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Achieving sustainable customer loyalty in Airports: The role of waiting time satisfaction and self-service technologies

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Abstract

Waiting time appears to be an unavoidable part of the service industry, particularly at the airport, where you may encounter delays due to check-in, screening, and other activities. This waiting experience can vex customers, affecting their perception of the service provider and, consequently, their loyalty. Our study aimed to determine the effect of waiting time satisfaction and the use of self-service technology on the long-term sustainability of customer loyalty. 750 structured questionnaires were distributed to travelers at two international airports in Turkey. PLS-SEM was used to analyses the models. Our findings indicate that customer satisfaction with waiting times and the use of self-service technologies are critical for the long-term sustainability of customer loyalty. Additionally, we discovered that waiting time satisfaction partially mediates the relationship between self-service technology use and long-term customer loyalty. Finally, the managerial implications were discussed, including future research suggestions.

Keywords: Airline, customer loyalty, waiting time satisfaction, self-service technologies, sustainability, Turkey.

1. Introduction

Customer loyalty has been empirically linked to business and organizational performance and sustainability for over three decades (Hasiri & Afghanpour, 2016). On this basis, Ofori et al. (2016) observed that practitioners and academics have paid close attention to examining customer loyalty drivers. The literature has established a link between customer loyalty and organizational performance. This has shifted emphasis away from direct relationships between businesses and their customers to long-term relationships. Stakeholders in organizations, marketing professionals, and academics have concluded that retaining a firm's loyal customers should be a top priority for management (Stan et al., 2013). According to Narteh and Kuada (2014) and Tweneboah-Koduah and Farley (2015), every business's goal is to sustain the initial transaction with a customer; by ensuring that a high-quality service is rendered, customers can have a positive experience without wasting too much time accessing the service.

Pruyn and Smidts (1998) posited that customers occasionally have to wait for service because it is a pervasive and, for the most part, unavoidable experience. Meanwhile, it appears to be a significant determinant of customer satisfaction with a service, influencing their loyalty to the service provider. Customer perception is crucial in the airline industry

because it gives airlines a competitive edge to improve their services (Chen et al. 2015). Positive customer perceptions of a service provider will influence the service provided and improve the firm's performance. According to Ofori et al. (2018), acquiring new customers is more expensive than maintaining existing ones. Thus, an organization must understand some aspect of a customer's time management, particularly in the airline industry, where waiting times for service access are sometimes unavoidable to earn and sustain their loyalty over time.

While the issue of sustainability is still debatable among scholars in terms of its applicability, it has evolved into a strategy for achieving a long-term goal without sacrificing the present. According to some scholars, sustainability can be applied to the firm's internal operations (Fauzi, Svensson & Rahman, 2010; Provasnek et al., 2017). Others believe it is well-suited to address external environmental management concerns (Barrow 2006; Goosen, 2012). However, there is growing interest in the application of sustainability to business challenges such as marketing (Kumar et al., 2012; McDonald & Oates, 2006), competitive advantage (Mishra, Sinha & Singh, 2014; Gupta & Benson, 2011), and firm performance (Rodriguez, Ricart & Sanchez, 2002; Asif et al., 2011). Meanwhile, substantial doubts persist about whether sustainability alone is sufficient to address corporate challenges. For example, there is a widespread belief that the primary goal of sustainability is to improve environmental management and social benefits to society, although all of these aspects are included in the overall corporate performance indicators. This demonstrates that sustainability is well-suited to addressing specific corporate operation and performance facets.

Airports are widely recognized as critical spaces that act as a gateway to "contemporary cities," facilitate mobility, and serve as "great monuments" (Neufville, 2006). Additionally, they are defined by flights that are occasionally delayed, resulting in customer wait times (Neufville, 2006). Neufville (2006) observed that the delay at the airport, which results in the customer waiting time, fluctuates, sometimes "during the day," other times "during the week," and "across season," and when this occurs, the customer experience of waiting time becomes unavoidable. According to Wiesel & Freestone (2019), the waiting time at airports could be due to "check-in, screening by various security agencies, passport control, flight boarding and take-offs, baggage, customs, and bio-security controls." According to Wiesel & Freestone (2019), airport terminals are sprawling waiting areas "designed to maximize customers' efficiency and convenience" waiting to access airport services. Thus, minimizing airport wait times is a critical performance indicator implemented and monitored by concerned airport operators (Wiesel & Freestone, 2019). Globalization has resulted in congestion at most airports, which Wiesel and Freestone (2019) report has been a source of contention for some airport

managers. However, most of them are still in the same situation as Neufville (2006) discovered, where some customers want to enter and exit.

This paper sought to determine the effect of customers' "waiting time satisfaction" and their use of "self-service technologies" on the sustainability of their loyalty to the airport services. Self-service technologies (SST) are believed to assist customers in making decisions to increase their satisfaction (Djelassi, Diallo & Zielke, 2018). For example, Weijters et al. (2007) observed that customer wait times are a significant issue in retail and service and suggested that leveraging technology to reduce wait times will play a significant role. Though several authors have examined the effect of waiting time on customer satisfaction, which results in customer loyalty to the firm/service provider (Bielen & Demoulin, 2007; Forman, Thelen, & Shapiro, 2015; McGuire et al., 2010; Riel et al., 2012), the effect of SST on reducing waiting time and increasing customer satisfaction has also been examined, as it affects the customer's loyalty (Djelassi, Diallo & Zielke, 2018; Liljander et al., 2006). Meanwhile, the effect of waiting time on sustainable customer loyalty on airports services has not been thoroughly investigated empirically; thus, this paper aims to fill that gap. This study examines the drivers of "waiting time satisfaction" (WTS) and the deployment of SST at airports to determine how they affect the sustainability of customers' loyalty to the airport services.

The remainder of the paper is structured as follows: the following section contains a literature review in which we examined empirical research on the relationship between WT and customer loyalty and the use of SST. The theoretical framework and hypotheses are developed, the research methodology is described, and the findings are discussed. The paper concluded with a section discussing theoretical and managerial implications, limitations, and future research directions.

2. Review of relevant studies

The importance of waiting time (WT) in customer-firm relationship management cannot be overstated, and it has been observed that prolonged waiting time contributes to the supply-demand imbalance (Tsui & Fong, 2018). Baker and Cameron (1996) argued that improper handling of customers' WT for service access could be costly and detrimental to an organization. Further, customers' satisfaction with the service provided by a provider can be negatively influenced by the customers' perception of the waiting time. This view concurred with Kartz, Larson, and Larson (1991) and Butcher and Heffernan (2006) that when customers negatively perceive WT, most firms use operational management to alleviate their dissatisfaction with WT. Similarly, Pruyn and Smidts (1998) asserted that customers' perceptions of the WT will influence their satisfaction with a service or a provider. In this case, the management should devise an alternate method of ensuring that

the time spent waiting passes quickly and is pleasant, thereby mitigating the negative effect of the WS.

The literature has identified prospective waiting time (PWT) and retrospective waiting time (RWT) as the primary drivers of WTS (Sobolev et al., 2000; Smith et al., 2000; Frauscher et al., 2014; Thompson, 1996). Even though Hornik (1984) had previously observed that "length of wait" affects how customers evaluate their time spent waiting and suggested that WT be classified according to the objective of the waiting time and the perceived period of waiting, Thus, Pruyn and Smidts (1998) established that customers' satisfaction with the waiting time is significantly influenced by "perceived waiting time." Bielen and Demoulin (2007) argue that while waiting time affects the "service-satisfaction relationship," it also affects the customer's loyalty to the service. Additionally, the study identified PWT, satisfaction with the provision of delay information, and satisfaction with the waiting environment as determinants of WTS. Becker and Douglass's (2008) subsequent study on health facilities suggested that the attractiveness of the waiting environment may influence patients' perceptions of the WS According to available research in the field of service marketing, customers who are engaged during the waiting period are more satisfied with the wait than those who are idle (Wiesel & Freestone, 2019). This view was consistent with Naumann and Miles (2001), who argued that hospital patients engaged in activities during the waiting period have a high WTS. The literature suggests that technology can help reduce customer waiting times for the core services they consume, indicating the attitudes of customers' on their willingness to use SST (Curran & Meuter, 2005; Ir et al., 2011; Guan et al., 2021). Guan et al. (2021), mention that although SST does not entirely substitute for traditional interpersonal service contact in many industries, the combination of SST and interpersonal service contact can be an important service delivery method for service enterprises. With the growing importance of services, providers' attention has shifted to developing and deploying SST (Kim et al., 2012). According to Kaushik and Kumar (2018), SST is becoming a more widely used and generally acceptable technological interface. While Kaushil and Kumar (2018) argued that deploying SST improves business processes, strengthens the firm-customer relationship, increases operational efficiency, improves customer service, and increases the possibility of achieving competitive advantages, the study suggested that caution should be exercised when adopting SST due to some customers exhibiting "pre-adoption and consumption avoidance behaviors." Kaushik and Kumar's observation was consistent with Kattara and El-(2013) Said's study, which examined customers' preferences for new self-service technology versus human interaction in hotel services in Egypt. According to the study, Egyptian customers still prefer physical contact with employees over-relying on technology. Several potential obstacles to SST deployment were identified: the system's inability to perform certain functions, malfunctioning technology, and a lack of "human-to-human interaction" (Kattara & El-Said 2013). Finally, Parks (2010) argued that using

SST creates the possibility of a social bond breakdown, which could result in "low customer satisfaction" and negatively impact customer loyalty. Despite the shortcomings of the SST deployment, customers who have a positive experience with the SST are more likely to remain loyal to the firm and patronize it repeatedly (Kattara & El-Said, 2013). Meanwhile, every organization must retain and maintain customer relationships in today's dynamic competitive business environment to achieve sustainable long-term customer loyalty (SCL). The ability of a business to attract a customer and maintain a relationship over time is contingent upon the provider's service quality (Eggert et al., 2012; Caruana 2002). According to Srivasta and Rai (2018), a high level of customer satisfaction, combined with the customer's emotional attachment, results in a long-term association between the firm and its customer, resulting in a loyal relationship. Ganiyu (2017) argued that even if another firm offers more attractive packages that entice the customer to try them out, the customer will remain loyal to the firm due to its high-quality service delivery. Forman et al. (2015) examined customers' perceptions of off-shoring services and concluded that customers' loyalty to a domestic service provider would dwindle if the WT is higher than what it takes its international counterpart to provide the same service. Additionally, Hasiri and Afghanpour (2016) investigated the determinants of customer loyalty and discovered service quality as a driver, which includes WT and ease of service delivery. This was corroborated by Ofori et al. (2018), who asserted that quality service delivery is a critical factor in determining customer satisfaction, which results in loyalty. Omoregie et al. (2019) established a similar result in their study of the factors influencing consumer loyalty in Ghana's retail banking industry, and their findings concurred with Ofori et al. (2018) that service quality is a significant determinant of customer loyalty. According to Ofori et al. (2018), an organization will be able to retain and maintain customers' loyalty for the long term if it improves its operations to increase service delivery speed. Meanwhile, SST and WTS identified factors influencing customer loyalty (Reil et al, 2012). Reil et al. (2012) argued that omitting WT from customer satisfaction and loyalty evaluations could be incomplete. Numerous authors have examined WT, SST, and customer loyalty from a variety of perspectives; however, empirical studies on the influence of "waiting time satisfaction" (WTS) by customers and the use of SST in addressing the delays that characterize the majority of airports are scarce in the literature; thus, this study will fill that void by examining the significance of the two factors on the sustainability of the customers. The summary of the previous literature and findings are presented in Table 1. The following section discussed the theoretical underpinnings of the study's three primary constructs (WT, SST, and customer loyalty) and developed the study's hypotheses.

2.1 Theoretical background and Hypotheses development

Due to today's business environment's competitive and dynamic nature, organizations or service providers must enhance their operational performance to retain existing customers for a longer perod of time and earn their loyalty to the service provided. Customer loyalty refers to a customer's commitment to a business/service provider based on a favorable perception of their services, enabling the customer to continue patronizing that business/service provider. Kotler and Keller (2006) emphasized the importance of repeat purchases, retention, and referrals as indicators of customer loyalty. Isorate (2016), in a similar vein, asserts that a customer's desire to maintain a long-term relationship with a service provider constitutes what might be called customer loyalty. In this context, a customer who is deeply committed to a preferred service will prefer the product/service and will be willing to stick with the brand regardless of whether the product/service has a positive or negative perception (Caruana, 2002). This view corresponded to Leninkumar's (2017) observation that competitive incentives do not easily sway loyal customers. The importance of this concept in the marketing and business worlds has grown in recent years, with several studies establishing its importance in the marketing domain (Ofori et al., 2018; Stan, Caemmerer, and Cattan-Jallet, 2013) and as a necessary action for an effective business strategy (Ofori et al., 2018; Srivastava & Rai, 2018).

Meanwhile, Ganiyu (2017) argued that customer loyalty to an organization can be elusive if it does not prioritize it as a strategic objective, emphasizing the importance of sustainability of customer loyalty. Because the quality of service an organisation provides is directly related to the customer's satisfaction, which determines their loyalty, WT is critical in determining customer satisfaction. Hadi, Asalm, and Gulza (2019) investigated the relationship between sustained service quality and customer loyalty and discovered that maintaining service quality longitudinally does not affect customers' loyalty when low switching costs. This demonstrates the importance of examining additional intrinsic factors that contribute to the longevity of the customer-firm relationship.

According to Riel et al. (2012), an experience of waiting is possible in a service industry that requires the physical presence of customers. Tom and Lucey (1997) defined waiting as an unpleasant activity that customers do not wish to engage in to receive their service. The waiting period for customers to be attended to can aggravate and irritate, resulting in anger and frustration (Tom & Lucey, 1997). According to Kartz et al. (1991), most organizations are strategizing on mitigating these negative consequences to increase customer satisfaction. Due to the strong correlation between WT and customer satisfaction (Tom & Lucey, 1997), which results in customer loyalty, it has been used to assess operational performance in the service industry (Hwang & Lambert, 2008), and similarly to ascertain whether the use of technologies affects waiting time (Hwang & Lambert, 2008). While eliminating WT from the service industry may be practically impossible,

Kartz et al. (1991) argue that it should be managed. According to Tom and Lucy (1997), management of the WT may be ineffective if the WT's dimensions are not adequately studied. Tom and Lucy's (1997) study emphasized the three determinants of WT identified by Sobolev et al. (perceived, prospective, and retrospective) (2000). They asserted that waiting time is a post-activity evaluation made by customers, who consider it on cognitive and affective dimensions. As a result, it is observed that some WT may be reasonable and acceptable to customers (Thompson et al. 1996).

Similarly, Taylor (1994) asserted that some customers may view the WT as meaningless and inefficient. WT has been identified as an empirically predictor of service quality and customer loyalty in the literature. Additionally, evidence from the literature supports a link between PWT and customer satisfaction (Baker & Cameron 1996; Butcher & Heffernan 2006; Taylor, 1994; Chebat & Filiatrault 1993). Meanwhile, "WTS was determined by PRWT and RWT for customers" (Sobolev et al 2000; Smith et al 2000; Frauscher, 2014). Lim et al. (2015) hypothesized a relationship between customer WT and their assessment of service satisfaction, influencing their intention to repurchase the service. Bielen and Demonlin (2007) examined customers' perceptions of WT regarding their provider loyalty. The study established that a customer's level of satisfaction has a sizable impact on their loyalty.

Additionally, the study emphasized that PWT directly affects WTS, whereas WTS acts as a mediator between PWT and customer loyalty. This view is backed up by Mittal (2016), who discovered that a customer's WT significantly impacts their loyalty and recommended a strategic measure to ensure an increase in operational speed. Furthermore, Mittal (2016) recently established that WT significantly impacts customer loyalty and recommended that an effective strategy for managing WT be implemented, as WT may cause the customer to be dissatisfied, resulting in a loss of loyalty. Therefore, we propose our hypothesis to model the relationship between WT satisfaction and SCL based on theory and empirical research on the WT and customer loyalty.

H1: Sustainable customer loyalty is directly related to waiting time satisfaction

Concerning prospective WT as a predictor of WTS, Sobolev et al. (2000) asserted that knowledge of future waiting could enable the customer to make a different choice or decide whether to afford the WT required to obtain the required service. According to Pruyn and Smidts (1998), customers are asked to form a retrospective opinion about the WT prior to the experience. This means that in this instance, the customer's time is prioritised. Becker and Douglas (2008) stated that PRWT differs from retrospective WT because it is motivated by an interest. According to Sobolev et al. (2000), the number of patients willing to be added to a prospective waiting list for hospital services is a good predictor of a patient's satisfaction with the WT. Frauscher et al. (2014) conducted a similar study and concluded that a prospective waiting list indicates a customer's

willingness to wait for service. While the effect of this factor on WT has been studied in the health sector, it has not been empirically investigated in the business or marketing sectors, particularly in the airline industry. As a result, the following hypothesis is developed:

H2: Prospective waiting time directly influences waiting time satisfaction

The waiting environment and PWT are also components of WT. It is established that WT may affect customers' perceptions of the quality/delivery of goods/services (Pruyn & Smidts 1998). Additionally, the time spent waiting for the service to be delivered can be positive or negative depending on the customer's experience while waiting, which contributes significantly to their evaluation and satisfaction with the WT. Meanwhile, the attractiveness of the waiting area may affect the customer's perception and evaluation of the waiting time (Bielen & Demoulin 2007). Physical design elements such as the layout of the space, architecture, and lighting that contribute to a comfortable and conducive waiting environment may affect the WT's satisfaction.

Additionally, some elements of distraction, such as the provision of reading materials or television viewing, are included. The attentional model of time perception emphasizes that providing explicit distraction materials reduces the customer's PWT by diverting their attention away from the clock and that watching television in the waiting area also diverts the customer's mind away from time (Pruyn & Smidts 1998). Given that the attractiveness of the waiting environment is expected to increase the customer's tolerance for waiting and that perceived waiting is expected to influence their evaluation of the WT, we propose that both the waiting environment and perceived waiting will influence the customer's WTS.

H3: Waiting environment directly influences waiting time satisfaction
H4: Perceived waiting time directly influence waiting time satisfaction

We also propose that customers' experience on WT could influence WTS, which could be positive or negative. The recollection of experiences of customers on waiting for the service to be rendered over a while is what Sobolev et al. (2000) termed "retrospective waiting experience" (RWT). Smith et al. (2000) observed that RWT could be easily determined because it is a past event in which the service had been rendered, and a result of interest has been determined. In determining the satisfaction of the customer with WT for service to be rendered, studies show that RWT is very significant because it allows the customers and service providers to adjust in their future dealings. Beilen and Demoulin (2007) opined that the information on retrospective events could assist an organization in deciding on its operation. Our hypothesis five is proposed that retrospective RWT will influence the customer satisfaction with the WTS

H5: Retrospective waiting time directly influences waiting time satisfaction

Numerous studies have argued that customers' satisfaction with technology use results in their loyalty to the service provider (Curran & Meuter, 2005; Kim, Christodoulidou & Brewer, 2012; Kaushik & Kumar, 2018). For example, Lim et al. (2015) argued that the use of "self-service technology" (SST) has the potential to increase customer satisfaction, develop their emotions, and make them loyal to the provider (2015). Similarly, Robertson (2016) asserted that customers' satisfaction with SST use would affect their trust in the provider and thus influence their decision to continue a long-term relationship with the firm/organization or not. The study concurred with Marzocchi and Zammit (2006), who argued that customers' use of SST improves their experience and increases their loyalty to the firm. Additionally, a recent study by Majra et al. (2016) and Weijters et al. (2007) found a significant and positive direct effect of SST deployment on customer experience in the airline industry. As a result of the preceding, we propose that using technology will facilitate airport operations and may even contribute to the sustainability of customer loyalty.

H6: Use of self-service technologies directly influence waiting time satisfaction

Finally, we propose that SST use directly affects the WT and that WTS is mediating in the relationship between SST use and SCL use. This is supported by several empirical studies, such as Lim, Kum, and Lee (2015), which asserted that customers frequently base their waiting time on the ease with which the available technologies can be used. The view corroborated Taylor's (1994) study, which discovered a decrease in customers' negative perceptions of the WTS when technology was used. Waiting time satisfaction moderates the relationship between SST use and customer loyalty (Borges et al. 2015), while others argue that WTS can be determined by SST use (Dabholkar, & Bagozzi 2002). Djelassi et al. (2018) discovered that cognitive and affective waiting time significantly mediate the relationship between SST use and customer satisfaction, which, when favorable, results in customer loyalty. Thus, we anticipate that the deployment of SST at the airport will have a direct effect on the customer's satisfaction with the waiting time, and also that customer satisfaction with the waiting time will act as a mediator between the use of SST and the retention and maintenance of customer loyalty to the airport.

H7: Use of self-service technologies direct influences sustainable customer loyalty
H8: Waiting time satisfaction partially mediates the relationship between the use of self-service technologies and sustainable customer loyalty

3. Research methodology

3.1 Measurement of Instrument

All of the items used in our study were adapted from previous research. As illustrated in Figure 1, we propose that waiting time satisfaction and using self-service technologies directly affect the SCL, whereas prospective waiting time, waiting environment, perceived waiting time, retrospective waiting time, and self-service technology directly affect the SCL waiting time satisfaction. Therefore, we anticipate that WTS will be a moderator in the direct relationship between those variables and customer loyalty sustainability. Seven constructs were used in our study, and the items used to measure each construct were scaled on a 5-point likert scale, as was done in previous research. Three items were used to assess perceived waiting time, adapted from Butcher and Heffernam (2006) and Chebat and Filliatrault (1993). (see appendix for the items). Three items were used to assess retrospective and prospective waiting times, adapted from Smith et al. (2000) and Frauscher et al. (2014). In terms of WTS, six items were used, taken from Thompson et al. (1996) and Djelassi, Diallo, and Zielke (2018). Additionally, the use of self-service technologies, SCL, and the waiting environment were assessed using seven, four, and two items adapted from Curran and Meuter (2005), Caruana (2002), and Pruyn and smidts (1998), respectively.

3.2 Questionnaire design and data collection

Our study collected data through the use of a structured questionnaire. Initially, the questionnaire was written in English; for ease of administration, an expert translated it into Turkish; and, to ensure the accuracy of the data, another expert translated the translated copy of the Turkish version back to English. This stage was deemed necessary to ensure the accuracy of the data collected through our questionnaire. After the certification of the questionnaire, both English and Turkish versions of the questionnaire were printed for distribution. The questionnaire was distributed at Istanbul's new International Airport and Sabiha Gocken International Airport. The two airports are international and were chosen for their high traffic volume. The distribution of questionnaires took place during the summer months of 2019, when airport traffic was at its peak, to capture a large number of travelers. During this period, we targeted the passengers that were waiting to board (after their waiting experience waiting time in the airport). Targeted respondents were asked to evaluate their waiting time satisfaction through the provided service technology and their experiences of the services resulting

from increasing loyalty within the airport environment. a result, 750 questionnaires in both English and Turkish were distributed and retrieved; however, 17 questionnaires were found to be incomplete, leaving 733 (97.73 percent) for further analysis.

According to our study's sample characteristics, approximately 57.4 percent and 42.6 percent of the population are male and female. According to the respondents' ages, 26.9 percent are between the ages of 18 and 30, 29.3 percent are between the ages of 31 and 43, 21.5 percent are between the ages of 44 and 56, and 22.3 percent are between the ages of 57 and above. According to the respondents' level of education, the majority (35.5 percent) are university graduates, while 13.2 percent, 18.1 percent, and 18.5 percent, respectively, have a basic, secondary, or post-secondary education. Finally, most respondents (46.1 percent) are married; approximately 34.4 percent are in a relationship; and 18.2 percent and 0.3 percent, respectively, are single and divorced. The mean, standard deviation, and correlation coefficients for the variables are included in Table 2, which completes the descriptive statistics for our variables.

4. Analyses and results

Our results were analyzed using "PLS-SEM" (Partial Least Squares Structural Equation Modeling). The method has become appealing to many researchers because it can estimate complex models with many "constructs, indicator variables, and structural paths" without imposing distributional data assumptions. The PLS-SEM approach emphasizes prediction in estimating statistical models whose structures are designed to provide causal explanations. According to Sarstedt et al. (2017), Hair et al. (2019) and Hair et al. (2017a) stated that while Covariance-Based Structural Equation Modeling (CB-SEM) uses the "covariance matrix" of the data, the Partial least square structural equation modeling (PLS-SEM) only considers the common variance. PLS-SEM is a variance-based method that uses the variance to estimate the parameters. In light of these, we used PLS-SEM and SmartPLS3 software to analyses our data.

4.1 Measurement models assessment

We began by examining our study's measurement model to ensure that it met all of the required criteria suggested in the literature. The assessment results of measurement models, as presented in Table 3, indicate that all items have a loading factor greater than 0.70 (Hair et al. 2019), and the Cronbach Alpha for all constructs is greater than 0.70, except for the waiting environment (0.58). Meanwhile, Orel and Kara (2014) asserted that Alpha is not a reliable indicator of uni-dimensionality because a low alpha value can result from sample homogeneity. While 0.70 was recommended as the cutoff, when the measure has other favorable properties, a low alpha value may not be a problem (Orel and Kara

2014), and also when the construct items are less than 10, as in our study, alpha of 0.50 is acceptable (Orel and Kara 2014). Additionally, Hair et al. (2019) argued that Cronbach alpha precision is low in comparison to composite reliability (C.R.), which means that when we look at our C.R. values for the constructs, we see that they all exceed the 0.70 thresholds suggested by Dijkstra and Henseler (2015). The result demonstrates the reliability of our model items and constructs. The following step is to determine the convergent validity of each construct. This determines the extent to which each construct converges to account for the variations in its items (Hair et al. 2019). As shown in Table 3, the AVEs for each construct are greater than the 0.5 acceptable value (Hair et al., 2019), indicating that the construct in our model accounts for at least 50% of the variation in its items.

The next step after assessing the convergent validity was to examine the discriminant validity of the constructs. The assessment is aimed to assess the degree of construct distinctiveness from each other in the structural model. Fornell and Larker (1981) proposition suggested that the square root of the AVE value on the diagonal must be higher than the correlations between the constructs. The result from Table 4 shows that the values in the diagonal are greater than the value between the construct, which implies the discriminant validity of our constructs. However, Henseler, Ringle and Sarstedt (2015) observed shortcomings in the Fornell-Larcker criterion and, as a replacement, proposed "heterotrait-monotrait (HTMT) ratio of the correlations". It was proposed that an HTMT value far less than 0.90 is acceptable and indicates discriminant validity. This implies that the HTMT result, as presented in Table 4, which has none of the value to be greater than 0.9 confirms the presence of discriminant validity of our construct. Lastly, the collinearity of the formative items was evaluated using the variance inflation factor (VIF). Hair et al. (2019) opined that a VIF value of 5 and above indicates collinearity and therefore recommended that an ideal VIF value should be as close as possible to 3. Based on the recommendation, it is safe to conclude that our model items are free from collinearity issues (Table 3).

4.2. Results of the structural model

After certifying that the measurement model assessment was satisfactory, we evaluated the PLS-SEM results for the structural model assessment. First, we resampled the data to 5000 and used the bootstrapping method to determine the weight of each variable's statistical significance and size (Hair et al. 2017b). The model fit statistics in Table 3 indicate that our model's SRMR value (0.065) is consistent with Henseler, Hubona, and Ray (2016)'s suggestion that a cut-off value less than 0.08 appears to be appropriate for PLS path models. Another criterion for model fit is the NFI (Henseler, Hubona, & Ray, 2016), which, despite its rarity, suggests that the closer the value is to 1, the better the model. Thus, our model's NFI value (0.754) is acceptable as a complement to the SRMR

value when determining our model's fitness. Following the assessment of model fitness, we examined the formative indicator's collinearity to reduce common method bias (CMB). As Kock (2017) argues, CMB in PLS-SEM can be examined using the variance inflation factor (VIF), with a recommended threshold of not less than 1 and not more than 5 indicating the absence of CMB. As a result, the VIF of our study indicator, as shown in Table 3, indicates that none of the values is less than 1 or greater than 5, indicating that our model is free of CMB issues. Figure 2 depicts the coefficient of determination (R2) for the variance explanation of the model's variables. It was determined that RWT, PWT, PRWT could account for approximately 51.2 percent of customer satisfaction with waiting time, and SST can account for approximately 33.5 percent of customer satisfaction with waiting time and self-service technology for by RWT, PWT, PRWT, and SST. Following Henseler, Hubona, and Ray (2016), who argued that it makes sense to evaluate the weight of the path coefficient in order to examine its significance effect via the effect size (f2), Table 6 displays the effect size for each path in the model. The effect size of WTS (0.468) on the SCL was large, whereas SST (0.10) had a small effect on the SCL. While PRWT (0.174) has a significant effect on WTS, PWT (0.124), RWT (0.117), SST (0.09), and WE (0.05) have a weak effect on WTS. Our interpretation of the effect size is consistent with Cohen's (1988) suggestion that effect sizes greater than 0.35, 0.15, and 0.02 can be interpreted as "strong, moderate, and weak, respectively."

Finally, we assessed our model's statistical significance and relevance of the path coefficients. Figure 2 and Table 7 shows the path coefficients and the significance results. Hypothesis 1 predicts that the customer satisfaction with the waiting time will positively influence the sustainability of the customer loyalty with the airports. As illustrated in Figure 2 and Table 7, the beta coefficient for the relationship between WTS and SCL is positive and significant ($\beta = 0.565$, $t = 17.38$, $p < 0.05$), supporting hypothesis 1. Hypothesis 2 hypothesized prospective waiting time to have a direct impact on the waiting time satisfaction by the customer, the result as presented in Table 7 and Figure 2 shows that the coefficient of the relationship between PRWT and WTS is positive and significant ($\beta = 0.327$, $t = 9.109$, $p < 0.05$, thus supporting hypothesis 2. Hypothesis 3 predicts the waiting environment to influence the waiting time satisfaction positively. The result as presented in Table 7 shows that the coefficient is positive and significant ($\beta = 0.175$, $t = 5.948$, $p < 0.05$), therefore supporting hypothesis 3. As for hypothesis 4, it was hypothesized to determine the impact of perceived waiting time on the waiting time satisfaction, the result as presented in Table 7 and Figure 2 indicates that the relationship of perceived waiting time with waiting time satisfaction is positive and significant ($\beta = 0.262$, $t = 8.714$, $p < 0.05$), thus, hypothesis 4 is accepted. The relationship between retrospective waiting time and waiting time satisfaction was hypothesized to be either positive or negative in line with theory with hypothesis 5, and the result (Table 7 and Figure 2) shows that the path coefficient is positive and significant ($\beta = 0.263$, $t = 7.562$,

$p < 0.05$), therefore, our hypothesis 5 is accepted. We predict the relationship between the use of self-service technology and SCL to be positive with hypothesis 7. The result presented in Table 7 and Figure 2 indicates that the path coefficient is positive and significant ($\beta = 0.067$, $t = 2.323$, $p < 0.05$), thus, hypothesis 7 is accepted. As for the relationship between self-service technology and waiting time satisfaction, we predict the relationship with hypothesis 6 to be positive. The result (Figure 2 and Table 7) shows that SST has a positive and significant relationship with WTS ($\beta = 0.039$, $t = 2.01$, $p < 0.05$). Lastly, we predict the mediating role of waiting time satisfaction in the relationship between SST and SCL, the result (Table 7 and Figure 2) shows that waiting time satisfaction partially mediates the relationship between the use of self-service technologies and sustainability of customer loyalty ($\beta = 0.271$, $t = 7.621$, $p < 0.05$), therefore, we accept hypothesis 8.

5. Discussion and conclusion

5.1 Results Discussion

Customer loyalty has been conceptualized as a behavioral issue that is determined by the customer's action, choice, or decision (Ofori et al., 2018), necessitating the purpose of investigating its sustainability, as Ofori et al. (2018) asserted that acquiring and retaining a new customer may be more expensive than maintaining and sustaining existing customers. Additionally, several studies have established the importance of service quality, particularly in terms of managing wait times in order to achieve customer satisfaction (Narteh & Kuada, 2014; Tweneboah-Koduah, E. & Farley, 2015), which results in customer loyalty (Eggert, Henseler & Hollmann, 2012; Caruana, 2002). These associations between WTS and customer loyalty are documented in several empirical studies (Lim, Kum & Lee, 2015; Mittal, 2016; Dabholkar & Bagozzi, 2002). Our study confirmed the correlation between WTS and customer loyalty. After identifying gaps in the literature regarding an empirical investigation of this relationship in the airline industry and the importance of long-term customer relationships with airports, we hypothesized that customer loyalty would be sustainable if the customer's waiting time could be evaluated as satisfied and self-service technologies were used. Additionally, we examined the relative importance of "prospective waiting time" (PRWT), "retrospective waiting time" (RWT), "perceived waiting time" (PWT), "waiting environment" (WE), and the potential for the use of "self-service technologies" (SST) to influence how satisfied a customer may be with the WT that is unavoidable, particularly in the airline industry. The statistical significance of the coefficients for all drivers (PRWT, RWT, PWT, WE, and SST) hypothesized to determine waiting time satisfaction was found (see Table 7 and Figure 2), and thus hypotheses 2,3,4,5 and 7 were accepted. At a less than 1% confidence

level, the effect of PRWT on WTS was found to be positive and significant (0.327). This finding is consistent with Smith et al. (2000), albeit in the health sector rather than the airline sector. Frauscher et al. (2014) and Thompson et al., (1996) conducted similar studies in which they established prospective waiting time to significantly effect customer satisfaction with waiting time. Baker and Cameron (1996) and several other studies (Butcher & Heffernan, 2006; Taylor, 1994; Chebat & Filiatrault, 1993) discovered a significant influence of PRWT on the WTS, which our study corroborated. Our findings regarding the significance of waiting environment and perceived waiting environment are consistent with those of Bielen and Demoulin (2007) and Pruyn and Smidts (1998), who investigated the relationship between WE and WTS and discovered a similar result. Our findings regarding the relationship between PWT and WTS are consistent with Pruyn and Smidts (1998).

Our findings imply that if airport operators provide distractions such as watching television or reading books and make the physical environment of the airport attractive, customers will be occupied with those activities and will think less about the delay they are likely to experience. Additionally, using RWT and SST significantly effected the customer's satisfaction with the WT. Both variables are statistically significant at the 5% level of confidence. RWT is an evaluation based on the customer's prior experience with waiting times. If the customer evaluates his/her previous experience and is not irritated or annoyed by the time spent waiting, the findings indicate that this will positively affect their satisfaction with the WT. Our findings corroborate the findings of several previous studies (Sobolev et al., 2000; Smith et al., 2000; Frauscher et al., 2014; Thompson et al., 1996) that established the effect of retrospective waiting time on customer satisfaction with the waiting time. According to Lim, Kum, and Lee (2015), customers' satisfaction with waiting times is determined by the ease with which technologies can be used, consistent with Weitjers et al. (2007)'s argument that using SST uses SST will reduce waiting times in a retail store. Our result is consistent with these studies because the path coefficient of the relationship found in our study is positive and significant. This is also consistent with Reil et al. (2012) and Taylor (1994), who concluded that the ease with which self-service technology can be used would reduce customers' negative perceptions of waiting time.

Meanwhile, while all hypothesized determinants of WTS were found to be positive and significant, the effect size of PRWT (0.174) was found to be moderate, while the effect sizes of the others (PWT, RWT, SST, and WE) appear to be 0.124, 0.117, 0.09, and 0.05 on the WTS, respectively, which is considered to be weak. However, the explanatory power (R2) measure for the five WTS determinants was 0.512, which is considered significant by Hair et al. (2019). It was hypothesized that the use of SST and customer satisfaction would have a beneficial effect on the sustainability of customer loyalty. Our

findings on the effect of SST on the SCL (H7) are positive and statistically significant at the 5% confidence level, which is consistent with Hasri and Afghanpour (2016) study on the effect of technology use on customer loyalty to a firm. Similarly, Reil et al. (2012) argue that SST predicts customer loyalty. While our findings are consistent with those of several previous marketing studies (Djelassi, Diallo, & Zielke, 2018; Lim, Kum, & Lee, 2015; Mittal, 2016; Robertson et al., 2016; Marzocchi & Zammit, 2006), some airline industry studies have also examined the relationship between the use of SST and customer loyalty, which our result corroborates (Weijters et al., 2007; Majra et al., 2016). Our findings, however, contradict that of Parks (2010), who contends that technology may negatively effect customer loyalty. Our finding implies that in an airport operation characterized by delays, it would be extremely beneficial for the airport if some of the activities could be digitalized to alleviate the delay and prevent customers from switching to another airport.

Our study established a link between WTS and customer loyalty, as evidenced by the beta coefficient of the relationship path (0.565), which is statistically significant at a confidence level of less than 1%. Our study concludes that when customers are satisfied with their airport wait time, they are more likely to establish a long-term relationship that will sustain their loyalty. Lim et al. (2015) and Mittal (2016) proposed the waiting time satisfaction-customer loyalty relationship, while several studies empirically examined the relationship (Hasiri and Afghanpour, 2016; Bielen & Demoulin, 2007; Forman et al. 2015; Reil et al., 2012), and confirmed the positive and significant influence of WTS on customer loyalty. For example, Forman, Thelen, and Shapiro (2015) argue that customers will prefer an off-shore service if it is faster to deliver than their local counterparts. This indicates that the customer will appreciate spending less time obtaining the service, enabling them to develop an emotional attachment that will ensure the relationship's sustainability.

Given that the literature indicates that WTS will mediate the relationship between technology use and customer loyalty (Borges, Herter, & Chebat, 2015), we hypothesized that WTS would mediate the relationship between technology use and SCL to the airport. Our results indicate that the interaction's indirect effect is positive and statistically significant, implying that WTS partially mediate the relationship between technology use and SCL. Finally, while the explanatory power ($R2 = 0.335$) of both the SST and WTS on the SCL appears low, the value indicates that SST and WTS are significant predictors of sustainability of customer loyalty.

5.2 Conclusion

This study's results significantly contribute to empirical research on the WT, technology use, and SCL relationship, as this is the first study to investigate these relationships, particularly for Turkey empirically. Furthermore, this emerging economy will likely experience increased air traffic due to globalization. Therefore, the management of Turkey's airports should re-strategize in light of the findings of this study in order to maintain and retain the loyalty of the country's travelers. Additionally, some studies argue that sustainability should be integrated into all business operations (Kumar, 2012; McDonald & Oates, 2006) in order to address the challenges of a competitive market and firm performance (Rodriguez et al.; Asif et al. 2011), our study suggests that airport management should implement an effective waiting time management system to ensure that the customer's WT is perceived as insignificant.

5.2.1 Theoretical Implications

Theoretically, this study provides a significant contribution to the literature empirically by showing that improved service quality contributes to the longevity of the customer-firm relationship in contrast to Hadi et al. (2019). Specifically, this present study has proved that customer waiting time satisfaction based on the waiting time, prospective and retrospective waiting time significantly determines sustainable customer loyalty. This implies that a customer who is deeply committed to a preferred service will prefer the service and be willing to stick with the brand, irrespective of other people's perceptions.

5.2.2. Managerial Implications

The managerial implications of our study can be applied to other service industries. However, some guidelines will be highlighted to manage the two sampled international airports in Turkey. While all of the determinants of waiting time satisfaction examined in this study were statistically significant, only PWT has a moderate effect size on WTS. While Neufville (2006) emphasizes the airport as the gateway to contemporary cities and a significant monument, Wiesel and Freestone (2019) observed that waiting time at the airport as a result of certain activities such as check-in screening and so on, has been a contemporary challenge for management, which their study concluded was a result of globalization. It is then necessary for management to comprehend the significance of WTS and the application of technologies. The management should work to improve the waiting area. The findings indicated that this variable significantly affected how customers rated WTS. At the airport, strategic operation management is required to reduce the WT. This will entail identifying the root causes of delays and analyzing and reporting on RWT issues; this will assist management in resolving issues so that the customer always has a positive experience that affects their RTW evaluation. The implication is that when customers are satisfied with their evaluation, the WT becomes irrelevant to them and has no bearing on their evaluation of the WT, which may erode their loyalty to the airport.

Additionally, the use of self-service technology contributed insufficiently to the SCL in the two airports, necessitating a review of the airport's policy and implementation of self-service technology. This simplifies the management of customer wait times and increases customer satisfaction with the service, resulting in long-term loyalty. The management should ensure that the technology is adaptable, fast, and user-friendly.

5.2.3 Limitations and Suggestions for Future Research

This study has some limitations, as we sampled two international airports in Turkey, which may have imposed limitations on our study. Additionally, only two variables (WTS and the use of technologies) were considered as determinants of the SCL, and loyalty types were not considered. As a result, future research on achieving SCL for an airport should compare local and international airports. Additionally, it would be advantageous to incorporate additional constructs, such as loyalty programmes and various types of customer loyalty, into the model.

Conflict of Interest

The Authors declare no conflict of interest.

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Appendix

Table 1. Summary of Previous Related Literature

Author/s	Variable	Findings
Tsui & Fong, 2018	Waiting time (WT), customer-firm relationship management	Prolonged waiting time contributes to the supply-demand imbalance
Baker and Cameron, 1996	Customers' WT, service access	WT results to costly and detrimental to an organization.
Kartz, Larson, and Larson, 1991; Butcher and Heffernan, 2006, Pruyn and Smidts , 1998.	Customers' satisfaction, perceive WT	Customers negatively perceive WT, most firms use operational management to alleviate their dissatisfaction with WT.
Sobolev et al., 2000; Smith et al., 2000; Frauscher et al., 2014; Thompson, 1996.	Prospective waiting time (PWT), retrospective waiting time (RWT)	PWT and RWT are the primary drivers of WTS.
Djelassi, Diallo & Zielke, 2018; Kaushik and Kumar 2018; Reil et al, 2012; Eggert et al., 2012; Caruana 2002; Kattara & El-Said, 2013; Antwi et al. 2021; Ayodeji & Rjoub, 2021; Moon & Lee, 2022.	Self-service technologies (SST) deployment and customer satisfaction, customer service, WTS, sustainable long-term customer loyalty	Both shortcomings and positive effects are measured. Customers who have had a positive experience with the SST are more likely to remain loyal to the firm and patronise it repeatedly. SSTs can enhance travelers' satisfaction and long-term customer loyalty. In addition, SST increases the airports' operational efficiency and boosts customer experience.

Table 2.Mean, Standard deviation and Correlation of the variable

	Mean	S.D	Gender	Age	Rel.Sta	Educ.	1	2	3	4	5	6
Gender	1.60	.491										
Age	2.39	1.11	.014									
Rel.Sta	2.28	.76	.097**	.127**								
Educ.	3.21	1.23	.090*	.071	.036							
SCL	4.15	1.05	-.023	-.011	.140**	.094*						
PRWT	4.27	.76	.098**	.009	.097**	-.025	.338**					
RWT	3.5	.88	.018	-.055	.106**	-.068	.313**	.350**				
PWT	3.76	.88	.086*	.056	.217**	-.102**	.365***	.237*	.220*			
WTS	4.02	.90	.111**	-.004	.181**	-.037	.576**	.522**	.494*	.432**		
SST	2.28	.95	.014	.020	-.018	.015	.146**	.105	.051	.065	.148**	
WE	3.33	1.03	.034	.075*	.047	.034	.227**	.290**	.261*	.270**	.404*	.281**

Note: Rel. Sta = relationship status, ,Educ = educational level, S>D = standard deviation, SCL = sustainable customer loyalty, PRWT = prospective waiting time, RWT = retrospective waiting time, PWT = perceived waiting time, WTS = waiting time satisfaction, SST = self-service technologies, WE = waiting environment. **,* denote 1% and 5% confidence level respectively

Table 3. Measurement model assessment

Construct	Indicator	Cronbach Alpha	Loadings	Composite Reliability	Average Variance Extracted	Variance Inflation Factor
SUSTAINABLE CUSTOMER LOYALTY	**SCL1**	**0.890**	**0.913**	**0.926**	**0.759**	4.841
	SCL2		**0.937**			**3.247**
	SCL3		**0.905**			3.031
	SCL4		**0.711**			**1.477**
PERCEIVED WAITING TIME	**PEW1**	**0.754**	**0.717**	**0.838**	**0.564**	**1.516**
	PEW2		**0.787**			**1.267**
	PEW3		**0.723**			**1.570**
	PEW4		**0.774**			**1.584**
PROSPECTIVE WAITING TIME	**PRW2**	**0.797**	**0.914**	**0.878**	**0.709**	**2.258**
	PRW3		**0.702**			**1.420**
	PRW4		**0.893**			**2.053**
RETROSPECTIVE WAITING TIME	**REW1**	**0.710**	**0.819**	**0.838**	**0.633**	**1.490**
	REW2		**0.809**			**1.563**
	REW3		**0.757**			**1.259**
SELF-SERVICE TECHNOLOGIES	**SST1**	**0.922**	**0.736**	**0.937**	**0.682**	**2.109**
	SST2		**0.805**			**2.237**
	SST3		**0.839**			**2.789**
	SST4		**0.794**			3.094
	SST5		**0.842**			3.467
	SST6		**0.902**			3.694
	SST7		**0.852**			3.315
WAITING ENVIEONMENT	**WE2**	**0.583**	**0.898**	**0.823**	**0.700**	**1.204**
	WE3		**0.771**			**1.204**
WAITING TIME SATISFACTION	**WT1**	**0.929**	**0.848**	**0.944**	**0.738**	4.249
	WT2		**0.877**			**2.437**
	WT3		**0.834**			3.087
	WT4		**0.882**			3.594
	WT5		**0.870**			**2.337**
	WT6		**0.841**			3.387
Model fit statistic: SRMR = 0.065, X^2 = 3,572.105, NFI = 0.754, rms Theta = 0.158						

Table 4.Fornel-Larcker Criterion

	PRWT	PWT	RWT	SCL	SST	WE	WTS
PRWT	**0.842**						
PWT	0.277	**0.751**					
RWT	0.367	0.241	**0.795**				
SCL	0.351	0.387	0.316	**0.871**			
SST	0.100	0.078	0.056	0.155	**0.826**		
WE	0.302	0.243	0.256	0.219	0.284	**0.837**	
WTS	0.554	0.462	0.494	0.575	0.157	0.416	**0.859**

Table 5.Heterotrait-Monotrait Ratio (HTMT)

	PWRT	PWT	RWT	SCL	SST	WE
PRWT						
PWT	0.310					
RWT	0.468	0.302				
SCL	0.405	0.440	0.395			
SST	0.121	0.083	0.066	0.167		
WE	0.427	0.410	0.406	0.315	0.384	
WTS	0.619	0.515	0.603	0.628	0.0.163	0.551

Table 6. Effect size

Variable Interaction	f^2
PRWT → WTS	0.174
PWT → WTS	0.124
RWT → WTS	0.117
SST → SCL	0.10

SST→ WTS	0.09
WE → WTS	0.05
WTS → SCL	0.468

Table 7. Hypotheses testing

Hypotheses	Interaction	Beta	Standard Deviation	T Statistics	P Values	Decision
H1	WTS -> SCL	0.565	0.032	17.382	**0.000**	Supported
H2	PRWT -> WTS	0.327	0.036	9.109	**0.000**	Supported
H3	WE -> WTS	0.175	0.029	5.948	**0.000**	Supported
H4	PWT -> WTS	0.262	0.030	8.714	**0.000**	Supported
H5	RWT -> WTS	0.263	0.035	7.562	**0.000**	Supported
H6	SST -> WTS	0.039	0.019	2.01	**0.035**	Supported
H7	SST -> SCL	0.067	0.029	2.323	**0.020**	Supported
H8	SST -> WTS -> SCL	0.271	0.036	7.621	**0.000**	Partial mediation

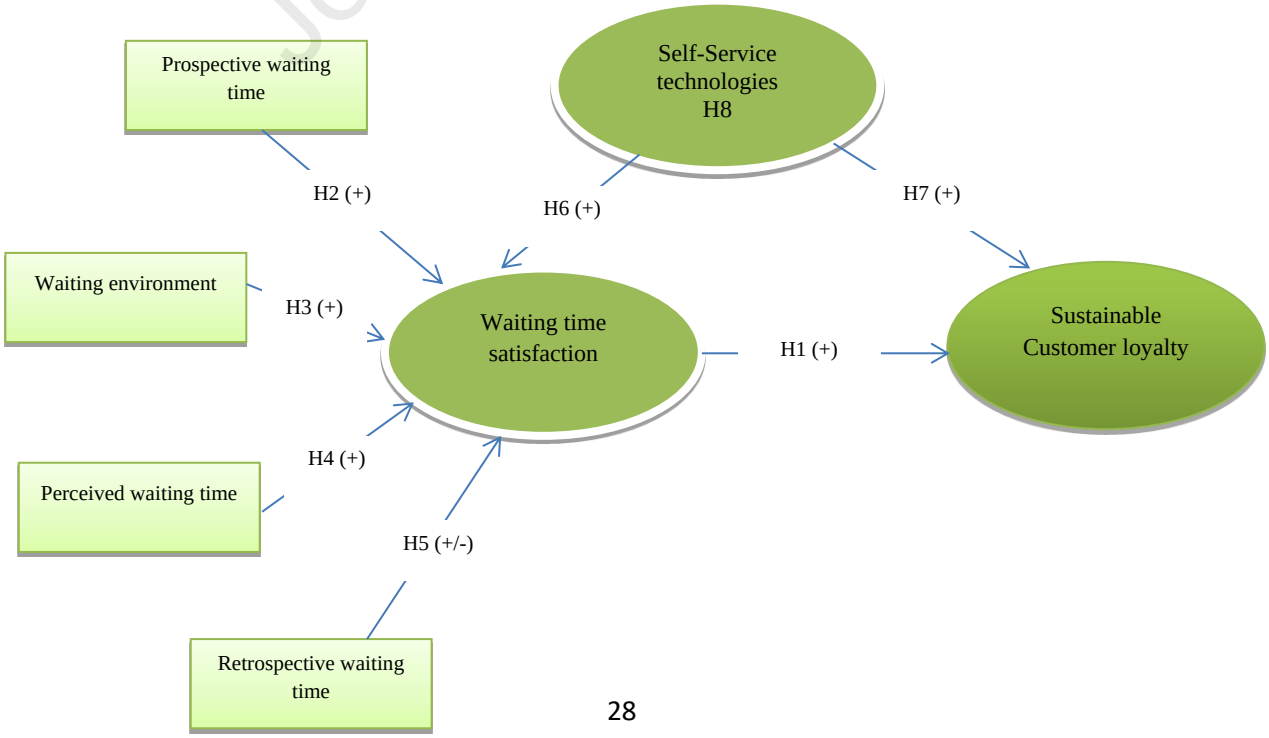

Figure 1. Proposed conceptual model of the research

Table 8. Measurement items

Indicator	Items	Source
	PROSPECTIVE WAITING TIME (PRWT)	
PRWT1	I believe in efficiency and efficacy of SST while waiting	Frauscher et al (2014)
PRWT2	I feel waiting areas and technology services should be improved	Frauscher et al (2014)
PRWT3	I would want the management to recruit more personnel to care for passenger during waiting time	Frauscher et al (2014)
	RETROSPECTIVE WAITING TIME (RWT)	
RWT1	I was unable to recognize the area I had visited before at the airport during my waiting time.	Smith et al. (2000)
RWT2	I was treated right by the personnel during my last visit to the airport	Smith et al. (2000)
RWT3	I was unable to board my flight, because I was not prompted by the personnel or reminder, such as the announcement at the airport	Smith et al. (2000)
	PERCEIVED WAITING TIME (PWT)	
PWT1	I do not have to wait for service at this airport	Butcher and Heffernam (2006)
PWT2	Total time spent in the waiting lounge is less than 30 minutes	Butcher and Heffernam (2006)
PWT3	Waiting time is more than 30 minutes	Chebat and Filliatrault (1993)
PWT4	Delay experiences are management problems	Chebat and Filliatrault (1993)
	WAITING TIME SATISFACTION (WTS)	
WTS1	Waiting time is longer than expected	Thompson et al. (1996)
WTS2	Waiting time is shorter than expected	Thompson et al. (1996)
WTS3	Waiting time was expected	Thompson et al. (1996)

WTS4	Waiting time feels irritated	Djelassi, Diallo and Zielke (2018)
WTS5	Waiting time is stressful	Djelassi, Diallo and Zielke (2018)
WTS6	I am satisfied with waiting time	Djelassi, Diallo and Zielke (2018)
	SATISFACTION WITH SELF SERVICE TECHNOLOGY (SST)	
SST1	I find SST difficult to use when travelling	Curran and Meuter (2005)
SST2	It was nice for me to become skillful at using the SST at the airport	Curran and Meuter (2005)
SST3	Using the SST improves the way in which I do my check-in whenever I am travelling	Curran and Meuter (2005)
SST4	Using SST makes my travelling easy	Curran and Meuter (2005)
SST5	I feel safe conduction and planning my trip through SST	Curran and Meuter (2005)
SST6	There are little chances that something might go wrong when using SST	Curran and Meuter (2005)
SST7	I feel pleasant about using SST	Curran and Meuter (2005)
	SUSTAINABLE CUSTOMER LOYALTY (SCL)	
CL1	I will say positive things about our service to others	Caruana (2002)
CL2	Encourage friends and relatives to use this Airport services	Caruana (2002)
CL3	Seldom to consider switching away from the Airport services	Caruana (2002)
CL4	To me, this Airport services is the best to use	Caruana (2002)
CL5	I will continue using the airport	Caruana (2002)
	WAITING ENVIRONMENT	
WE1	I feel comfortable with the physical design of the airport	Pruyn and Smidts (1998)
WE2	Availability of reading materials/T.V. makes the waiting irrelevant	Pruyn and Smidts (1998)

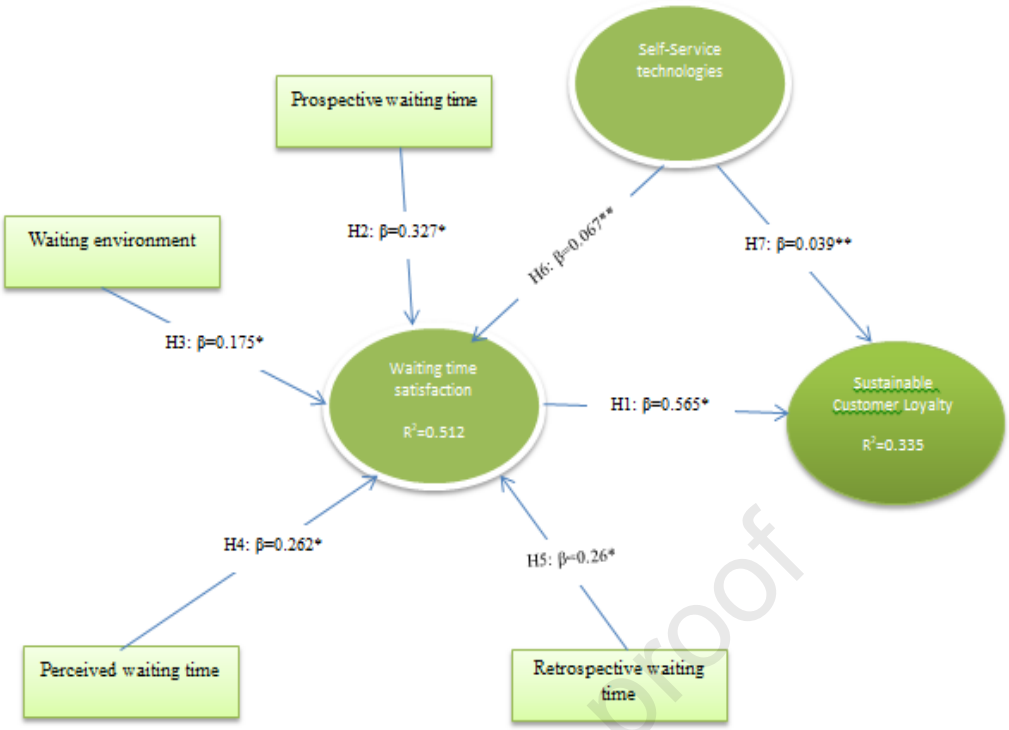

Figure 2. Model testing result. *,** denote 1% and 5% significance level

Achieving sustainable customer loyalty in Airports: The role of waiting time satisfaction and self-service technologies

Highlights

- The use of self-service technology contributes insufficiently to the sustainable customer loyalty.
- Self-service technologies and waiting time satisfaction are significant predictors of customer loyalty sustainability.
- Waiting time satisfaction partially mediate the relationship between technology use and sustainable customer loyalty.
- The management of customer wait times and increases their satisfaction with the service, which results in long-term loyalty.
- At the airport, strategic operation management is required to reduce the waiting time.

Dear Professor,

We are submitting the paper entitled " Achieving sustainable customer loyalty in Airports: The role of waiting time satisfaction and self-service technologies" for publication consideration at your reputable journal (technology in Society).

We believe the submitted manuscript fit properly to the aim and scope of your journal since it analyzed the Self-service technologies and waiting time satisfaction on the sustainable customer loyalty in the airline industry.

We confirm that our paper is not submitted or under evaluation by any journal.