

Understanding the Attitudes and Purpose for the Usage of Self-service Technologies (SSTs) at the Airports



N. ThamaraiSelvan, S.Thanigai Arul

Abstract: This study tried to understand the intention of technology adoption for web-based self-service technology (SST) pertaining to the airline sector in India. A survey-based approach was employed to acquire 458 responses. These responses were obtained from passengers who were using the airline's service. The passengers were from three international airports that are located in Chennai, Hyderabad, and Bangalore. The partial least square structural equation modeling technique was employed to investigate the hypothesis. To recognize the influences on web-based SST (endogenous variables), along with the concept of adoption purpose as per the air passengers' perceptions, the initial qualitative study joined the resultant literature examination in correspondence with the interview with focus groups. The following are the exogenous factors applied in the study; apparent usefulness: apparent ease of usage, trustworthiness, perceived risk, supposed behavioral regulator, subjective standard, word-of-mouth reports, apparent playfulness, and approach and adaptation purpose. Results specify factors that suggestively affect the intention to employ SSTs. Theoretical as well as managerial implications are deliberated on.

Keywords: Airlines, Attitude, Intentions, Technology Readiness, SST.

I. INTRODUCTION

Self-service technologies (SSTs) denote technological platforms, which allow its patrons to yield services that are self-regulating and do not involve any service of a direct employee. Self-service technologies have been noted to gradually replace numerous face-to-face service interfaces, intending to transform service transactions into rather accurate techniques, with convenience and speed. With service industry continuing to magnify, airlines wish to computerize their processes, which will help to decrease operational expenditures, make all transactions rapid, and eradicate any inconsistencies encountered during a service that is delivered by a human. Self-service technology (SST) at the airport decreases charges and upsurge revenues, with at the same time refining customer service.

SST delivers many benefits to the customers and airlines; nevertheless, several constraints exist that enforce a problem upon both, forcing each user to contemplate on how SST existing in airports impacts their choice to access any information. Accepting and understanding the manner in which airlines have applied SST to profit all consumers will aid in creating an improved perceive regarding how its patrons, employees, and the industry as such are impacted due to the usage of SST.

When arriving at an airport, most airlines supply SST, which is nowadays readily accessible, to its customers, which help to complete all travel transactions easily without reliance on the customary check-in counters that employ service employee. Apart from this, customers may use the home check-in online system on their mobile devices, thereby assisting the completion of all travel arrangements in the luxury of the home. SST has permitted customers easy usage and suitability, with time-saving techniques and more rapid transactions that ensure shorter queues.

With this industry enduring and nurturing, the type of need for SST evolves and makes different requirements. SST delivers the customers with the expertise in relation to technology to achieve manifold tasks that formerly could be accomplished only using an employee serving in the airlines. SST offers its customers numerous welfares that are conceivable only had the customer used an employee in the service of the airline. The assistances involve amplified charge over the role of service delivery, with the customer being able to control the system, accessibility with SST being accessible throughout all times and in all locations, decrease in customer waiting hours with queues being smaller and better flexibility in usage. This is because countless chores are accomplished with a central setting that involves multiple airlines.

SST on being adopted provides mutual assistances to only the airlines, but also to those at the airports and its passengers. A significant profit by adopting SST is noted as it saves expenses. It is observed that SST in relation to online check-in systems helps the airlines to save US \$2.5 for every check-in. SST, therefore, helps airline companies in reorganization of limited and costly resources. This helps in establishing better customer service [1]. In airports, solutions to passenger overcrowding are much required than ever. Improved security practices and passenger numbers, with reduced waiting times at airports, are a priority currently. SST has an impact on physical as well as technical frameworks, making them significantly optimized.

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* Correspondence Author

Dr. Thamaraiselvan*, Professor, Department of management studies, National Institute of Technology, Trichy

S.Thanigai Arul, Sr. Assistant General Manager in Air India Ltd, Chennai

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This results in improved asset deployment and decreased passenger congestion .SST-based check-in helps passengers have a definite benefit.

This results in improved asset deployment and decreased passenger congestion [2]. This is because it has amplified control on journey aspects and helps the passenger complete all airport procedures at one's own pace. Worldwide, most passengers respond positively to the increased SSTs, as it helps to speed up journey-wise and procedure-wise. They can enjoy a seamless, convenient, and simplified travel experience. Considering the eight count of the three groups of stakeholders, SST is relevant to the airline industry, and investigations relating to behavioral intentions of customers toward implementing web-based SST is vital. As a challenge to the airline industry and the growing influence of web-based SST, the airline online check-in system was studied further in this thesis.

Increased control on service delivery refers the airlines' and passengers' control by the use of SST. Airlines are able to control the entire SST interaction with passengers from behind the scenes while passengers are also able to control almost every aspect involved in the SST interaction. The airline controls the information that each passenger accesses and the passenger controls the management of all travel arrangements. The customer chooses numerous services via SST, which involve flight changes, personal information correction, flight status updates, seat assignments, check-in, etc. These help provide the customer with control over the processes.

Convenience is an added advantage. SST permits airlines to deliver information to passengers at all times; this also applies to all services. During hours with minimum staffing, mainly overnight, SST provides passengers with needed information anytime. Convenience is another vital aspect, and these steps help gain information within a short time by being independent of staff presence. This helps to avoid long queues.

Therefore, SST has adopted a web-based system. Internet is the site for the world's most evolving marketplace. It provides limitless conditions to facilitate the marketing of products and service development. Additional value of these systems along with an online approach to interactive SST help to increasingly obtain a competitive edge along with strengthening customer affiliations. However, customer adoption is vital for utilizing and developing the capabilities of web-based SST.

II. LITERATURE REVIEW AND THEORY

Fishbein et al. [3] suggested the theory of reasoned action (TRA). Their premise was that a person acts rationally and deliberates on the methodical usage of information accessible to all. Moreover, the theory assumes that an individual is subjected to complete volitional regulation to execute relevant behaviors. Similarly, Madden et al. [4] supposed behavior intention to be the finest predictor for any specific behavior. Behavior intention, consequently, has two precursors: attitude and subjective standard. Herein, attitude is defined as "a person's general feeling of favorableness or un favorableness toward some stimulus object" [3]. Contrarily, subjective standard, however, relates to "the subject's perception that most people who are important to think he/she should or should not perform the behavior in

question"[5]. Ajzen et al. [6] suggested the theory of planned behavior (TPB) as an addition to TRA to predict human conduct in relation to intention. This theory postulates that any individual conduct reflects the role of each intention. Therefore, an individual's attitude, along with subjective standard and apparent behavioral control, envisage human behavioral objective and real behavior. Davis et al. [7] designed the technology acceptance exemplary to study user recognition involved in information technology, directing an understanding toward users' adoption of technology-facilitated applications. The technology acceptance model is comparable to TPB, which is a derivative model of the TRA.

Kevin M. Elliott et al. [8] examined technology readiness and noted that it does directly and positively effects perceived reliability and apparent fun during usage of SST; however, there is not much direct effect on consumers' intentions to employ this technology. Lee Yee Sum et al. [9] initiated the fact that practicality, trustworthiness, and customized involvement, along with apparent risk, subjective standard, and apparent behavioral regulator, were acute determinants that impact the adoption of web-based SST intention. Jiun-Sheng Chris Lin et al. [10] put forth the assessment of technology readiness index considering various contexts and cultures, thereby enhancing validity, helpfulness, and generalizability with the reduction in number of items, construction of a homological system, and authenticating stability. Kaili Yieh et al. (2012) [11] found four technology readiness measurements, with all having noteworthy, but not identical, influences on customer apparent value. Optimism showed the maximum impact on customer apparent value. Technology readiness was noted to have no substantial influence on emotional assessment. Social value and security were substantially and certainly impacted by technology readiness.

Jiun-Sheng et al. indicated that readiness of the customer for technology enhanced apparent usefulness, apparent ease of usage, attitude toward usage, and intent toward usage. Results also showed that technology readiness offsets a positive association between apparent ease of usage and approach toward the usage of SSTs. Ahmet Emre Demirci et al. [12]revealed cultural factors' effect on technology readiness when regarding people; therefore, diffusion and implementation rate across new technologies varies from one culture to another. Ali Hussein Saleh Zolait et al. [13] showed Internet banking rapidity and complications when using the Internet banking facilities. Similarly, customers consider increased experience, exposure, and consciousness to most react when considering the adoption in comparison with others having low average. James M et al. [14] indicated that substantial SST users depend on attitudes for specific SSTs more rather than SST users whose usage is not substantial, with them relying greatly on international attitudes for SST when defining their intention to employ any SST. Joel Edward Collier et al. [15]optional that retailers who try to apply SST must consider the benefits or helpfulness of the machinery, and also the nature of consumer perceptiveness or satisfaction by the technology usage. Self-service consumers use both types of value judgments while forming attitudes pertaining to the technology.

These eventually effect all forthcoming behavioral intentions while consuming this technology.

From the aforementioned theoretical contextual content, the following hypotheses are suggested.

- H1 : Perceived Behavioral Control significantly influences Attitude
- H2 : Perceived Ease of Use significantly influences Attitude
- H3 : Perceived Playfulness significantly influences Attitude
- H4 : Perceived Usefulness significantly influences Attitude
- H5 : Risk significantly influences Attitude
- H6 : Subjective Norms significantly influences Attitude
- H7 : Trust significantly influences Attitude
- H8 : Word of Mouth significantly influences Attitude
- H9 : Perceived Behavioral Control significantly influences Adoption Intention
- H10 : Perceived Ease of Use significantly influences Adoption Intention
- H11 : Perceived Playfulness significantly influences Adoption Intention
- H12 : Perceived Usefulness significantly influences Adoption Intention
- H13 : Risk significantly influences Adoption Intention
- H14 : Subjective Norms significantly influences Adoption Intention
- H15 : Trust significantly influences Adoption Intention
- H16 : Word of Mouth significantly influences Adoption Intention
- H17 : Attitude significantly influences Adoption Intention

III. RESEARCH METHODOLOGY

This study works on quantitative practices, which is the research approach employed. Quantitative technique permits hypotheses testing as well as theory building. The technique is extensively used in approving an engrained instrument, thereby positioning a base for forthcoming research.

The study engaged the usage of structured questionnaires for the research mechanism. The questionnaire contained four sections.

Survey-based practice was employed to gather 569 responses. The questionnaire comprises 46 questions representative of 10 factors: trust, Subjective Standard, Apparent Playfulness, Apparent Risk, Apparent ease of usage, Supposed usefulness, Apparent Behavioral standard, Attitude, Word-of-mouth report, and adaptation purpose. Voluntarily accessible air passengers were selected and 458 were selected for participation after eliminating invalid replies. The review was conducted involving the air passengers in India.

Survey is directed considering passengers using the airline service in three international airports, that is, Chennai, Hyderabad, and Bangalore.

Convenience sampling technique is employed for this research. It is a non-probability sampling approach. SPSS 23 and AMOS 24 were the statistical tools for analyzing the collected information. Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were done by SPSS-AMOS methods. Table 1 displays the demographic particulars of the respondents.

Table 1 Respondent Demographics

Gender	Number	Percentage
Male	465	79%
Female	123	21%
Trip Profile		
Greater than 5	300	51
Between 1 and 5	100	17
Less than 1	188	32
Airlines		
IndiGo	171	29
Air India	153	26
Jet Airways	130	22
Spicejet	118	20
GO	18	3
Mode of booking		
Travel Portal	271	46
Travel Agent	224	38
AI Website	48	8
AI Reservation counter	48	8
Check mode		
Counter	348	59
Website	171	29
Telephone	53	9
Mobile	28	3

thereby resulting in the process's name. The measurement model assesses the underlying variables considering it a weighted measure of its apparent variables. The structural model assesses the underlying variables using simple or multiple linear regressions among the underlying variables assessed using the measurement model. This algorithm reprises itself and continues till convergence is attained.

Accessibility to software applications such as Smart PLS, PLS-SEM is predominantly common in the field of social sciences including subjects such as accounting, family business, marketing, management information systems, operations management, and strategic management. Lately, disciplines such as engineering, environmental sciences, medicine, and political sciences employ PLS-SEM extensively to assess multifaceted cause and effect affiliation models with underlying variables. Thus, they examine, discover and check all well-known concepts and relevant theories for the abstract models and its involved theory.

Survey-based procedure was employed to gather 458 responses. The questionnaire contained 46 questions representative of 10 factors: Trust, Subjective Standard, Apparent Playfulness, Apparent Risk, Apparent ease in usage, Perceived usefulness, Apparent Behavioral standards, Attitude, Word-of-mouth report, and adaptation intention. Investigation was conducted including passengers who used the airline service in three international airports, that is, Chennai, Hyderabad, and Bangalore.

A. Measurement Model Assessment

Conventionally, “Cronbach’s alpha” estimates the quantity of internal consistency reliability in the field of social science research. However, it delivers a conservative dimension in PLS-SEM. Previous literature recommends using “composite reliability” as an alternative. All the values are bigger than 0.6, so great intensities of internal consistency reliability have been setup among all the underlying variables.

To form convergent validity, every underlying variables’ Average Variance Extracted (AVE) is assessed. AVE values were extending from 0.51 to 0.79. So the rates are larger in comparison to the suitable threshold of 0.5, thereby establishing convergent validity.

The square root of AVE in every underlying variable helps to determine discriminant validity. Its value must be larger than the other correlation values among the underlying variables. The AVE values are associated with the particular underlying variable correlations and were noted to be high. This model has satisfactory discriminant validity.

Smart PLS can produce T-statistics to significantly test. This is by a process called as bootstrapping. In this technique, several subsamples of the original sample are taken with supplementary samples to estimate bootstrap standard errors. This, consequently, will provide approximate T-values for

significant testing of the structural path. The values are presented in Table 3.

Two-tailed t-test, having a significance level of 5%, was used. The path coefficient was significant whenever the absolute T-statistics value was greater than 1.96. Of the 17 paths chosen, five were insignificant, with its values less than 1.96. The coefficient of determination is the proportion of the variance elucidated. The coefficient of determination for attitude and adoption intention are 0.744 and 0.7258, respectively.

Global goodness of fit (GoF) determined the predictive power of the model. Goodness of fit refers to the square root of average R-square for endogenous variables, which is subsequently multiplied with square root of the average communality (Tenenhaus et al.,[16]. GoF decides the models’ predictive power and is calculated using the formula:

The GoF value in this model was 0.682. Therefore, it determined that the study’s model was better at explaining the baseline values (GoF_{small}=0.10, GoF_{Medium}=0.25, GoF_{Large}=0.36). It also delivered satisfactory support for authenticating the PLS model at a worldwide stage (Wetzels et al.,[17].

Table 2. Hypothesis Testing Results

Paths	Beta	Standard error	t-value	significance
Atti -> AdoInt	0.626408	0.045967	13.62734	Significant
PerBeh -> AdoInt	0.185257	0.056326	3.289014	Significant
PerBeh -> Atti	-0.2667	0.037815	-7.05265	Significant
PerEase -> AdoInt	0.165059	0.051524	3.203536	Significant
PerEase -> Atti	0.125005	0.041912	2.982559	Significant
PerPlay -> AdoInt	-0.14896	0.033132	-4.49583	Significant
PerPlay -> Atti	0.222632	0.03445	6.462467	Significant
PerUse -> AdoInt	0.046302	0.091232	0.507519	in-significant
PerUse -> Atti	0.301583	0.043086	6.999559	Significant
Risk -> AdoInt	-0.00614	0.03704	-0.16566	in-significant
Risk -> Atti	-0.27047	0.030702	-8.80939	Significant
Subnor -> AdoInt	0.045164	0.035809	1.261247	in-significant
Subnor -> Atti	0.058198	0.025772	2.258187	Significant
Trust -> AdoInt	0.021566	0.050236	0.429294	in-significant
Trust -> Atti	0.353729	0.036365	9.727183	Significant
WoM -> AdoInt	-0.05043	0.027762	-1.8164	in-significant
WoM -> Atti	0.196419	0.025974	7.562139	Significant

IV. DISCUSSION

The goal of this study involves testing how adoption intension of an online check-in arrangement functions and the effect that attitude has along with that of eight additional factors. This study adds to the increasing literature that deals with self-service technology. It does so by several significant facets. It displays how attitude relays positively with adaptation intention.

The outcomes of the model elucidate the manner by which perceived effectiveness, apparent easiness of use, trustworthiness, perceived risk, apparent behavioral

regulation, subjective standard, word-of-mouth report, and perceived playfulness impact attitude and adoption intension. Besides, it extrapolates how attitude as along with mediation have influence on adoption intention. All eight factors have been noted to be significant when considering attitude, but some factors were noted to be insignificant when considering adoption intention. The features apparent usefulness, risk, subjective standard, trust, and word-of-mouth report had insignificant effect on adoption intention.

A. Theoretical Implication

In the airline industry, substantial attention is given to travelers' online conduct, most particularly after the development of the internet.

With the fundamental fashion toward globalization, being appreciative of the viewpoints of diverse cultural groups with regard to a travelers' technology usage behavior has developed into an imperative requirement. Implementation of the emic method helps to identify two new-fangled dimensions: customization and word of mouth. Empirical analysis employed for the examination of the diverse perceptions in relation to technology adoption dimensions echoed the fact that travelers' concern is more influenced by word of mouth, apparent playfulness, and apparent ease in usage.

B. Practical implication

Nine dimensions that effect the web-based online check-in organization have been acknowledged. These include apparent usefulness, apparent ease in usage, trustworthiness, perceived risk, apparent behavioral regulator, subjective standard, word-of-mouth report, apparent playfulness, and attitude. Among these, four factors were significant when considering adaptation intention. The discussion in the following text explains the practical inferences that result with the practitioners using the improved online check-in system.

Apparent behavioral control has been recognized as a chief influence affecting the adoption of web-based SST. The aspect governs how well any person is able to perform actions when dealing with definite situations. Airlines can consequently incorporate more assistance for its passengers using the online check-in structure, thereby boosting the confidence of its customers. A recording helps establishing the usage of an online check-in method that employs multiple languages. This helps in visualizing the helpfulness of the process. In the long run, usage of this technique would help in instructing the air passengers, thereby providing them with proficiency and knowledge in the usage of web-based SST. Apparent usefulness is demarcated as improving the routine of a detailed system. Practitioners belonging to the tourism industry should consider the significance of apparent usefulness, thereby providing more efficient, appropriate, value-added provisions to tourists using the web-based SST networks. For nurturing tourists' acceptance of this online airline check-in arrangement, airlines must augment the tasks as well as facilities provided by the recent system. Moreover, requests for web-based check-in can be made available through smartphones, thereby enabling air passengers complete the check-in procedure suitably. This has more applications as internet-connected smartphone usages are standard trends currently.

Trustworthiness and customized knowledge are the crucial factors prompting air passenger's adoption objective toward web-based SST. To hypothesis regarding a trustworthy involvement, service providers need to assure privacy of all personal facts, which usually involves passport number, passenger's name, and frequent flyer program and tails. However, all terms and conditions involved should be employed and displayed prominently on its webpage to directly notify air passengers regarding the online security strength. A small message service or email may be sent to air

passengers to approve check-in particulars. Functions relating to personal touch can be supplemented, including selecting a vegetarian menu. Advanced selection of space utilities, such as applying for space requirements or seats positioned at the exit, along with brief explanation of sceneries at the left and right hand sides of the plane during the air travel, can be included.

Apparent risk seemed to be a noteworthy factor that impacts web-based SST adoption intention. Airline corporations should perform system monitoring occasionally to avert the system from crashing or being hacked. All system security measures must actively and comprehensively check for any impediments, including permitting a restricted number of connections to contact the system. These actions can minimize leaks in confidential data and prevent unethical behavior, including marketing information of travellers to third parties.

WOM is the procedure permitting customers to share info regarding the brands and amenities to influence other buyers' activities. For this reason, promotion and advertising campaigns may be engaged for inspiring customer relationship promotion. These help to encourage the operation of online check-in systems in airlines. The advertising campaigns underscore the innovative characteristics and delays of the system. These campaigns also highpoint the profits. The focus group interviewees projected that the remarks of passengers on social media websites and blogs were accountable. Therefore, the determining items help establish WOM quantitatively. Consequently, all advertising campaigns must be posted on travel-related social media websites and blogs.

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AUTHORS PROFILE



Dr. Thamaraiselvan, is presently working as Professor in Department of management studies, National Institute of Technology, Trichy(NITT) , Tamil Nadu, India a leading business school in southern India. He is Head of marketing stream. He has more than 40 research papers published in international reputed journals to his credit in last five years. He had guided more than 12 research scholars. He is an expert in the fields of service marketing, Branding, Social initiatives & self-service technologies.



S. Thanigai Arul, is working as Sr. Assistant General Manager in Air India Ltd; He is a mechanical engineer with master's degree in Business Administration. He has wide experience in working in all major airports of India. He had successfully implemented major crucial projects for Air India including operationalization of three major airports under Public private Participation model. He is presently perusing his research in Indian aviation field.