms (as cited in Siricharoen, 2008).

Tourism ontologies are important for developing valuable Web processes. Ontologies support Web services in order to overcome problems related to heterogeneity, autonomy, and distribution of the Web. For example, ontologies are preferred in the area of DP systems since current technologies like XML messages are not sufficient (Cardoso and Sheth, 2005).

In order to package travel products, a solution should be found for dealing with the non-standard way of defining e-tourism products and services. There are no standards in defining vehicle rentals, recreation, activities, and weather conditions while building a vacation package (Sirichaoren, 2008). Awad and Ghaziri (2004) state that the complex technologies, such as semantics and ontologies, can be solutions for the development of dynamic information systems (as cited in Sirichaoren, 2008).

Ontology can be constructed for e-tourism. Tourism is a data rich domain. Data is stored in many hundreds of data sources and many of these sources need to be used in concert during the development of tourism information systems. The e-tourism ontology provides a way of viewing the world of tourism. It organizes tourism related information and concepts. The e-tourism ontology provides a way to achieve integration and interoperability through the use of a shared vocabulary and meanings for terms with respect to other terms. The e-tourism ontology was developed using OWL (Web Ontology Language). Sirichaoren (2007) proposes that OWL was proposed by the W3C for publishing and sharing data, and automating data understanding by computers using ontologies on the Web (as cited in Sirichaoren, 2008). The OWL supports the applications that need to process the content of information and facilitates greater machine interpretability of Web content through enabling additional vocabulary via semantics (Cardoso and Sheth, 2005).

Technology Productivity Paradox

Bruque & Medina (2002) propose that technology productivity paradox is related to insufficient cost reduction in compared to technology investment (as cited in Varini and Murphy, 2006). Failure of technology investment may be related to technology itself. As stated by Strassman (1999) and Pisello (2003), it may stem from legacy applications, bad business and project plans, slow implementation, low payments to vendors, lack of proper budgeting and financial situation and so on (as cited in Varini and Murphy, 2006).

For many travel companies, technology failure can be important in terms of the impacts on customers, services, employees, brand and market share. In addition, such failures may cause wrong revenue forecasts, low efficiency in operations and so on (Varini and Murphy, 2006).

Although technology investments create challenges for travel organizations, these investments provide valuable opportunities. For example, hotels can reach global markets by an online reservation function in their web-sites. According to EU Report (2001) and Empirica (2003), ICT investment decisions depend on the level of ICT awareness of the management of the travel companies (as cited in Varini and Murphy, 2006).

CHAPTER 3

DYNAMIC PACKAGING (DP)

Yield Management and Dynamic Pricing

Netessine and Schumsky (1999) define Yield Management as the techniques used for allocating limited resources, airline tickets, hotel rooms, or car rentals among a variety of consumers, such as corporate or leisure travelers. Since travel products or service are mostly perishable goods, these techniques can be called perishable asset revenue management or simply revenue management.

Revenue management supports accurate demand forecasting, capacity controls and price optimization. According to Buhalis and O'Connor (2005), yield management is about organizing calendar, clock, capacity, cost and customer.

Definition of DP

DP can be defined as the building holidays from different travel products or services, bundled and priced in real time, in response to the demand of the traveler or travel agent (Cardoso, 2005). DP is preferred in the reservations of package holidays. Customers can create customized travel packages according to their preferences. The phrase is rarely used in the public literature on tourism web sites. Travel companies use more understandable phrases for customers like "Book Together and Save", "Create Your Own", or "Flight + Hotel", "Flight + Hotel + Car Rental", etc (Lassing and Markus, 2007).

Kabbaj (2003) proposes that another definition is that dynamically combining and pricing a package of airplane seats, hotel nights, car rental days, leisure activities, train tickets and so on from heterogeneous service providers and heterogeneous information sources or back-end reservation services (as cited in Lassing and Markus, 2007). DP is often used incorrectly to define the less complex process of interchanging various travel components within a package; however, this activity can be defined as "dynamic bundling" (Bar-David et al., 2006).

DP requires complex technology and organizational changes. It becomes a challenging e-business format in the tourism industry. DP provides travel suppliers and customers with many advantages. It offers both the supply and demand side of the tourism value chain substantial advantages (Lassing and Markus, 2007). Suppliers can present customized travel packages. Fischer (2005) states that they can solve over-capacity problem (as cited in Lassing and Markus, 2007). CSI Media (2006) and Travel Mole (2005) propose that by concealing individual prices, suppliers can avoid direct price competition (as cited in Lassing and Markus, 2007). On the other hand, customers can reach cheaper and a personalized travel packages in real-time basis by the help of DP search engines. Customers can book many travel items in one reservation process.

DP systems enable the automated accumulation of travel components based on the content of the package and conditional pricing rules based on different conditions such as the travel features, suppliers contributing components, customer preferences, and sales terms (Bar-David et al, 2006). Another feature of dynamic packages is primarily sold online. But OTAs can also sell by phone owing to the strong margins and high sale price of the product.

Customized travel packages put a pressure on traditional travel packages built by tour operators (Expedia, 2010). As Trisept Solutions (2006) proposes, DP systems have individual inventory management systems while ordinary packaging solutions have not (as cited in Lassing and Markus, 2007). By the help of this inventory management system, DP systems combine multiple travel components in real-time on basis of distributed travel resources. An important difference between dynamic packages and traditional packages is about pricing. Dynamic packages are always based on current availability (Bar-David et al., 2006). In order to provide accurate current availability information, inventory management systems become a must for the travel companies who are willing to apply DP systems in their businesses.

In the development of a DP platform, the latest information technologies such as semantic Web, Web services, and Web processes are used. E-travel is an appropriate application area for semantic Web technologies, because information distribution and transfer are the key issues of the travel industry (Cardoso, 2005).

Online travel products increase constantly (Jagersberger and Waldhor, 2008). All types of travel products and services are available on the Internet. On the other hand, bundling and packaging individual products and services are rarely presented. Rare packaging is limited to a combination of transportation and accommodation. In addition, there is lack of information about the quality of travel services and products (Jagersberger and Waldhor, 2008).

Consumers take advantage of DP systems by accessing DP systems 24 hours a day. They can search and reserve travel packages whenever they are available. Service providers market and sell their products and services in a non-stop manner. DP systems provide service providers with rapid response to present changes in the market and coping with future demands (Varini and Murphy, 2006).

As Buhalis and O'Connor (2005) stated, customized packages facilitated by DP become popular while package tours are in decline. DP systems provide online travel vendors with differentiation capability and a strong competitive position (Expedia, 2010). Gaining a new customer is an increasingly competitive and expensive process. The travel agents, airlines, tour operators, hotels and other service providers expand their inventory types via the dynamic packaging (Expedia, 2010). The contemporary and connected consumer is not willing to wait or face with cancellations. Thus, the quick and accurate identification of consumer preferences become crucial to gain new customers and retain existing ones. Comprehensive, customized and trendy products and services can satisfy the needs of customers (Buhalis and O'Connor, 2005).

DP Providers

Lassing and Markus (2007) state that most DP technology providers and users suggest that the adoption of DP is growing. CSI-Media (UK), GoCuo (UK), Innovasoft AG (DE), Multicom (UK), and OpenJawTechnologies (IR) are some of the technology providers of DP systems. E-Business W@tch / European Commission (2006) propose that most of them are from England, since almost 80% of DP sales in Europe to England (Lassing and Markus, 2007). Other DP service providers are ebookers.de (DE) eDreams (IT), Expedia (UK), Flexible Trips (UK), Lastminute (UK), and Thomas Cook (UK).

Lassing and Markus (2007) state that an analysis reveals that DP was predominantly preferred by large tour operators and OTAs that have wide operations

with many service providers. These providers are able to combine and process large quantities of heterogeneous data and present real-time offerings.

Online Travel Agencies (OTAs) as DP Users

Internet enables a great environment for the creation of virtual representations of tourism destinations allowing indirect experience that greatly dominates over the traditional travel agents (Bogdanovych, et al., 2006).

With the increase in Internet usage, many airlines and other travel companies began to sell directly to travelers. As a result, airlines no longer needed to make the commission payments to travel agents on each ticket sold. Since 1997, travel agencies have gradually been disintermediated, by the decrease in costs caused by removing layers from the package holiday distribution network (Andal-Ancion et al., 2003).

With the help of online travel websites, travelers compare hotel and flight rates with multiple companies. They usually provide travelers to sort the travel packages by amenities, price, and convenience to a destination. Mainline service providers are those that actually produce the direct service, like various hotels chains or airlines that have a website for online bookings. Travel web-sites will become accumulation of various airlines and hotels on the Internet.

After 1996, online travel intermediaries have emerged as powerful actors in the travel industry. Strong organic growth and frequent mergers and acquisitions have created new travel industry giants. Online travel intermediaries are now having a considerable impact on the market, often changing the balances of power between existing players and distribution channels. According to the report from Smith Travel

Research for example estimated that in 2002, the adoption of the merchant model by several big online travel intermediaries cost the USA hotel industry $US642 million in terms of profit leakages (Daniele and Frew, 2005).

ICT and the Internet have had a crucial impact on the way companies organize their activities inside and at the boundaries of the firm. In the case of travel online travel intermediaries several key technologies are used to provide competitiveness (Daniele and Frew, 2005). Flight search engine technology: a key capability for travel online travel intermediaries is that of being able to allow its customers to rapidly find the best options/combinations for flights under a variety of parameters (Daniele and Frew, 2005).

Another increasingly important technology for travel online travel intermediaries is DP systems which provide customers to combine various travel components (e.g. flights, hotels and car rental) and inventory types into "create-your-own" travel packages. DP systems propose multiple choices of departure times, accommodations, length of stay and destinations. Travelers can build their own vacation packages to meet their exact needs by choosing their own travel products online and receiving instant information about pricing and availability. DP of travel components also offers benefits to suppliers who are willing to offer lower prices on their inventory to OTAs. In DP systems, the prices of the individual components are not visible to the customer, when it is sold in packages. This enables suppliers to discount without decreasing their published rates or indicating their pricing strategies to their competitors. Customers access OTAs with discounted rates (Daniele and Frew, 2005).

Expedia.com, Travelocity.com and Orbitz.com are three giant companies serving as online travel intermediary. Expedia, Inc. is the leading online travel

company in the world. Since 1996, the company's Expedia.com brand has grown to become the world's single most popular online travel booking site. Worldwide, the Expedia, Inc. family of brands today includes 20 Expedia.com sites; more than 70 Hotels.com sites (Expedia, 2010).

The mission of Expedia is “to build the world's largest and most intelligent travel marketplace, connecting more travelers with the best travel booking services and destination information, and delivering value to travel suppliers and other companies that want to reach this unmatched audience”. Expedia is the one of the largest provider of hotel bookings in the world, delivering consumer travel demand from nearly every continent to more than 110.000 hotels and hundreds of airlines, tour operators, car rental companies and destination services supply partners (Expedia, 2010).

Travelocity Business is a full-service corporate travel agency that helps companies manages their travel programs globally. Travelocity Business ranks among the top 15 travel agencies in North America and is one of the corporate travel industry’s fastest-growing agencies. The mission of Travelocity Business is “to deliver exceptional technology, service and savings to every customer. Travelocity Business customers average 87% online adoption, among the highest in the entire industry” (Travelocity, 2010).

Orbitz, Inc. was originally formed in 1999 by a group of leading U.S. airlines to participate in the rapidly growing online travel industry. Orbitz Worldwide is a leading global online travel company that uses innovative technology to enable leisure and business travelers to research, plan and book a broad range of travel products. Orbitz Worldwide global inventory includes access to thousands of suppliers, including air, hotel, car rental, cruise and other services and attractions.

Orbitz Worldwide DP technology enables users to compare multiple combinations of travel products at a glance, facilitating the creation of customized packages of air, hotel and other products in one transaction, at one bundled price (Orbitz, 2010).

Orbitz.com was launched in June 2001, and since then has grown into a technology leader in its quest to update the legacy systems of airline reservations. The airlines claimed that Orbitz would dramatically decrease the high costs of making reservations. For that purpose, Orbitz was designed and powered by ITA Software, a pricing and airfare shopping technology developer launched by researchers from the Artificial Intelligence Laboratory at MIT (Granados et al., 2006).

According to Granados et al. (2006), the OTAs can be classified in four major categories. First category is fully transparent Internet-based providers like Orbitz, with the highest levels of product and price transparency. Second category is Inter-airline Internet portals, such as Travelocity or Expedia that proposed multiple travel options, but they were limited in the number of options due to the technological limitations of CRSs. As third category, airline Internet portals are biased to travel itineraries only for a specific airline network. The fourth category is opaque airline reservation sites, such as Hotwire and Priceline.com, which do not reveal product, supplier and price information until the consumer commits to purchase.

Benefits of DP

Cardoso (2005) suggests that consumers can create customized holidays through DP systems that combine customer preferences with flights, car rentals, hotel, leisure activities and other travel products in a single price.

One of the important benefits of a DP solution might be the regions themselves. DP portals enable integration regional tourism services for packaging and booking. DP portals provide enhancement of the cooperative culture within a region. In addition it may also be used as an innovative tool for market research (Lassing and Markus, 2007).

With the help of dynamic packages, the customer makes evaluation and chooses the individual travel components that fit his/her preferences. Customers can make savings and reserve more than one travel item in a single transaction (Expedia, 2010).

The competition between online travel agencies and traditional travel agencies gives rise to decline in prices (Daniele et al., 2007). So customers take advantage of this competition.

According to Romano (2005), one of the important benefits of DP is providing travel service providers with better branding opportunities and increased brand loyalty (customers' benefits are clear). Through DP systems, suppliers extend and improve their product and service range. They can present their products and services in detail and extend the content of their web-sites. Romano (2005) suggests that there is a possibility to apply mark-ups / discounts to individual products for travel suppliers.

From the customer view point, customers are not limited to travel agencies' supplier range. Customers can arrange travels from their home over the Internet. Romano (2005) states that DP systems enable convenience and ease of use for customers. In package tours provided by tour operators, there is a fixed period and customers have limited choices. But in DP systems, customers set the start and end date of their travel. In addition, customers can search all products and services simultaneously and all travel items are completely live bookable. DP systems provides flexibility for customers .They evaluate and select the individual travel components that best suit his/her needs and travel wants (Romano, 2005).

Challenges of DP

According to Cardoso (2005), one of the challenges to develop DP systems is to find a solution to cope and integrate the non-standard way of defining e-tourism products and services. There are no standards to define accommodation, transportation, leisure activities, and weather conditions when planning for a holiday package, several ways can be found among all the existing Web sites.

There is challenge for traditional travel agencies because of the shift in consumer behavior and the emergence of online travel intermediaries as significant new entrants in the travel and package trip business. Traditional travel agencies should reconsider their business models future (Daniele et al., 2007).

In travel industry, the main obstacles for accomplishing added customer values are the insufficient implementation of new technologies and lack of technological standards. DP is an example for applications currently emerged which cannot be fully adopted due to lacking information infrastructure, intercomputable

systems and the high cost of systems integration (Hakolahti and Kokkonen, 2006). Business system integration is required for the introduction of new types of business webs in travel industry. Business process analysis and development of common ontologies is necessary issues in the tourism industry (Hakolahti and Kokkonen, 2006).

The implementation of DP systems requires a complex technology infrastructure for travel industry. In order to organize, plan, control and lead a large number of external suppliers, a DP system must be able to solve connectivity and interoperability problems of an enormous quantity of different data coming from various service suppliers (Lassing and Markus, 2007).

According to Lassing and Markus (2007), technology does not become a crucial obstacle for the implementation of DP for large companies that are the leaders of current DP markets. On the other hand, small service providers that do not share interoperable computing systems, may meet significant technological and organizational challenges. According to Travel Tech Consulting (2006), the lack of connectivity cause one-off integration solutions that barely upload and download information between systems in an aggregated way (as cited in Lassing and Markus, 2007). In some cases, there are interoperability problems between DP provider and DP customers. In addition, even experienced DP providers can face such problems. On the other hand, there are also examples of in-house solutions such as touropa.com that is a small German online tour operator. Markus (2007) states that Touropa.com has become successful with its DP system after about 18 months of technological improvement (as cited in Lassing and Markus, 2007). It is a really success story since developing DP systems with low profit margins is very hard for small firms.

Another challenge is that the organizational, financial and legal basis of the portal must be established in set-up phase of DP systems (Lassing and Markus, 2007). As well as being an important opportunity that DP has considerable set-up challenges both in terms of technology interfaces to the proprietary systems and in terms of rebuilding business processes and business rules (Daniele et al., 2007). Schambach (2005) proposes that by many accommodation providers selling tourism services online has been seen as a loss of management on their availability of rooms (as cited in Lassing and Markus, 2007).

The challenges of DP can be summarized as follows;

- The non-standard way of defining e-tourism products and services,
- Lack of interoperable computing systems,
- Lack of connectivity of systems,
- Building a DP platform and sourcing inventory requires a considerable degree of investment spread over low margins,
- Establishment of the organizational, financial and legal basis of the portal, and
- Evaluation of sales of tourism services online as a loss of management upon the capacities of many accommodation providers.

DP with Numbers

Marcussen (2007) states that the whole travel market in Europe has increased to the amount of 247 billion Euro by 2006 and 15.5% or 38.3 billion Euro accounted for the online travel market (as cited in Lassing and Markus, 2007). Euromonitor (2006) and Wong (2006) note that in Western Europe the DP market increased to 2.4 billion

Euros in 2006 (as cited in Lassing and Markus, 2007). According to above figures, DP market is 6.3% of the online travel market and 1.0% of the overall travel market.

According to Lassing and Markus (2007), the share of DP in the overall and online travel market does not change very much, since 6.5% of the overall and 0.8% of the online travel market calculated for DP in 2005. This indicates that there is no tremendous change in tourism industry by DP systems.

Euromonitor (2005) and Travel Mole (2006) state that approximately 90% of DP sales are from United Kingdom 76%, Germany 11%, France 3% and other countries 10% (as cited in Lassing and Markus, 2007). Therefore, the UK dominates DP market, since most international UK travelers prefers a travel package including flight and room, which are basic components for travel package (Lassing and Markus, 2007).

DP in Turkey

In literature, no study could be found related to analysis of DP applications in Turkey.

CHAPTER 4

PROFITABILITY AND PRODUCTIVITY

Definition of Productivity

According to Saari (2006), productivity is a measure of output per input in a production process. For instance, labor productivity is usually the ratio of output per worker hour. Another definition by Heizer and Render (2008) is that it is the ratio of outputs divided by the inputs. Outputs are goods and services, whereas inputs are resources like labor and capital. If the creation process of outputs from inputs is more efficient, the organizations become more productive (Heizer and Render, 2008).

Courbois & Temple (1975), Gollop (1979), Kurosawa (1975) and Pineda (1990) propose that productivity is different from allocative efficiency metrics, which consists of both the monetary value, which is produced and used in the cost of inputs, and different from profitability metrics, which will receive the difference between the revenue from output address and the costs consumption of inputs connected (as cited in Saari 2006).

Effectiveness

The general definition of effectiveness is the doing right things in a right way. Hershey and Blanchard (1980) suggest that effectiveness of the firm is a great productivity measurement since the effectiveness can be individualized through a company's decision according to goals and objectives for avoid the problem of

focusing on increased productivity defined as output (as cited in Li and Prescott, 2009).

Productivity and the Service Sector

The measurement of productivity in service sector is a challenging task for companies. Past analyses related to the measurement of productivity are based on goods, not services. The size of service sector grows and the measurement of service sector productivity should be established (Heizer and Render, 2008).

Heizer and Render (2008) state;

> Productivity of the service sector has proven difficult to improve because service-sector work is typically labor intensive, frequently focused on unique individual attributes or desires, often an intellectual task performed by professionals, difficult to mechanize and automate and difficult to evaluate for quality.

The definition of productivity is service sector is difficult, since it is labor intensive industry and skills and competencies of people plays important role in the measurement of productivity. These kinds of inputs are difficult to standardize and measure (Li and Prescott, 2009). Capital like materials, machines and energy are not as significant as in the manufacturing industry.

According to Heizer and Render (2008),

> The more intellectual and personal the task, the more difficult it is to achieve increases in productivity. Low-productivity improvement in the service sector is also attributable to the growth of low-productivity activities in the sector. In spite of the difficulty of improving productivity in the service sector, improvements are being made.

According to Adam and Gravesen (1996), the concept of productivity is coming from manufacturing sector, which could be the reason for continuing not to feature the productivity in the service sector (as cited in Li and Prescott, 2009). Sigala (2002)

state that productivity should be defined differently in services and manufacturing sectors (as cited in Li and Prescott, 2009). Mahoney (1988) suggests that there will be difficulties in productivity measurement if service sector productivity is not defined satisfactorily (as cited in Li and Prescott, 2009).

Productivity and the Tourism Sector

Li and Prescott (2009) state that the tourism sector is a crucial part of the service sector and the growth of international tourism was more than the growth of world GDP since 1950s. Lanza and Pigliaru (2000) note that the revenue attained from travel products and services is around 8% of total world export and 5% of world GDP (as cited in Li and Prescott, 2009).

According to the report of OECD (2006), the tourism industry has low productivity rates in the economies of the most developed countries. For instance, the productivity of labor in Switzerland is USD 50,000 per employee in travel industry (OECD, 2006). Since tourism is a labor-intensive industry, it suffers from low productivity rates (OECD, 2006). Tourism should improve its productivity, and its related industries must enhance their competitiveness in the market (Li and Prescott, 2009).

Li and Prescott (2009) state that tourism in OECD countries contributes between 2 and 12% of GDP and enables 3 to 11% of employment and on average about 30% of service exports.

In the largest emerging economies, there is a strongest tourism growth in recent years, although the improvements in world tourism has given rise to dynamic and lasting growth in all countries. In developing countries, the resources are

cheaper. So they have more advantages than developed countries. Finally, Todd (2008) states that tourism is the most productive sector in emerging countries, compared with the rest of the economy (as cited in Li and Prescott, 2009).

According to Bell and Morey (1995), for hotel industry, there four types of inputs that are actual levels of support costs (fees, labor, space, technology, etc.), actual levels of expenditure on travel (hotel, flight, and car rental charges), level of environmental factors (means of negotiating discounts, percentage of trips with commuter flights required) and nominal levels of other expenditures (as cited in Barros and Matias, 2003). On the other hand, output is the level of service provided.

Another study related to hotels' productivity indicates that there are nine inputs those are fee expenditure, car expenditure, technology costs, labor expenditure, hotel expenditure, hourly labor costs, part-time labor costs, total air travel expenditure, and building and occupancy expenditure. The same study defines output as the number of trips (Barros and Matias, 2003).

Productivity Measurement

Productivity is related to the efficiency and effectiveness of organizations. As Li and Prescott (2009) emphasize that efficiency has two components: technical efficiency which is the ability of a company to obtain maximal output from a given set of inputs, and allocative efficiency which means how a firm uses the inputs in optimal proportion given their respective prices and the production technology.

Inputs are the resources used in the production, such as labour, capital, materials and energy. Total productivity can be written as the weighted average of labor, capital and intermediate products. There are two types of productivity

measurements that are partial productivity and multi-factor productivity. Labour productivity and capital productivity are partial productivity measures. Multi-factor productivity is useful for measuring the efficiency of the use of resources. Multifactor productivity (MFP) or Total factor productivity (TFP) is a variable which accounts for effects in total output not caused by inputs (Li and Prescott, 2009).

Li and Prescott (2009) suggest that quality in the service sector is very significant since customers often evaluate a service by its quality. Järvinen et al. (1996) propose that service productivity can be described as the ability of a service company to use its inputs for enabling services with quality matching the expectations of customers (as cited in Li and Prescott, 2009).

Small-to-medium-sized enterprises (SMEs) and large companies are two kinds of business in the tourism sector. SMEs can customize their services according to preferences of the customers. On the other hand, big companies are able to massively enable standardized products which allow them to make cost reduction and adapt a lower price (Li and Prescott, 2009).

The human resources are one of the most important dynamics for enhancing productivity in the tourism sector. Productivity in tourism industry can be improved by adapting changes in physical capital, human capital, innovation, and the competitive environment (Blake et al., 2006).

Measurement Problems of Productivity

The productivity of the service industry creates measurement problems because of its unclear definition. The service sector in developed countries, such as the US, Japan, France and UK, experiences low growth in productivity. Li and Prescott (2009)

suggest that low or negative productivity growth in some service industries is related to measurement problems. According to Sink (1989), it is difficult to find tangible output unit for most of the service sector outputs (as cited in Li and Prescott, 2009), since it has greater intangibility and that quality is based on the inputs enabled by the user of the service as stated by MacLean (1997) (as cited in Li and Prescott, 2009). Adam (1995) proposes that the service sector output can be measured as the value for the customer (as cited in Li and Prescott, 2009). Perception of the customer is important in the measurement of productivity.

The measurement of contribution of labor to the production process is done by total hours worked (Creamer and Kendrick, 1965; Li and Prescott, 2009). Diewert (2008) states that highly capable employees contribute more to production than other ones in a defined time duration (as cited in Li and Prescott, 2009). Moreover, many industries in the service sector have more than half of their outputs used as intermediate inputs. Measurement errors cannot be all problems for the low productivity growth in the service sector, but overcoming these errors significantly improve the productivity growth in the service sector (Li and Prescott, 2009).

Tourism meets productivity challenges since much of the work is labor intensive and the gap between labor supply and demand is predicted to increase (CTHRC, 2010). Sigala and Mylonakis (2005) state that low productivity has been a major problem in the travel industry, but this situation is not improved without a general change in the way productivity is measured and managed.

To sum up, there are three difficulties in measuring productivity. Anderson (1996) suggests that those are the identification of the appropriate inputs and outputs, appropriate measures of those inputs and outputs, and the appropriate ways of measuring the relationship between inputs and outputs (as cited in Li and Prescott,

2009). The non-physical service nature, simultaneous production and consumption of the travel and the perishability and heterogeneity of services are the reasons for those difficulties (Li and Prescott, 2009).

Definition of Profitability

Profit is the reason for existence of most of the companies. All firms have desire to maximize their revenues and minimize their costs. Hotels should be able to take advantage of future profit optimization opportunities through accumulating knowledge and positioning themselves (Varini and Murphy, 2006).

The definition of profit optimization (PO) as the setting of actual goals, maximizing the companies' survival chances within the companies' maximum potential (Gunn, 1977; Varini and Murphy, 2006).

To measure profitability, there are various ratios. One of them is REVPAR (revenue per average room rate). Hotels use this measure for analyzing their room sales profitability. HospitalityNet (2005) and Hotel Online (2003) state that the others are GOPAR (gross operating profit per available room) and PROFPAR (profit per available room) (as cited in Varini and Murphy, 2006).

Factors that Affect Profitability

ICT improvements generate both opportunities and challenges for tourism companies. Increasingly, travel companies need to use ICTs to construct strategies that are customer oriented, maximizing profit and improving partnership (Buhalis and O'Connor, 2005).

Tourism is a profit driven industry and ICTs should play important role in maximizing profitability. There should be increases in revenue, reductions of production and operational cost and increase of awareness and promotion in order to maximize profits.

According to Buhalis and O'Connor (2005), airlines use ICTs heavily in scheduling, forecasting and controlling load factors. ICTs help in deciding on route capacity, frequency, hub and spoke operations. Through direct selling and marketing, companies can decrease commission and fees paid to intermediaries. Moreover, travel organizations support their brand throughout the process, deal with customers, satisfy needs of customers understand and analyze consumer preference and price elasticity.

Through selling products directly also improves customer loyalty and decreases leakages to competing organizations. Direct interactivity with travelers and partners provides dynamic and competitive pricing. Moreover controlling sales provides marketers to adjust the product and price or/and to start promotional campaigns (Buhalis and O'Connor, 2005).

Schertler & Berger-Koch (1999) and O'Connor (2000) state that another issue is that the new online travel intermediaries are threats on traditional intermediaries as well as challenge the profitability of vendors forcing them to reevaluate their competitive positioning and business model (as cited in Buhalis and Zoge, 2007).

CHAPTER 5

THE STUDY RELATED TO THE EFFECTS OF DP SYSTEMS ON THE PERFORMANCE OF THE HOTELS

This study will investigate the present situation concerning the implementation of DP by travel organizations in Turkey and the attitude towards DP model in the Turkish travel industry.

Survey that is one of the quantitative research methods, is preferred as primary data. Travel organizations are hotels, car rentals, travel agencies, tour operators, OTAs airlines, activity providers, technology providers and etc. Two kinds of survey are designed for hotels and travel agencies.

The survey questions will be mainly given by the findings of the primary research, although constantly supported by existing literature sources and by secondary data, such as journals, statistics, official websites and annual reports.

Methodology

It is decided to analyze the effects of DP systems on the hotels' performance by examining the effects of working with OTAs on the hotels' performance, since DP systems are used by OTAs.

As indicated in Appendix A, hotel survey consists of 22 questions. In the first eleven questions, it is aimed to gather descriptive information about hotels' classes, technologies/systems in use, reservation and working principles with OTAs.

In the twelfth and fifteenth questions, it is aimed to analyze the operations of hotels before and after OTAs. In the thirteenth question, 8 statements are used having five-point Likert scale ranging from 'strongly disagree' through 'neither agree or

disagree’ to ‘strongly agree’ in order to analyze expenses of hotels. In the fourteenth question, there are 6 statements using five-point Likert scale ranging from ‘strongly disagree’ through ‘neither agree or disagree’ to ‘strongly agree’ in order to analyze revenues of hotels. In the sixteenth question, there are 8 statements using five-point Likert scale ranging from ‘strongly disagree’ through ‘neither agree or disagree’ to ‘strongly agree’ in order to analyze contribution of working with OTAs to the hotels’ operations.

In the seventeenth question, it is aimed to gather information about the ratio of sales from OTAs over total sales. The eighteenth and nineteenth questions are asked in order to analyze the usage of OTAs’ interfaces. In the nineteenth question, there are 8 statements using five-point Likert scale ranging from ‘strongly disagree’ through ‘neither agree nor disagree’ to ‘strongly agree’. The twentieth question is related to the department of respondents. The rest two questions are related to sending the results of study to the respondents.

Pilot Study

A pilot study is carried out in order to analyze the performance of hotel survey. As the results of this study, the corrections are made according to suggestions from the hotels. For example, "OTA" instead of "Internet Travel Agent" as the phrase is used. Questions about business gross sales, profit and revenue per room are removed since businesses will not want to reply. The English terms such as CRS and GDS are written in Turkish. In addition, the list of OTA is expanded. In order to provide a better understanding of the activity term, the examples are given. Instead of the “Integration” term, "sub-system attached to your own system" phrase is used.

Population and Sampling

According to the statistical study of the Ministry of Culture and Tourism (2008) the number of tourism enterprises is 3388 as total in Turkey. The distribution of tourism enterprises according to property classes is shown in the Appendix B. 5, 4 or 3 stars; all holiday villages; thermal hotels which have 5, 4 or 3 stars; special class hotels, boutique hotels, B type holiday sites and boutique holiday villa are selected. Samples are from all regions of Turkey.

It is assumed that these hotels are investing more in technology products. According to the Ministry of Culture and Tourism (2008) statistics, the population size is 2263 hotels as seen in the Table 1.

Table 1. The Number of Accommodation Establishments in Turkey

Type - Class	Number of Establishments
Hotels - 5 Stars	396
Hotels - 4 Stars	673
Hotels - 3 Stars	799
Holiday Villages - first Class (5 Stars)	92
Holiday Villages - second Class (4 Stars)	33
Thermal Hotels - 5 Stars	9
Thermal Hotels - 4 Stars	2
Thermal Hotels - 3 Stars	10
Special Establishments	182
Boutique Hotel	51
B Type Holiday Site	14
Boutique Holiday Villa	2
Population Size	2 263

The contact information of all hotels could not be obtained from responsible institutions like the Ministry of Culture and Tourism, and TUROFED. E-mail

addresses of almost 2/3 of our target hotels are received. E-mail addresses of hotels are obtained from such associations like TUROB, FETOB, ETİK, ATİD, GETOB, Alanya Hoteliers, BODER; the hotel web-sites and by a calling the hotels. As a result, approximately the contact information of 1500 hotels could be collected.

Within six weeks, questionnaires are sent to hotels three times by e-mail. Questionnaires are also posted on the Internet. E-mail and the Internet are presented as two different options for reply. In total, approximately 800 questionnaires are sent to the hotels. Since some e-mail addresses are wrong or are not being actively used, some hotels are not reached. 106 responses are received from the hotels. 24% of responses are from Internet and 76% of responses are from e-mail. As a result, the percentage of responses to the questionnaire is approximately 14%.

Reliability Analysis

Reliability analysis is conducted for the questions related to expenses, revenues, operations, contributions and difficulties that are scales questions. As a result, Cronbach's Alpha is over 0.70 for the scale questions and it is concluded that reliability is sufficient (For details, see Table 2).

Factor Analysis

The purpose of factor analysis is to reduce multiple variables to a lesser number of underlying factors that are being measured by the variables. A factor loading is the correlation between a variable and a factor that has been extracted from the data.

Table 2. Reliability Analysis of Hotel Survey

		N	%	Cronbach's Alpha	N of Items
Expenses	Valid	82	77.4	0.858	8
	Excluded[a]	24	22.6		
	Total	106	100.0		
Revenues	Valid	75	70.8	0.826	6
	Excluded[a]	31	29.2		
	Total	106	100.0		
Operations	Valid	71	67.0	0.804	4
	Excluded[a]	35	33.0		
	Total	106	100.0		
Contributions	Valid	86	81.1	0.810	8
	Excluded[a]	20	18.9		
	Total	106	100.0		
Difficulties	Valid	51	48.1	0.827	8
	Excluded[a]	55	51.9		
	Total	106	100.0		

a. Listwise deletion based on all variables in the procedure.

Basic Factors

Basic factors are defined as expenses, revenues, operations, contributions and difficulties. Each factor has a separate question in the hotel survey. Questions are stated in Table 3.

Factor Analysis of Expenses

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis. Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is meritorious. Table 4 shows that the value of KMO is 0.800. That means variables are measuring a common factor.

Table 3. Basic Factors of Hotel Survey

Factor Name	Related Questions
Expenses	13. At what level do you agree with the following statements regarding the expenses after starting to work with OTAs?
Revenues	14. At what level do you agree with the following statements regarding the revenues after starting to work with OTAs?
Operations	15. At what level do you agree with the following statements regarding the operations after starting to work with OTAs?
Contributions	16. At what level do you agree with the following statements regarding the contributions of working with OTAs?
Difficulties	19. At what level do you agree with the following statements regarding difficulties of the OTAs' interfaces in use?

Bartlett's Test of Sphericity calculates the determinate of the matrix of the sums of products and cross-products from which the intercorrelation matrix is derived (Friel). P-value is less than 0.001. The sample intercorrelation matrix does not come from a population in which the intercorrelation matrix is an identity matrix.

Table 4. KMO and Bartlett's Test for the Expenses of Hotels

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.800
Bartlett's Test of Sphericity	Approx. Chi-Square	438.198
	Df	28
	Sig.	0.000

Minimum Eigenvalue is defined as 0.5. According to Table 5, the 8 Variables are reduced to 4 factors. These 4 factors account for 87.19% of the covariance among the variables.

Table 5 shows that the first factor has an eigenvalue of 4.389. Since this is greater than 0.5, it explains more variance than a single variable, in fact 4.389 times as much. The second factor has an eigenvalue of 1.412. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 5. Total Variance Explained for the Expenses of Hotels

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	4.389	54.862	54.862	4.389	54.862	54.862	2.650	33.123	33.123
	2	1.412	17.652	72.514	1.412	17.652	72.514	2.187	27.333	60.456
	3	0.625	7.809	80.323	0.625	7.809	80.323	1.074	13.420	73.876
	4	0.549	6.866	87.188	0.549	6.866	87.188	1.065	13.312	87.188
	5	0.458	5.727	92.915						
	6	0.315	3.941	96.856						
	7	0.192	2.402	99.258						
	8	0.059	0.742	100.000						
Extraction Method: Principal Component Analysis.										

According to Table 6;

- Factor 1 appears to measure decrease in operational expenses.
- Factor 2 appears to measure decrease in unit expenses.
- Factor 3 appears to measure increase in investment expenses.
- Factor 4 appears to measure increase in support expenses.

Correlation matrix of the expenses of hotels is stated in Appendix C and reproduced correlation matrix of the expenses of hotels is shown in Appendix D.

Table 6. Rotated Component Matrix[a] for the Expenses of Hotels

	Component			
	1	2	3	4
Sales/marketing expenses of rooms decrease	0.734	0.285	-0.280	0.304
Labor expenses decrease	0.865	0.297	-0.047	-0.172
Training expenses decrease	0.815	0.384	0.072	-0.139
Reporting expenses decrease	0.618	0.506	-0.238	-0.184
Expenses per customer decrease	0.437	0.873	-0.059	0.016
Expenses per room decrease	0.332	0.918	-0.086	0.005
Technology and computer expenses increase [b]	-0.090	-0.095	0.913	0.293
Expenses of data transfer to OTAs expenses increase [b]	-0.096	-0.012	0.293	0.896
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 7 iterations. b. Reverse coded in the analysis				

The details of categorization of variables are summarized in Table 7.

Table 7. Factors for the Expenses of Hotels

Factor	Component	Variable
Expenses	Decrease in operational expenses	Sales/marketing expenses of rooms decrease
		Labor expenses decrease
		Training expenses decrease
		Reporting expenses decrease
	Decrease in unit expenses	Expenses per customer decrease
		Expenses per room decrease
	Increase in investment expenses [a]	Technology and computer expenses increase [a]
	Increase in support expenses [a]	Expenses of data transfer to OTAs expenses increase [a]
a. Reverse coded in the analysis		

Factor Analysis of Revenues

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis of revenues. Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is middling. The value of KMO is 0.734. That means variables are measuring a common factor.

According to Table 8, P-value is less than 0.001 and the sample intercorrelation matrix does not come from a population in which the intercorrelation matrix is an identity matrix.

Table 8. KMO and Bartlett's Test of the Revenues of Hotels

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.734
Bartlett's Test of Sphericity	Approx. Chi-Square	285.993
	Df	15
	Sig.	0.000

Minimum Eigenvalue is defined as 0.5. Table 9 indicates that the 6 Variables are reduced to 2 factors. These 2 factors account for 81.61% of the covariance among the variables.

The first factor has an eigenvalue of 3.23. Since this is greater than 0.5, it explains more variance than a single variable, in fact 3.23 times as much. The second factor has an eigenvalue of 1.67. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 9. Total Variance Explained for the Revenues of Hotels

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	3.231	53.842	53.842	3.231	53.842	53.842	2.615	43.591	43.591
	2	1.666	27.770	81.612	1.666	27.770	81.612	2.281	38.021	81.612
	3	0.430	7.159	88.771						
	4	0.325	5.412	94.183						
	5	0.255	4.253	98.436						
	6	0.094	1.564	100.000						
Extraction Method: Principal Component Analysis.										

According to Table 10;

- Factor 1 appears to measure increase in room revenues.
- Factor 2 appears to measure increase in non-core business revenues.

Table 10. Component Matrix[a] of the Revenues of Hotels

	Component	
	1	2
Room revenues increase	0.622	0.641
Room occupancy rate increase	0.589	0.690
Dining revenues increase	0.753	0.365
Car rental commission revenues increase	0.706	-0.529
Outside activity commission revenues increase	0.810	-0.497
Inside activity revenues increase	0.881	-0.345
Extraction Method: Principal Component Analysis.		
a. 2 components extracted.		

Reproduced correlations table of the revenues of hotels is stated in Appendix E. The details of categorization of variables are summarized in Table 11.

Table 11. Factor Table for the Revenues of Hotels

Factor	Component	Variable
Revenues	Increase in Room Revenues	Annual revenue per rooms increases
		Room occupancy rates increase
	Increase in Non-core Business Revenues	Dining revenues increase
		Car rental commission revenues increase
		Outside activity/recreation commission revenues increase
		Inside activity/recreation revenues increase

Factor Analysis of Operations

Minimum Eigenvalue is defined as 0.5. According to Table 12, the 4 Variables are reduced to 2 factors. These 2 factors account for 100% of the covariance among the variables.

The first factor has an eigenvalue of 3.23. Since this is greater than 0.5, it explains more variance than a single variable, in fact 3.23 times as much. The second factor has an eigenvalue of 1.67. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 12. Total Variance Explained for the Operations of Hotels

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	3.01	75.31	75.31	3.01	75.31	75.31	3.00	74.896	74.896
	2	0.99	24.69	100.00	0.99	24.69	100.00	1.00	25.104	100.000
	3	3.78	9.45	100.00						
	4	1.80	4.50	100.00						
Extraction Method: Principal Component Analysis.										

According to Table 13,

- Factor 1 appears to measure decrease in room operations.
- Factor 2 appears to measure decrease in non-core business operations.

Table 13. Component Matrix[a] of the Operations of Hotels

	Component	
	1	2
Agreements with tour operators decrease	0.136	0.991
Car rental decreases	0.999	-0.045
Activity/recreation participation of hotel customers decreases (Outside)	0.999	-0.045
Activity/recreation participation of hotel customers decreases (Inside)	0.999	-0.045
Extraction Method: Principal Component Analysis.		
a. 2 components extracted.		

The details of categorization of variables are summarized in Table 14.

Table 14. Factors of the Operations of Hotels

Factor	Component	Variable
Operations	Decrease in Room Operations	Agreements with tour operators decrease
	Decrease in Non-core Business Operations	Car rental decreases
		Activity/recreation participation of hotel customers decreases (Outside)
		Activity/recreation participation of hotel customers decreases (Inside)

Factor Analysis of Contributions

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis of contributions. Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is Meritorious. According to Table 15, the value of KMO is 0.807. That means variables are measuring a common factor.

According to KMO and Bartlett's Test of Sphericity, P-value is less than 0.001 and the sample intercorrelation matrix does not come from a population in which the intercorrelation matrix is an identity matrix.

Table 15. KMO and Bartlett's Test of the Operations of Hotels

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.807
Bartlett's Test of Sphericity	Approx. Chi-Square	268.743
	Df	28
	Sig.	0.000

Minimum eigenvalue is conducted value as 0.5. According to Table 16, the 8 Variables are reduced to 4 factors. These 4 factors account for 83.30% of the covariance among the variables.

The first factor has an eigenvalue of 3.79. Since this is greater than 0.5, it explains more variance than a single variable, in fact 3.23 times as much. The second factor has an eigenvalue of 1.19. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 16. Total Variance Explained for the Contributions of Hotels

Comp-onent		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	3.791	47.387	47.387	3.791	47.387	47.387	2.411	30.142	30.142
	2	1.188	14.854	62.241	1.188	14.854	62.241	1.618	20.221	50.363
	3	0.904	11.302	73.543	0.904	11.302	73.543	1.595	19.936	70.299
	4	0.781	9.762	83.304	0.781	9.762	83.304	1.040	13.006	83.304
	5	0.426	5.329	88.634						
	6	0.333	4.164	92.798						
	7	0.322	4.024	96.822						
	8	0.254	3.178	100.000						
Extraction Method: Principal Component Analysis.										

According to Table 17;

- Factor 1 appears to measure increase in brand loyalty of hotels.
- Factor 2 appears to measure increase in competitiveness of hotels.
- Factor 3 appears to measure increase in service efficiency of hotels.
- Factor 4 appears to measure increase in cancelled reservations.

Table 17. Rotated Component Matrix[a] for the Contributions of Hotels

	Component			
	1	2	3	4
Competitiveness increases	0.147	0.875	0.254	-0.060
Sales increases	0.393	0.784	0.156	0.075
Daily operations decrease	0.084	0.215	0.884	-0.127
Service quality increases	0.364	0.186	0.784	0.099
The rate of cancelled reservation increases[b]	0.050	0.000	-0.039	0.989
Customer base improves	0.774	0.317	0.242	0.119
Branding is provided	0.891	0.194	0.078	-0.079
Customer loyalty increases	0.837	0.134	0.208	0.083
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 5 iterations. b. Reverse coded in the analysis				

Reproduced correlations table of the contributions of hotels is stated in Appendix F.

The details of categorization of variables are summarized in Table 18.

Table 18. Factors of the Contributions of Hotels

Factor	Component	Variable
Contributions	Increase in Competitiveness	Competitiveness increases
		Sales increases
	Increase in Service Efficiency	Daily operations decrease
		Service quality increases
	Increase in Cancelled Reservations[a]	The rate of cancelled reservation increases[a]
	Increase in Brand Loyalty	Customer base improves
		Branding is provided
		Customer loyalty increases
a. Reverse coded in the analysis		

Factor Analysis of Difficulties

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis of difficulties. Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is Meritorious. The value of KMO is 0.765. That means variables are measuring a common factor.

According to KMO and Bartlett's Test of Sphericity, P-value is less than 0.001 and the sample intercorrelation matrix does not come from a population in which the intercorrelation matrix is an identity matrix.

Table 19. KMO and Bartlett's Test for the Difficulties of Hotels

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.765
Bartlett's Test of Sphericity	Approx. Chi-Square	174.226
	Df	28
	Sig.	0.000

Minimum eigenvalue is defined as 0.5. The 8 Variables are reduced to 4 factors. These 4 factors account for 84.30% of the covariance among the variables.

The first factor has an eigenvalue of 3.88. Since this is greater than 0.5, it explains more variance than a single variable, in fact 3.88 times as much. The second factor has an eigenvalue of 1.24. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 20. Total Variance Explained for the Difficulties of Hotels

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	3.877	48.467	48.467	3.877	48.467	48.467	2.459	30.739	30.739
	2	1.236	15.446	63.914	1.236	15.446	63.914	1.508	18.849	49.588
	3	1.027	12.840	76.753	1.027	12.840	76.753	1.445	18.059	67.647
	4	0.604	7.553	84.306	0.604	7.553	84.306	1.333	16.659	84.306
	5	0.441	5.508	89.814						
	6	0.337	4.207	94.021						
	7	0.300	3.750	97.771						
	8	0.178	2.229	100.000						
Extraction Method: Principal Component Analysis.										

Table 21. Rotated Component Matrix[a] for the Difficulties of Hotels

	Component			
	1	2	3	4
The level of usefulness is low	0.061	0.123	0.954	0.095
It may produce errors.	0.119	0.808	0.081	0.467
System speed is low	0.736	0.466	0.145	0.012
It has insufficient reporting	0.849	0.157	0.103	-0.125
Data entry is difficult.	0.394	0.651	0.439	-0.113
It is difficult to reach necessary information	0.596	0.388	0.541	0.196
It is time-consuming	0.815	-0.004	0.028	0.394
It needs complex computer knowledge	0.059	0.156	0.102	0.940
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

According to Table 21;

- Factor 1 appears to measure low speed
- Factor 2 appears to measure insufficient ease of use.
- Factor 3 appears to measure low usefulness.
- Factor 4 appears to measure high complexity.

Reproduced correlations table of the difficulties of hotels is stated in Appendix G.

The details of categorization of variables are summarized in Table 22.

Table 22. Factors of the Difficulties of Hotels

Factor	Component	Variable
Difficulties	Low Usefulness	The level of usefulness is low
		It is difficult to reach necessary information
	Insufficient Ease of Use	Data entry is difficult.
		It may produce errors.
	Low Speed	System speed is low
		It is time-consuming
		It has insufficient reporting
	High Complexity	It needs complex computer knowledge

As seen in Table 23, expenses are categorized into four components that are operational, unit, and investment and support expenses as a result of factor analysis. Revenues have two categories that are room and non-core business revenues. Room and non-core business operations are categories for operations. There are four categories which are competitiveness, service efficiency, reservation and brand

loyalty for contributions. For difficulties, usefulness, ease of use, speed and complexity are the categories.

Table 23. Summary of Factor Analysis

Factor	Component	Variable
Expenses	Decrease in Operational expenses	Sales/marketing expenses of rooms decrease
		Labor expenses decrease
		Training expenses decrease
		Reporting expenses decrease
	Decrease in Unit expenses	Expenses per customer decrease
		Expenses per room decrease
	Increase in Investment expenses [a]	Technology and computer expenses increase [a]
	Increase in Support expenses [a]	Expenses of data transfer to OTAs expenses increase [a]
Revenues	Increase in Room Revenues	Annual revenues per rooms increase
		Room occupancy rates increase
	Increase in Non-core Business Revenues	Dining revenues increase
		Car rental commission revenues increase
		Outside activity/recreation commission revenues increase
		Inside activity/recreation revenues increase
Operations	Decrease in Room Operations	Agreements with tour operators decrease
	Decrease in Non-core Business Operations	Car rental decreases
		Activity/recreation participation of hotel customers decreases (Outside)
		Activity/recreation participation of hotel customers decreases (Inside)

Table 23. continued.

Factor	Component	Variable
Contributions	Increase in Competitiveness	Competitiveness increases
		Sales increases
	Increase in Service Efficiency	Daily operations decrease
		Service quality increases
	Increase in Cancelled Reservations [a]	The rate of cancelled reservation increases [a]
	Increase in Brand Loyalty	Customer base improves
		Branding is provided
		Customer loyalty increases
Difficulties	Low Usefulness	The level of usefulness is low
		It is difficult to reach necessary information
	Insufficient Ease of Use	Data entry is difficult.
		It may produce errors.
	Low Speed	System speed is low
		It is time-consuming
		It has insufficient reporting
	High Complexity	It needs complex computer knowledge
a. Reverse coded in the analysis		

Propositions

In hotel survey, it is aimed that 14 propositions related to operations, expenses, revenues, contributions and difficulties are accepted or rejected. There are 2 propositions regarding operations, 5 propositions regarding expenses, 2 propositions regarding revenues, 4 propositions regarding contributions, 1 proposition regarding difficulties. The propositions are listed in Table 24.

Table 24. List of Hotel Propositions

P1	The agreements with tour operators decline after starting to sell their rooms over OTAs.
P2	Non-core business operations decrease after starting to sell hotels' rooms over OTAs.
P3	Operational expenses decrease after starting to sell their rooms over OTAs.
P4	Unit expenses decrease after starting to sell their rooms over OTAs.
P5	Investment expenses increase after starting to sell their rooms over OTAs.
P6	Support expenses increase after starting to sell their rooms over OTAs.
P7	Total expenses decrease after starting to sell their rooms over OTAs
P8	Room revenues increase after starting to sell their rooms over OTAs.
P9	The revenue attained from non-core businesses like car rental, restaurant or both inside and outside activities (dining, water sports, night shows, daily tours, etc.) decreases after starting to sell their rooms over OTAs.
P10	Selling rooms over OTAs has a positive contribution on hotels' competitiveness.
P11	Selling rooms over OTAs has a positive contribution on hotels' service efficiency
P12	Selling rooms over OTAs increases the rate of cancelled reservations.
P13	Selling rooms over OTAs has a positive contribution on hotels' brand loyalty.
P14	Hotel personnel encounter difficulties while using interface of OTAs.

Results

Descriptive Statistics Concerning Demographic Information

In the first question, it is asked property classes to the respondents. In questionnaire, all property classes are not stated in population size table. Some types like 5 Stars, 4 Stars are merged. According to these classes, the distribution of responses is indicated in Table 25.

Table 25. Hotel Class Distribution

	Frequency	Percent	Valid %	Cum. %
3 Stars	30	28.3	28.3	28.3
4 Stars	25	23.6	23.6	51.9
5 Stars	18	17.0	17.0	68.9
Special Class	33	31.1	31.1	100.0
Total	106	100.0	100.0	

As it could be seen in Table 26, all hotels use at least one computer system (desktop computers, laptop computers, PDAs, etc..) in their operations. Also, all of them use Internet in their businesses. All hotels take reservation while selling their rooms to guests.

Table 26. Features of Hotels

	N	Minimum	Maximum	Mean	Std. Dev.
Systems & Technology Usage	106	1	1	1.00	0.000
Internet Usage	106	1	1	1.00	0.000
Whether take reservation or not	106	1	1	1.00	0.000

There are different ways of receiving reservation like telephone, fax, e-mail, reservation form posted on a web-site, ORSs or Central Reservations Systems (CRS) / Global Distribution Systems (GDS). Many hotels use more than one reservation

channel. Almost all hotels prefer receiving reservation by e-mail. And most of the hotels use telephone, fax, web site – reservation form and ORSs for booking. Approximately half of hotels get involved in CRS/GDS for booking. The average of number of channels used by the hotels is about 5. The rank of channels is shown in Table 27 in accordance with hotel preferences.

Table 27. Channel Preferences of Hotels

#	Channel	Yes	No
1	E-mail	103	3
2	Telephone	99	7
3	Fax	96	10
4	ORS	90	16
5	Web Site – Reservation Form	89	17
6	CRS/GDS	52	54

According to Table 28, there are few significant differences between hotel classes in terms of reservation channel used. Pearson Chi-square statistic indicates that there is a statistically significant difference between hotel classes. It could be said that special class hotels use ORSs more than other types of hotels.

94% of the hotels have a web-site and 85% of them have ORS. For the administration and reservation operations, 83% of the hotels use property management systems (PMS). On the other hand, almost half of respondents use CRS/GDS (Table 29).

Table 28. Channel Preferences according to Hotel Classes

		3 Stars	4 Stars	5 Stars	Special Class	Total	Asymp. Sig. (2-sided) – Pearson Chi-square
Telephone	Yes	28	23	17	31	99	0.998
	No	2	2	1	2	7	
Fax	Yes	26	25	17	28	96	0.194
	No	4	0	1	5	10	
E-mail	Yes	28	25	17	33	103	0.286
	No	2	0	1	0	3	
Web-site – Reservation Form	Yes	23	20	16	30	89	0.394
	No	7	5	2	3	17	
ORS	Yes	21	24	16	29	90	0.045
	No	9	1	2	4	16	
CRS/GDS	Yes	9	15	8	20	52	0.058
	No	21	10	10	13	54	

Table 29. Technology/System Usage of Hotels

#	Technologies / Systems	Yes	No
1	Web Site	100	6
2	ORS	90	16
3	Property Management Systems	88	18
4	CRS/GDS	52	54

According to Table 30, approximately 87% of the hotels work with OTAs for marketing and selling their rooms to the travelers.

Table 30. Working with OTAs

	Frequency	Percent	Valid %	Cum. %
Yes	92	86.8	86.8	86.8
No	14	13.2	13.2	100.0
Total	106	100.0	100.0	

As it could be seen in Table 31, a hotel works with average 7 travel agencies at the same time. One hotel works with maximum 24 travel agencies.

Table 31. Statistics of Working with OTAs

	N	Minimum	Maximum	Mean	Std. Dev.
Working with OTAs	106	1	2	1.13	0.340
Working Year Interval with OTAs	92	1	5	3.02	1.139
Working Area of OTAs	92	1	3	2.74	0.489
Number of OTAs	92	0	24	7.18	5.701

According to Table 32, the average working year interval is between 4 and 6 years.

Table 32. Working Year Interval with Travel Agencies

	Frequency	Percent	Valid %	Cum. %
Less than 1 year	2	1.9	2.2	2.2
Between 1 and 3 years	35	33.0	38.0	40.2
Between 4 and 6 years	31	29.2	33.7	73.9
Between 7 and 9 years	7	6.6	7.6	81.5
More than 10 years	17	16.0	18.5	100.0
Total	92	86.8	100.0	
Missing	14	13.2		
Total	106	100.0		

Table 33 indicates that 76% of the hotels work with both domestic and international travel agencies.

Table 33. Frequencies of Working Area of Travel Agencies

	Frequency	Percent	Valid %	Cum. %
1	2	1.9	2.2	2.2
2	20	18.9	21.7	23.9
3	70	66.0	76.1	100.0
Total	92	86.8	100.0	
Missing	14	13.2		
Total	106	100.0		

In hotel survey, 32 OTAs are listed. According to Table 34; Booking.com, Hrs.com and Hotels.com are first three OTAs which are operating globally, respectively.

Gezinet.net, Tatil.com and Etstur.com.tr are local OTAs and are most preferred ones for room sales. Hotels stated different OTAs in “other” option. These are listed in Appendix H.

Table 34. List of Most Preferred OTAs

OTA	# of Responses	OTA	# of Responses
Booking.com	69	Etatil.com	13
Hrs.com	54	Tatilvitrini.com	13
Hotels.com	46	E-bookers.com	9
Expedia.com	41	Opodo.com	9
Gezinet.net	36	Heryerdentatil.com	8
Tatil.com	35	Mngturizm.com	8
Etstur.com.tr	32	Priceline.com	7
Tatilsepeti.com	32	Tatilborsasi.com	7
Gezisitesi.com	28	Garantitatil.com	5
Lastminute.com	25	Tatil.net	5
Jollytur.com.tr	24	Bytatil.com	4
Hotellium.com	23	Hotwire.com	4
Orbitz.com	20	Vip.com.tr	4
Bamtur.com	18	Cheaptickets.com	3
Travelocity.com	15	Travelagents.com	3
Anitur.com.tr	14	Bestflights.com.au	0
Tatilbudur.com	14	E-ticaret-sistemi.com	0

Hotels provide room and availability information to OTAs in five different ways which are telephone, fax, e-mail, OTA interface and integration via a sub-system added to hotels’ property management systems. Some statistics related to these communication tools are stated in Table 35.

Table 35. Frequencies of Communication Tools

	Yes		No	
	Frequency	Percent	Frequency	Percent
Telephone	25	23.6	81	76.4
Fax	23	21.7	83	78.3
E-mail	52	49.1	55	50.9
OTA Interface	66	62.3	40	37.7
Integration	11	10.4	95	89.6

Table 36 shows that 62.3% of hotels prefer interface of OTAs for information flow. E-mail is the second preferred communication tool. Integration is rarely used for providing room and availability information.

As mentioned before, 14 hotels are not working with OTAs. Table 36 indicates that remaining 92 hotels use at least one of the communication tools for information flow. At average, hotels use two types of communication tools while providing information to OTAs.

Table 36. Statistics of Communication Tool Usage

	N	Minimum	Maximum	Mean	Std. Dev.
Hotels	92	1.00	5.00	1.9239	0.997

According to Table 37, 37.7% of hotels use one communication tool, 25.5% of hotels use two communication tools for sending room and availability information to travel agencies. 93.4% of hotels use less than 4 communication tools.

Table 37. Frequencies of Hotels According to # of Communication Tools

		Frequency	%	Valid %	Cum. %
# of Communication Tools	0	14	13.2	13.2	13.2
	1	40	37.7	37.7	50.9
	2	27	25.5	25.5	76.4
	3	18	17.0	17.0	93.4
	4	6	5.7	5.7	99.1
	5	1	0.9	0.9	100.0
	Total	106	100.0	100.0	

OTAs are analyzed to see whether they have DP systems or not. According to hotel responses, which hotels' room are being sold over DP systems is determined. Approximately 70% of hotels are involved in DP systems as it can be seen in Table 38.

Table 38. Working with OTAs that have DP Systems

	Frequency	%	Valid %	Cum. %
Hotels work with OTAs that have DP systems	75	70.8	70.8	70.8
Hotels work with OTAs that have not DP systems	17	16.0	16.0	86.8
Hotels do not work with OTAs	14	13.2	13.2	100.0
Total	106	100.0	100.0	

The effects of DP systems on hotels' operations were analyzed. Hotels were asked four questions about operations and hotels have answered the questions for pre and post period of working with OTAs. According to pre-period answers, post period answers are updated. Some cases for the statements of 15 are omitted.

Table 39 shows that the mean level of the statement related to the agreements with tour operators is 1.43.

Table 39. Statistics of Operation before Working with OTAs

	N	Minimum	Maximum	Mean	Std. Dev.
Organizing Inside Activities	70	1	2	1.66	0.478
Giving Car Rental Service	72	1	2	1.61	0.491
Signing Agreements with Tour Operators	74	1	2	1.43	0.499
Selling Activities Organized by Outside Suppliers	71	1	2	1.62	0.489

According to Table 40, only 8.5 % of hotels agree with decrease in the agreements with tour operators and decrease in car rentals of hotel customers. Only 7.5 % of hotels agree with decrease in the activity participation of hotels customers.

Table 40. Frequencies of Operations after Working with OTAs

	Yes		No	
	Frequency	%	Frequency	%
Decrease in the agreements with tour operators	9	8.5	29	27.4
Decrease in car rentals of hotel customers	9	8.5	14	13.2
Decrease in activity participation of hotel customers (organized by hotels)	8	7.5	13	12.3
Decrease in activity participation of hotel customers (organized by outside suppliers)	8	7.5	15	14.2

Table 41 shows that hotels do not agree with the decrease in car rentals, both inside and outside activities and agreements with tour operators; because the mean levels of these operations are fewer than 3.

Table 41. Statistics of Operations after Working with OTAs

	N	Minimum	Maximum	Mean	Std. Dev.
Decrease in agreements with tour operators	38	2.00	4.00	2.474	0.862
Decrease in car rentals	23	2.00	4.00	2.783	0.998
Decrease in outside activities	21	2.00	4.00	2.762	0.995
Decrease in inside activities	20	2.00	4.00	2.800	1.005

One Sample T-Test Analysis

One-sample T-test is used in order to analyze the effects of DP systems on the operations of hotels. There are three propositions about room, car rental and activity operations.

One Sample T-Test Analysis for Operations

According to one-sample T-test stated in Table 42, the significance is 0.001 for the first proposition. It can be concluded that since the significance is less than 0.05, there is a statistically significant difference in the means and it is not due to the sampling error. According to Table 42; since the mean difference is negative, P1 "The agreements with tour operators decline after starting to sell their rooms over OTAs" is rejected. That is to say, there is no significant decrease in the agreements of tour operators.

As seen Table 42; for non-core business operations, the significance is more than 0.05. There is no significant difference in the non-core business operations. Hotels do not agree with decrease in car rentals and activity sales such as daily tours, water sports, night shows and so on. The result of P2 "Non-core business

operations decrease after starting to sell hotels' rooms over OTAs" is statistically insignificant.

Table 42. One-Sample Test for the Operations of Hotels

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Decrease in Room Operations (Agreements with Tour Operators)	-3.765	37	0.001	-0.526	-0.810	-0.243
Decrease in Non-Core Business Operations	-1.823	32	0.078	-0.293	-0.620	0.035

<u>One Sample T-Test Analysis for Expenses</u>

As stated in Appendix I, the mean level of computer and technology expenses in highest one. On the other hand, the mean level of training expenses is the lowest one.

As a result of factor analysis, the expenses are grouped into 4 categories. According to Table 43, there is a significant difference for the operational, unit and investment expenses and it is not due to the sampling error. That is to say, since the mean difference is negative; hotels do not agree with decrease in the operational expenses like sales & marketing expenses, labor expenses, training expenses and reporting expenses. As a result, P3 "Operational expenses decrease after starting to sell their rooms over OTAs" is rejected.

Since the mean difference is negative; hotels do not agree with decrease in the unit expenses like expenses per room and per customer. As a result, P4 "Unit expenses decrease after starting to sell their rooms over OTAs" is rejected.

Since the mean difference is positive, hotels agree with increase in the investment expenses. P5 “Investment expenses increase after starting to sell their rooms over OTAs” is accepted.

On the other hand, there is no significant difference for the support expenses. The result of P6 “Support expenses increase after starting to sell their rooms over OTAs” is statistically insignificant.

Table 43. One-Sample Test for the Expenses of Hotels

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Decrease in Operational Expenses	-3.804	74	0.000	-0.411	-0.803	-0.020
Decrease in Unit Expenses	-2.862	73	0.005	-0.378	-0.745	-0.011
Increase in Investment Expenses	2.180	72	0.033	0.315	0.006	0.624
Increase in Support Expenses	-1.067	72	0.290	-0.137	-0.273	0.001

According to Table 44, the significance is 0.000 for the P7. It can be concluded that since the significance is less than 0.05. There is a statistically significant difference in the means.

As seen Table 44; because the mean difference is negative, P7 “Total expenses decrease after starting to sell their rooms over OTAs” is rejected.

Table 44. One-Sample Test for Total Expenses of Hotels

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Decrease in total expenses	-3.733	74	0.000	-0.297	-0.580	-0.014

<u>One Sample T-Test Analysis for Revenues</u>

According to Table 45, the mean of sales received over OTAs is 1.89 that means the percentage of sales received over OTAs is approximately between 10% and 30%.

Table 45. Percentage of Sales Received Over OTAs

	Frequency	%	Cum. %
Under 10 %	26	34.7	34.7
Between 10 % and 30 %	31	41.3	76.0
Over 30%	18	24.0	100.0
Total	75	100.0	

As stated in Appendix I, the mean level of increase in room occupancy rate is the highest one. On the other hand, the mean level of increase in commission revenues from car rentals is the lowest one.

As indicated in Appendix I; the mean level of room revenues is 3.78, whereas the mean level of non-core business revenues is 2.29.

According to Table 46, the significance level of room and non-core business revenues is less than 0.05. It could be stated that there is a statistically significant difference in the means of room revenues and non-core business revenues. Hotels agree with the increase in room revenues after starting to sell rooms over OTAs. There is a significant increase in the revenues per room and the occupancy rate of

rooms. As a result, since the mean difference is positive, P8 “Room revenues increase after starting to sell their rooms over OTAs” is accepted.

In addition, hotels do not agree with the increase in non-core business revenues after starting to sell rooms over OTAs. As a result; since mean difference is negative, P9 “The revenue attained from non-core businesses like car rental, restaurant or both inside and outside activities (dining, water sports, night shows, daily tours, etc.) decreases after starting to sell their rooms over OTAs” cannot be rejected.

Table 46. One-Sample Test for the Revenues of Hotels

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Increase in Room Revenues	7.526	75	0.000	0.780	0.110	0.1450
Increase in Non-core Business Revenues	-6.474	75	0.000	-0.710	-1.340	-0.080

<u>One Sample T-Test Analysis for Contributions</u>

As stated in Appendix I, the mean level of increase in sales is the highest one and the mean level of increase in the cancelled reservations is the lowest one.

As mentioned before, factor analysis is conducted for the contributions. The mean levels of factors are stated in Appendix I. The mean level of increase in competitiveness is the highest one and the mean level of increase in cancelled reservations is lowest one.

According to Table 47, the significance level is 0.000 for competitiveness and brand loyalty. The significance level for cancelled reservations is 0.010. It could be

concluded that there is a statistically significant difference in the means of competitiveness, cancelled reservations and brand loyalty.

Hotels agree with increase in competitiveness and sales. In other words, P10 “Selling rooms over OTAs has a positive contribution on hotels’ competitiveness” is accepted.

For the service efficiency, the significance level is more than p-value (0.05). Hotels do not agree with the decrease in daily operations and the increase in the service quality. The result of P11 “Selling rooms over OTAs has a positive contribution on hotels’ service efficiency” is statistically insignificant.

Hotels consider that there is an increase in the ratio of cancelled reservations over total reservations. It could be stated that P12 “Selling rooms over OTAs increases the rate of cancelled reservations” is accepted.

In addition, selling rooms over OTAs provides branding, increase in customer loyalty and improvement in customer base. That is to say, P13 “Selling rooms over OTAs has a positive contribution on hotels’ brand loyalty” is accepted.

Table 47. One-Sample Test for the Contributions of Hotels

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Increase in Competitiveness	10.233	74	0.000	0.100	0.216	1.784
Increase in Service Efficiency	0.638	74	0.526	0.073	0.000	0.146
Increase in Cancelled Reservations	-2.508	74	0.014	-0.320	-0.632	-0.008
Increase in Brand Loyalty	4.788	74	0.000	0.491	0.034	0.948

One Sample T-Test Analysis for Difficulties

As seen in Table 48, approximately 70% of hotels use the interface of OTAs' systems for sending room and availability information.

Table 48. Usage Rate of the Interfaces of OTAs' Systems

	Frequency	Valid %	Cum. %
Yes	51	68	68
No	24	32	100.0
Total	75	100.0	

In Appendix I, possible difficulties that might be encountered in using interfaces of OTAs are listed. The mean level of time-consuming statement is the highest one, whereas the mean level of producing errors is the lowest one.

Four factors of difficulties are analyzed in one sample T-test analysis. The mean levels of four factors are under the test value (3). One-sample statistics for the difficulties of hotels are indicated in Appendix I.

According to Table 49, there is a statistically significant difference in the means of low usefulness, insufficient ease of use, low speed and high complexity of the interfaces of OTAs; since the significance of these factors is less than 0.05. Because the mean difference is negative, hotels do not agree with the difficulties like low speed, difficult data entry, complex navigation, time-consuming structure and so on.

As a result, P14 "Hotel personnel encounters difficulties while using interface of OTAs" is rejected.

Table 49. One-Sample Test for the Difficulties of Hotels

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Low Usefulness	-4.882	49	0.000	-0.690	-1.310	-0.070
Insufficient Ease Of Use	-5.308	50	0.000	-0.706	-1.331	-0.080
Low Speed	-3.249	50	0.002	-0.444	-0.866	-0.023
High Complexity	-3.832	50	0.000	-0.608	-1.174	-0.041

Other Statistics

The departments of respondents are listed in Appendix J.

CHAPTER 6

THE STUDY RELATED TO THE EFFECTS OF DP SYSTEMS ON THE PERFORMANCE OF A CLASS TRAVEL AGENCIES

Methodology

It is aimed to analyze the effects of DP systems on travel agencies' performance by conducting a survey that consists of 20 questions. As indicated in Appendix K, first ten questions are related to descriptive information concerning agency classes, technologies/systems in use, reservation principles, and product/service range. In the eleventh question, there are 8 statements about ORSs in use. The names of DP systems in use are asked in the twelfth question. 37 options are listed and other option is presented to the travel agencies.

In the thirteenth question, 16 statements are used in order to analyze expenses of travel agencies. In that question, five-point Likert scale ranging from 'strongly disagree' through 'neither agree nor disagree' to 'strongly agree' is preferred. In the fourteenth question, 9 statements using five-point Likert scale ranging from 'strongly disagree' through 'neither agree nor disagree' to 'strongly agree' are stated in order to analyze revenues of travel agencies. In the fifteenth question, 8 statements using five-point Likert scale ranging from 'strongly disagree' through 'neither agree nor disagree' to 'strongly agree' are listed in order to analyze contribution of DP systems to the travel agencies' operations.

The sixteenth and seventeenth questions are asked in order to analyze the difficulties about tourism information systems and DP systems. The sixteenth question is related to general challenges of tourism information systems. In the seventeenth question, 11 statements using five-point Likert scale ranging from

‘strongly disagree’ through ‘neither agree or disagree’ to ‘strongly agree’ are listed for analyzing the difficulties experienced by the staff of travel agencies.

The eighteenth question is related to the department of respondents. The rest two questions are related to sending the results of study to the respondents.

Pilot Study

A pilot study is carried out for travel agency survey. Some corrections are made in accordance with the suggestions of travel agencies. As in the hotel survey, "online" word is changed as "Internet". "Customer-specific package" is perceived as a package that was created manually instead of a package that was produced by the system automatically in accordance with customer preferences. Since in the 11_{th} question, they are asked questions about the DP system in use; perceived meanings of “customer-specific package” can be determined. So that no change is made for that term. Questions related to profit, turnover, and annual profit per customer reservations are removed from the survey, since travel agencies avoid to respond to such questions. The question related to the department of the respondent is revised. Examples of activities are also added to the agency survey as well as the hotel survey.

Population and Sampling

There are registered 5947 travel agencies that are the total of all classes in the Association of Turkish Travel Agencies (Türkiye Seyahat Acenteleri Birliği - TURSAB). 5495 of them are A class travel agencies. And A Class travel agencies are selected for sampling.

Table 50. Number of Travel Agencies by Classes

	# of Travel Agencies	%
A Class	5495	92 %
B Class	164	3 %
C Class	288	5 %
Total	5947	100 %

Source : TURSAB, 2010

The contact information of all travel agencies could not be obtained from TURSAB and the Ministry of Culture and Tourism. In the database of TURSAB, e-mails of some travel agencies are missing. E-mail addresses of 3599 travel agencies are received.

Within six weeks, questionnaires are sent to travel agencies three times by e-mail. The questionnaire also posted on the Internet. E-mail and the Internet are presented as two different options for reply. In total, approximately 1700 questionnaires sent to the travel agencies are reached. Since some e-mail addresses are wrong or are not being actively used, some travel agencies are not reached. 81 responses are received from the travel agencies. 35% of responses are from Internet and 65% of responses are from e-mail. As a result, the percentage of responses to the questionnaire is approximately 5%.

Reliability Analysis

It is conducted the reliability analysis for the questions related to the features of DP systems, expenses, revenues, contributions, general challenges and system difficulties that are scale questions. As a result, Cronbach's Alpha is over 0.70 for the scale questions and it is concluded that reliability is sufficient.

Table 51. Reliability Statistics of Travel Agency Survey

		N	%	Cronbach's Alpha	N of Items
Features of DP Systems	Valid	33	40.7	0.828	8
	Excluded[a]	48	59.3		
	Total	81	100.0		
Expenses	Valid	11	13.6	0.957	16
	Excluded[a]	70	86.4		
	Total	81	100.0		
Revenues	Valid	15	18.5	0.865	9
	Excluded[a]	66	81.5		
	Total	81	100.0		
Contributions	Valid	25	30.9	0.901	13
	Excluded[a]	56	69.1		
	Total	81	100.0		
General Challenges	Valid	26	32.1	0.873	5
	Excluded[a]	55	67.9		
	Total	81	100.0		
System Difficulties	Valid	23	28.4	0.845	11
	Excluded[a]	58	71.6		
	Total	81	100.0		

a. Listwise deletion based on all variables in the procedure.

Factor Analysis

As mentioned before, the purpose of factor analysis is to reduce multiple variables to a lesser number of underlying factors that are being measured by the variables.

Basic Factors

Basic factors are defined as DP systems, expenses, revenues, contributions and general challenges and system difficulties. Each factor has a separate question in hotel survey. Questions are stated in Table 52.

Table 52. Basic Factors of Travel Agency Survey

Factor Name	Related Questions
DP Systems	11.At what level do you agree with the following statements regarding the online reservation function in your web-site?
Expenses	13. At what level do you agree with the following statements regarding your expenses after building “customer-specific” travel packages in your web-site?
Revenues	14. At what level do you agree with the following statements regarding your revenues after building “customer-specific” travel packages in your web-site?
Contributions	15. At what level do you agree with the following statements regarding the contributions to your operations after building “customer-specific” travel packages in your web-site?
General challenges	16. At what level do you agree with the following statements regarding general challenges of building “customer-specific” travel packages in your web-site?
System Difficulties	17. At what level do you agree with the following statements regarding the system which builds “customer-specific” travel packages in your web-site?

Factor Analysis of DP Systems

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis. Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is middling. The value of KMO is 0.757. That means variables are measuring a common factor.

In Table 53, Bartlett's Test of Sphericity calculates the determinate of the matrix of the sums of products and cross-products from which the intercorrelation matrix is derived (Friel). P-value is less than 0.001. The sample intercorrelation matrix does not come from a population in which the intercorrelation matrix is an identity matrix.

Table 53. KMO and Bartlett's Test for DP Systems

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.757
Bartlett's Test of Sphericity	Approx. Chi-Square	97.286
	Df	28
	Sig.	0.000

It is defined eigenvalue minimum value as 0.5. The 8 Variables are reduced to 5 factors. According to Table 54, these 5 factors account for 89.12% of the covariance among the variables.

The first factor has an eigenvalue of 3.846. Since this is greater than 0.5, it explains more variance than a single variable, in fact 3.846 times as much. The second factor has an eigenvalue of 1.105. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 54. Total Variance Explained for DP Systems

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	3.846	48.069	48.069	3.846	48.069	48.069	2.180	27.254	27.254
	2	1.105	13.813	61.882	1.105	13.813	61.882	1.569	19.609	46.863
	3	0.834	10.422	72.304	0.834	10.422	72.304	1.165	14.559	61.422
	4	0.746	9.322	81.626	0.746	9.322	81.626	1.161	14.513	75.935
	5	0.600	7.498	89.124	0.600	7.498	89.124	1.055	13.189	89.124
	6	0.399	4.993	94.117						
	7	0.293	3.667	97.784						
	8	0.177	2.216	100.000						
Extraction Method: Principal Component Analysis.										

According to Table 55,

- Factor 1 appears to measure the expandability of travel packages.
- Factor 2 appears to measure the flexibility of travel packages.
- Factor 3 appears to measure the transparency of pricing.
- Factor 4 appears to measure the updateability of travel packages.
- Factor 5 appears to measure the economy of travel packages.

Table 55. Rotated Component Matrix[a] for DP Systems

	Component				
	1	2	3	4	5
Reserving more than one travel service	0.869	0.144	0.218	0.171	-0.041
Proposing other travel services	0.900	0.264	0.027	0.019	0.129
Providing instant customized travel packages	0.553	0.467	0.175	0.410	0.098
Customers update travel packages online	0.127	0.176	0.141	0.938	0.145
Showing one price for travel packages	0.163	0.074	0.949	0.153	0.102
Discount in pricing of travel packages	0.065	0.071	0.106	0.139	0.975
Customers select the start and end date of travel	0.209	0.903	-0.013	0.199	0.011
Agencies update and expand content of services	0.467	0.635	0.394	0.028	0.214
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.					
a. Rotation converged in 5 iterations.					

The details of categorization of variables are summarized in Table 56.

Table 56. Factor List for DP Systems

Factor	Component	Variable
The Features of DP Systems	Expandability of travel packages.	Reserving more than one product/service in single reservation process
		Proposing different product/service to customer by the system
		Building instant customized travel packages for customers
	Flexibility of travel packages.	Customer could select travel start and end dates
		Expanding content of products/services by travel agencies
	Transparency of pricing.	Showing individual prices of products/services
	Updateability of travel packages.	The content of travel packages would be updated by customers
	Economy of travel packages.	The system makes discounts in building travel packages

Factor Analysis of Expenses

Minimum eigenvalue is defined as 0.5. 16 Variables are reduced to 4 factors. According to Table 57, these 4 factors account for 93.69% of the covariance among the variables.

In Table 57, the first factor has an eigenvalue of 11.084. Since this is greater than 0.5, it explains more variance than a single variable, in fact 11.084 times as much. The second factor has an eigenvalue of 1.996. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 57. Total Variance Explained for the Expenses of Travel Agencies

Comp-onent		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	11.084	69.275	69.275	11.084	69.275	69.275	5.030	31.441	31.441
	2	1.996	12.475	81.750	1.996	12.475	81.750	4.567	28.542	59.983
	3	1.109	6.930	88.680	1.109	6.930	88.680	4.043	25.266	85.249
	4	0.802	5.013	93.693	0.802	5.013	93.693	1.351	8.445	93.693
	5	0.482	3.012	96.705						
	6	0.369	2.309	99.014						
	7	0.122	0.763	99.777						
	8	0.023	0.146	99.922						
	9	0.012	0.078	100.000						
	10	3.995	2.497	100.000						
	11	6.291	3.932	100.000						
	12	1.645	1.028	100.000						
	13	-1.054	-6.586	100.000						
	14	-1.452	-9.072	100.000						
	15	-2.990	-1.869	100.000						
	16	-4.971	-3.107	100.000						
Extraction Method: Principal Component Analysis.										

According to Table 58,

- Factor 1 appears to measure decrease in secondary product expenses and rental expenses.
- Factor 2 appears to measure decrease in unit costs and package tour expenses.
- Factor 3 appears to measure decrease in main product and labor expenses.
- Factor 4 appears to measure increase in computer and technology expenses.

Table 58. Rotated Component Matrix[a] for the Expenses of Travel Agencies

	Component			
	1	2	3	4
Decrease in Hotel Marketing & Sales Expenses	0.341	0.355	0.815	0.109
Decrease in Flight Marketing & Sales Expenses	0.516	0.337	0.743	0.052
Decrease in Car Rental Marketing & Sales Expenses	0.902	0.156	0.356	0.156
Decrease in Activity Marketing & Sales Expenses	0.821	0.226	0.283	-0.254
Decrease in Transfer Marketing & Sales Expenses	0.546	0.272	0.705	0.335
Decrease in Bus Marketing & Sales Expenses	0.902	0.156	0.356	0.156
Decrease in Train Marketing & Sales Expenses	0.902	0.156	0.356	0.156
Decrease in Package Tour Marketing & Sales Expenses	0.213	0.843	0.371	0.091
Decrease in Labor Expenses	0.339	0.606	0.633	-0.133
Decrease in Training Expenses	0.453	0.486	0.668	0.098
Decrease in Reporting Expenses	0.393	0.673	0.582	0.113
Decrease in Unit Cost of customers	0.295	0.795	0.489	0.027
Decrease in Unit Cost of Reservations	0.157	0.750	0.532	0.294
Increase in Computer and Technology Expenses[b]	-0.114	-0.197	-0.119	-0.953
Decrease in Office/Building Rental Expenses	0.758	0.547	0.031	0.132
Decrease in Call Center Expenses	0.124	0.912	0.097	0.158
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 7 iterations.				
b. Reverse coded in the analysis.				

The details of categorization of variables are summarized in Table 59.

Table 59. Factor List for Expenses

Factor	Component	Variable
Expenses	Decrease in Secondary product expenses and rental expenses	Decrease in Car Rental Marketing & Sales Expenses
		Decrease in Activity Marketing & Sales Expenses
		Decrease in Bus Marketing & Sales Expenses
		Decrease in Train Marketing & Sales Expenses
		Decrease in Office/Building Rental Expenses
	Decrease in Unit costs, package tour expenses and communication expenses	Decrease in Package Tour Marketing & Sales Expenses
		Decrease in Reporting Expenses
		Decrease in Unit Cost of customers
		Decrease in Unit Cost of Reservations
		Decrease in Call Center Expenses
	Decrease in Main product and labor expenses	Decrease in Hotel Marketing & Sales Expenses
		Decrease in Flight Marketing & Sales Expenses
		Decrease in Transfer Marketing & Sales Expenses
		Decrease in Labor Expenses
		Decrease in Training Expenses
	Increase in Computer and technology expenses[a]	Increase in Computer and Technology Expenses[a]
a. Reverse coded in the analysis		

Factor Analysis of Revenues

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis. In Table 60, Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is mediocre. The value of KMO is 0.597. That means variables are measuring a common factor.

Table 60. KMO and Bartlett's Test for the Revenues of Travel Agencies

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.597
Bartlett's Test of Sphericity	Approx. Chi-Square	107.214
	df	36
	Sig.	0.000

Minimum eigenvalue is defined as 0.5. According to Table 61, 9 variables are reduced to 4 factors. These 4 factors account for 90.71% of the covariance among the variables.

In Table 61, the first factor has an eigenvalue of 5.149. Since this is greater than 0.5, it explains more variance than a single variable, in fact 5.149 times as much. The second factor has an eigenvalue of 1.468. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 61. Total Variance Explained for the Revenues of Travel Agencies

Comp-onent		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	5.149	57.216	57.216	5.149	57.216	57.216	3.715	41.274	41.274
	2	1.468	16.312	73.527	1.468	16.312	73.527	1.745	19.386	60.660
	3	1.015	11.280	84.807	1.015	11.280	84.807	1.602	17.796	78.455
	4	0.531	5.898	90.705	0.531	5.898	90.705	1.102	12.249	90.705
	5	0.438	4.868	95.573						
	6	0.191	2.122	97.694						
	7	0.136	1.512	99.206						
	8	0.062	0.692	99.899						
	9	0.009	0.101	100.000						
Extraction Method: Principal Component Analysis.										

According to Table 62,

- Factor 1 appears to measure increase in secondary product revenues.
- Factor 2 appears to measure increase in main product revenues.
- Factor 3 appears to measure increase in package tour and cruise revenues.
- Factor 4 appears to measure increase in car rental revenues.

Table 62. Rotated Component Matrix[a] for the Revenues of Travel Agencies

	Component			
	1	2	3	4
Increase in Hotel Sales	0.361	0.885	-0.007	0.054
Increase in Flight Sales	0.108	0.813	0.345	0.312
Increase in Car Rental Revenues	0.450	0.293	0.034	0.815
Increase in Activity Sales	0.907	0.328	-0.082	0.001
Increase in Transfer Revenues	0.907	0.166	0.122	0.288
Increase in Bus Revenues	0.923	0.207	0.125	0.258
Increase in Train Revenues	0.835	0.106	0.204	0.271
Decrease in Package Tour Revenues[b]	0.046	-0.120	-0.932	0.090
Increase in Cruise Revenues	0.417	0.106	0.731	0.328
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 5 iterations.				
b. Reverse coded in the analysis				

The details of categorization of variables are summarized in Table 63.

Table 63. Factor List for the Revenues of Travel Agencies

Factor	Component	Variable
Revenues	Increase in Secondary product revenues	Increase in Activity Sales
		Increase in Transfer Revenues
		Increase in Bus Revenues
		Increase in Train Revenues
	Increase in Main product revenues	Increase in Hotel Sales
		Increase in Flight Sales
	Increase in Package tour and cruise revenues	Decrease in Package Tour Revenues[a]
		Increase in Cruise Revenues
	Increase in Car rental revenues	Increase in Car Rental Revenues
a. Reverse coded in the analysis		

Factor Analysis of Contributions

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis. According to Table 64, Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is mediocre. The value of KMO is 0.677. That means variables are measuring a common factor.

Table 64. KMO and Bartlett's Test for the Contributions of DP Systems

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.677
Bartlett's Test of Sphericity	Approx. Chi-Square	264.057
	df	78
	Sig.	0.000

Minimum eigenvalue is defined as 0.5. In Table 65, the 13 variables are reduced to 6 factors. These 6 factors account for 91.34% of the covariance among the variables.

The first factor has an eigenvalue of 6.79. Since this is greater than 0.5, it explains more variance than a single variable, in fact 6.79 times as much. The second factor has an eigenvalue of 2.09. It is also greater than 0.5, and therefore explains more variance than a single variable.

Table 65. Total Variance Explained for the Contributions of DP Systems

Comp-onent		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	6.790	52.229	52.229	6.790	52.229	52.229	2.854	21.956	21.956
	2	2.092	16.095	68.324	2.092	16.095	68.324	2.666	20.509	42.465
	3	1.093	8.406	76.730	1.093	8.406	76.730	2.654	20.417	62.882
	4	0.750	5.772	82.502	0.750	5.772	82.502	1.554	11.956	74.838
	5	0.626	4.813	87.316	0.626	4.813	87.316	1.314	10.106	84.944
	6	0.523	4.022	91.337	0.523	4.022	91.337	0.831	6.393	91.337
	7	0.410	3.152	94.489						
	8	0.243	1.867	96.356						
	9	0.217	1.672	98.028						
	10	0.117	0.898	98.927						
	11	0.070	0.536	99.463						
	12	0.037	0.286	99.749						
	13	0.033	0.251	100.000						
Extraction Method: Principal Component Analysis.										

According to Table 66,

- Factor 1 appears to measure improvements in services / products and supplier relationships.
- Factor 2 appears to measure improvements in market position.
- Factor 3 appears to measure increase in efficiency of operations.
- Factor 4 appears to measure increase in service quality.
- Factor 5 appears to measure increase in cancelled reservations.
- Factor 6 appears to measure increase in customer satisfaction.

Table 66. Rotated Component Matrix[a] for the Contributions of DP Systems

	Component					
	1	2	3	4	5	6
Increase in competitiveness	0.189	0.875	0.013	0.132	0.175	0.235
Increase in sales	0.254	0.687	0.567	0.030	0.019	0.165
Decrease in daily operations	-0.009	0.119	0.863	0.146	-0.312	-0.150
Increase in service quality	0.172	0.138	0.058	0.945	0.103	0.133
Increase in the ratio of cancelled reservations[a]	0.129	0.175	-0.241	0.121	0.908	0.051
Increase in market share	0.489	0.703	0.308	0.221	0.109	-0.113
Increase in customer satisfaction	0.231	0.271	0.143	0.527	0.117	0.699
Strengthens relationship with suppliers	0.591	0.424	0.397	0.246	0.288	-0.200
Increase in supplier satisfaction	0.498	0.428	0.587	0.179	0.264	0.019
Enlarges supplier network	0.685	0.586	0.164	0.165	0.103	-0.039
Decrease in operational works	0.231	0.106	0.906	-0.029	-0.052	0.244
Increase in service / product range	0.933	0.209	0.063	0.069	-0.003	0.213
Provides branding	0.653	0.189	0.238	0.393	0.398	0.239
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 7 iterations.						
b. Reverse coded in the analysis						

The details of categorization of variables are summarized in Table 67.

Table 67. Factor List for the Contributions of DP Systems

Factor	Component	Variable
Contributions	Improvements in service/product range and supplier relationships	Strengthens relationship with suppliers
		Enlarges supplier network
		Increase in supplier satisfaction
		Increase in service / product range
		Provides branding
	Improvements in Market Position	Increase in competitiveness
		Increase in sales
		Increase in market share
	Increase in Efficiency of Operations	Decrease in daily operations
		Decrease in operational works
	Increase in Service Quality	Increase in service quality
	Increase in the cancelled reservations[a]	Increase in the ratio of cancelled reservations[a]
	Increase in Customer Satisfaction	Increase in customer satisfaction
a. Reverse code in the analysis		

Factor Analysis of General Challenges

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis. According to Table 68, Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is middling. The value of KMO is 0.765. That means variables are measuring a common factor.

Table 68. KMO and Bartlett's Test for General Challenges

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.765
Bartlett's Test of Sphericity	Approx. Chi-Square	65.173
	df	10
	Sig.	0.000

Minimum eigenvalue is defined as 0.5. In Table 69, 5 variables are reduced to 3 factors. These 3 factors account for 91.76% of the covariance among the variables.

The first factor has an eigenvalue of 3.334. Since this is greater than 0.5, it explains more variance than a single variable, in fact 3.334 times as much.

Table 69. Total Variance Explained for General Challenges

Comp-onent		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
	1	3.334	66.679	66.679	3.334	66.679	66.679	1.987	39.735	39.735
	2	0.672	13.432	80.111	0.672	13.432	80.111	1.503	30.054	69.789
	3	0.583	11.652	91.762	0.583	11.652	91.762	1.099	21.973	91.762
	4	0.215	4.307	96.069						
	5	0.197	3.931	100.000						

Extraction Method: Principal Component Analysis.

According to Table 70;

- Factor 1 appears to measure system and financial challenges.
- Factor 2 appears to measure organizational challenges.
- Factor 3 appears to measure the challenge in the standardization of information

Table 70. Rotated Component Matrix[a] for General Challenges

	Component		
	1	2	3
Non-standardized tourism information	0.289	0.268	0.906
Incompatible software systems	0.873	0.043	0.381
Insufficient connectivity of systems	0.807	0.422	0.201
High investment costs	0.680	0.651	0.063
Requires changes in organizational structure	0.164	0.910	0.297

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

The details of categorization of variables are summarized in Table 71.

Table 71. Factor Table for General Challenges

Factor	Component	Variable
General challenges	Challenge in standardization of information	Non-standardized tourism information
	System and financial challenges	Incompatible software systems
		Insufficient connectivity of systems
		High investment costs
	Organizational challenges	Requires changes in organizational structure

Factor Analysis of System Difficulties

Firstly, KMO and Bartlett's Test is conducted in order to check the applicability of factor analysis. According to Table 72, Kaiser-Meyer-Olkin Measure of Sampling Adequacy degree of variance is “don’t factor”. The value of KMO is 0.43. That means variables are not measuring a common factor for system difficulties.

Table 72. KMO and Bartlett's Test for System Difficulties

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.493
Bartlett's Test of Sphericity	Approx. Chi-Square	161.346
	df	55
	Sig.	0.000

Propositions

In travel agency survey, it is aimed that 16 propositions related to DP systems, expenses, revenues, contributions, general challenges and system difficulties are accepted or rejected. There are 4 propositions regarding expenses, 4 propositions regarding revenues, 6 propositions regarding contributions, 1 proposition regarding general challenges and 1 proposition regarding system difficulties. The propositions are listed in Table 73.

Table 73. List of Travel Agency Propositions

P1	Computer and technology expenses of travel agencies increase after implementation of DP systems.
P2	Marketing and sales expenses of main product like hotel and flight and labor expenses of travel agencies decrease after implementation of DP systems.
P3	Secondary product expenses and rental expenses of travel agencies decrease after implementation of DP systems.
P4	Unit costs, package tour expenses and communication expenses of travel agencies decrease after implementation of DP systems.
P5	Main product revenues increase after implementation of DP systems.
P6	Car rental revenues increase after implementation of DP systems.
P7	Secondary product revenues increase after implementation of DP systems.
P8	Package tour and cruise revenues decrease after implementation of DP systems.
P9	Market position of travel agencies improves after the implementation of DP systems.
P10	Efficiency of operations increases after the implementation of DP systems.
P11	Service/product range and supplier relationships improve after the implementation of DP systems.
P12	Service quality increases after the implementation of DP systems.
P13	The rate of cancelled reservations increases after the implementation of DP systems.
P14	Customer satisfaction increases after the implementation of DP systems.
P15	Travel agencies encounter challenges in the usage of DP systems.
P16	Travel agencies experience difficulties in the interface of DP systems

Results

Descriptive Statistics Concerning Demographic Information

In the first question, it is asked travel agency classes to the respondents. According to Table 74, it is concluded that all travel agencies are A class.

All travel agencies use Internet and at least one computer system (desktop computers, laptop computers, PDAs, etc..) in their operations.

Table 74. Features of Travel Agencies

	# of Travel Agencies	%
Systems & Technology Usage	81	100 %
Internet Usage	81	100 %

As hotels, there are various reservation channels like telephone, fax, e-mail, reservation form posted in a web-site, ORSs or Central Reservations Systems (CRS) / Global Distribution Systems (GDS).

Many travel agencies use more than one reservation channel. In Table 75, 70 travel agencies prefer receiving reservation by e-mail. And most of the travel agencies use telephone for booking. Approximately half of travel agencies prefer fax, web site – reservation form and ORSs. Few travel agencies get involved in CRS/GDS for booking. The average of number of channels used by the travel agencies is about 4.

Table 75. Frequencies of Reservation Channels

	Yes		No		Total	
	Frequency	%	Frequency	%	Frequency	%
Telephone	65	80.2	16	19.8	81	100.0
Fax	46	56.8	35	43.2	81	100.0
E-mail	70	86.4	11	13.6	81	100.0
Web-site Reservation Form	47	58.0	34	42.0	81	100.0
ORS	35	43.2	46	56.8	81	100.0
CRS / GDS	24	29.6	57	70.4	81	100.0

According to Table 76, 95% of the travel agencies have a web-site and 43% of them have ORS. For the administration and reservation operations, 54% of the travel agencies use agency management systems.

Table 76. Frequencies of Systems/Technology in Use

	Yes		No		Total	
	Frequency	%	Frequency	%	Frequency	%
Agency Management System	44	54.3	37	45.7	81	100
ORS	35	43.2	46	56.8	81	100
Web-site	77	95.1	4	4.9	81	100
CRS/GDS	30	37	51	63	81	100

Hotel, flight, package tour and transfer are preferred mostly by travel agencies. In Table 77, hotel is the most preferred one by approximately 93%. More than half of respondents sell activity, car rental and cruise to their customers.

Table 77. Frequencies of Travel Services

	Yes		No		Total	
	Frequency	%	Frequency	%	Frequency	%
Hotel	75	92.6	6	7.4	81	100.0
Dining	35	43.2	46	56.8	81	100.0
Flight	66	81.5	15	18.5	81	100.0
Package Tour	67	82.7	14	17.3	81	100.0
Car Rental	48	59.3	33	40.7	81	100.0
Cruise	44	54.3	37	45.7	81	100.0
Bus	34	42.0	47	58.0	81	100.0
Transfer	63	77.8	18	22.2	81	100.0
Train	8	9.9	73	90.1	81	100.0
Activity	51	63.0	30	37.0	81	100.0
Other (Congress)	1	1.2	80	98.8	81	100.0

As stated in Table 78, almost all travel agencies have a web-site.

Table 78. Frequency of Web-site Usage

	Frequency	%	Valid %	Cum. %
Yes	77	95.1	95.1	95.1
No	4	4.9	4.9	100.0
Total	81	100.0	100.0	

As it is indicated in Table 79, 65% of travel agencies have a web-site for more than 3 years.

As online travel services, hotel, flight and package tour are preferred mostly by travel agencies. In Table 80, hotel is the most preferred one by approximately 70%. Approximately half of respondents sell activity, car rental, transfer and cruise to their customers.

Table 79. Frequency of Web-site Year

	Frequency	%	Valid %	Cum. %
Less than 1 year	11	13.6	14.3	14.3
Between 1 and 3 years	13	16.0	16.9	31.2
More than 3 years	53	65.4	68.8	100.0
Total	77	95.1	100.0	
Missing	4	4.9		
Total	81	81	100.0	

Table 80. Frequencies of Online Travel Services

	Yes		No		Total	
	Frequency	%	Frequency	%	Frequency	%
Hotel	57	70.4	24	29.6	81	100.0
Dining	13	16.0	68	84.0	81	100.0
Flight	49	60.5	32	39.5	81	100.0
Package Tour	56	69.1	25	30.9	81	100.0
Car Rental	30	37.0	51	63.0	81	100.0
Cruise	29	35.8	52	64.2	81	100.0
Bus	18	22.2	63	77.8	81	100.0
Transfer	35	43.2	46	56.8	81	100.0
Train	5	6.2	76	93.8	81	100.0
Activity	36	44.4	45	55.6	81	100.0
Other (Congress)	0	0.0	81	100.0	81	100.0

According to Table 81, 42% of travel agencies have an ORS in their web-sites.

Table 81. Frequency of ORS Usage

	Frequency	%	Valid %	Cum. %
Yes	34	42.0	44.2	44.2
No	43	53.1	55.8	100.0
Total	77	95.1	100.0	
Missing	4	4.9		
Total	81	100.0		

8 features of DP systems are defined in the agency survey. According to Table 82 and 83, DP systems provide agencies with updating and expanding content of

services. Customers would select the start and end date of their travels. DP systems mostly propose other travel services and provide customers with reserving more than one travel service in one reservation process. On the other hand it cannot be said that customers would update travel packages online and the system indicates one price for the travel packages.

Table 82. Statistics of DP Systems

	Reserving more than one travel service	Proposing other travel services	Providing instant customized travel packages	Customers update travel packages online	Showing one price for travel packages	Discount in pricing of travel packages	Customers select the start and end date of travel	Agencies update and expand content of services
N	34	34	34	34	34	33	34	34
Missing	47	47	47	47	47	48	47	47
Mean	3.76	3.82	3.47	2.62	2.647	3.48	3.94	4.03
Std.Dev.	1.478	1.290	1.581	1.688	1.535	1.372	1.301	1.314
Variance	2.185	1.665	2.499	2.849	2.357	1.883	1.693	1.726
Min	1	1	1	1	1.00	1	1	1
Max	5	5	5	5	5.00	5	5	5

Table 83**.** Detailed Statistics of DP Systems

	Reserving more than one travel service		Proposing other travel services		Providing instant customized travel packages		Customers update travel packages online		Showing one price for travel packages		Discount in pricing of travel packages		Customers select the start and end date of travel		Agencies update and expand content of services	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1	5	6.2	2	2.5	7	8.6	15	18.5	10	12.3	4	4.9	3	3.7	3	3.7
2	3	3.7	5	6.2	3	3.7	4	4.9	10	12.3	4	4.9	3	3.7	2	2.5
3	2	2.5	4	4.9	4	4.9	1	1.2	3	3.7	7	8.6	2	2.5	4	4.9
4	9	11.1	9	11.1	7	8.6	7	8.6	4	4.9	8	9.9	11	13.6	7	8.6
5	15	18.5	14	17.3	13	16.0	7	8.6	7	8.6	10	12.3	15	18.5	18	22.2
Total	34	42.0	34	42.0	34	42.0	34	42.0	34	42.0	33	40.7	34	42.0	34	42.0

In Table 84, 77.4% of travel agencies use one DP system in their businesses. Few travel agencies have two or more DP systems.

Table 84. Number of DP Systems used by OTAs

	Frequency	%	Valid %	Cum. %
1 DP System	24	29.6	77.4	77.4
2 DP Systems	3	3.7	9.7	87.1
3 DP Systems	2	2.5	6.5	93.5
4 DP Systems	1	1.2	3.2	96.8
5 DP Systems	1	1.2	3.2	100.0
Total	31	38.3	100.0	
Missing	50	61.7		
Total	81	100.0		

According to Table 85, DP systems are developed in-house in most of travel agencies. TravelSpike, Galileo-NeatAgent, Expedia, Orbitz DP, Amadeus are some of DP systems developed by outside vendors.

Table 85. Frequencies of DP Systems in Use

DP System	Frequency
In-house Software	25
Travel Packager (Travel Spike)	3
Galileo – NeatAgent	2
Expedia	1
Orbitz DP	1
Amadeus	1
Web Applications	1
ebookers.de	1
eDreams	1
Protur	1
Tourkuaz	1
Dominant	1
Hotel Pro	1
Other	7

One Sample T-Test Analysis

One Sample T-test Analysis for DP Systems

One-sample T-test is used in order to analyze the DP systems of travel agencies. According to Table 86, there is a significance difference in expandability of travel packages and flexibility of travel packages. It could be concluded that since the significance is less than 0.05, there is a statistically significant difference in the means and it is not due to the sampling error. The difference in expandability of travel packages means that customers could reserve more than one travel service in the DP systems. And it could be noted that the DP systems propose other travel services and provide instant customized travel packages in the reservation process.

The difference in flexibility of travel packages means that customers could select travel start and end dates of their travels and the content of products/services could be expanded by travel agencies.

As seen in Table 86; for transparency of pricing, updateability of travel packages and economy of travel packages, the significance is more than 0.05. There is no significant difference in these factors. Travel agencies do not agree that their systems show individual prices to the customers and the content of travel packages would be updated by the customers. The DP systems do not make many discounts in building travel packages.

Table 86. One-Sample Test for DP Systems

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Expandability of travel packages.	3.129	33	0.004	0.686	0.240	1.133
Transparency of pricing.	-1.341	33	0.189	-0.353	-0.889	0.183
Flexibility of travel packages.	4.853	33	0.000	0.985	0.572	1.398
Updateability of travel packages.	-1.321	33	0.196	-0.382	-0.97	0.21
Economy of travel packages.	2.030	32	0.051	0.485	0.00	0.97

As a result, the DP systems used by travel agencies build expandable and flexible travel packages. So, the DP systems that have following features are analyzed in this study.

- Reserving more than one product/service in single reservation process
- Proposing different product/service to customer by the system
- Building instant customized travel packages for customers
- Customer could select travel start and end dates
- Expanding content of products/services by travel agencies

<u>One Sample T-test Analysis for Expenses</u>

One-sample T-test is used in order to analyze the effects of DP systems on the expenses of travel agencies.

According to Table 87, there is a significance difference in the computer and technology expenses. It could be said that since the significance is less than 0.05, there is a statistically significant difference in the means and it is not due to the sampling error. Since the statement of computer and technology expenses is reverse coded in the analysis, the negative difference in the computer and technology

expenses means that these expenses increase after the implementation of DP systems. As a result, P1 “Computer and technology expenses of travel agencies increase after implementation of DP systems” is accepted.

According to Table 87, there is no significant difference in main product expenses, labor expenses, secondary product expenses, rental expenses.

Table 87. One-Sample Test for the Expenses of Travel Agencies

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Decrease in main product and labor expenses.	0.604	31	0.550	0.132	-0.315	0.579
Decrease in secondary product expenses and rental expenses	-0.651	31	0.520	-0.151	-0.622	0.321
Decrease in unit costs and package tour expenses.	1.264	28	0.217	0.291	-0.181	0.764
Increase in computer and technology expenses[a]	-2.947	29	0.006	-0.733	-1.242	-0.224
a. Reverse coded in the analysis						

The results of P2 “Marketing and sales expenses of main product like hotel and flight and labor expenses of travel agencies decrease after implementation of DP systems”, P3 “Secondary product expenses and rental expenses of travel agencies decrease after implementation of DP systems” and P4 “Unit costs, package tour expenses and communication expenses of travel agencies decrease after implementation of DP systems” are statistically insignificant.

One Sample T-test Analysis for Revenues

One-sample T-test is again used in order to analyze the effects of DP systems on the revenues of travel agencies. According to Table 88, there is a significance difference in the main product revenues. It could be stated that since the significance is less than 0.05, there is a statistically significant difference in the means and it is not due to the sampling error. According to Table 130, the positive difference in the main product revenues means that hotel and flight revenues increase after the implementation of DP systems. As a result, P5 "Main product revenues increase after implementation of DP systems" is accepted.

According to Table 88, there are no significant difference in car rental revenues, secondary product revenues, package tour revenues and cruise revenues.

Table 88. One-Sample Test for the Revenues of Travel Agencies

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Increase in main product revenues	4.882	31	0.000	0.797	0.464	1.130
Increase in car rental revenues	0.972	23	0.341	0.250	-0.28	0.78
Increase in secondary product revenues	0.761	28	0.453	0.190	-0.321	0.700
Increase in package tour and cruise revenues	0.866	26	0.394	0.167	-0.229	0.562

The results of P6 "Car rental revenues increase after implementation of DP systems", P7 "Secondary product revenues increase after implementation of DP systems", and P8 "Package tour and cruise revenues decrease after implementation of DP systems" are statistically insignificant.

One Sample T-test Analysis for Contributions

One-sample T-test is used in order to analyze the contributions of DP systems to the business of travel agencies. According to Table 89, there is a significance difference in the market position, the efficiency of operations, services/products, supplier relationships, and service quality and customer satisfaction. It could be stated that since the significance is less than 0.05, there is a statistically significant difference in the means and it is not due to the sampling error.

According to Table 89, the positive difference in the market position means that DP systems provide a competitive advantage to the travel agencies. After the implementation of DP systems, the sales and the market share of travel agencies improve. P9 "Market position of travel agencies improves after the implementation of DP systems" is accepted.

According to Table 89, the positive difference in the efficiency of operations means that DP systems help travel agencies in decreasing daily operations and operational works. P10 "Efficiency of operations increases after the implementation of DP systems" is accepted.

DP systems provide a lot of dynamic travel packages to customers. According to Table 89, the positive difference in the improvements in service/product range and supplier relationships means that DP systems strengthen the relationship with suppliers and enlarge supplier network. P11 "Service/product range and supplier relationships improve after the implementation of DP systems" is accepted.

In addition, according to Table 89, the positive difference in the increase in service quality means that P12 "Service quality increases after the implementation of DP systems" is accepted.

There is no significant difference in the increase in cancelled reservations. The ratio of cancelled reservations does not decrease significantly by the launch of DP systems. The result of P13 “The ratio of cancelled reservations increases after the implementation of DP systems” is statistically insignificant.

According to Table 89, the positive difference in the customer satisfaction means that customer satisfaction improves by the implementation of DP systems. P14 “Customer satisfaction increases after the implementation of DP systems” is accepted.

Table 89. One-Sample Test for the Contributions of DP Systems

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Improvements in market position	6.933	31	0.000	1.083	0.765	1.402
Increase in efficiency of operations	3.308	31	0.002	0.615	0.235	0.994
Improvements in service/product range and supplier relationships	6.539	31	0.000	0.956	0.658	1.254
Increase in service quality	7.155	31	0.000	1.063	0.76	1.37
Increase in cancelled reservations	-0.143	28	0.887	-0.035	-0.069	-0.000
Increase in customer satisfaction	4.971	30	0.000	0.903	0.53	1.27

<u>One Sample T-test Analysis for General Challenges</u>

One-sample T-test is used in order to analyze the general challenges of tourism information systems. According to Table 90, there is a significance difference in the challenge in standardization of information, organizational challenges and, system

and financial challenges. It could be said that since the significance is less than 0.05, there is a statistically significant difference in the means and it is not due to the sampling error.

According to Table 90, the positive difference in challenge in the standardization of information and the positive difference in the organizational challenges mean that travel agencies encounter challenges in these issues. In addition, the positive difference in the system and financial challenges means that there are incompatible software systems, challenges in the connectivity of systems and high investments costs of DP systems for tourism industry. In addition, travel agencies agree that the usage of DP systems requires changes in organizational structure. P15 “Travel agencies encounters challenges in the usage of DP systems” is accepted.

Table 90. One-Sample T-test for General Challenges

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Challenge in standardization of information	5.477	29	0.000	1.033	0.65	1.42
System and financial challenges	3.132	29	0.004	0.633	0.220	1.047
Organizational challenges	3.652	27	0.001	0.679	0.30	1.06

<u>One Sample T-test Analysis for System Difficulties</u>

As mentioned before, factor analysis could not be applied since the value of KMO is under 0.5. For every statement of system difficulties, one sample T-test analysis is conducted in order to analyze the system difficulties of DP systems.

According to Table 91, there is a significance difference in the statement of sufficient functionality of interfaces, errors in interfaces and difficulty in reaching necessary information. It could be stated that since the significance is less than 0.05, there is a statistically significant difference in the means and it is not due to the sampling error. Since the mean difference of sufficient functionality of interfaces is positive, travel agencies do not experience difficulties in that statement. In addition, since the mean differences of difficulty in reaching necessary information and errors in interfaces are negative, it can be said that travel agencies have not difficulties in those issues. Furthermore, it could not be said that travel agencies agree with the difficulty in reporting, speed of systems, data entry and requirement of advanced computer knowledge.

Table 91. One-Sample Test for System Difficulties

	Test Value = 3					
					95 % Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Interface of DP System is functional	4.386	25	0.000	0.808	0.430	1.19
Speed of DP System is insufficient	-0.617	23	0.543	-0.125	-0.544	0.294
Reporting of DP System is insufficient	-1.696	23	0.103	-0.333	-0.740	0.073
Data entry to DP Systems is difficult	-0.514	22	0.613	-0.130	-0.657	0.396
Reaching necessary information is difficult	-2.193	24	0.038	-0.440	-0.854	0.026
DP System requires advanced computer knowledge	-0.647	24	0.524	-0.120	-0.503	0.263
DP System produces errors in its interface	-2.400	24	0.024	-0.440	-0.818	-0.062

As a result, P16 “Travel agencies experience difficulties in the interface of DP systems” is statistically insignificant.

Detail statistics of one sample T-tests are stated in Appendix L.

CHAPTER 7

CONCLUSION

Hotel Survey

By this study, the effects of DP systems on the performance of the hotels are proposed. 14 hotel propositions are tested by analyzing survey results.

Table 92. Summary of the Results of Proposition Testing for the Hotel Survey

#	Propositions	Result
P1	The agreements with tour operators decline after starting to sell their rooms over OTAs.	Rejected
P2	Non-core business operations decrease after starting to sell hotels' rooms over OTAs.	Statistically insignificant
P3	Operational expenses decrease after starting to sell their rooms over OTAs.	Rejected
P4	Unit expenses decrease after starting to sell their rooms over OTAs.	Rejected
P5	Investment expenses computers and technology expense increase after starting to sell their rooms over OTAs.	Accepted
P6	Support expenses like data transfer expenses decrease after starting to sell their rooms over OTAs.	Statistically insignificant
P7	Total expenses decrease after starting to sell their rooms over OTAs	Rejected
P8	Room revenues increase after starting to sell their rooms over OTAs.	Accepted
P9	The revenue attained from non-core busineses like car rental, restaurant or both inside and outside activities (dining, water sports, night shows, daily tours, etc.) decreases after starting to sell their rooms over OTAs.	Cannot be rejected
P10	Selling rooms over OTAs has a positive contribution on hotels' competitiveness.	Accepted
P11	Selling rooms over OTAs has a positive contribution on hotels' service efficiency.	Statistically insignificant
P12	Selling rooms over OTAs has a increases the rate of cancelled reservations	Accepted
P13	Selling rooms over OTAs has a positive contribution on hotels' brand loyalty.	Accepted
P14	Hotel personnel encounters difficulties while using interface of OTAs.	Rejected

Since DP systems are generally used by OTAs, the effects of DP systems on the performance of the hotels are analyzed by observing the effects of working with OTAs that have DP systems on the performance of the hotels.

First two propositions are related to operations of hotels. Generally, operations of hotels like activity selling, car rental, agreements of tour operators decline after starting to sell their rooms over OTAs.

For the agreements with tour operators, it could be stated that since there is an increase in online sales of hotel rooms by OTAs, there should be a decrease in these agreements that includes room sales in batches. While making agreements with OTAs, hotels notice OTAs about their availability of rooms continuously. But first proposition "The agreements with tour operators decline after starting to sell their rooms over OTAs" is rejected.

One of the possible reasons for the decrease in activity of hotels is that customers start to build their whole travel before arriving destinations from OTAs by DP systems. So they search, select and reserve activities like water sports and daily tours before arriving hotels and visiting activity sales department of hotels. In addition, customers could add car rentals into their travel packages by the help of DP systems. So they do not need car rental desks located in hotels. But the result of second proposition "Non-core business operations like activity sales and car rentals decrease after starting to sell hotels' rooms over OTAs" is statistically insignificant.

5 propositions related to expenses of hotels are tested in this study. These propositions help in assessing the performance of hotels. Operational expenses like sales/marketing expenses, reporting expenses, training expenses and labor expenses should be decline after starting to work with OTAs. One of possible reasons for that decrease is that OTAs market and sells the rooms of hotels. So hotels do not need

investing in marketing and sales of their rooms. But third proposition “Operational expenses decrease after starting to sell their rooms over OTAs” is rejected.

Since operational expenses should decline, unit expenses like expenses per customer and per room should also decline after starting to sell their rooms over OTAs. However, forth proposition “Unit expenses decrease after starting to sell their rooms over OTAs” is also rejected.

Hotels invest in computers and technology such as network products after starting to sell their rooms over OTAs, since they use the interfaces of OTAs frequently and communicate via Internet. So technology infrastructure should be in sufficient level. As a result, fifth proposition “Investment expenses like computers and technology expenses increase after starting to sell their rooms over OTAs” is accepted.

62.3% of hotels send information of room availability to OTAs. Room availability could change after selling rooms directly to a customer or selling rooms via another OTA. After every sale, room availability should be checked and if there is a change, OTAs should be noticed; unless the hotel and OTA have an integration module in their systems. Only 10.4% of hotels send information of room availability to OTAs by integration module. For integration module, hotels should pay extra cost to their PMS vendors. Support of the business could be difficult, time-consuming and expensive. But unexpectedly, sixth proposition “Support expenses like data transfer expenses increase after starting to sell their rooms over OTAs” is rejected. Support expenses may constitute small part of overall expenses and an increase in that expenses does not affect the hotels’ financial situation too much.

DP systems are a new and useful technology and it should provide great advantage to hotels in general. The main products/services in DP systems are rooms

and hotels are the vendors of rooms. As seventh proposition, it is proposed that total expenses of hotels decrease after starting to sell their rooms over OTAs. But it is rejected. In terms of expenses, it could not be concluded that there is a positive effect of DP systems on the performance of hotels.

Selling rooms over OTAs means reaching a new customer segment that do shopping over Internet. For the new segment, hotels could increase their room sales more by launching right promotions. Also if hotels increase customer satisfaction, customers make positive comments on the web-sites of OTAs. These comments influence the hotel choice of new customers. There should be a reasonable increase in annual revenues per rooms and room occupancy rates. As a result, eighth proposition "Room revenues increase after starting to sell their rooms over OTAs" is accepted. Since room revenues increase, it could be said that the performance of hotels is affected by working with OTAs that use DP systems in terms of room revenues.

Except for room sales, hotels get commission revenues from car rentals and activity sales. Moreover, some hotels have restaurants and inside activities in their properties. As mentioned before, these kinds of operations should decrease after starting to sell their rooms over OTAs. But related proposition is not accepted. On the other hand, ninth proposition "The revenue attained from non-core businesses like car rental, restaurant or both inside and outside activities (dining, water sports, night shows, daily tours, etc.) decreases after starting to sell their rooms over OTAs" is accepted. The difference in the result of propositions might stem from possible changes in the prices of car rentals or activities. In addition, according to the result of ANOVA analysis, 3 stars hotels agree more than 4 stars hotels for the decrease in

non-core business revenues. The difference may stem from the rate of room sales over OTAs.

There could be several contributions of working with OTAs on hotel business. Competitiveness, service efficiency and brand loyalty are some of contribution areas. Selling rooms over OTAs means a new sales channel for hotels. Hotels could obtain a competitive advantage by using a new sales channel. Varini and Murphy (2006) state that DP systems provide service providers with rapid response to present changes in the market and coping with future demands. In line with the literature, tenth proposition "Selling rooms over OTAs has a positive contribution on hotels' competitiveness" is accepted.

By selling rooms over OTAs, telephone, fax and e-mail reservations would decrease and operational works related to reservation process would decline. Since reservation process would be over DP systems used by OTAs, it is standardized and free of human error. So service quality should improve by the help of DP systems. However, the result of eleventh proposition "Selling rooms over OTAs has a positive contribution on hotels' service efficiency" is statistically insignificant. Since customers select their hotel out of various hotels by the help of DP systems, the probability of reservation cancellation would increase. However, twelfth proposition "Selling rooms over OTAs increases the rate of cancelled reservations" is accepted.

Customer base would improve and customer loyalty would increase by selling rooms over OTAs. Online customers could be anywhere in the world. So hotels would be in different markets. In addition, online customers are aware of what they buy. If hotels have better service quality, they would increase customer loyalty by the help of DP systems used by OTAs; since DP systems have hotel rating and customer comment modules. By these modules, customers could rate hotels and

make comments about those hotels. Good rating and comments provide hotels with better recognition by customers. That is to say, hotels could become reputable brands. Romano (2005) states that one of the important benefits of DP is providing travel service providers with better branding opportunities and increased brand loyalty. In line with the literature, thirteenth proposition "Selling rooms over OTAs has a positive contribution on hotels' brand loyalty" is accepted.

In addition to findings about contribution, ANOVA analysis indicates that 3 stars hotels experience increase in brand loyalty after starting to work with OTAs that have DP systems. On the other hand, 5 stars do not agree with increase in the brand loyalty after starting to work with OTAs that have DP systems. For 3 stars hotels, working with OTAs that have DP systems become more crucial issue in terms of brand loyalty. 3 stars hotels can obtain competitive advantage by the help of DP systems.

Interfaces of OTAs could be complicated. Hotel staff might encounter difficulties related to usefulness, ease of use, speed and complexity. For example, reaching necessary information could be difficult or data entry could be difficult. In addition, the interfaces could have some deficiencies like insufficient reporting, low speed, low usefulness and producing errors. However, fourteenth proposition "Hotel personnel encounters difficulties while using interface of OTAs" is rejected. It is supposed that OTAs provide better training to hotels.

In conclusion, the hotel study shows that working with OTAs that have DP systems provides hotels with positive contribution on their room revenues. Hotels that have problems about their room occupancy rates should consider working with OTAs that have DP systems. By this decision, they can increase their room occupancy rates and competitiveness. Moreover, the study reveals that hotel

personnel do not experience any difficulty in using the interface of OTAs. Hotels should not wonder about the problems related to the interface of OTAs. In addition, the hotel study shows that brand loyalty increases after starting to work with OTAs. That is to say, the commitment of customers for repurchasing the brand increases. Working with OTAs that have DP systems can be a strategic management decision that aims to improve customer base and customer loyalty.

The study indicates that selling rooms over OTAs that have DP systems increase the rate of cancelled reservations while increasing room revenues. Hotels should adopt their business principles and processes, especially reservation process, in order to overcome the confusion that results from cancelled reservations. The study indicates that another disadvantage of working with OTAs that have DP systems is increase in the computer and technology expenses.

In term of limitations of the study, the direct questions related the performance of the hotels could not be asked, since the hotels are not willing to answer such questions. Thus, numerical analysis could not be carried out. Moreover, the survey replies are limited to 106 hotels, since the hotels are very busy in high season.

Travel Agency Survey

By the study related to travel agencies, the effects of DP systems on the performance of the travel agencies are analyzed. 16 travel agency propositions are accepted or rejected by analyzing survey results.

Table 93. Summary of the Results of Proposition Testing for the Travel Agency Survey

#	Propositions	Result
P1	Computer and technology expenses of travel agencies increase after implementation of DP systems.	Accepted
P2	Marketing and sales expenses of main product like hotel and flight and labor expenses of travel agencies decrease after implementation of DP systems.	Statistically Insignificant
P3	Secondary product expenses and rental expenses of travel agencies decrease after implementation of DP systems.	Statistically Insignificant
P4	Unit costs, package tour expenses and communication expenses of travel agencies decrease after implementation of DP systems.	Statistically Insignificant
P5	Main product revenues increase after implementation of DP systems.	Accepted
P6	Car rental revenues increase after implementation of DP systems.	Statistically Insignificant
P7	Secondary product revenues increase after implementation of DP systems.	Statistically Insignificant
P8	Package tour and cruise revenues decrease after implementation of DP systems.	Statistically Insignificant
P9	Market position of travel agencies improves after the implementation of DP systems.	Accepted
P10	Efficiency of operations increases after the implementation of DP systems.	Accepted
P11	Service/product range and supplier relationships improves after the implementation of DP systems.	Accepted
P12	Service quality increases after the implementation of DP systems.	Accepted
P13	The ratio of cancelled reservations increases after the implementation of DP systems	Statistically Insignificant
P14	Customer satisfaction increases after the implementation of DP systems.	Accepted
P15	Travel agencies encounter challenges in the usage of DP systems.	Accepted
P16	Travel agencies experience difficulties in the interface of DP systems	Statistically Insignificant

Developing or purchasing DP systems requires high investment. So travel agencies should evaluate returns and costs of DP systems carefully. Technology expenses become one of the highest expenses of travel agencies. If travel agencies purchase DP systems, they should pay for the product of DP systems and support for the system. If travel agencies develop DP systems in-house, they should invest in IT department. As a result, first proposition "Computer and technology expenses of travel agencies increase after implementation of DP systems" is accepted.

Marketing and sales expenses are one of the most important expenses of travel agencies. In order to sell more, they should spend more on marketing. DP systems provide customized travel packages to customers by analyzing customer preferences. So travel agencies do not build travel packages manually for every single customer. In addition, travel agencies need fewer personnel for building travel packages. However, the result of second proposition "Marketing and sales expenses of main product like hotel and flight and labor expenses of travel agencies decrease after implementation of DP systems" is statistically insignificant.

Travel agencies market and sell secondary products like activity, car rental, bus and train. Because of the same reasons for the main products, secondary product expenses should decline. Since travel agencies need less labor, rental expenses should also decrease. However, the result of third proposition "Secondary product expenses and rental expenses of travel agencies decrease after implementation of DP systems" is statistically insignificant.

Since DP systems build automatically travel packages, there should be a reasonable decrease in package tour expenses. Because most of expenses would decrease, unit expenses line unit cost of customers and unit cost of reservations would decline by the implementation of DP systems. Moreover call center expenses

should fall down, since customers book their travels from web-sites by DP systems. In terms of reporting, DP systems have great data structure and building complex reports becomes practical. However, the result of forth proposition “Unit costs, package tour expenses and communication expenses of travel agencies decrease after implementation of DP systems” is statistically insignificant.

Jagersberger and Waldhor (2008) state that online travel products increase constantly. As noted by Buhalis and O’Connnor (2005), customized packages facilitated by DP become popular, while package tours are in decline. Since customers would prefer dynamic travel packages, the hotels and flights sales of travel agencies that implements DP systems should increase. As a result, fifth proposition “The revenues of main products like hotel and flight increase after implementation of DP systems” is accepted. It could be said that the performance of travel agencies could increase by DP systems.

Before dynamic travel packages, customers tend to rent cars from car rental offices after arriving destinations. Now, they could rent a car while reserving hotels and flights by DP systems. However, the result of sixth proposition “Car rental revenues increase after implementation of DP systems” is statistically insignificant.

As car rentals, customers could reserve activity, transfer, bus and train while booking hotels and flights by DP systems. But the result of seventh proposition “Secondary product revenues increase after implementation of DP systems” is statistically insignificant.

Package tours are less flexible in compared dynamic travel packages. For instance start dates and end dates are generally predefined. Hotel alternatives are very limited. Customers would prefer dynamic packages instead of package tours.

However, the result of eighth proposition “Package tour and cruise revenues decrease after implementation of DP systems” is statistically insignificant.

In addition to revenue propositions, travel agencies that have agency management systems do not agree with increase in car rental revenues as much as travel agencies that have not agency management systems. Furthermore, travel agencies that are in CRS/GDS do not agree with increase in car rental revenues as much as travel agencies that are not in CRS/GDS.

DP systems could be a competitive advantage for travel agencies, since it is not so prevalent yet and travel agencies as first users of DP systems could become market leaders in terms of dynamic travel packages. Travel agencies could increase their competitiveness and market share. Varini and Murphy (2006) state that DP systems provide service providers with rapid response to present changes in the market and coping with future demands. That literature supports the result of ninth proposition. Ninth proposition “Market position of travel agencies improves after the implementation of DP systems” is accepted. It could be said that the performance of travel agencies could increase by DP systems.

DP systems would facilitate the operations of travel agencies. Every transaction about products/services like availability and stock data could be recorded in DP systems. As a result, tenth proposition “Efficiency of operations increases after the implementation of DP systems” is accepted. The article of Lassing and Markus (2007) supports the result of tenth proposition. They state that OTAs are able to combine and process large quantities of heterogeneous data and present real-time offerings. It could be said that the performance of travel agencies could increase by DP systems.

In DP systems, there are various products and vendors. Management of these services/products and vendors are very critical. DP systems enlarge supplier network and increase supplier satisfaction. In addition, DP systems create unique and customized travel packages for customers, there are numerous services/products. According to Expedia (2010), DP systems provide online travel vendors with differentiation capability. By improving service/product range, travel agencies can differentiate themselves. Furthermore, Romano (2005) states that through DP systems, service providers extend and improve their product and service range. As a result, eleventh proposition "Service/product range and supplier relationships improve after the implementation of DP systems" is accepted.

DP systems provide predefined rules for travel agency business. Many operations such as preparing vouchers, searching products and making comments are done as online by customers. As a result, twelfth proposition "Service quality increases after the implementation of DP systems" is accepted.

It is expected that DP systems could increase the ratio of cancelled reservation, since customers select related services/products from various ones easily from web-sites of travel firms. However, the result of thirteenth proposition "The ratio of cancelled reservations increases after the implementation of DP systems" is statistically insignificant.

DP systems record the customer data very well. Customer preferences are analyzed continuously. In order to satisfy and delight customer, customized campaigns and discounts are prepared by the system. As a result, fourteenth proposition "Customer satisfaction increases after the implementation of DP systems" is accepted. Cardoso (2005) mentions some advantages of DP systems that may increase customer satisfaction. He suggests that consumers can create

customized holidays through DP systems that combine customer preferences with flights, car rentals, hotels, leisure activities and other travel products in a single price.

Tourism industry has general challenges like non-standardized information, incompatible software systems and so on. Lassing and Markus (2007) state that DP systems require complex technology and organizational changes. In addition, Cardoso (2005) proposes that one of the challenges to develop DP systems is to find a solution to cope and integrate the non-standard way of defining e-tourism products and services. According to Hakolahti and Kokkonen (2006), DP cannot be fully adopted due to lacking information infrastructure, intercomputable systems and the high cost of systems integration. Fifteenth proposition that is "Travel agencies encounter challenges in the usage of DP systems" is accepted. The literature stated above supports the result of fifteenth proposition.

Finally, DP systems are complex systems and every DP products could not be well designed. But travel agencies do not encounter a significant problem. So the result of sixteenth proposition "Travel agencies experience difficulties in the interface of DP systems" is statistically insignificant.

To sum up, travel agencies should evaluate the possible contributions of DP systems to their organizations in order to validate the expensive investment of DP systems. They should search the alternatives of DP providers in order to assess the price of DP systems. According to the results of travel agency study, travel agencies can implement DP systems for increasing their hotel and flight revenues. The study indicates that in tourism industry, there is an opportunity for travel agencies to improve their market positions. DP system may become a core competency if it is implemented before competitors and managed properly. Another implication is that the execution of daily operations becomes more regular and efficient by DP systems.

That relieves the management and provides the standardization of operations. Furthermore, the management and the communication of supplier network including hotels, car rentals, etc. can be done over DP systems. That provides decrease in misunderstandings and delays occur in the communication process. The study shows that travel agencies can enlarge their product/service range by the help of customized travel packages that are built by the system after customers' request. Rich product/service range is a must for customer satisfaction. As a matter of fact, the study highlights that customer satisfaction increases after the implementation of DP systems. On the other hand, travel agencies should find ways for coping with the challenges in the implementation and execution of DP systems. Those challenges are non-standardized tourism information, incompatible software systems and insufficient connectivity of systems. Moreover, travel agencies might be forced to make changes in their organization with the implementation of DP systems.

In terms of limitations of the study, the direct questions related the performance of the travel agencies could not be asked, since the travel agencies are not willing to answer such questions. Thus, numerical analysis could not be carried out. Moreover, the survey replies are limited to 81 travel agencies, since the travel agencies are very busy in high season and some of them have not true and active e-mail addresses.

The effects of DP systems on the performance of customers, car rental companies, activity providers, cruise lines, airlines or restaurants could be further research topics.

APPENDICES

APPENDIX A : Hotel Survey

OTEL ANKETİ

Sayın Yetkili,

Bu anketin amacı, internet seyahat acentası web sitelerinde müşterinin kendine özgü birden fazla tatil ürünü içeren tatil paketi oluşturabilmesini sağlayan sistemlerin kullanımının, turizm işletmelerinin verimliliğine/üretkenliğine ve karına olan etkilerini tespit etmektir. Ankete vereceğiniz cevaplar bilimsel amaçlı bir araştırmada kullanılacak ve vereceğiniz tüm bilgiler gizli tutulacaktır. Araştırmanın sağlıklı yürütülebilmesi için sizin vereceğiniz cevaplar çok önemlidir.Turizm sezonunun yoğun olduğu ve iş yükünüzün arttığı bu dönemde, sizin için çok değerli olan yaklaşık 10 dakikanızı ankete ayırabilirseniz çok memnun olacağız. Değerli vaktinizin karşılığı olarak, istemeniz durumunda, ankete katılan oteller arasında yapılacak analize ilişkin sonuçlar karşılıksız olarak size iletilecektir. Yardımlarınız için şimdiden teşekkür ederiz. Çalışmalarınızda başarılar ve iyi bir turizm sezonu geçirmenizi dileriz.

Doç. Dr. Birgül Kutlu

Yüksek Lisans Öğrencisi Semra Çalışkan

Posta ve İletişim Bilgileri
Boğaziçi Üniversitesi, Yönetim Bilişim Sistemleri Bölümü, Hisar Kampüs 34342 Bebek / İSTANBUL
Telefon: 0216 435 84 38 / Fax: 0216 435 84 38 Cep: 0549 515 20 09 / e-mail: smrcaliskan@gmail.com

NOT:
1. Bu çalışma kesinlikle ticari bir amaç taşımamaktadır ve reklam veya ilan mahiyetinde değildir.
2. Türkiye genelinde faaliyet gösteren turizm işletmeleri arasından tamamen tesadüfi yöntemle belirlenmiş bulunmaktasınız. Adresiniz TURSAB, TUROB, web siteniz, vb. veri kaynakları taranarak elde edilmiştir.
3. Ankete internet üzerinden aşağıdaki web adresinden de ulaşabilirsiniz.
http://www.kwiksurveys.com/online-survey.php?surveyID=KOHOJF_beb16d91
4. Seçtiginiz yanıt için seçeneklerin başında ya da karşısında yer alan "....." bölüme "X" yazınız.

---

1. Otel sınıfınızı seçiniz.

   .....1 Yıldızlı .....2 Yıldızlı .....3 Yıldızlı .....4 Yıldızlı
   .....5 Yıldızlı .....Tatil Köyü .....Pansiyon .....Diğer (.....)

2. Faaliyetlerinizde herhangi bir bilgisayar sistemi (masa üstü bilgisayar, dizüstü bilgisayar, vb.) kullanıyor musunuz?

   .....Evet .....Hayır

3. Faaliyetlerinizde internet kullanıyor musunuz?

   .....Evet .....Hayır

4. Rezervasyon alıyor musunuz?

   .....Evet .....Hayır (Cevabınız "Hayır" ise lütfen 6. soruya geçiniz.)

5. Hangi kanallardan rezervasyon alıyorsunuz? (Birden fazla seçim yapabilirsiniz.)

   .....Telefon
   .....Faks
   .....E-posta
   .....Web sitesi- Rezervasyon Formu
   .....Internet Rezervasyon Sistemi
   .....CRS (Merkezi Rezervasyon Sistemleri) / GDS (Global Dağıtım Sistemleri)

6. Faaliyetlerinizde ne tür sistemler/teknolojiler kullanmaktasınız? (Birden fazla seçim yapabilirsiniz.)

..... Otel Yönetim Sistemi
.....Internet Rezervasyon Sistemi
.....Web Sitesi
.....CRS (Merkezi Rezervasyon Sistemleri) / GDS (Global Dağıtım Sistemleri)

7. Oda pazarlaması / satışı için internet seyahat acentaları ile çalışıyor musunuz?

.....Evet .....Hayır (Cevabınız "Hayır" ise lütfen 20. soruya geçiniz.)

8. Ne kadar süredir bir internet seyahat acentası ile çalışıyorsunuz?

.....1 yıldan az
.....1 yıl - 3 yıl arası
.....4 yıl - 6 yıl arası
.....7 yıl - 9 yıl arası
.....10 yıl ve daha fazla

9. Çalıştığınız internet seyahat acentalarının faaliyet bölgelerini seçiniz.

.....Yerel .....Uluslararası .....Yerel ve Uluslararası

10. Aşağıdaki listeden çalıştığınız internet seyahat acentalarını seçiniz. (Birden fazla seçim yapabilirsiniz.)

.....Anitur.com.tr	.....Hrs.com
.....Bamtur.com	.....Jollytur.com
.....Bestflights.com.au	.....Lastminute.com
.....Booking.com	.....Mngturizm.com
.....Bytatil.com	.....Opodo.com
.....Cheaptickets.com	.....Orbitz.com
.....E-bookers.com	.....Priceline.com
.....Etatil.com	.....Tatil.com
.....E-ticaret-sistemi.com	.....Tatil.net
.....Etstur.com	.....Tatilborsasi.com
.....Expedia.com	.....Tatilbudur.com
.....Garantitatil.com	.....Tatilsepeti.com
.....Gezinet.net	.....Tatilvitrini.com
.....Gezisitesi.com	.....Travelagents.com
.....Heryerdentatil.com	.....Travelocity.com
.....Hotellium.com	.....Vip.com.tr
.....Hotels.com	.....Diğer (.....)
.....Hotwire.com	

11. Çalıştığınız internet seyahat acentalarına oda ve oda doluluk bilgilerini nasıl bildiriyorsunuz? (Birden fazla seçim yapabilirsiniz.)

.....Telefon ile
.....Faks ile
.....E-posta ile
.....Internet acenta arayüzü/sistemi ile
.....Kendi sistemimiz altına eklenen alt sistem ile

12. Internet seyahat acentesi ile çalışmaya başlamadan önce işletmenizdeki faaliyetlere ilişkin aşağıda verilen soruları yanıtlayınız.

		Evet	Hayır
1	İşletmemizde düzenlediğimiz aktivitelerin (günlük turlar, su sporları, gece şovları, vb.) satışını yapıyorduk.	.....	.....
2	Araç kiralamadan komisyon alıyorduk.	.....	.....
3	Odaları tur operatörlerine blok şeklinde satıyorduk.	.....	
4	İşletmemiz dışında düzenlenen aktivitelerin (günlük turlar, su sporları, gece şovları, vb.) pazarlamasını yapıp satışından komisyon alıyorduk.	.....	.....

13. Internet seyahat acentaları ile çalışmaya başladıktan sonra maliyetlerinize ilişkin aşağıda ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Oda satış/pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
2	İş gücü maliyetimiz azaldı.	.....	.....	.....	.....	.....
3	Personel eğitim maliyetlerimiz azaldı.	.....	.....	.....	.....	.....
4	Raporlama maliyetlerimiz azaldı.	.....	.....	.....	.....	.....
5	Müşteri başına düşen maliyetimiz azaldı.	.....	.....	.....	.....	.....
6	Oda başında düşen maliyetimiz azaldı.	.....	.....	.....	.....	.....
7	Bilgisayar/teknoloji maliyetlerimiz arttı.	.....	.....	.....	.....	.....
8	Seyahat acentalerına veri aktarım/güncelleme maliyetimiz arttı.	.....	.....	.....	.....	.....

14. Internet seyahat acentaları ile çalışmaya başladıktan sonra gelirlerinize ilişkin aşağıda ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Oda başına yıllık gelirimiz arttı.	.....	.....	.....	.....	.....
2	Oda doluluk oranımız arttı.	.....	.....	.....	.....	.....
3	Restoran gelirlerimiz arttı.	.....	.....	.....	.....	.....
4	Araç kiralamadan elde edilen komisyon gelirimiz arttı.	.....	.....	.....	.....	.....
5	Aktivite (günlük turlar, su sporları, gece şovları, vb.) satışından elde edilen komisyon gelirimiz arttı.	.....	.....	.....	.....	.....
6	İşletme içi aktivite (günlük turlar, su sporları, gece şovları, vb.) gelirlerimiz arttı.	.....	.....	.....	.....	.....

15. Internet seyahat acentaları ile çalışmaya başladıktan sonra faaliyetlerinize ilişkin aşağıdaki soruları yanıtlayınız.

		Evet	Hayır
1	Tur operatörleri ile olan anlaşmalarımız azaldı.	.....	.....
2	Otelimize gelen müşterilerimizin işletmemizin anlaşmalı olduğu araç kiralama şirketinden araç kiralamaları azaldı.	.....	.....
3	Otelimize gelen müşterilerimizin işletmemizin anlaşmalı olduğu aktivitelere (günlük turlar, su sporları, gece şovları, vb.) katılımı azaldı.	.....	.....
4	Otelimize gelen müşterilerimizin işletmemiz dahilinde düzenlediğimiz ücretli aktivitelere (günlük turlar, su sporları, gece şovları, vb.) katılımı azaldı.	.....	.....

16. Internet seyahat acentası ile çalışmanın faaliyetlerinize olan katkılarına ilişkin aşağıda verilen ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Rekabet gücümüzü arttırdı.	.....	.....	.....	.....	.....
2	Satışlarımızı arttırdı.	.....	.....	.....	.....	.....
3	Günlük iş yükümüzü azalttı.	.....	.....	.....	.....	.....
4	Hatasız hizmet vermemizde yardımcı oldu.	.....	.....	.....	.....	.....
5	İptal olan rezervasyonların oranını arttırdı.	.....	.....	.....	.....	.....
6	Müşteri kitlemiz iyileşti.	.....	.....	.....	.....	.....
7	Markalaşmamızı sağladı.	.....	.....	.....	.....	.....
8	Müşteri sadakati arttı.	.....	.....	.....	.....	.....

17. Çalıştığınız internet seyahat acentelerinden elde ettiğiniz satışların toplam satışlarınız içindeki yüzdesi nedir?

.....%10 altı
.....%10-30
.....%30 üzeri

18. Internet seyahat acentası arayüzü kullanıyor musunuz?

.....Evet .....Hayır (Cevabınız hayır ise lütfen bir 20. soruya geçiniz.)

19. Internet seyahat acentası arayüzü ile ilgili karşılaştığınız zorluklara ilişkin aşağıda veilen ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Kullanışlı bulmuyorum.	.....	.....	.....	.....	.....
2	Hatalı sonuçlar verebiliyor.	.....	.....	.....	.....	.....
3	İşlem hızını çok yavaş buluyorum.	.....	.....	.....	.....	.....
4	İhtiyacım olan raporları veremiyor.	.....	.....	.....	.....	.....
5	Sistemde veri girişi kolay değil.	.....	.....	.....	.....	.....
6	Gerekli bilgiye ulaşmakta zorlanıyorum.	.....	.....	.....	.....	.....
7	Zamanımı çok alıyor.	.....	.....	.....	.....	.....
8	Gelişmiş bilgisayar bilgisi gerekiyor.	.....	.....	.....	.....	.....

20. Hangi bölümde çalışıyorsunuz?

.....Muhasebe .....Finans .....Pazarlama .....Önbüro
.....Kat Hizmetleri .....Yiyecek – İçecek .....Teknik Servis .....İnsan Kaynakları
.....Satınalma .....Üst Yönetim .....Bilgi – İşlem .....Diğer (.....)

21. Çalışma sonucunun tarafınıza gönderilmesini ister misiniz?

.....Evet (cevabınız evet ise lütfen adres bilgilerini eksiksiz tamamlayınız.) .....Hayır

22. Adres bilgilerinizi giriniz.

İşletme Adı : .....
Posta Adresi : .....
E-posta Adresi : .....
Telefon : .....
Faks : .....

APPENDIX B: Number of Tourism Licensed Accommodation Establishments

Table 94. Number of Tourism Licensed Accommodation Establishments by Types and Classes

TÜRLERİNE VE SINIFLARINA GÖRE TURİZM BELGELİ KONAKLAMA TESİSLERİNİN SAYISI : (31.12.2008)				
Number of Tourism Licenced Accommodation Establishments by Types and Classes				
		TURİZM YATIRIMI BELGELİ	TURİZM İŞLETMESİ BELGEL	TOPLAM
TÜRÜ	SINIFI	Tourism Investment Licenced	Tourism Operation Licenced	Total
Type	Class	TESİS SAYISI	TESİS SAYISI	TOPLAM TESİS SAYISI
		Number of	Number of	Total Number of
		Establishments	Establishments	Establishments
	5 YILDIZLI / 5 Stars	129	267	396
	4 YILDIZLI / 4 Stars	202	471	673
OTELLER (Hotels)	3 YILDIZLI / 3 Stars	154	645	799
	2 YILDIZLI / 2 Stars	60	616	676
	1 YILDIZLI / 1 Star	20	91	111
	TOPLAM - Total	565	2 090	2 655
	1.SINIF / 1st Class		1	1
MOTELLER (Motels)	2.SINIF / 2nd Class		8	8
	Motel / Motel	2	9	11
	TOPLAM - Total	2	18	20
TATİL KÖYLERİ	1.SINIF / 1st Class (5 YI	26	66	92
(Holiday Villages)	2.SINIF / 2nd Class (4 YI	13	20	33
	TOPLAM - Total	39	86	125
	5 YILDIZLI / 5 Stars	6	3	9
TERMAL OTELLER	4 YILDIZLI / 4 Stars	1	1	2
(Thermal Hotels)	3 YILDIZLI / 3 Stars	3	7	10
	2 YILDIZLI / 2 Stars		2	2
	TOPLAM - Total	10	13	23
PANSİYONLAR (Boarding Houses)		21	63	84
KAMPİNGLER (Campings)		4	6	10
OBERJLER (Inns)			1	1
APART OTELLER (Apart Hotels)		49	102	151
ÖZEL TESİS (Special Establishments)		12	170	182
GOLF TESİSLERİ (Golf Facilities with Accommo		3	1	4
EĞİTİM VE UYGULAMA TESİSLERİ (Training and Practice Establishments)			1	1
TURİZM KOMPLEKSİ (Tourism Complex)		5	2	7
BUTİK OTEL (Boutique Hotel)		42	9	51
B TİPİ TATİL SİTESİ (B Type Holiday Site)		12	2	14
BUTİK TATİL VİLLALARI (Boutique Holiday Villa)		2		2
DAĞ EVİ (Mountain House)		2	1	3
ÇİFTLİK EVİ / KÖY EVİ (Ranch / Village House)		3	1	4
YAYLA EVİ (Mountain Pasture House)		1		1
T O P L A M / T o t a l		772	2 566	3 338

Source : the Ministry of Culture and Tourism (2008)

APPENDIX C: Correlation Matrix of the Expenses of Hotels

Table 95. Correlation Matrix of the Expenses of Hotels

		Sales/marketing expenses of rooms decrease	Labor expenses decrease	Training expenses decrease	Reporting expenses decrease	Expenses per customer decrease	Expenses per room decrease	Technology and computer expenses increase [a]	Expenses of data transfer to OTAs expenses increase [a]
Correlation	Sales/marketing expenses of rooms decrease	1.000	0.616	0.550	0.541	0.610	0.554	-0.159	-0.029
	Labor expenses decrease	0.616	1.000	0.791	0.663	0.658	0.573	-0.235	-0.217
	Training expenses decrease	0.550	0.791	1.000	0.683	0.659	0.622	-0.158	-0.118
	Reporting expenses decrease	0.541	0.663	0.683	1.000	0.684	0.631	-0.353	-0.244
	Expenses per customer decrease	0.610	0.658	0.659	0.684	1.000	0.930	-0.166	-0.073
	Expenses per room decrease	0.554	0.573	0.622	0.631	0.930	1.000	-0.195	-0.080
	Technology and computer expenses increase [a]	-0.159	-0.235	-0.158	-0.353	-0.166	-0.195	1.000	0.471
	Expenses of data transfer to OTAs expenses increase [a]	-0.029	-0.217	-0.118	-0.244	-0.073	-0.080	0.471	1.000
Sig. (1-tailed)	Sales/marketing expenses of rooms decrease		0.000	0.000	0.000	0.000	0.000	0.076	0.399
	Labor expenses decrease	0.000		0.000	0.000	0.000	0.000	0.017	0.025
	Training expenses decrease	0.000	0.000		0.000	0.000	0.000	0.078	0.145
	Reporting expenses decrease	0.000	0.000	0.000		0.000	0.000	0.001	0.014
	Expenses per customer decrease	0.000	0.000	0.000	0.000		0.000	0.067	0.258
	Expenses per room decrease	0.000	0.000	0.000	0.000	0.000		0.040	0.237
	Technology and computer expenses increase [a]	0.076	0.017	0.078	0.001	0.067	0.040		0.000
	Expenses of data transfer to OTAs expenses increase [a]	0.399	0.025	0.145	0.014	0.258	0.237	0.000	

a. Reverse coded in the analysis

APPENDIX D: Reproduced Correlations of the Expenses of Hotels

Table 96. Reproduced Correlations of the Expenses of Hotels

		Sales/marketing expenses of rooms decrease	Labor expenses decrease	Training expenses decrease	Reporting expenses decrease	Expenses per customer decrease	Expenses per room decrease	Technology and computer expenses increase [c]	Expenses of data transfer to OTAs expenses increase [c]
Reproduced Correlation	Sales/marketing expenses of rooms decrease	0.791[a]	0.680	0.645	0.608	0.590	0.531	-0.260	0.117
	Labor expenses decrease	0.680	0.868[a]	0.839	0.728	0.637	0.563	-0.200	-0.255
	Training expenses decrease	0.645	0.839	0.836[a]	0.706	0.685	0.616	-0.085	-0.186
	Reporting expenses decrease	0.608	0.728	0.706	0.729[a]	0.723	0.689	-0.376	-0.301
	Expenses per customer decrease	0.590	0.637	0.685	0.723	0.956[a]	0.951	-0.171	-0.056
	Expenses per room decrease	0.531	0.563	0.616	0.689	0.951	0.961[a]	-0.194	-0.064
	Technology and computer expenses increase [c]	-0.260	-0.200	-0.085	-0.376	-0.171	-0.194	0.937[a]	0.540
	Expenses of data transfer to OTAs expenses increase [c]	0.117	-0.255	-0.186	-0.301	-0.056	-0.064	0.540	.898[a]
Residual[b]	Sales/marketing expenses of rooms decrease		-0.064	-0.095	-0.068	0.019	0.023	0.101	-0.145
	Labor expenses decrease	-0.064		-0.048	-0.064	0.020	0.010	-0.036	0.038
	Training expenses decrease	-0.095	-0.048		-0.023	-0.025	0.006	-0.073	0.068
	Reporting expenses decrease	-0.068	-0.064	-0.023		-0.039	-0.058	0.022	0.057
	Expenses per customer decrease	0.019	0.020	-0.025	-0.039		-0.022	0.005	-0.017
	Expenses per room decrease	0.023	0.010	0.006	-0.058	-0.022		-0.001	-0.016
	Technology and computer expenses increase [c]	0.101	-0.036	-0.073	0.022	0.005	-0.001		-0.068
	Expenses of data transfer to OTAs expenses increase [c]	-0.145	0.038	0.068	0.057	-0.017	-0.016	-0.068	

Extraction Method: Principal Component Analysis.

a. Reproduced communalities

b. Residuals are computed between observed and reproduced correlations. There are 11 (39.0%) nonredundant residuals with absolute values greater than 0.05.

c. Reverse coded in the analysis

APPENDIX E: Reproduced Correlations of the Revenues of Hotels

Table 97. Reproduced Correlations of the Revenues of Hotels

		Annual revenue per room increases	Room occupancy rate increase	Dining revenues increase	Car rental commission revenues increase	Outside activity commission revenues	Inside activity revenues increase
Reproduced Correlation	Annual revenue per room increases	0.798[a]	0.809	0.702	0.100	0.185	0.326
	Room occupancy rate increase	0.809	0.823[a]	0.695	0.051	0.134	0.280
	Dining revenues increase	0.702	0.695	0.700[a]	0.339	0.429	0.537
	Car rental commission revenues increase	0.100	0.051	0.339	0.778[a]	0.834	0.804
	Outside activity commission revenues increase	0.185	0.134	0.429	0.834	0.903[a]	0.885
	Inside activity revenues increase	0.326	0.280	0.537	0.804	0.885	0.895[a]
Residual[b]	Annual revenue per room increases		-0.087	-0.133	0.022	0.030	-0.016
	Room occupancy rate increase	-0.087		-0.109	0.058	-0.005	-0.006
	Dining revenues increase	-0.133	-0.109		-0.051	-0.042	-0.010
	Car rental commission revenues increase	0.022	0.058	-0.051		-0.092	-0.104
	Outside activity commission revenues increase	0.030	-0.005	-0.042	-0.092		0.002
	Inside activity revenues increase	-0.016	-0.006	-0.010	-0.104	0.002	

Extraction Method: Principal Component Analysis.

a. Reproduced communalities

b. Residuals are computed between observed and reproduced correlations. There are 7 (46.0percent) nonredundant residuals with absolute values greater than 0.05.

APPENDIX F: Reproduced Correlations for the Contributions of the Hotels

Table 98. Reproduced Correlations for the Contributions of the Hotels

		Competitiveness increases	Sales increases	Daily operations decrease	Service quality increases	The rate of cancelled reservation increases[c]	Customer base improves	Branding is provided	Customer loyalty increases
Reproduced Correlation	Competitiveness increases	0.855[a]	0.779	0.433	0.410	-0.062	0.445	0.326	0.288
	Sales increases	0.779	0.800[a]	0.331	0.419	0.088	0.600	0.509	0.473
	Daily operations decrease	0.433	0.331	0.851[a]	0.752	-0.155	0.332	0.196	0.273
	Service quality increases	0.410	0.419	0.752	0.792[a]	0.085	0.542	0.414	0.501
	The rate of cancelled reservation increases[c]	-0.062	0.088	-0.155	0.085	0.982[a]	0.147	-0.036	0.116
	Customer base improves	0.445	0.600	0.332	0.542	0.147	0.772[a]	0.760	0.750
	Branding is provided	0.326	0.509	0.196	0.414	-0.036	0.760	0.843[a]	0.781
	Customer loyalty increases	0.288	0.473	0.273	0.501	0.116	0.750	0.781	0.769[a]
Residual[b]	Competitiveness increases		-0.164	-0.007	-0.018	0.020	-0.009	0.013	0.054
	Sales increases	-0.164		-0.003	0.035	-0.024	-0.041	-0.017	-0.023
	Daily operations decrease	-0.007	-0.003		-0.170	0.039	-0.013	0.044	0.024
	Service quality increases	-0.018	0.035	-0.170		-0.042	-0.009	-0.017	-0.057
	The rate of cancelled reservation increases[c]	0.020	-0.024	0.039	-0.042		-0.022	0.038	0.000
	Customer base improves	-0.009	-0.041	-0.013	-0.009	-0.022		-0.067	-0.112
	Branding is provided	0.013	-0.017	0.044	-0.017	0.038	-0.067		-0.098
	Customer loyalty increases	0.054	-0.023	0.024	-0.057	0.000	-0.112	-0.098	

Extraction Method: Principal Component Analysis.

a. Reproduced communalities

b. Residuals are computed between observed and reproduced correlations. There are 7 (25.0percent) nonredundant residuals with absolute values greater than 0.05.

c. Reverse coded in the analysis

APPENDIX G: Reproduced Correlations for the Difficulties of Hotels

Table 99. Reproduced Correlations for the Difficulties of Hotels

		Low usefulness	Producing errors	Low system speed	Insufficient reporting	Difficult data entry	Difficulty in reaching necessary info	Time-consuming	Complex computer knowledge
Reproduced Correlation	Low usefulness	0.938[a]	0.228	0.241	0.157	0.512	0.619	0.113	0.209
	Producing errors	0.228	0.892[a]	0.481	0.178	0.556	0.520	0.281	0.581
	Low system speed	0.241	0.481	0.780[a]	0.712	0.655	0.700	0.607	0.142
	Insufficient reporting	0.157	0.178	0.712	0.772[a]	0.496	0.598	0.646	-0.032
	Difficult data entry	0.512	0.556	0.655	0.496	0.784[a]	0.702	0.286	0.064
	Difficulty in reaching necessary info	0.619	0.520	0.700	0.598	0.702	0.837[a]	0.576	0.336
	Time-consuming	0.113	0.281	0.607	0.646	0.286	0.576	0.820[a]	0.421
	Complex computer knowledge	0.209	0.581	0.142	-0.032	0.064	0.336	0.421	.922[a]
Residual[b]	Low usefulness		0.063	0.026	0.037	-0.065	-0.075	0.013	-0.030
	Producing errors	0.063		-0.040	0.064	-0.092	-0.043	0.029	-0.065
	Low system speed	0.026	-0.040		-0.076	-0.096	-0.008	-0.065	0.022
	Insufficient reporting	0.037	0.064	-0.076		-0.076	-0.038	-0.120	0.044
	Difficult data entry	-0.065	-0.092	-0.096	-0.076		-0.018	0.090	0.035
	Difficulty in reaching necessary info	-0.075	-0.043	-0.008	-0.038	-0.018		-0.053	0.010
	Time-consuming	.013	0.029	-0.065	-0.120	0.090	-0.053		-0.084
	Complex computer knowledge	-0.030	-0.065	0.022	0.044	0.035	0.010	-0.084	

Extraction Method: Principal Component Analysis.

a. Reproduced communalities

b. Residuals are computed between observed and reproduced correlations. There are 14 (50%) nonredundant residuals with absolute values greater than 0.05.

APPENDIX H: Other OTAs

Table 100. Other OTAs

OTA	# of Responses	OTA	# of Responses
Other - Venere.com	4	Other - Neredekal.com	1
Other - Hotels.de	3	Other - Hangiotel.com	1
Other - Hotelbeds	3	Other - Hotelguru	1
Other - Transhotel	2	Other - Reservationteam	1
Other - Hotels4u.com	2	Other - Travco	1
Other - Ratestogo	1	Other - Jetair	1
Other - Touricoholidays	1	Other - Tobook	1
Other - Sunhotels	1	Other - Jacob	1
Other - Shortstay.com	1	Other - Gta	1
Other - Laterooms.com	1	Other - Flashbooking.com	1
Other - Istanbulhotels.com	1	Other - Bookinturkey	1
Other - Hotelconnect	1	Other - Allstar	1
Other - Inttur	1	Other - Onholiday	1
Other - Thomascook	1	Other - Hotelopia	1
Other - Agoda	1	Other - Urlaubstorus.com	1
Other - Turon9	1	Other - Interpid.com	1

APPENDIX I: One-Sample Statistics for the Hotel Survey

Table 101. One-Sample Statistics for the Operations of Hotels

	N	Mean	Std. Dev.	Std. Error Mean
Decrease in Room Operations (Agreements with Tour Operators)	38	2.474	0.862	0.140
Decrease in Non-Core Business Operations	33	2.707	0.923	0.161

Table 102. Statistics of the Expenses of Hotels

	N	Minimum	Maximum	Mean	Std. Dev.
Decrease in Marketing and Sales Expenses	75	1	5	2.99	1.300
Decrease in Labor Expenses	75	1	5	2.57	1.068
Decrease in Training Expenses	73	1	5	2.22	0.975
Decrease in Reporting Expenses	75	1	5	2.56	1.142
Decrease in Expenses per Customer	72	1	5	2.64	1.190
Decrease in Expenses per Room	74	1	5	2.61	1.145
Increase in Computer and Technology Expenses	73	1	5	3.32	1.235
Increase in Data Transfer Expenses to OTAs	73	1	5	2.86	1.097

Table 103. One-Sample Statistics for the Expenses of Hotels

	N	Mean	Std. Dev.	Std. Error Mean
Decrease in Operational Expenses	75	2.589	0.936	0.108
Decrease in Unit Expenses	74	2.622	1.137	0.132
Increase in Investment Expenses	73	3.315	1.235	0.145
Increase in Support Expenses	73	2.863	1.097	0.128

Table 104. One-Sample Statistics for Total Expenses of Hotels

	N	Mean	Std. Dev.	Std. Error Mean
Decrease in total expenses	75	2.703	0.689	0.080

Table 105. Statistics of the Revenues of Hotels

	N	Minimum	Maximum	Mean	Std. Dev.
Increase in annual revenue per room	74	1	5	3.74	1.073
Increase in room occupancy rate	75	1	5	3.81	0.881
Increase in restaurant revenues	71	1	5	2.86	1.187
Increase in commission revenues from car rentals	69	1	5	1.96	1.021
Increase in commission revenues from outside activities	68	1	5	2.04	1.057
Increase in commission revenues from inside activities	66	1	5	2.15	1.099

Table 106. One-Sample Statistics of the Revenues of Hotels

	N	Mean	Std. Dev.	Std. Error Mean
Increase in Room Revenues	75	3.780	0.898	0.104
Increase in Non-core Business Revenues	75	2.290	0.950	0.110

Table 107. Statistics of the Contributions of Hotels

	N	Minimum	Maximum	Mean	Std. Dev.
Competitiveness increases	75	1	5	3.91	1.029
Sales increase	75	1	5	4.09	0.888
Daily operations decrease	74	1	5	2.88	1.059
Service quality increases	74	1	5	3.26	1.159
The rate of cancelled reservation increases	75	1	5	2.68	1.105
Customer base improves	74	1	5	3.43	1.035
Branding is provided	75	1	5	3.73	0.920
Customer loyalty increases	75	1	5	3.29	1.010

Table 108. Statistics of the Contributions of Hotels

	N	Minimum	Maximum	Mean	Std. Dev.
Competitiveness increases	75	1	5	3.91	1.029
Sales increase	75	1	5	4.09	0.888
Daily operations decrease	74	1	5	2.88	1.059
Service quality increases	74	1	5	3.26	1.159
The rate of cancelled reservation increases	75	1	5	2.68	1.105
Customer base improves	74	1	5	3.43	1.035
Branding is provided	75	1	5	3.73	0.920
Customer loyalty increases	75	1	5	3.29	1.010

Table 109. Statistics of the Difficulties of Hotels

	N	Minimum	Maximum	Mean	Std. Dev.
Low usefulness	49	1	5	2.41	1.206
Producing errors	50	1	5	2.10	1.074
Low speed	51	1	4	2.25	0.997
Insufficient reporting	50	1	5	2.58	1.126
Difficult data entry	50	1	5	2.46	1.110
Difficult to reach necessary information	50	1	5	2.16	0.976
Time-consuming	51	1	5	2.80	1.327
Needs complex computer knowledge	51	1	5	2.39	1.133

Table 110. One-Sample Statistics for the Difficulties of Hotels

	N	Mean	Std. Dev.	Std. Error Mean
Low Usefulness	50	2.324	0.999	0.141
Insufficient Ease Of Use	51	2.294	0.950	0.133
Low Speed	51	2.556	0.977	0.137
High Complexity	51	2.392	1.133	0.159

APPENDIX J: Departments of the Respondents from Hotels

Table 111. Departments of the Respondents from Hotels

	Frequency	%	Valid %
Accounting	3	2.8	2.8
Marketing	19	17.9	17.9
Front Office	21	19.8	19.8
Human Resources	2	1.9	1.9
Purchasing	1	0.9	0.9
Top Management	49	46.2	46.2
IT	1	0.9	0.9
Other	6	5.7	5.7
Missing	4	3.8	3.8
Total	106	100.0	100.0

APPENDIX K: Travel Agency Survey

SEYAHAT ACENTASI ANKETİ

Sayın Yetkili,

Bu anketin amacı, internet seyahat acentası web sitelerinde müşterinin kendine özgü birden fazla tatil ürünü içeren tatil paketi oluşturabilmesini sağlayan sistemlerin kullanımının, turizm işletmelerinin verimliliğine/üretkenliğine ve karına olan etkilerini tespit etmektir. Ankete vereceğiniz cevaplar bilimsel amaçlı bir araştırmada kullanılacak ve vereceğiniz tüm bilgiler gizli tutulacaktır. Araştırmanın sağlıklı yürütülebilmesi için sizin vereceğiniz cevaplar çok önemlidir.Turizm sezonunun yoğun olduğu ve iş yükünüzün arttığı bu dönemde, sizin için çok değerli olan yaklaşık 10 dakikanızı ankete ayırabilirseniz çok memnun olacağız. Değerli vaktinizin karşılığı olarak, istemeniz durumunda, ankete katılan seyahat acenteleri arasında yapılacak analize ilişkin sonuçlar karşılıksız olarak size iletilecektir. Yardımlarınız için şimdiden teşekkür ederiz. Çalışmalarınızda başarılar ve iyi bir turizm sezonu geçirmenizi dileriz.

Doç. Dr. Birgül Kutlu

Yüksek Lisans Öğrencisi Semra Çalışkan

Posta ve İletişim Bilgileri
Boğaziçi Üniversitesi, Yönetim Bilişim Sistemleri Bölümü, Hisar Kampüs 34342 Bebek / İSTANBUL
Telefon: 0216 435 84 38 / Fax: 0216 435 84 38 Cep: 0549 515 20 09 / e-mail: smrcaliskan@gmail.com

NOT:
1. Bu çalışma kesinlikle ticari bir amaç taşımamaktadır ve reklam veya ilan mahiyetinde değildir.
2. Türkiye genelinde faaliyet gösteren turizm işletmeleri arasından tamamen tesadüfi yöntemle belirlenmiş bulunmaktasınız. Adresiniz TURSAB, web siteniz, vb. veri kaynakları taranarak elde edilmiştir.
3. Seçtiginiz yanıt için seçeneklerin başında ya da karşısında yer alan "....." bölüme "X" yazınız.
4. Ankete internet üzerinden aşağıdaki web adresinden de ulaşabilirsiniz. Anketi internet üzerinden doldurduktan sonra sizi tekrar rahatsız etmemek adına smrcaliskan@gmail.com adresine bilgilendirme mesajı gönderebilirseniz seviniriz.
http://www.kwiksurveys.com/online-survey.php?surveyID=KOKMMH_779add1

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1. TÜRSAB acenta grubunuzu seçiniz.

   .....A Sınıfı .....B Sınıfı .....C Sınıfı

2. Faaliyetlerinizde herhangi bir bilgisayar sistemi (masa üstü bilgisayar, dizüstü bilgisayar, vb.) kullanıyor musunuz?

   .....Evet .....Hayır

3. Faaliyetlerinizde internet kullanıyor musunuz?

   .....Evet .....Hayır

4. Hangi kanallardan rezervasyon alıyorsunuz? (Birden fazla seçim yapabilirsiniz.)

   .....Telefon
   .....Faks
   .....E-posta
   .....Web sitesi- Rezervasyon Formu
   .....Internet Rezervasyon Sistemi
   .....CRS (Merkezi Rezervasyon Sistemleri) / GDS (Global Dağıtım Sistemleri)

5. Faaliyetlerinizde ne tür sistemler/teknolojiler kullanmaktasınız? (Birden fazla seçim yapabilirsiniz.)

   .....Acenta Yönetim Sistemi
   .....Internet Rezervasyon Sistemi
   .....Web Sitesi
   .....CRS (Merkezi Rezervasyon Sistemleri) / GDS (Global Dağıtım Sistemleri)

6. Hangi seyahat ürünlerinin satışını ve pazarlamasını yapıyorsunuz? (Birden fazla seçim yapabilirsiniz.)

.....Otel .....Yemek / Restoran .....Uçak .....Paket Tur
.....Araç Kiralama .....Gemi Turu .....Otobüs .....Transfer
.....Tren .....Aktivite / Rekreasyon (günlük turlar, su sporları, gece şovları, vb.)

7. Web siteniz var mı?

.....Evet .....Hayır (Cevabınız "Hayır" ise lütfen 18. soruya geçiniz.)

8. Ne kadar süredir bir Web siteniz var?

.....1 yıldan az .....1 – 3 yıl arası .....3 yıldan fazla

9. Web sitenizde hangi ürünlerin satışını ve pazarlamasını yapıyorsunuz? (Birden fazla seçim yapabilirsiniz.)

.....Otel .....Yemek / Restoran .....Uçak .....Paket Tur
.....Araç Kiralama .....Gemi Turu .....Otobüs .....Transfer
.....Tren .....Aktivite / Rekreasyon (günlük turlar, su sporları, gece şovları, vb.)

10. Web sitenizde internet rezervasyon fonksiyonu var mı?

.....Evet .....Hayır (Cevabınız "Hayır" ise lütfen 18. soruya geçiniz.)

11. Web sitenizde yer alan internet rezervasyon fonksiyonu ile ilgili aşağıdaki ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Müşteriler internetten rezervasyon yaparken birden fazla ürünü aynı rezervasyonda alabiliyorlar.	.....	.....	.....	.....	.....
2	Müşteriye internetten rezervasyon yaparken başka ürünler öneriyoruz.	.....	.....	.....	.....	.....
3	Müşterinin talep ettiği özelliklere sahip birden fazla seyahat ürünü içeren "müşteriye özel" anlık tatil paketleri oluşturuyoruz.	.....	.....	.....	.....	.....
4	Bu tatil paketlerinin içeriği müşteri tarafından internetten değiştirilebiliyor.	.....	.....	.....	.....	.....
5	Tatil paketlerinde yer alan ürünlerin fiyatları ayrı ayrı müşteriye gösteriliyor.	.....	.....	.....	.....	.....
6	Tatil paketlerinin fiyatı hesaplanırken indirim yapılıyor.	.....	.....	.....	.....	.....
7	Müşteri seyahat başlangıç ve bitiş tarihlerini seçebiliyor.	.....	.....	.....	.....	.....
8	İçeriği istediğimiz gibi genişletebiliyoruz.	.....	.....	.....	.....	.....

12. “Müşteriye özel” tatil paketleri oluşturmak için aşağıdaki sistemlerden hangisi veya hangilerini kullanıyorsunuz?

.....Kendi geliştirdiğimiz sistemi .....Anteeo Solutions .....ArcRes Dynamic Packaging .....Bewotec GmbH .....Billian IT Solutions .....Blue Star Infotech UK .....Boenso DynaPack Online .....CarTrawler .....Click with Technology Ltd .....Datalex .....Digital Trip Limited .....ebookers.de	.....eDreams .....Expedia .....Flexible Trips .....Galileo – NeatAgent .....Gateway .....GQDynamic (GoQuo) .....Illusions Online .....Innovasoft .....Intuitive Ltd .....ISO Travel Solutions .....Lastminute .....Multicom .....OpenJawTechnologies	.....Orbitz Dynamic Packaging .....Pharos Datacom .....Swap Systems .....Thomas Cook .....Top Dog Travel Systems Ltd .....Travel Packager (Travel Spike) .....Travelberry (CSI Media) .....Travelmarket Dynamic Packaging .....Trip shopping - Sabre .....VIATECLA .....Web Applications .....YpsilonNet .....Diğer (.....)

13. Web sitenizde “müşteriye özel” tatil paketleri oluşturmaya başladıktan sonra maliyetlerinize ilişkin aşağıdaki ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Otel satış/pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
2	Uçak satış/pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
3	Araç kiralama satış/pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
4	Aktivite / Rekreasyon (günlük turlar, su sporları, gece şovları, vb) satış/pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
5	Transfer satış / pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
6	Otobüs satış / pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
7	Tren satış / pazarlama maliyetimiz azaldı.	.....	.....	.....	.....	.....
8	Paket tur oluşturma maliyetimiz azaldı.	.....	.....	.....	.....	.....
9	İş gücü maliyetimiz azaldı.	.....	.....	.....	.....	.....
10	Personel eğitim maliyetlerimiz azaldı.	.....	.....	.....	.....	.....
11	Raporlama maliyetlerimiz azaldı.	.....	.....	.....	.....	.....
12	Müşteri başına düşen maliyetimiz azaldı.	.....	.....	.....	.....	.....
13	Rezervasyon başına düşen birim maliyetimiz azaldı.	.....	.....	.....	.....	.....
14	Bilgisayar/teknoloji maliyetlerimiz arttı.	.....	.....	.....	.....	.....
15	Ofis / Bina kira maliyetlerimiz azaldı.	.....	.....	.....	.....	.....
16	Çağrı merkezi giderlerimiz azaldı.	.....	.....	.....	.....	.....

14. Web sitenizde “müşteriye özel” tatil paketleri oluşturmaya başladıktan sonra gelirlerinize ilişkin aşağıda ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Otel satışlarımız arttı.	.....	.....	.....	.....	.....
2	Uçak satışlarımız arttı.	.....	.....	.....	.....	.....
3	Araç kiralama gelirlerimiz arttı.	.....	.....	.....	.....	.....
4	Aktivite / Rekreasyon (günlük turlar, su sporları, gece şovları, vb) satışlarımız arttı.	.....	.....	.....	.....	.....
5	Transfer gelirlerimiz arttı.	.....	.....	.....	.....	.....
6	Otobüs gelirlerimiz arttı.	.....	.....	.....	.....	.....
7	Tren gelirlerimiz arttı.	.....	.....	.....	.....	.....
8	Paket tur satışlarımız azaldı.	.....	.....	.....	.....	.....
9	Gemi tur satışlarımız arttı.	.....	.....	.....	.....	.....

15. Web sitenizde “müşteriye özel” tatil paketi oluşturmanızın faaliyetlerinize olan katkılarına ilişkin aşağıda verilen ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Rekabet gücümüzü arttırdı.	.....	.....	.....	.....	.....
2	Satışlarımızı arttırdı.	.....	.....	.....	.....	.....
3	Günlük iş yükümüzü azalttı.	.....	.....	.....	.....	.....
4	Hizmet kalitemizi arttırdı.	.....	.....	.....	.....	.....
5	İptal olan rezervasyonların oranını arttırdı.	.....	.....	.....	.....	.....
6	Pazar payımızı arttırdı.	.....	.....	.....	.....	.....
7	Müşteri memnuniyetini arttırdı.	.....	.....	.....	.....	.....
8	Tedarikçilerle olan ilişkimizi güçlendirdi.	.....	.....	.....	.....	.....
9	Tedarikçi memnuniyetini arttırdı.	.....	.....	.....	.....	.....
10	Tedarikçi ağımızı genişletti.	.....	.....	.....	.....	.....
11	Operasyonel işlerimizi azalttı.	.....	.....	.....	.....	.....
12	Ürün çeşidimiz arttı.	.....	.....	.....	.....	.....
13	Markalaşmamızı sağladı.					

16. Web sitenizde “müşteriye özel” tatil paketleri oluşturmanın genel olarak getirdiği zorluklara ilişkin aşağıdaki ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Turizm ürünleri ile ilgili bilgiler standard değil.	.....	.....	.....	.....	.....
2	Uyumlu çalışabilecek yazılım sistemleri yeterli değil.	.....	.....	.....	.....	.....
3	Sistemlerin birbiriyle olan bağlantısı yeterli değil.	.....	.....	.....	.....	.....
4	Yatırım maliyeti çok yüksek.	.....	.....	.....	.....	.....
5	Organizasyon yapısında değişiklik gerekiyor.	.....	.....	.....	.....	.....

17. “Müşteriye özel” paket oluşturmak için kullandığınız sisteme ilişkin aşağıda veilen ifadelere ne düzeyde katılıyorsunuz?

(1 = hiç katılmıyorum, 2 = katılmıyorum, 3 = ne katılıyorum ne katılmıyorum, 4 = katılıyorum, 5 = çok katılıyorum)

		1	2	3	4	5
1	Birden fazla ürünü içeren tatil paketi oluşturabiliyor.	.....	.....	.....	.....	.....
2	Tatil paketi fiyatını anlık olarak oluşturuyor.	.....	.....	.....	.....	.....
3	Müşteriye birden fazla tatil paketi seçeneği sunabiliyor.	.....	.....	.....	.....	.....
4	Internetten rezervasyon yaparken rezervasyon adımlarında müşteriye yeni ürünler sunabiliyor.	.....	.....	.....	.....	.....
5	Arayüzünü kullanışlı buluyorum.	.....	.....	.....	.....	.....
6	Arayüzün işlem hızını çok yavaş buluyorum.	.....	.....	.....	.....	.....
7	Arayüzü ihtiyacım olan raporları veremiyor.	.....	.....	.....	.....	.....
8	Sisteme veri girişi kolay değil.	.....	.....	.....	.....	.....
9	Arayüzde gerekli bilgiye ulaşmakta zorlanıyorum.	.....	.....	.....	.....	.....
10	Arayüzü gelişmiş bilgisayar bilgisi gerekiyor.	.....	.....	.....	.....	.....
11	Arayüzde yapılan işlemlerde hatalı sonuçlar verebiliyor.	.....	.....	.....	.....	.....

18. Hangi bölümde çalışıyorsunuz?

.....Muhasebe .....Finans .....Pazarlama .....Satış
.....Teknik Servis .....İnsan Kaynakları .....Satınalma .....Üst Yönetim
.....Bilgi – İşlem .....Diğer (.....)

19. Çalışma sonucunun tarafınıza gönderilmesini ister misiniz?

.....Evet (cevabınız evet ise lütfen adres bilgilerini eksiksiz tamamlayınız.) .....Hayır

20. Adres bilgilerinizi giriniz.

İşletme Adı :.....
Posta Adresi : .....
E-posta Adresi : .....
Telefon : .....
Faks : .....

APPENDIX L: One-sample Statistics for the Travel Agency Survey

Table 112. One-Sample Statistics for DP Systems

	N	Mean	Std. Dev.	Std. Error Mean
Expandability of travel packages.	34	3.686	1.279	0.219
Transparency of pricing.	34	2.647	1.535	0.263
Flexibility of travel packages.	34	3.985	1.184	0.203
Updateability of travel packages.	34	2.62	1.688	0.289
Economy of travel packages.	33	3.48	1.372	0.239

Table 113. One-Sample Statistics for the Expenses of Travel Agencies

	N	Mean	Std. Dev.	Std. Error Mean
Decrease in main product and labor expenses.	32	3.132	1.240	0.219
Decrease in secondary product expenses and rental expenses	32	2.850	1.308	0.231
Decrease in unit costs and package tour expenses.	29	3.291	1.242	0.231
Increase in computer and technology expenses[a]	30	2.267	1.363	0.249
a. Reverse coded in the analysis				

Table 114. One-Sample Statistics for the Revenues of Travel Agencies

	N	Mean	Std. Dev.	Std. Error Mean
Increase in main product revenues	32	3.797	0.923	0.163
Increase in car rental revenues	24	3.25	1.260	0.257
Increase in secondary product revenues	29	3.190	1.342	0.249
Increase in package tour and cruise revenues	27	3.167	1.000	0.192

Table 115. One-Sample Statistics for the Contributions of DP Systems

	N	Mean	Std. Dev.	Std. Error Mean
Improvements in market position	32	4.083	0.884	0.156
Increase in efficiency of operations	32	3.615	1.051	0.186
Improvements in service/product range and supplier relationships	32	3.956	0.827	0.146
Increase in service quality	32	4.06	0.840	0.148
Increase in cancelled reservations	29	2.965	1.295	0.241
Increase in customer satisfaction	31	3.90	1.012	0.182

Table 116. One-Sample Statistics for General Challenges

	N	Mean	Std. Dev.	Std. Error Mean
Challenge in standardization of information	30	4.03	1.033	0.189
System and financial challenges	30	3.633	1.108	0.202
Organizational challenges	28	3.68	0.983	0.186

Table 117. One-Sample Statistics for System Difficulties

	N	Mean	Std. Dev.	Std. Error Mean
Interface of DP System is functional	26	3.808	0.939	0.184
Speed of DP System is insufficient	24	2.875	0.992	0.202
Reporting of DP System is insufficient	24	2.667	0.963	0.197
Data entry to DP Systems is difficult	23	2.870	1.217	0.254
Reaching necessary information is difficult	25	2.560	1.003	0.201
DP System requires advanced computer knowledge	25	2.880	0.927	0.185
DP System can produce errors in its interface	25	2.560	0.917	0.183

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