

## Assessing the Service Quality of Air Transport for Domestic Flights in Libya

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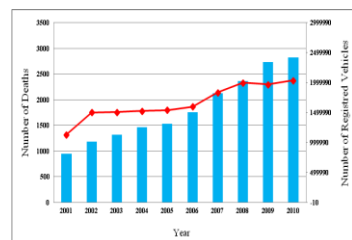
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### Graphical abstract



### Abstract

The Libyan air transport system plays a crucial role in the transportation of people across the nation; it also contributes in minimizing traffic congestion and accidents on intercity highways. The air system seems to deliver secured and comfortable transportation, as against the other alternative means, such as bus. Nevertheless, still the Libyan air transport system needs to improve in certain aspects to better serve the needs of its consumers. In this context, we believe that, it is essential to pay attention to 'service quality', which could make this mode of travel the preferred choice to local, as well as international travelers. Consequently, the purpose of this study is to assess service quality of the air transport system, measure the levels of service quality, and also gauge the quality of the factors, impacting the current service delivery in the air transport in Libya, using Importance-Satisfaction Analysis (ISA). It is noteworthy that, this study is the first of its kind in Libya, as it has examined the satisfaction of customers with the service delivery of the domestic airline. For this purpose, the self-administered questionnaire was personally distributed to the target population of domestic air travelers within Libya. We have used a stratified sampling procedure in this research; the final research sample consisted of 312 participants. Ultimately, several possible corrective actions to improve the quality of services of the airline, with each critical item were highlighted.

**Keywords:** Importance-satisfaction analysis; airline service; service quality; enhancing passenger satisfaction; travel demand

### Abstrak

Sistem pengangkutan udara di Libya memainkan peranan penting bagi mengangkut pengguna ke seluruh negara, juga turut menyumbang kepada mengurangkan kesesakan lalu lintas dan kemalangan di lebuhraya antara-bandar. Sistem pengangkutan udara dilihat dapat menyediakan pengangkutan yang selamat dan selesa, berbanding dengan alternatif lain, seperti bas. Walau bagaimanapun, sistem pengangkutan udara di Libya perlu memperbaiki aspek-aspek tertentu bagi memenuhi keperluan para pengguna. Dalam konteks ini, kami percaya bahawa, adalah penting untuk memberi perhatian kepada 'kualiti perkhidmatan', yang boleh membuat mod perjalanan ini menjadi pilihan utama untuk penumpang tempatan serta antarabangsa. Oleh yang demikian, kajian ini bertujuan untuk menilai kualiti perkhidmatan sistem pengangkutan udara, mengukur tahap kualiti perkhidmatan dan juga mengukur faktor kualiti yang memberi kesan kepada sistem penyampaian perkhidmatan pada masa sekarang bagi pengangkutan udara di Libya dengan menggunakan analisis kepentingan-kepuasan (ISA). Kajian ini merupakan yang pertama seumpamanya di Libya, yang mengkaji kepuasan pelanggan terhadap perkhidmatan yang diberikan oleh penerbangan domestik. Bagi tujuan ini, borang soal-selidik telah diedarkan secara peribadi kepada populasi sasaran yang merupakan penumpang penerbangan domestik di Libya. Kami telah menggunakan prosedur persampelan rawak berlapis dalam kajian ini dengan sampel kajian terdiri daripada 312 responden. Seterusnya, setiap item yang penting untuk meningkatkan kualiti perkhidmatan syarikat penerbangan telah diketengahkan dalam kajian ini.

**Kata kunci:** Analisis kepentingan-kepuasan; perkhidmatan syarikat penerbangan; kualiti perkhidmatan; meningkatkan kepuasan penumpang; permintaan perjalanan

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## 1.0 INTRODUCTION

Of late, Libya is facing an explosive growth in vehicle ownership and utilization, which leads to traffic accidents, congestion and pollution. On the other hand, the development of road and highways is not up to the mark, it really struggles to match the massive growth in the number of vehicles. To illustrate the rapid growth of the number of vehicle owners in Libya, the total numbers of motor vehicle registrations were compared from year 2001 to 2010 (see Figure 1). This figure shows that, within 10 years, the number of vehicle owners in Libya has increased around three times, since 2001. Generally, majority of these accidents happen in Libyan intercity highways. The accident rate on intercity highways is about one-ninth, when compared with those happening on ordinary roads. Therefore, government policy encourages people, to use safer mode of intercity transportation. The Libyan government has conducted several studies to overcome these problems (Miskeen and Rahmat 2011, and Miskeen *et al.*, 2012).

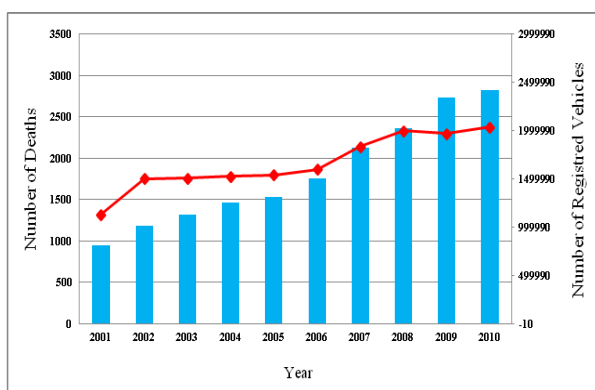


Figure 1 Registered cars and road fatalities in Libya (2001-2010)

Moreover, the government policy encourages people to use other mode of intercity transportation, instead of their private car for reduction of traffic accident and air pollution (Miskeen *et al.*, 2013 & 2014). However, most of the Libyans prefer to use private vehicles due to the bad quality of services offered by intercity public transports. In this regard, intercity transport operators, especially airlines are forced to emphasize to monitor and improve the services provided. This study focuses on passengers satisfaction in terms of air transport based on service quality attributes.

In 2017, Libya will host the Soccer Africa Cup, which might provide an opportunity for improving the quality of service in the public transport sector; however it might pose a heavy challenge in moving huge mass of people. According to the Ministry of Youth and Sports in Libya 2017, 16 teams will participate, 32 matches will be held, and therefore it has been estimated that, 1.5 million local spectators and 200 000 visitors will need to be transferred to and from the 7 host cities of Libya, in 30 days. This is a huge challenge to the air transport industry, as the current transport system may not meet the demand for one of the African's largest sporting event.

Consequently, air transport will play an important role in the 2017 Soccer African Cup, so it is essential to improve the service quality of air transport industry by 2017 and beyond. At the same time, this industry will also solve intercity traffic problems such as, the excessive use of private automobiles created in recent years, which increases the rate of accidents and deaths on the Libyan highways.

Meanwhile, by analyzing the internal and external environment and evaluating its role within the service delivery

arena, the National Department of Transport (2010) claims that, the current air transport system would not meet the demand for the movement of goods and people effectively. It has also been identified that, the current air transport industry does not appear to have the infrastructure and delivery system, to provide a satisfactory level of service delivery for the 2017 African Cup. The culture of service provision in the air transport arena needs to be improved. Furthermore, it is not clear what actions need to be taken to improve customer service. Therefore, this is the right time to demand a policy, which will improve intercity transport, especially, air transport

Customer satisfaction is one of the most important influential factors in airline industry, and is recognized as a key to the success of business competition. Customer satisfaction is the individual's perception of the performance of the service, in relation to expectations. Customers have substantially diverse expectations; therefore all the airlines thrive hard to maximize customer satisfaction for the purpose of sustaining their business. Nevertheless, they have comprehended the necessity of satisfying customers, to retain existing customers and to gain new ones, hence they have started to initiate many projects to measure service quality, and satisfy the customers by improving service quality.

Customer satisfaction in airline operations has become critically important Clemes *et al.*, (2008). In this context, airlines have started to offer various incentives e.g. brochures, competitive prices, and computerized reservation system, with purpose of creating customer loyalty Ostrowsk *et al.*, (1993). According to Chang & Yeh (2002), if all airlines become similar in terms of incentives, the company with better perceived service will get passengers from other airlines. Furthermore Butler & Keller (1992), have argued that, quality in airline service is difficult to describe and measure, due to its divergence, intangibility, and coherence, and it is only possible for the customer to truly define service quality in airline industries Gilbert & Wong (2003). Fundamentally, airline industry has to essentially understand the needs passengers, to provide the desired service quality Chen & Chang (2005), and consequently to understand its performance levels Denne't *et al.*, (2000). Customer satisfaction in airline operations has become critically important; and (Sultan & Simpson, 2000) have suggested that, as competition created by free trades have become more intense, and service quality in the airline industry has also received more attention.

Due to its assortment, intangibility, and coherence, it is too challenging to demonstrate and evaluate the quality of airline service; in addition, it is only feasible for the consumers to adequately explain the quality of service provided by the airline organizations. Due to the above mentioned challenges, this present study has employed a distinctive approach, known as Importance-Satisfaction Analysis (ISA), which has not been used in any of the earlier air transportation studies. We have employed ISA to assess the service quality delivered by the airlines. It is our belief that, ISA might be adequately competent to deal with various kinds of reactions from the passengers, and helps us to identify the important definitive requirements (items).

Therefore, this research is aimed to measure the critical elements impacting the efficiency of current service delivery in the air transport in Libya, to prioritize the importance of the factors influencing service delivery in the air transport system in Libya, and the action required for improving the service quality in the air transport industry. The result of this research will point out the direction for investment of funds in the industry and, thus, for improving the air transport infrastructure. At the same time, it will enhance the productivity of these organisations, reduce their vacancy rate, and maximize the benefits in 2017 and beyond.

## 2.0 METHODOLOGY

This study covers a sample of 312 respondents, and the survey was conducted at the major airports terminal of Libya. The duration of the fieldwork was from November 2, 2010 to January 25, 2011. Data used in this paper were collected from five major cities, including Tripoli, Benghazi, Surt, Sabha and AlKufrah as shown in Figure 2.



Figure 2 Map showing the selection of the study areas

Sampling has been done by randomly interviewing selected passengers, at different times of the day, on every day of the week, over a period of four weeks. A structured questionnaire was used for data collection. According to Parasuraman *et al.* (2004), in the survey questionnaire, questions on customer satisfaction were asked with responses in the scale of 1-7, ranking from 1 “highly unimportant” to 7 “highly important”. Similarly, the satisfaction responses vary from 1 “highly dissatisfied” to 7 “highly satisfied”. The survey form was provided in two languages, i.e. Arabic language and English language. The questionnaire was divided into three sections; the first section reveals the demographic profile of respondents, such as gender, age, occupation, purpose of using the airline service and also the frequency of using the airline in a month. The second and third sections were designed to evaluate their overall experiences they received from the airline services, and the importance and satisfaction levels of Consortium airline services. The factors surveyed for the airline service importance and satisfaction were the same, which includes, comfort, staff behavior at the counter, service, aircraft, punctuality, security/safety, and ticket price.

In this study Importance-satisfaction Analysis (ISA) has been employed to classify those items based on their priority, for instance, some items are classified in “Concentrate here” quadrant, and by assessing those items we were capable of highlighting the adverse impacts on air transport service quality. The responses of each questionnaire were recorded onto a computer. The data was analyzed and measured by Excel software, a statistical program SPSS 20 (Statistical Package for the Social Sciences) and R code software (Programming language). The appropriate statistical tests were conducted.

## 2.1 Importance-Satisfaction Analysis (ISA)

The present study used the Importance-Satisfaction Analysis (ISA), as a useful analysis, to recognize the areas of improvement, equally, as a directory to strategic planning. Importance-Satisfaction Analysis (ISA) is related to the Importance-Performance Analysis (IPA) designed by Martilla and James (1977). The main variation between the two tests is that, IPA employs the views of the respondents concerning the performance of the issue under study, whereas ISA employs the satisfaction of the respondent. The technique is equally useful and simple for recognizing those features of a goods or services that are most very essential for enhancement, or helpful for likely cost-saving situation, without inversely affecting the entire quality. The important attributes were considered first, thereafter the satisfaction was considered using the measured attributes. The mean attributes for importance as well as satisfaction are used as x-axis and y-axis, respectively as shown in Figure 3.

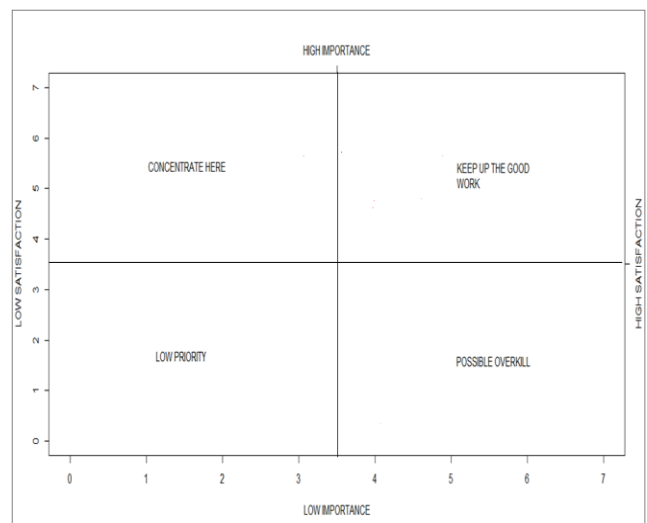


Figure 3 Importance- Satisfaction Analysis (ISA)

Quadrant ‘Concentrate here’ (low satisfaction and high importance), it is important to give necessary attention to the attributes. If one fail to recognize those attributes it may affect the sustainability of some companies and may lead to consumer dissatisfaction. The attribute ‘Keep-up the good work’, illustrates the possibility of achieving competitive advantage, as it is the core power, which has high satisfaction and importance. The management makes resolution to sustain its good services from the above quadrant, because the consumers are highly satisfied, and think that, these features is extremely essential to them. The quadrant ‘Low priority’, implies that, both, satisfaction and importance are very low, and minor weaknesses are the key features in the quadrant, as result do not require additional effort (i.e. Low priority). Meanwhile, the quadrant ‘Possible overkill’ indicates that, there are ways, which the resources could be organized at other areas. The reason being that, consumers were highly satisfied with this feature however they think that this attribute has less importance.

### 3.0 RESULTS AND DISCUSSION

The tool for analysis is clearly discussed in this part; Table 1 shows the results obtained from Importance-Satisfaction Analysis (ISA). Figure 4 shows a scatter plot of the mean values for the participants' satisfaction and importance including the elements in service. The data collected have been analyzed with SPSS 20.0 for Windows program and R software programming language. Figure 4 states the relative status of the features in matrix format, as well as the values of satisfaction on the horizontal axis and values of importance on the vertical axis. Airline service quality questionnaire are categorized into quadrants as depicted in the graph below: quadrant I (Concentrate here), quadrant II (Keep up the good work), quadrant III (Low priority) and quadrant IV (Possible overkill). As indicated in Figure 4, nearly all the items gathered in quadrants I, II and IV, with just a little in quadrants III. Moreover, some items fell too close to satisfaction axis or importance axis, which had confused the authors to make incorrect decisions. For instance, some attributes fell within the 'low priority' quadrant, while others fell within the same quadrant however too close to the 'concentrate here' and 'Possible overkill' quadrant boundary such as I<sub>7</sub> and I<sub>4</sub> respectively, while another fell within the "Possible overkill", but very close to the 'Keep up the good work' quadrant boundary. As the conventional ISA fail to distinguish the items placed into the same quadrant as well the borderline items might not give accurate managerial decisions, the researchers might not possess the capability to give accurate report about the findings. The above mentioned problem was tackled, with Tarrant and Smith (2002) framework to make ISA (Importance- Satisfaction Analysis) a bit more sensitive to the variance of the responses. The standard error was estimated for the individual item, including, importance and the satisfaction values. Summing the standard error to the data points on the Importance -Satisfaction graph, a confidence interval with the mean value in the centre and two standard error bars has been created. The standard error bars expand horizontally for satisfaction values and vertically for importance values in both negative and positive values of the mean.

"Keep up the good work" Quadrant, stand for the region that items are essential, and degrees of passenger's satisfaction are high. On the quadrant, the management should keep up the current action strategies. In other words, consumers consider that, as high service quality and their satisfaction status with the airline company services is also high considering items I<sub>16</sub> (Aircraft condition), I<sub>18</sub> (Cabin cleanliness), I<sub>21</sub> (Security devices appropriate for use) and I<sub>23</sub> (Flight Safety). While the items I<sub>2</sub> (Seat Condition), I<sub>25</sub> (Children Cost) and I<sub>22</sub> (Luggage storage guarantee) are close to the border line of this quadrant, Tarrant-Smith framework suggests that these items are falls in "possible overkill" quadrant. The airline companies should keep up the good work about those items.

"Possible overkill" quadrant stands for the area, where participants' satisfaction levels are high, however these are not seen as essential. The quadrant indicates the, efforts towards those items can be abridged. Invariably, this quadrant has items that give satisfaction to the participants, but not as significant as the rest items. As mentioned by the air travelers, the items that are under this quadrant are I<sub>1</sub>, I<sub>2</sub>, I<sub>11</sub>, I<sub>12</sub>, I<sub>14</sub>, I<sub>17</sub>, I<sub>22</sub> and I<sub>25</sub>.

"Low priority", means; area where the conditions are not seen as essential, as well as the satisfaction of travelers towards the criteria is seen as low, and not seen as a main concern for implementing enhancement activities, and the quadrant. The item I<sub>15</sub> (Catering services) belong to this quadrant and seen as the least important within entire items measured in this research, because the average of air travel time between the major cities in Libya is about one hour. According to Tarrant-Smith framework, the items staff behavior at the counter factor (I<sub>4</sub> friendly and I<sub>5</sub> tidy and neat) and I<sub>26</sub> (festive season cost) belong to this quadrant "Low priority".

Moreover, the item I<sub>7</sub> (fast and organized queues) is very close to the border line of "Concentrate here" quadrant, Tarrant-Smith framework suggests that this item among the "Low priority" quadrant, but the airline companies should make attention to this item in order to improve their service quality.

"Concentrate here": means an area, where items are essential, equally where the consumers' satisfaction levels are low. Focusing on enhancement activities in this aspect would yield maximum outcomes. These kinds of items are essential and should be given more priority by the management, in order to implement plans, to develop the value of services offered. In this research, the given items were placed within this quadrant, organized in ascending order of importance: I<sub>3</sub>, I<sub>6</sub>, I<sub>9</sub>, I<sub>10</sub>, I<sub>19</sub>, I<sub>20</sub> and I<sub>24</sub>. The item I<sub>8</sub> is extremely close to the border line of "Low priority" quadrant, Tarrant-Smith framework suggests that really belong to "Concentrate here" quadrant. Tarrant-Smith model states that item I<sub>13</sub> belongs to the "Concentrate here" quadrant however this item is extremely close to the border line of "Keep up the good work" quadrant. This given section rap-ups the analysis for these items.

"Concentrate here" connotes a region, where items are essential, equally when the level of consumers' satisfaction are very little. Concentrating enhancement actions in this segment will yield maximum outcome.

I<sub>3</sub> (The Service inside Aircraft): If services rendered in flight are not up to the standard, and if the behavior of cabin crew is also rude and unhelpful, it will lead to complaint. The in-flight hospitality provided by high spirited air travel attendants (Ng, *et al.*, 2011) influence passengers' satisfaction. The study showed that customers were not contented with the In-flight service. Many participants have complained: the inadequate of service given inside aircraft and insufficient luggage space. The comment reveals that, the seats and the leg room are comfortable and spacious. The entertainment tools and gadgets are very poor. Airline Company should make more entertainment facilities available for the travelers. In service training should be given to the flight attendants, in order to enhance the ability and capacity of the company. Therefore, they can increase the level of customer satisfaction by providing more number of flight attendants. They can be trained in order to become more polite and passengers' friendly.

I<sub>6</sub> (Degree of Courtesy of Staff): this item denotes, the capacity of workers to relate with passengers, being well mannered and polite in the service, passing information and finding solution to problems. This study has shown that, customers are entirely displeased with the services provided by the workers. Many participants complained of the unavailability and lack of pro-activity in the employee for finding solution to problems encountered in the service. Some respondents reported mistakes at the time of ticketing by travel agents or airline staff, in terms of date of travel; name mismatch etc. which leads to waiting in queue for a long time for obtaining tickets. Staff attitude plays a very important role in complaint, as well as compliment. If staff attitude is positive that can convert a complaint into compliment and vice versa. Staff must be provided soft skill trainings to handle controlled-problems as well as uncontrolled problems. Generally, baggage handling is done by the loaders and they are not educated properly, therefore, it must be monitored by airline staff, as well. Passengers must be educated for their free baggage allowance and security procedure to avoid unnecessary discussions. These corrective measures can be accepted to minimize the customer complaints. For the improvement of the ability and capacity of attendants, the enterprise could provide in-service training to the workers. Such training may include behavior modification strategies and attitudes, for this reason, the company could ask the workers to modify their attitudes for better, concerning the interactions with passengers.



I<sub>8</sub> (Ease of Purchase Tickets): Passengers were very dissatisfied with purchasing tickets. Passengers cannot purchase tickets at the airline office service, because they are not available in all cities. In order to improve their service, they airline should increase the number of branch offices or use new technologies such as, enabling users to buy tickets using phones or by websites (they could make payment through debit or credit card). Respondents have reported discrepancy in fare related issues, such as, incorrect fare information, extra charges; wrong availability status etc. The item was named by consumers as the lower level of satisfaction and higher level of importance. Importantly, the item is inbuilt in the course of selling out tickets, a procedure that influences the degree of passengers' satisfaction in relation to various other items. As a result of this, the subsequent section will reveal comprehensively study of the case.

I<sub>9</sub> (Announcement of Delay and Arrival): Passengers were very dissatisfied with announcement of delay and arrival. In order to avoid this problem, when there are flight related problems, it is important to give authentic and timely information to passengers, as well as alternative arrangements should be made at least for onward connecting passengers. If there is planned cancellation or delay, then passengers must be informed well in time, so that they can report accordingly. The major complaint is the departure time, all the respondents have complained about the delay. The airline company should be cautious on this issue. Though, services such as online ticketing, communication concerning the ticket price, information concerning destination etc. are unsatisfactory.

I<sub>10</sub> (Availability of Online Service): Passengers were very dissatisfied with the online ticket service and journey information of the airline. It is necessary to improve this item, as it is considered essential by customers, i.e., to increase the degree of services, such as online ticketing, communication about the ticket price, information about destination, etc. are not pleasing.

I<sub>13</sub> (Exchanging of departure time service): It is imperative to stress that special consideration should be given to Exchanging of departure time service. Passengers were dissatisfied with Exchanging of departure time, as reported the passengers cannot exchange their departure time; they have to pay more to exchange their departure time. Airline companies suppose to take definite steps to improve some qualities, so that Customers' Satisfaction level could be enhanced.

I<sub>19</sub> (Departure Time as Scheduled): participants were not satisfied with the airline management on this item. Numerous aspects that cause the delay of the airplane during departure time were mentioned. The opinion of most consumers about pre-flight service is bad. The main complaint is the period before. All the respondents have complained regarding the delay. The airline company should take caution on this aspect.

I<sub>20</sub> (Convenience of Schedules): time arrangement is based on when and where the airline will take-off. Passengers were very dissatisfied with the airline fly schedules; there need to be more trips per a day, for example three trips a day for the major cities, because one trip is not enough comparing with the population of these cities. Planning of Flight timing is established to make the most of long-term profitability. The income and cost related to each timing are based on very diverse views of the similar information.

I<sub>24</sub> (Adult Ticket Cost), this item is the money paid and the service rendered by airline. Note that, in order to enhance the customers' satisfaction regarding this item, the airline companies should reduce the value of the ticket fare.

The essential thing to highlight is that, unique concentration has to be given to items I<sub>24</sub> (Adult Ticket Cost), I<sub>19</sub> (Departure period of the flight as planned), I<sub>20</sub> (Convenience of Schedules) and I<sub>10</sub> (Availability of Online Service). Meanwhile, a more in-depth analysis of the highly critical items reveals that, the core problem is the procedure of takeoff time of the flight as planned.

The results indicate that efforts should be devoted to improve the level of passengers' satisfaction so that the problem of losing the competitive advantage, could be prevented, for instance, preventing passengers from changing airline to use private cars. Despite the fact that, the evaluation of the influence and repercussions of these problems, in order to enhance the transportation quality services by airline, are not within the coverage of the study. It is therefore, very feasible that optimistic outcomes can be achieved, if these suggestion and result are essentially carried out.

#### 4.0 CONCLUSION

The enhancement in the quality of service is a means towards better profitability. Therefore, investing money in advanced technologies alone may not solve the problems, but to prioritize company activities in the way they could enhance the degree of quality perceived by passengers. This will result in providing attractive services to the customers. Due to the premise that, if customers' satisfaction level could be sustained, it could probably build their loyalty toward the company.

In short, we have discovered that, users' perception of airline companies could be improved further, when the key factors are identified, they can be categorized according to their order of importance as well as satisfaction. As a result, airline companies are required to take some steps to enhance certain features, in order to improve customers' satisfaction level. Every step taken should be aimed at given satisfaction to the customers.

In this study, ISA (Importance-Satisfaction Analysis) was employed to categorize items based on their priority, particularly the items categorized in "Concentrate here" quadrant. Items placed into this quadrant were calculated and the negative influences on service quality were stated. Sorting process was also carried out in order to give service quality indexes to one of pre-defined levels, which stand for the levels of satisfaction. After explanation of the outcome and observations, it was discovered that, the major problems are; the procedure of departure time as planned, convenience of schedules, announcement of delay, arrival and availability of online service and proportion of the Adult ticket cost. Some likely modifications could be done to enhance the services quality based each critical item (criterion). It must have the inclination for timely cost reduction, fulfill the highest International Aviation Safety; criteria, practices and meet up their standards, and keep services transparent and simple.

The conclusion of this modelling will be helpful in the intercity travel demand analysis for the Libyan Airlines and the Ministry of Transportation and Communication. It will also help the government air transportation agencies and private carriers to make marginal decisions and prevent form under or over designing of their facilities, and to improve their service.

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**Table 1** Results of importance-satisfaction analysis

| Dimensions of Quality                | Attributes   | Satisfaction  |              |              |              | Importance    |              |              |              |
|--------------------------------------|--|---------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|
|                                      |  | Mean          | Std. Error   | Mean- S E    | Mean + S.E   | Mean          | Std. Error   | Mean- S E    | Mean +SE     |
| Comfort Factor                       | (I <sub>1</sub> ): Luggage storage facilities            | 4.570         | 0.120        | 4.450        | 4.690        | 4.940         | 0.086        | 4.854        | 5.026        |
|                                      | (I <sub>2</sub> ): Seat Condition                        | <b>5.190*</b> | <b>0.110</b> | <b>5.080</b> | <b>5.300</b> | <b>5.350*</b> | <b>0.113</b> | <b>5.237</b> | <b>5.463</b> |
|                                      | (I <sub>3</sub> ): The service inside Aircraft           | 3.650         | 0.090        | 3.560        | 3.740        | 5.810         | 0.079        | 5.731        | 5.889        |
| Staff behavior at the Counter Factor | (I <sub>4</sub> ): Friendly                              | <b>4.060*</b> | <b>0.100</b> | <b>3.960</b> | <b>4.160</b> | <b>4.970*</b> | <b>0.087</b> | <b>4.883</b> | <b>5.057</b> |
|                                      | (I <sub>5</sub> ): Neat and tidy                         | 3.990         | 0.090        | 3.900        | 4.080        | 4.820         | 0.090        | 4.730        | 4.910        |
|                                      | (I <sub>6</sub> ): Degree of courtesy of staff           | 3.730         | 0.090        | 3.640        | 3.820        | 5.880         | 0.072        | 5.808        | 5.952        |
|                                      | (I <sub>7</sub> ): Fast and organized queues             | <b>3.650*</b> | <b>0.090</b> | <b>3.560</b> | <b>3.740</b> | <b>5.350*</b> | <b>0.067</b> | <b>5.283</b> | <b>5.417</b> |
|                                      | (I <sub>8</sub> ): Ease of purchase tickets              | 2.940         | 0.096        | 2.844        | 3.036        | 5.560         | 0.101        | 5.459        | 5.661        |
| Service Factor                       | (I <sub>9</sub> ): Announcement of delay and arrival     | 2.720         | 0.115        | 2.605        | 2.835        | 6.200         | 0.067        | 6.133        | 6.267        |
|                                      | (I <sub>10</sub> ): Availability of online service       | 3.190         | 0.102        | 3.088        | 3.292        | 5.890         | 0.067        | 5.823        | 5.957        |
|                                      | (I <sub>11</sub> ): Clear journey time information board | 4.490         | 0.067        | 4.423        | 4.557        | 5.070         | 0.090        | 4.980        | 5.160        |
|                                      | (I <sub>12</sub> ): Ticket refund service                | 4.390         | 0.072        | 4.318        | 4.462        | 4.170         | 0.135        | 4.035        | 4.305        |
|                                      | (I <sub>13</sub> ): Exchanging of departure time service | 4.000         | 0.085        | 3.915        | 4.085        | 6.060         | 0.075        | 5.985        | 6.135        |
|                                      | (I <sub>14</sub> ): Baggage services                     | 4.630         | 0.057        | 4.573        | 4.687        | 4.780         | 0.120        | 4.660        | 4.900        |
|                                      | (I <sub>15</sub> ): Catering services                    | 3.850         | 0.091        | 3.759        | 3.941        | 4.240         | 0.138        | 4.102        | 4.378        |
| Aircraft Factor                      | (I <sub>16</sub> ): Aircraft condition                   | 4.820         | 0.082        | 4.738        | 4.902        | 6.240         | 0.060        | 6.180        | 6.300        |
|                                      | (I <sub>17</sub> ): Aircraft type                        | 4.930         | 0.087        | 4.843        | 5.017        | 4.680         | 0.119        | 4.561        | 4.799        |
|                                      | (I <sub>18</sub> ): Cabin cleanliness                    | 4.880         | 0.088        | 4.792        | 4.968        | 5.880         | 0.067        | 5.813        | 5.947        |
| Punctuality Factor                   | (I <sub>19</sub> ): Departure time as scheduled          | 3.180         | 0.102        | 3.078        | 3.282        | 6.340         | 0.061        | 6.279        | 6.401        |
|                                      | (I <sub>20</sub> ): Convenience of schedules             | 2.820         | 0.094        | 2.726        | 2.914        | 5.840         | 0.067        | 5.773        | 5.907        |
| Security and safety factor           | (I <sub>21</sub> ): Security devices suitable for use    | 4.810         | 0.082        | 4.728        | 4.892        | 5.630         | 0.096        | 5.534        | 5.726        |
|                                      | (I <sub>22</sub> ): Luggage storage guarantee            | 5.100         | 0.122        | 4.978        | 5.222        | 5.220         | 0.115        | 5.105        | 5.335        |
|                                      | (I <sub>23</sub> ): Flight Safety                        | 4.720         | 0.090        | 4.630        | 4.810        | 6.100         | 0.073        | 6.027        | 6.173        |
| Ticket price factor                  | (I <sub>24</sub> ): Adult cost                           | 3.290         | 0.100        | 3.190        | 3.390        | 5.800         | 0.070        | 5.730        | 5.870        |
|                                      | (I <sub>25</sub> ): Children Cost                        | 4.480         | 0.067        | 4.413        | 4.547        | 5.240         | 0.114        | 5.126        | 5.354        |
|                                      | (I <sub>26</sub> ): Festive season Cost                  | 3.950         | 0.091        | 3.859        | 4.041        | 4.600         | 0.118        | 4.482        | 4.718        |

Note: \* Is the suggestion of Tarrant and Smith (2002) framework about the items which fall very close to axis (I<sub>2</sub>, I<sub>4</sub> and I<sub>7</sub>)

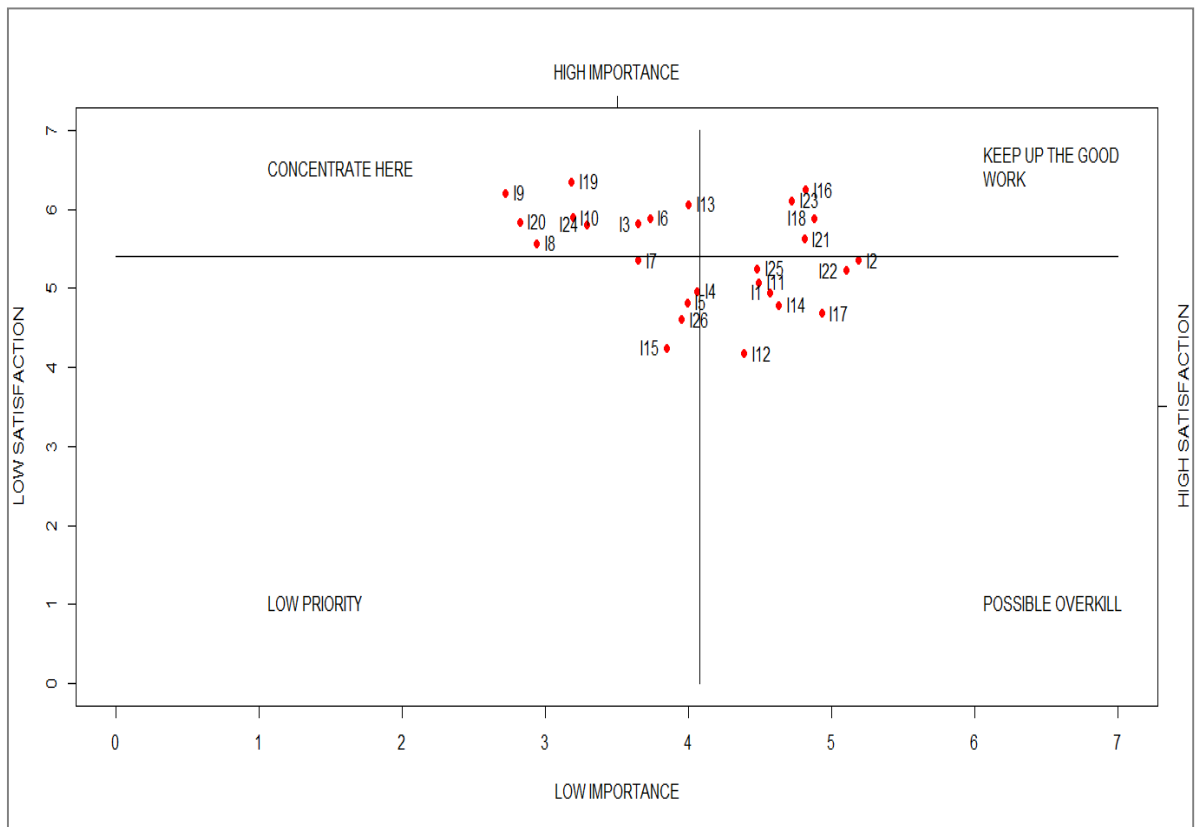


Figure 4 Graph of the importance-satisfaction analysis of airline service in Libya

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