

# A New Quality Model to Measure Quality of Airlines' Websites

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**Abstract**—Most of the airlines are using online reservation systems through their websites. Therefore, providing high quality websites directly affects their business. Although, there are some quality models to verify quality of websites, there is no well-known quality model to measure the quality of an airline website. The main purpose of this paper is to propose an easy to use quality model that its focus is airlines' websites. The proposed model comprises three major factors to be considered when measuring quality of an airline website. However, each factor includes its own metrics. Evaluating this model showed that it gained enough acceptance from the airlines' websites practitioners.

**Keywords:** quality model; quality of website; airlines industry; software engineering

## I. INTRODUCTION

The benefits of using internet in people's lives have caused a huge increase of users. So, a need to extend the business over the internet seems very crucial in order to achieve more benefits. As a result, Service marketers are continually trying to create efficient service strategies to deliver high quality service and satisfy their customers[1]. Especially in air transportation industry, the popularity of the internet and e-commerce technologies makes it necessary to improve the quality of airlines services to achieve more market share and compete with other companies in this domain. Since websites are the most commonly used platforms in interactive communication channels for improving customer relationship management [2, 3], it is necessary for companies to know how good are their websites in order to be more successful in their businesses. A lot of airline companies have developed websites to offer their services. However, they may not aware about the quality of their websites or the gaps which should be considered to be an ideal e-commerce website [4]. So, there is an essential need to have a scale to measure the quality of websites.

So far, a few models have been proposed to assess the quality of the websites [5]. These models have focused on the website quality from different perspective. However, there is no standard model to evaluate the quality of a website in a straight forward and easy manner.

The aim of this paper is to propose a model to measure the quality of airlines' websites. This model has tried to be simple, easy to understand, and easy to use.

The rest sections of this paper organized as follows: Section 2 presents a short background; Section 3 describes the proposed model followed with evaluation of the model in section 4 and finally in section 5 concludes the discussion.

## II. BACKGROUND

Generally, there are some models and frameworks to check the quality of websites usually based on customer's perception [6]. Obviously, success of a business directly depends on the level of customer satisfaction. So, considering customers' perspectives in designing a website, as an interface of an e-commerce system, is a vital point.

Parasuraman et al. [7] proposed a model named SERVQUAL to assess the quality of provided services based on customers' perceptions. In this model, in the first stage, they defined the quality as the difference between the expectations of the users and their perceptions in terms of ten criteria including tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer and access. After providing 97 metrics to extract all different facets they came up with 5 dimensions including tangibility, reliability, responsiveness and assurance and empathy. Although this model discovers main dimensions of the quality, but considering 97 metrics seems too much to be reviewed by respondents. This is a serious criticism against this model.

Another popular model is WebQual, proposed by Loiacono et al. [8] that focuses on the usability, information, and service interaction quality of internet web-sites especially for the websites that provide facilities for customers [9]. The first version of this model has been conducted in 2000 and then updated with some modifications in its dimensions. They released the WebQual 3.0 with three general dimensions including site quality, information quality, and service interaction quality. Eventually, in WebQual 4.0 they came up with usability, information quality, and service interaction quality [10]. This model is comprehensive and useful but

having two different ratings, one for the users' rating about each statement and another for rating the importance may cause confusion for some users who are not familiar with the structure, also using 7-point scale can make difficulty for respondents. Besides these models, a few other models have been proposed that none of them gained enough popularity. Also, it seems considering the same factors for all businesses is not a good idea. Different businesses have different context, users and practitioners. So, it is better to focus on each business and propose its dedicated model for measuring website quality.

### III. PROPOSED MODEL

Since the airlines' websites was the main focus of this study, we considered those influential factors that are more important when designing such websites. For this purpose, our proposed model has three main dimensions namely, ease of use, quality of information, and security and privacy. The rest of this section describes each dimension and its own metrics. Fig. 1 shows the three main factors of the model. The metrics related to each factor are shown in Fig 2.



Fig 1: Proposed quality model

#### A. Ease of use

Obviously, 'ease of use' is one of the most important factors that are considered for successful websites. This factor is very critical for those websites that their users have different knowledge about technology. Although the definition of 'ease of use' is somewhat general and comprehensive, it needs to define in detail to make it more specific and related to the airline domain. To measure 'ease of use', on the basis of literature, several metrics have been considered as follows:

- User friendly: the web site should provide a proper content. It also should have a good organization, navigation, and layout [11-17].
- Attractive appearance: design should be attractive to motivate users to visit the website frequently [11, 12, 14-18].

- Features of the website: the website should provide some important functionalities such as searching and finding related content [11, 13-15, 18]
- Easy to perform: the ability that user can do their desired functions [11, 17, 18].
- Portability: the ability of deploying in different platforms and browsers [19, 20].
- Delivery fulfillment: decreasing the time consuming in loading, online process, downloading, etc. [11, 12, 15, 17, 21].

#### B. Quality of information

Another important factor is "quality of information". This dimension focuses on the extent of reliability, relatedness, and usability of the information provided in the website, and the customer satisfaction in terms of information provided. Also, the details that the website provides and the availability of value added services like hotels websites and reservation system should be considered in this category. The data must be up-to-date, attractive, present by media not all text, and available in the proper time. All these criteria must be considered to evaluate the quality on information of the website. The metrics in this category are as follows:

- Related information: necessary information related to the core functionality of an airline website should be presented (hotels, entertainments, services, weather information and so on.) [4, 6, 11-13, 17-19].
- Usefulness: the usefulness of the information should be guaranteed to achieve the high quality [6, 11, 12, 14, 17, 18, 20, 21].
- Reliability: the data should be reliable so that customers can easily trust the website [4, 11-13, 15, 16, 20, 21].
- Provide users' needs and expectations (correctness): the content should satisfy different expectations of different users. [4, 11-13, 15, 17].
- Detailed information: it is necessary for a traveler to have enough detailed information especially in an international flight as there are some huge differences between some countries in order to climate, time zone, lifestyle, and so on. [12, 18-20].
- Value added product/service: one of the most related functionalities in an airline website is to be touched with hotels reservation, taxi services, tours, etc. in order to facilitate the trip for travelers [4, 11, 14, 16].
- Up-to-date information: an airline website needs to keep up-to-date information [13-16, 20].
- Using media not all text for presenting data: a picture can tell thousands of words. Using only text in an airline website may make the customers bored as they have to read everything. Using media can help

customers to enjoy their surfing and also the website to be more attractive [14, 16, 17, 19].

- Attractive data: the data provided in the website should be attractive [6, 11, 12, 14-16, 20].

### C. Security and privacy

Nowadays, with lots of security risks in e-marketing and online shopping, security and privacy is an unavoidable issue. It is very necessary for users to be able to trust the website. Also they need to be sure about delivery and keeping the evidence and transaction. They must feel secure so they will become customer. In some researches privacy comes along with security. The privacy of the customers must also preserve, they must be sure about their schedule. The metrics for this factor are:

- Feel safe in online purchasing on the site: the ability to trust the website to purchase and deliver the required items [6, 11-13, 16, 18, 20].
- Feel secure providing sensitive information: online booking and reservation usually needs online payment so users need to feel secure about their account information [11, 13, 15, 16, 19-21].
- Keep evidence and transaction: users may need to keep a report or evidence of their online purchases to prove their payment [11, 13, 15, 16, 20].



Fig 2: Factors and their related metrics

## IV. EVALUATING THE MODEL

Based on the model proposed in this study, we defined several questions to measure all quality factors using 5-point Likert scale. Besides these options, the respondents also had

the opportunity to provide their viewpoints regarding each question freely. They also could state any other criteria for each category. We asked them to provide clear explanation regarding their suggestions too.

Respondents were chosen from different groups to collect different perspectives such as web designers, website developers with related experience to the airline domain, airlines' employees, travel agencies staffs and also users who have used airline websites. The participants expressed their opinion about each quality factor by selecting one of the following answers (Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree or very low, low, medium, high, and very high). After receiving the responses, data analysis was started. Using appropriate statistical tools, validity and reliability of questionnaire were verified. Then, the importance of each proposed quality factors were checked.

We received 57 responses from the participants. However, we removed 4 of them because their answers were not completed or was totally out of range. Among them, 9 responses were from web designers, 16 from travel agencies staffs and 28 from potential customers. This combination of the respondents is good mainly because the majority of the respondents are those need to directly work with an airline's website.

Based on the analyzing results and the participants' viewpoints in the open-ended questions, the proposed model was approved and we considered it as our tool to measure quality of the airlines' websites. Table 1 shows the result of data analysis.

TABLE 1: Data analysis regarding the model evaluation

	metric	N	Min.	Max.	Mean	Std. Deviation
Ease of use	User friendly	53	2	5	3.60	.810
	Attractive appearance	53	1	5	3.68	.859
	Features	53	2	5	3.63	.667
	Easy to perform	53	2	5	3.68	.694
	Portability	53	3	5	3.80	.648
	Delivery fulfillment	53	2	5	3.43	.874
Quality of information	Related information	53	2	5	3.58	.636
	Usefulness	53	2	5	3.63	.807
	Reliability	53	2	5	3.65	.662
	Correctness	53	2	5	3.45	.749
	Detailed information	53	2	5	3.38	.807
	Value added services	53	1	5	3.45	.864
	Up to date information	53	1	5	3.63	.952
	Various media	53	2	5	3.63	.667
Security and privacy	Attractive data	53	1	5	3.35	.893
	Safe purchasing	53	2	5	3.73	.784
	Feeling Secure	53	2	5	3.48	.816
	Providing evidences	53	3	5	3.65	.700

All the received answers were analyzed using SPSS V21.0. Using the mean score of respondents' marks gives an accepted vision about their satisfaction level.

#### A. Ease of use

According to the results, the level of satisfaction of respondents is reasonably high. The mean is between 3.80 down to 3.43 reflecting the good acceptance rate of this factor. In this category, portability (3.80) and delivery fulfillment (3.43) gained the highest and the lowest rate among the other metrics.

#### B. Quality of information

In this category, like the previous factor, all metrics have gained a good acceptance rate. Providing attractive data with 3.35 score is the less important metric and reliability is the most important metric in this group.

#### C. Security and privacy

From the respondents' viewpoint, feeling safety about online purchase is the most satisfied metrics among the metrics of this factor. In general, this factor also has been approved by the participants.

For all of the metrics we can see that the acceptance rate is more than 67% (for attractive data with mean=3.35 over 5.0). Therefore, reviewing the above criteria shows that the participants approved all of the proposed metrics. Furthermore, as explained before, we gave them an opportunity to suggest new metrics. We got a few suggestions only that some of them had no explanation. The others, however, provided with some explanations we found that they are already included in our proposed metrics. For instance, we received one suggestion regarding safety in the payment (using authorized banking gate), that we have considered it as one metric in security and privacy category.

The rationale behind this is that quality concepts are somewhat general concepts with different terminology. Also, different participants (with different roles and knowledge) have different perspectives according to the quality.

### V. CONCLUSION

These days, websites play a significant role in running a business. Furthermore, quality of a website plays a critical role in attracting customers and visitors. This fact is more critical when a business provides its services through its website. This study focused on the airlines' websites and proposed a model to assess the quality of an airline's website. This model has been approved by customers, airlines' staffs, and airlines ticket agencies. Based on this model, an airline website has to be measured using three main factors namely, ease of use, quality of information, and security and privacy. Each factor has its own metrics that a website has to be assessed by each of them.

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