ASSESSING THE NON-AVIATION SERVICES FOR OPTIMIZING THE DWELL TIME SPENT BY AIR PASSENGERS

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ABSTRACT

The aviation sector has become the most important part of the economic development of any country, as it played an effective role in transporting products or people from one place to another, whether international or domestic. The development of global air transport activities has led to an increase in the demand for airport services, requiring more efficient operations to serve aircraft, passengers, or luggage. However, airports are exploring new ways to maximize their revenues. Where airports have been transformed into multiple purpose organizations, including commercial facilities that are the primary source of non-aviation income. The main purpose of this research is to identify and assess non-aviation services presented at the airport to optimize the passenger's dwell time at the airport (Case research –Cairo International Airport-terminal 3). This major aim has sub- objectives. For this sake, the mixed approach methodology was used to conduct the research with mixed techniques. The quantitative approach represented in the questionnaire targeted the passengers at Cairo International Airport-T3. While the qualitative approach represented in participant observation by the researcher and interviews conducted with 12 people were distributed through both direct (face-to-face) interviews as well as indirect interviews over the telephone. In this research, the respondents consisted of airport officials, staff of station and public relations and shopkeepers. The main result is that Cairo International Airport is qualified to optimize the dwell time spent by air passengers, but it needs to add, and develop some new services that improve the passenger experience. In addition, the dwell time directly affects the airport revenues, and that there is a positive relationship between the dwell time and passenger spending.The research recommends that the addition of some new services at Cairo International Airport, Spreading awareness of the use of modern smart technologies among passengers.

KEYWORDS: Cairo International Airport, Dwell time, Non-Aviation services, Passengers, Shopping motivation.

INTRODUCTION

Fuerst et al (2011) pointed out that Modern airports have developed into facilities beyond the functional infrastructure in the past, such as shops, restaurants, conference centers, and even entertainment facilities, such as museums and exhibitions. Therefore, the strategy of expanding airport non transport services based on these developments. The revenue from non-aviation and commercial activities has increased significantly in the past two decades, even exceeding that of some airports. Mostly, passengers browse duty-free stores first to "fill the time" and secondly to "find a specific product" (Baron & Wass, 1996). Therefore, time spent by riders in the retail area had a significant effect on the likelihood of buying something and the total spend (Freathy & Connell, 2012; Torres et al., 2005), partly due to the increased likelihood of impulse shopping as the number of products increased and offered to consumers (Omar& Kent 2001).

Since shopping has been one of the most common activities that passengers engage at airports, retail has played an important role at airport operations (Crawford &Milliwar, 2003), and has been a valuable source of revenue (Geuens et al., 2004; Rowley & Slack, 1999). Thus, many airports have been participating in initiatives to expand and enhance their commercial offerings (Painvin, 2011; Castillo-Manzano, 2010; Graham, 2009; Zhang & Zhang, 1997). Where shopping can be an activity performed to" kill time" (Crawford-Milliwar, 2003). Moreover, the planned shopping at the airport can be postponed in case of lack of time.

Air travel is often associated with waiting - hours of waiting in line to sign in, check for safety, and more. Consequently, airports are seeking new ways to boost the flow of passengers and take advantage of their waiting time as the number of passengers grows each year. The passengers will feel bored and irritated, particularly when the waiting time is long (Schmidberger et al., 2009). Therefore, the research problem crystallized around the subject of assessing the non-aviation services for optimizing the dwell time spent by air passengers.

The overall aim of this research is investigating the non-aviation services presented at the airport and their assessment to optimize the passenger's dwell time at the airport (Case research –Cairo International Airport-terminal 3). This major objective has sub- objectives which are as follows:

1. Identifing and assess non-aviation services at Cairo International Airport.

2. Analyzing shopping motivations for passengers at Cairo International Airport
3. Explaining the correlation between new services and dwell time.
4. Exploring the relationship between consumer spending and dwell time.
5. Investigating the most important reasons impeding the improvement of dwell time at Cairo International Airport.

LITERATURE REVIEW

For six decades, non-aviation activities in general, and terminal retail activities in particular, have been part of airport management. Such practices have increased dramatically since the 1990s (Morrison, 2009; Graham, 2009; Francis et al., 2004; Francis et al., 2003), to the extent that they are essential to the profitability of many airports (Torres et al., 2005). The proportion of total airport revenues represented by non-aeronautical or commercial revenues has not stopped increasing and can exceed 90% of total airport revenues (Pinna& Del Chiappa, 2013, p.6).

The CONCEPT of NON- AERONAUTICAL ACTIVITIES

Activities that were not related to aviation operations were classified as non-aeronautical activities. They could have generated sales and been the primary revenue source for several airports (Fuerst al., 2011). In addition, Kasarda (2006) considered these activities to be all commercial facilities and services provided to passengers at the core of these operations**.**

The MAIN COMPONENT of NON-AERONAUTICAL ACTIVITIES

The non-aeronautical operations, as commercial service, generally consists of franchise-based activities and self-operation. For example (ground handling agent services supplied for airliners, in-flight catering services, duty free and other retail shops in the terminals, restaurants and other catering businesses in the terminals, leasing of advertising space inside and outside the terminals of the airport, provision of goods warehousing, cargo handling and information processing services in the terminals, car parking services, ground handling facilities for ground handling agent companies, etc) (liu, 2016 ; Adler & Liebert, 2014).

This new organizational framework shows that airports are changing from simple aeronautical infrastructure into complex multi-functional companies that represent both aeronautical needs and commercial growth. Therefore, the latest trend in airport management is to complement conventional technical airport functions with terminal and landside business activities (Moon& Kim, 2010). Hence, this section's research aimed to shed light on

those non- aeronautical activities, the most important of these activities as follows: -

- Duty-free and retails
- Food and beverage establishments
- Car parking
- Car rental
- Banking
- Passenger services
- Entertainment (leisure facilities)
- Complementary services
- Websites

THE IMPORTANCE OF NON- AERONAUTICAL ACTIVITIES

Non-aeronautical activities and airport cities in view of the economics of airport activities, the growing value of non-aeronautical revenues can be observed in order to split or produce profits (Orth et al., 2015). Since some of these activities that meet the needs of passengers are used by airport staff, visitors to the business, local residents and passengers, while other activities are limited only to ticket holders who are able to enter the airport's restricted area. These operations are particularly profitable because of their lower operating costs relative to aeronautical operations (Alieva, 2017).

On the other hand, a well-established problem in literature is the importance of the non-aeronautical aspect with regard to airport revenues and their control (Kratzsch & Sieg, 2011). Zhang and Zhang (1997) point out how the proportion of total airport revenue represented by non-aeronautical or commercial components continues to increase. Among the wide variety of airport operations in the past. Operational, traffic handling and commercial facilities are the most significant services. (Kramer, 2010; Morrison, 2009; Reiss, 2007; Bork, 2006). in addition, providing entertainment in a highly stressful environment, many airports are trying to increase these sources of non-aeronautical activities in order to subsidize aeronautical charges, minimize costs and enhancing productive performance and passenger experience (Adler et al., 2013).

Kasarda (2006) pointed out that, consistent with their increasing non-aeronautical roles and work, airports are altering their operational management. As multiple airports (operated by both the public and private sectors) have developed real estate or property divisions to expand their land-based business areas and encourage growth outside airport boundaries

(e.g., British Airport Authority, Amsterdam Schiphol, and Singapore Changi). Furthermore, with regard to the ground access scheme, policies to effectively improve the land surrounding an airport are a significant influence. As a result, the number and scale of non-aeronautical operation centers, primarily commercial centers, office parks and logistics industries around airports is growing (Orth et al., 2015).

Some Asian and European airports have effectively become small cities with runways because of this ongoing growth, where the airport operator, if involved as a stakeholder, profits from the additional revenues generated by the development of retail and real estate. AMS Airport City in Amsterdam, for instance, is now one of the top business locations in the world, with the highest rents in the Netherlands (Schaafsma, 2003).

DWELL TIME

For all types of transport, dwell time at the stop is important: maritime, aviation, train, and bus (22-25 passenger). Dwell time represents a large proportion of the total travel time, between 26 % and 50 %, contrary to what many might believe (Garnier et al., 2020p.639). The key to driving non-aeronautical airport revenue was improving dwell time and offering broader choice and value (Halpern & Graham, 2015).

THE CONCEPT OF DWELL TIME (DT)

The concept of "dwell time" refers to the amount of time that passengers spend in a specific location. It is a very significant concept in the planning and construction of an airport facility. For example, if 1200 passengers are processed every hour during the peak period at the airport and each passenger has a stay time of 30 minutes, the maximum number of passengers in the lobby would be 1200*.5= 600 at any given time. Therefore, it should be had space for 600 passengers and not 1200 passengers while preparing for space. The average peak hour passenger number is often used in the design, which means that two times the capacity is given, often a mistake that makes the idea of dwell time very important in space planning and design. (Enoma et al., 2009).

Dwell time could be defined as "the time available between the security check and the boarding"; where passengers would have a higher chance to shop that it is during that time (D'Alfonso et al., 2013, p.72). Furthermore, dwell time is the time spent by the consumer in an area with shops and restaurants, as reported by the consumer on exit. This area is physically located behind security screening in most airports, and before the boarding areas, where passengers are waiting to board their aircraft. Dwell time is a

self-reported measure taken immediately at the exit of this area or without objective time measurements (Bohl, 2014).

Dwell time is defined as the duration of stay before boarding the aircraft and can be split into ticket processing time, safety clearing time, and free time available for shopping (Tseng & Wu, 2019; Wu, 2016; Wu, 2010).

Finally, dwell time can be defined as "the amount of time that passengers spent at airport, from the arrival to the boarding, where this is that time that passengers will have been more opportunity to shop in concession area that includes stores and restaurant".

THE PRINCIPAL COMPONENT OF DWELL TIME

The principal component of dwell time is the amount of slack time spent by airport users in the different parts of the terminal. Where the free time a passenger has to spend at a terminal is slack time (or discretionary time), i.e. the time not spent being processed or waiting to be processed on functional components or going from one functional component to another. Indeed, dwell time is largely attributed to the amount of 'slack a time spent by passengers in the different sections of the terminal building. In turn, this slack time is allocated between terminal holding areas (Brunetta et al., 1999).

THE IMPORTANCE OF DWELL TIME

A significant determinant of airport sales was dwell time in an airport retail area (Freathy & O'Connell, 2012), and it was used as a construct in the conceptual context that has an impact on both consumer spending and emotions. Since the time spent on shopping could typically be regulated by the shopper and therefore a measure of production. A satisfactory shopping experience, a friendly atmosphere, or even a long shopping list may be triggered by longer time spent. However, passengers are advised at airports to enter as early as possible the closed zone between security and their departure gate, which does not surprisingly include most retail outlets and restaurants (Yalch & Spangenberg, 2000).

In this respect, both Geuens et al. (2004) and Castillo-Manzana (2010) found that in both cases, the dwell time before embarking was positively associated with the choices of consuming food/beverages and making a purchase at a sense level of 99%. In addition, they discovered that the probability of eating concession items increases on holiday. In addition, these passengers' total spending was higher than that of business passengers. Therefore, the use of concession items is influenced by dwell time.

THE RELATIONSHIP BETWEEN DWELL TIME AND CONSUMER SPENDING

Consumer spending was defined as the total amount spent by a person in all retail units visited during that shopping trip (Bohl, 2014; Torres et al., 2005). Therefore, there was a positive relationship between concession area consumer spending and dwell time. This follows the common sense that more free time gave the shops more chance to browse and the desire to buy refreshment was caused. Therefore, as the dwell time grew, consumer spending increased (D'Alfonso et al., 2013). Dwell time has been shown to have a substantial effect on retail passenger spending and the choice of activities in an airport setting (Bohl 2014; Castillo-Manzano 2010; Graham 2009).

Volkova and Müller (2012) found that the consumption of food & beverage products at the airport can be increased by longer dwell times. Adey (2007) suggested that by holding passengers in certain areas to increase spending before passengers move to their boarding area, the airport should 'increase the dwell time of passengers'.

SHOPPING MOTIVATION

When contrasted with daily shopping routines and venues, the exotic stimuli and situations provided by an airport might evoke shopping motivations that differ from those for general shopping (Wu, 2010). Geuens et al (2004) categorize four different types of airport shopping motivations as follows:

1. Functional motivation (such as a good price, convenience and quality shopping).
2. Experiential motivation (such as promotions and buying to indulge oneself).
3. Airport-atmosphere-related motivation (such as impulse purchasing, pre-planned purchases and purchasing out of boredom).
4. Airport-Infrastructure-related motivation (such as service in the shops, and multilingual staff and promotional materials).

Perng et al (2010 p.281) found that 35% of airport users were converted to consumers, representing the airport environment's effects and the psychological factors of air travel in the buying conduct of passengers. In addition, purchasing gifts, either for a friend or to take advantage of duty-free sales, was a dominant shopping goal in the sense of airport retailing (Omar & Kent, 2001). Furthermore, in an airport setting, social motivations may be expected to appear: meeting other individuals, connecting with others who share common interests, affiliating with peer groups, interacting with salespeople, etc. For some passengers, feelings of uncertainty, fear or

excitement are triggered, leading them to look for salespeople's soothing, calming and motivating behavior (Menon &Dube, 2000).

RESEARCH METHODOLOGY

The main purpose of the research is identifying and assessing non-aviation services at Cairo International Airport for optimizing the passenger's dwell time at the airport (Case research –Cairo International Airport-terminal 3). Furthermore, the research is conducted to answer research questions and explore the factors that affect dwell time to focus on them to find the solution for the research problem, reach results and propose recommendations.

This assessment based on some data was gathered to reach more accurate data as possible, so it would be collected through mixed tools quantitative and qualitative tools as follows: -

1- The quantitative tool is the questionnaire which is distributed over a passenger's Cairo International Airport.

2- The qualitative tool is the participant observation which is applied on non-aviation services by researcher. In addition, the interview which is applied on officials, employee of public relation, employee of station and shopkeepers at Cairo International Airport-T3.

The participant observation checklist was designed through the comparison between Cairo International Airport. This checklist contains 10 items as follows; Duty-free and retail, food and beverage services, parking, car rental, banking / currency exchange, entertainment, passenger services, communication services and website.

The questionnaire was designed depending on the literature (Changi Airport, 2020b; Del Chiappa et al., 2016; Bohl, 2016; Bezerra & Gomes, 2015; Lu, 2014; Pinna & Del Chiappa, 2013; Lin & Chen, 2013; Chao et al., 2013; Okumus et al., 2013;). And was developed according to the reviewers' comments and observations. The questionnaire was divided into two main parts. Part one is about personal data. The second part consists of 5 components such as commercial activities (8 elements), shopping motivations (5 elements), shopping environment (16 elements), passenger's satisfaction (23 elements) and new services (8 elements).

$$n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\varepsilon^2}$$

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = 384.16$$

Applying these values to Steven K. Thompson formula reveals that the appropriate sample size for this research is 384 participants but the researcher distributed 430. The researcher distributed (430) questionnaires. After analysis, there were 29 questionnaires not valid for analysis; the valid is (401). It is necessary to determine the required minimum sample size in survey situations and other statistical methods to generalize the population's results. To obtain a statistically representative sample size of the population, Steven K. Thompson formula is used.

The questionnaire was distributed to air passengers directly at Cairo International Airport in Terminal 3. As it also targeted passengers who arrived in Egypt via Cairo International Airport in terminal 3 who are in Jaz Lamaya Resort Coraya Bay in Marsa Alam and Steigenberger Golf Resort El Gouna in hurghada. The questionnaire forms were also distributed by e-mail. A sample questionnaire was written and it was distributed in three languages in Arabic, English and German during the period between October 2020 and December 2020. The sample number was 401 passengers.

The semi-structured interviews were conducted with 12 person, where distributed both direct (face-to-face) interviews as well as indirect interviews over the telephone. In this research, the respondents consisted of airport officials, staff of station and public relations and shopkeepers.

Finally, Face validity: The scale was reviewed by seven academic reviewers. Regarding Reliability: The results showed that the alpha coefficient was .811 Therefore, these results were considered reliable.

RESULTS AND DISCUSSION

The results of data analysis were obtained from data collected from respondents. The main purpose of this research to know non-aviation services presented at the airport and their assessment to optimize the passengers' dwell time at the airport. In addition, the research focused on exploring the reasons that affect the improvement of the dwell time at the airport.

THEME ONE: RESULTS AND DISCUSSION FOR THE PARTICIPANT OBSERVATION

By answering the research's question (What are non- aviation services available at Cairo International Airport), the researcher analyzed and assess the non-aviation services (especially the facilities) that are available at Cairo

International Airport in Terminal 3. The results of the observation showed the following:

- Duty-Free Area and Retail Stores: (V.G). They are spread across all three terminals at the airport, but it is found in abundance in Terminal 3 as it contains a larger range of duty-free items because it is considered the largest retail space between the three terminals of the airport. Where, it a 4000 sq.meter retail space. A store has also been opened on the ground side to provide well -wishers, meters and greeters as well passengers, convenience items such as Travel Goods, News Papers & Magazines, Music & DVD, Pre-Paid Phone Cards, etc.
- Food and Beverage Services. (G). from the observation, it was found that there are many restaurants, cafes and snack restaurants in the airport in Terminal 3. They are spread in different locations (arrival, departure halls). As passengers, employees, or even meeters and greeters can enjoy a wide range of food and drink services. furthermore, at Cairo International Airport, some cafeterias are operated by Egypt Air for tourism and duty-free shops but there are no fancy restaurants, buffets, and vending machines at the airport.
- Car Parking: (N). the parking area of Cairo International Airport in terminal 3 covers a net usable area of 27,000 square meters. It has a capacity of about 1,300 cars, from the net area of the airport, which is 86,395 square meters, and from the total capacity of 3,612 cars. A multi-storey garage with a capacity of 3000 cars is also located between terminals 1 and 3, which can be moved between them by automatic train

- Car Rental: (E): car rental consists of two types:

1- Limo Agencies: depending on the destination and the car category. Category A is luxury limousines (e.g. Mercedes-Benz E-Class), category B is Micro buses for up to seven passengers, category C is midsized cars (e.g. Mitsubishi Lancer) and new Category D is London Taxis.

2- Rent a Car: It operates a wide range of international car rental companies at Cairo International Airport, where offices are located in all passenger terminals. Examples of car rental companies in terminal 3 are as follows :(Budget- SIXT- AVIS- Elwefak El Masreya for Tourism).

- Banking /Currency exchange. (V.G). In terminal 3 there are many ATMs cash machines are obtainable in different locations from the terminal such as (National Bank of Egypt-Ahli United- Banque du cairo). where there are located in departure check-in area arrival halls, departure halls, customs area.In this concerning of the currency

exchange, the moneychanger offices are located in various locations of the airport such as (.Banque misr exchanger- Travel Choice Bank (ex Thomas Cook). In addition, there are many machines for various banks such as (The united bank-Banque du cairo-CIB Commercial International Bank - Banque misr-Bank of Alexandria).

- Passenger services: (F.G). Cairo International Airport has wheelchair services, porters and medical services, there is a pharmacy in terminal 3 in the departure hall. However, Cairo International Airport lacks Baggage storage and family services as Strollers, Play grounds, Baby care rooms or Baby care Lounge. As these services are considered one of the important services for passengers, especially those with kids.

- Entertainment: (P). Entertainment services are not available at Cairo International Airport in terminal 3., only a small Egyptian museum that contains some artifacts.
- Complementary Services*:* (G). they consist of:

1- A Business Center is available at Cairo International Airport especially in Terminal 3 in the arrival hall. It is an office that provides (fax, photocopy, laptops, making telephone calls).

2- Meeting Rooms and Single Occupancy Nap Room. N/B. There are not available meeting room and not available Single Occupancy Nap Room.at CAI International Airport.

3- Transit Hotel. Cairo International Airport has one Transit Hotel, which contains just several rooms located inside the airport for transit passengers to allow them to stay overnight while waiting for the next flight.

4- Travel Agencies. Cairo Airport contains many travel agencies in Terminal Three where they are located in an area arrival pre and arrival post. For example (Captain Tours- Delta Tours- Fast Tours).

5- Pay-Per-Use Lounges: Cairo International Airport has a VIP lounge because it provides a kind of privacy for the VIP passengers. It includes 3 main lounges (English, Italian and American) in addition to a stereo restaurant, but the researcher could not enter these lounges to see the services provided inside.

6- Automated People Mover: an automatic train is available at Cairo International Airport that connects the airport terminals and also connects them to the Air Mall.

7- Hotel reservation counters: At Cairo International Airport, there are many hotel counters. Where there are more than 15 hotel counters, such as Nile Ramses Hilton, Four Seasons Hotel, and Sheraton Hotel.

8- Educational services (training courses): Cairo International Airport offers an education and training service through the ACI GTH Training

Center. These courses are provided to managers to guide them to best practices in the industry.

- Communication Service: (P). Cairo International Airport offers phone booths using the pre-paid cards. and phone charging service.in addition Cairo Airport also offers Wi-Fi service in all terminals and what is called 'Public Wireless LAN Access'., but this service is very weak.

- Website: (F.G). Cairo International Airport website provides good information but without supporting this information with active image, multimedia, relevant links, or even an events calendar. Also, this information presented is not comprehensive or update. In addition, Cairo International Airport does not focus on the transactional advantages of non-aviation activities.

Through the above, the first objective of the research was achieved, which is to know and assess the services available at Cairo International Airport, especially in terminal 3. After analyzing the participant observation, it could be said that non-aviation services at Cairo International Airport are very well, except entertainment activities are very poor.

THEME TWO: ANALYZING OF THE QUESTIONNAIRE.

The current section aims to verify the research aims. This section includes three parts. The first part includes table number 2 which identifies passengers' shopping motivations at Cairo International Airport. The second part includes table number 3 which identify new services that can be added at Cairo International Airport.The third part includes table number 4 which illustrates correlations between dwell time and new services, and correlations between dwell time and Consumer Spending at the airport.

Table 1: Passengers' Shopping Motivations

Statement	Mean	Std. Deviation	Rank
1. Duty-Free Products	3.91	.52	2
2. Good Exchange Rates	2.44	1.13	5
3. Newly Released Products	2.75	.93	4
4. Products with Local Characteristics	3.85	.57	3
5. Products with Souvenirs	4.13	.50	1

*Means of shopping motivations where 5 = Very High Extent, 4 = High Extent, 3 = Neutral, 2 = Low Extent, 1 = Very Low Extent.

The table 1 shows the mean value of shopping motivations that passengers give to a list of 5 attributes. From table 1, we can also conclude the following:

- "Products with souvenirs" occupied the first position with a mean of "4.13" and a standard deviation of ".50", followed by " duty-free products" with mean of "3.91" and standard deviation of ".52", then," products with local characteristics " with a mean of "3.85" and a standard deviation of ".57".

-"newly released products" occupied the fourth position with mean of "2.75" and standard deviation of ".93", followed by "Good exchange rates" with mean of "2.44" and standard deviation of "1.13".

Through this result, the second objective was achieved, which is to" Identify shopping motivations for passengers at Cairo International Airport".

Table 2: New Services that Can be Added at Cairo International Airport.

Statement	Mean	Std. Deviation	Rank
1.Nursery Room	4.60	.72	4
2.Health Center	5.00	.00	1
3.Gardens	5.00	.00	1
4.Swimming Pool with Jacuzzi	3.83	1.28	5
5.Strollers	4.75	.66	3
6.Playgrounds	5.00	.00	1
7.Single Occupancy Nap Rooms	5.00	.00	1
8. Using Modern Technological Means at The Airport to Facilitate Check-In Process, Immigration Process, Customs Process……. Etc	4.83	.59	2
Overall	**4.75**	**.23**	-

*Means of new services at Cairo airport where 5 = Very High Extent, 4 = High Extent, 3 = Neutral, 2 = Low Extent, 1 = Very Low Extent.

It is noted in Table 2 that the new services that passengers want to add at the airport as follows:

- "health center, Gardens, Playgrounds and Single Occupancy Nap Rooms" occupied the first position with mean of "5.00" and standard deviation of ".00".

- "Using modern technological means at the airport to facilitate check-in process, immigration process, customs process……. etc." occupied the second position with mean of "4.83" and standard deviation of ".59", then "Strollers" with mean of "4.75" and standard deviation of ".66", then "Nursery room " with mean of "4.60" and standard deviation of ".72". finally , " Swimming Pool with Jacuzzi " came in the last position with mean of "3.83" and standard deviation of "1.28".

As this result, the fourth objective of the research was achieved, which is" Clarify the services that can be developed or added at Cairo International Airport".

Table 3: Correlation between Dwell Time and (New services- Passengers Satisfaction- Consumer Spending) at the Airport (n=401).

Correlations Spearman's Rho		
Variables		The average of your waiting time at Cairo International Airport terminals (dwell time).
New Services	Correlation Coefficient	.767**
	Sig. (2-tailed)	.000
	N	401
Passengers Satisfaction	Correlation Coefficient	-.522**
	Sig. (2-tailed)	.000
	N	401
Consumer Spending at the Airport	Correlation Coefficient	.415**
	Sig. (2-tailed)	.000
	N	401

Table 3 revealed that there is a positive relationship between new services and its dwell time at airport (dwell time) (r=.767** and p<0.001).

Furthermore, there is a negative relationship between passengers' satisfaction and dwell time at airport (dwell time) (r=-.522, and p<0.001). Finally, there is a positive relationship between consumer spending at the airport and its waiting time at airport (dwell time) (r=.415 and p<0.001).

Through the above, the O3, O4 objective of the research were achieved, which exploring the relationship between dwell time and consumers spending at the airport, as the relationship between them was positive and this result is agree with (Bohl 2014; D'Alfonso et al., 2013; Volkova & Müller, 2012; Castillo-Manzano 2010; Graham 2009; Torres et al., 2005; Rowley & Slack, 1999) who assured that there is positive relationship between the dwell time (DT) and consumers spending. Thus, dwell time is valuable source of revenue increase. Finally, there is positive correlation between new services and dwell time.

THEME THREE: ANALYZING THE INTERVIEWS CONDUCTED WITH AIRPORT MANAGEMENT OFFICIALS, STAFF AND SHOPKEEPERS

These interviews concluded the following results based on the research objectives and questions.

1. **CREATING AND DEVELOP NON- AVIATION SERVICES AND ENTERTAINMENT FACILITIES AT CAIRO INTERNATIONAL AIRPORT TO IMPROVE THE UTILIZATION EXPERIENCE OF PASSENGERS' DWELL TIME AT THE AIRPORT**

most of the interviewees stressed that the airport needs to develop and create new facilities and services, and benefit a lot of spare space at airport for example, creating family gardens, providing nap rooms and meeting rooms, developing a transit hotel inside the airport, providing trolleys and nursery rooms for children, developing the services that are provided. In addition, to increasing the number of Counters etc. However, they added that the obstacle to this development is the lack of physical means, which the airport belongs to a government company, which leads to a lot of routine procedures. In addition to the lack of after-sales marketing service. This agrees with Vujicic and Wickelgren.(2011), who assured that there is not active marketing at airports.

While few of pointed out that the largest category of passengers at Cairo International Airport are not transit passengers , meaning they do not wait at the airport for long hours as is the case at Changi Airport, which depends entirely on transit passengers, which leads to the need to create recreational means for the passengers to spend waiting hours them in enjoyment of

entertainment, and pointed out that they do not need to create entertainment or attractions for the category of passengers not exceeding 20%.

Through the above, one of the objectives of the research was achieved, which is to clarify the services that can be developed or added at Cairo International Airport.

2. The Impact of the Relationship between Dwell Time and Spending

Both the airport management officials, staff and shopkeepers assured that the longer the passenger waits at the airport, the higher the spending, especially if the airport provides the services or entertainment needed by the passengers so that the waiting time at the airport is not boring before the plane takes off, and therefore the airport revenue increases and vice versa.

3- The Barriers that Affect the Improvement of Dwell Time at Cairo International Airport

All of the interviewees agreed that the following reasons may be obstacles to the improvement of the dwell time at the airport:

- The difficulty of completing travel procedures easily and the length of waiting times in the queues, especially on morning flights due to a large number of flights and passengers. As a result of the small number of counters that check in, causing delays in queues.

- The high prices of products and services at the airport compared to the products and services that are provided outside the airport, due to the high rental and tax rates for stores, which forces their owners to raise the prices of the products.

- The lack of adequate entertainment facilities at the airport, due to the lack of financial resources, as well as the long period of routine procedures in implementing or developing airport services.

- The lack of smart airport technologies that help the passengers to complete his travel procedures easily at the airport, such as (Smart Wallets -Smart Lanes -Positive Boarding -Finger print -Smart screen -High-Tech mirror- Sophisticated motion sensor systems). On the other hand, there are actually smart airport technologies, but it is not properly activated for example (Smart gates (E-gates)- Self-check-in points- Airport Mobile Applications). Because it is used by a limited number of

passengers, because many of them Citizens are still unfamiliar with the system. And not all of passengers are familiar with mobile applications. In addition, applications don't provide everything for users required information such as (train and bus service schedules and flight notifications delays, airport maps and their own facilities such as cafes, restaurants and restaurants free market, etc.).

As a result of the aforementioned, the obstacles that affect the improvement of the dwell time spent by passengers at Cairo International Airport have been identified. Thus, the final objective of the research was achieved.

CONCLUSIONS

The main purpose of this research is to identify non-aviation services present at the airport and their assessment to optimize the passenger's dwell time at the airport (Case research –Cairo International Airport-terminal 3). This major aim has sub- objectives. For this sake the mixed approach methodology was used to conduct the research mixed techniques. The first is the quantitative approach which is the distributed questionnaire (430) questionnaires. After analysis, there were 29 questionnaires not valid for analysis; the valid is (401). Whereas the qualitative approach which is represented in the semi-structured interviews was conducted with 12 people (see table 2.4) where distributed both direct (face-to-face) interviews and indirect interviews over telephone. In this research, the respondents consisted of airport officials, staff of station and public relation and shopkeepers. In addition, the participant observation checklist was designed through the comparison between Cairo International Airport and Changi Airport in a literature review, in order to find out the non-aviation services available and not available at Cairo Airport in Terminal 3 for assessing by the researcher.

The main result is that Cairo International Airport is qualified to optimize the dwell time spent by air passengers, but it needs to add and develop some new services that improve the passenger experience, as it was found that the length of the waiting period without activities at the airport negatively affects passengers as it was found that there is a negative relationship between dwell time and passenger satisfaction. In addition, it was found that the dwell time directly affects the airport revenues, as it was found that there is a positive relationship between the dwell time and the passenger spending.

Concerning the non-aviation services available at Cairo International Airport in terminal Building 3, find that there is a duty-free zone on a large area of 4000 square meters, as well as a large number of retail stores, and this is very sufficient space for entertainment shopping activity while

passengers wait for their flights. Food and beverage products are spread out and are of great importance to passengers on a relatively wide range of the terminal, allowing passengers to get what they need from food, cafes, snacks and fast food etc. Moreover, the parking space is insufficient, which creates a crisis, especially in the official seasons. In addition, Cairo International Airport severely lacks entertainment activities and attractions.

Furthermore, the results indicated that passengers prefer to add more new non-aviation services at the airport, which improve their travel experience, as is the case at Changi Airport, through the comparison that was between Changi Airport and Cairo International Airport, and as a result of this comparison, it was suggested to add some services at Cairo International Airport, like the services available in Changi Airport, which are commensurate with the nature and capabilities of Cairo International Airport. Where these services have received serious acceptance from passengers by answering the researcher's questionnaire.

RECOMMENDATIONS

Following the above discussion and conclusion of the main findings of the research, this section outlines several main recommendations that could assist in optimizing the dwell time at Cairo International Airport. Where, the present research recommends as follows:

- Developing Cairo International Airport by making full use of the airport's land areas, where the aesthetic view is enhanced through it.

- The addition of some new services at Cairo International Airport for example playgrounds, family gardens, strollers, children's rooms, a health center, massage and other recreational means that help improve the experience of passengers at the airport. In addition, offers oxygen sessions, during which the passenger inhales the oxygen with different scents and flavors on demand, such as cinnamon, menthol and other smells that help relax and calm the nerves. As is the case at Narita Tokyo airport in Japan.
- Spreading awareness of the use of modern smart technologies among passengers through the airport website and trying to update it. In addition, adding and developing some other smart technologies in order to achieve passenger satisfaction.
- Increasing the number of counters to match the number with the increasing number of passengers, especially in the morning period. Because of the small number of counters, this leads to delays in travel procedures.

FURTHER RESEARCH

The findings of the current research give rise to some areas for future studies to expand on the limitations we encountered during the current research. The first such area is about

1- The impact of airport shopping environment and dwell time on passenger satisfaction.

2- The impact of airport passenger satisfaction and dwell time on consumer spending.

3- Assessing the ability of Egyptian airports for optimizing the dwell time spent by air passenger (Luxor International Airport - case research).

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