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CONTRIBUTION OF THE ELEVATOR
TO THE IMAGE OF A HOTEL UNIT

from

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1   Abstract

At one point, hotel management will face the need to install a new elevator or renovate an existing one. A fair question that is raised is what amount of money is worth investing on them and if they will return that investment, through customer satisfaction and customer loyalty. This paper investigates the impact of the elevator's characteristics and design on customer satisfaction in the hotel industry. The data was collected via a survey of Greek travellers who visited at least one hotel in the resent years. 120 customers responded to the questionnaire. The results indicate that the elevator service has a positive influence, but not directly. Only when the elevator service and design is part of the hotel's tangible services strategy, do the elevator characteristics matter. The paper also clears the way for further research that would expand the research to more countries and to establish – through long-term study - stronger insights as to how relationships develop and their effect on customer satisfaction.

2   Introduction

The tourism sector is the fastest growing industry and it shows no signs of stopping anytime soon. Even with the pandemic of the coronavirus it became apparent that this particular dimension of the economy would soon recover (Fotiadis, et al., 2021). Since Management and Business Administration is all about handling and managing operational units it is very important to understand that in this economic field the quality of service and customer satisfaction is at the top the hierarchy of importance in terms of the economic results they produce. More specifically it has been found that the service quality directly relates to customer satisfaction (Pizam, et al., 2016).

A satisfied customer is more likely to become a loyal customer visiting a destination over and over again or booking the same Hotel (Kim, et al., 2015). Of course all this translates to economic growth for a hotel unit. It is no wonder that keeping customers happy and providing the best in terms of quality is of great importance to management and administration of a Hotel unit. Previous research has extensively discussed the correlation between service quality and customer satisfaction, and it has been established that customer satisfaction is the most important element in the service industry. Service quality leads to customer satisfaction, which then leads to customer loyalty, leading to positive economic results. It should be noted however that what makes one customer satisfied sometimes does not apply to another customer and this creates a disorientation in terms of what customer satisfaction really is all about and how can a hotel unit strive to achieve it (Radojevic, et al., 2015). Since customer satisfaction is tied to the service quality offered it is rather important that managers and hoteliers should strive for the best possible service quality.

But how can someone measure a non-tangible value, like customer satisfaction, and rate when one offered service is superior to another? (Parasuraman. , et al., 1985) gave the definition of "perceived service quality" as the gap between a customer's expectation of a service and the perceptions of the actual service received. This means that we need to measure the customer's expectations of a service and compare it to how the same customer rated it. Due to the differences in personalities, background, or financial status of the customer, the same offered service will not have the same impact on all. Furthermore, there are other very important aspects regarding customer satisfaction and its correlation to service quality. Customers may perceive an offered service as of high quality simply because it is advertised a lot or because it is fashionable (Zaibaf, et al., 2013). Further to that, a hotel unit may focus on a variety of tourist

visitor profiles (families, solo travelers, couples) thus hindering the process of creating a framework of high quality service which possesses something for everyone (Torres, 2014).

In order to help hoteliers, managers and businessmen measure how service quality is perceived by the customers, many tools have been developed which can be implemented by researchers in order to better understand these parameters. The first, and one of the most widely used models measuring service quality is the SERVQUAL. The SERVQUAL Model (Service Quality Model) was developed and implemented by Parasuraman, Zeithaml and Berry. SERVQUAL is a qualitative analysis where, through satisfaction surveys, service quality is measured using specific factors. The original questionnaire included almost 100 items, which were reduced over time to 10, although each study may exclude more items and ultimately use even less. This paper will use the following five dimensions:

- tangibles,
- reliability,
- responsiveness,
- assurance,
- empathy

This paper investigates the effect of a hotel unit's tangible asset to customer satisfaction. This asset is the elevator - or elevators - that the unit possesses. The elevator is an important element of a hotel's design and its functionality. Depending on the size, the characteristics and the aesthetics of it, the cost of a new unit may start from 20.000€ and exceed 100.000€ in many situations. Therefore, many hotel managers and owners are faced with a question. "How much should I invest for an elevator?". "If I invest more in it, will I have higher rates of customer satisfaction?". These are questions that have not been attempted to be answered in previous research. Finally, the research will attempt to investigate if the elevator has a direct or indirect effect on customer satisfaction. All of the above measurements will be important for the research paper as it will be understood whether the elevator as a tangible unit of a hotel's facilities plays any important role in the total outcome of customer satisfaction. The possible results will show the degree to which the elevator helps in the creation of a perception of higher quality services in visitors. To that end it is hypothesized that the perceived quality of services is directly related to the existence or absence of the elevator in a hotel's facilities.

Having discussed the above parameters and factors, a literature review will follow in which customer satisfaction, customer loyalty and service quality are analyzed in order to provide a solid academic basis of the subject matter.

3   Literature review

3.1   Customer Loyalty

Customer loyalty is the emotional status of a customer who is bonded to a brand or a service and is willing to return to the seller and repeat a purchase. Customer loyalty is the goal of every marketing plan because, as found by (Wong, A. & Sohal, A., 2002), the cost of keeping a high level of loyalty is much smaller than trying to attract new customers. Attracting new customers requires bigger marketing and disposal costs, but on the other hand loyal customers have smaller service costs (due to familiarity) and bigger chances for word-of-mouth communication. Adding to the previous, loyal customers are also more willing to pay a higher price for a product or service that is dear to them (Reichheld, F. F. & Sasser, W. E., 1990). It is rather apparent that a hotel unit does not offer products directly but creates experiences for the visitors / customers. It is very important to understand that a loyal customer in terms of a hospitality perspective is one who chooses to visit a destination more than one time and it can be beneficial for a hotel or other businesses to create loyal customers because as it has been stated above there are many benefits to this practice (Tepeci, 1999).

Especially in terms of intangible services, loyal customers of a hotel unit might show a great deal of satisfaction. While products and materials can be found elsewhere and other Hotel units may be able to provide them, the creation of a unique experience can be achieved by the creation of a unique and important experience to the visitor (Kandampully & Suhartano, 2000). The above necessitates that not only satisfaction needs to be measured in order to create a framework which can predict if a customer will become loyal (Yoo & Bai, 2013). Measuring loyalty level for companies that sell only tangible goods is straightforward and is done by evaluating the product itself. On the other hand, hotel units sell two types of elements - materials and non-tangible services - and are more complex to calculate. Measuring only customer satisfaction is not enough and other elements must also be measured. (Reichheld, 2006), through (Jasinskas, et al., 2016), proposes for customer loyalty to be answered by only this question: "Would you recommend us to your friends?". The answer is given on a ten-point Likert scale and the results are used for the deduction of a company's Net Promoter Score. Loyal customers are more prone to give high scores and initiate word-of-mouth.

(Jasinskas, et al., 2016) investigated in 4-star hotels in Lithuania the hypothesis that higher service quality delivers higher customer loyalty, by measuring nine quality factors: tangibility,

reliability, responsibility, competence, confidence, safety, accessibility, communication and understanding. The results were positive and indicated that hotel units would gain customer loyalty and be more competitive, if they improved one or more of these dimensions.

Creating loyal customers in the hotel Industry can be achieved through many different paths but one of the most common of these is loyalty programs. Hotel loyalty programs are programs which allow the visitor to create a bond with the brand over time (Hikkerova, 2011). More specifically guests are rewarded for spending money at a given property or by visiting a destination and booking a stay at one of the hotels of the hotel chain. There are many such programs which reward loyalty and typically members of those programs earn rewards according to the amount of money they have spent or the amount of nights they have booked. Rewards often come in the form of points which customers can use in the facilities of the hotel for future stays, dining discounts or room upgrades (Shugan, 2005). Those reward programs have been implemented by some of the most well-known hotel chains in the world such as Hilton, Marriott and others. Frequently, those programs are accompanied by a registration for the individual (Xie & Chen, 2014). They might also be tied to a personal number the guest can use in order to be identified as a frequent visitor and all this creates a sense of loyalty to the customer while helping the brand retain customers.

There are many strategies which hoteliers use in order to retain customers. One of the most common ones is to create guest profiles and review their history. More specifically when guests request specific rooms or they create specific orders the hotel creates guest profiles which at the next visit make sure that the guests will be properly welcome to the hotel according to their preferences (Veloso, et al., 2019). Feedback is also very important in order to ensure that expectations are met and even exceeded (Radojevic, et al., 2015). For example, in the study mentioned above it was found that it is very important to take in mind and consider whether a visitor would recommend the hotel to someone else.

Customer satisfaction comes from the creation of an experience and each customer is unique. Personalizing the customer experience and creating a memorable stay is very important. This is why marketing should focus on the guests' interests in order to encourage a more personalized stay. In order to do that, however, it is important to understand what exactly motivates repeat bookers (Bowen & Chen, 2001). This is why the creation of a guest profile is very important. By pinpointing the exact parameter which transforms a regular stay in an experience the hoteliers can understand what is needed in order to create the foundation for regular, satisfied customers.

3.2   Service Quality in the Hotel Industry

Keeping a customer happy is all about service quality in all aspects of the experience. The most common used in order to measure the interpretations of the individuals as well as their perceptions of the quality of the service they are given is the SERVQUAL model. It has proven to be especially useful in the hospitality sector as it has helped change the role of needs analysis and has thus led to the creation of a more rationalized strategic development process.

The SERVQUAL model has been accepted across a range of service industries. It estimates the gaps that may exist between customers' perceptions of a service (P) and their expectations (E). (Parasuraman. , et al., 1985) limited the investigation to five service quality dimensions: reliability, responsiveness, assurances, empathy and tangibles.

The service evaluation is performed through a questionnaire which presents customers a number of statements or questions related to the five above-mentioned dimensions. Then, they are asked if they agree or disagree on a Likert scale. The Likert scale – invented by Rensis Likert – is a technique for the assessment of attitudes. The responding persons are asked to respond to each statement in terms of their own degree of agreement or disagreement. On a five-point Likert scale, they are allowed to select one of five responses: "1 = strongly disagree", "2 = disagree", "3 = neutral", "4 = agree", or "5 = strongly agree".

Below, we will explain the five SERVQUAL dimensions and their adaptation to hotel guests' perceptions:

• Reliability: This is the ability of the hotel staff to perform the services in a reliable manner. It is very important for the guest to feel that his/her request for a service will be delivered, without the need of a reminder. It is important to remember that a reliable service leads to a happier, more satisfied customer, with the potential of future bookings.

• Responsiveness: This is the willingness of the staff to provide the service as soon as a request is extended to them. A quick service ability, combined with a friendly approach, makes the guest feel respected and increases the customer's positive opinion of the hotel. The staff plays a very important role in this aspect as oftentimes the responsiveness of the staff is what the guest remembers and evaluates.

• Assurance: Although the two above skills deliver the guest's requests in a quick manner, it is the assurance dimension of the staff which guarantees the process of the performing service. It is the knowledge of the employees on their job position that inspires trust and confidence. Usually, this ability is obtained through experience. In order for a hotel unit to inspire assurance on its part it needs trustworthy employees who are always at the ready to provide services which are demanded by the customer (Sim, et al., 2006). However, employee training is important for that and hoteliers should strive to incorporate such programs so as to develop a strong, reliable workplace. Experience is indeed necessary if the employees are required to answer to the customers' needs.

• Empathy: Caring and individualized attention of the hotel management to its guests. These can include services such as adjusted opening hours to accommodate more customers, or a shuttle bus to move customers from or to the airport. These are just a few examples of how empathy could raise the customers' satisfaction level. Empathy is directly tied to satisfaction because it creates a personalized experience. The customer understands that they are treated as an important visitor and acknowledges the fact that the hotel and its staff view them as such (Iglesias, et al., 2019). All this raises the chance of performing a return visit.

• Tangibles: These are all the physical facilities of the hotel unit, such as buildings, equipment, and personnel. The first impressions will be established by the interior design and hardware facilities, whereas additional facilities and activities, such as restaurants, exercise gyms, and swimming pools, seem to be other required items that influence consumers' perceptions of tangible service quality. Elevator units are also included in this dimension and will be the focus of the following research. It is important to point out that elevators as a tangible unit may not be directly tied to empathy or assurance as a dimension of the SERVQUAL model but they certainly are related to the creation of an environment which inspires trust.

3.3   Customer Satisfaction

As it has been stated in many papers, service quality leads to satisfaction, which in turn leads to loyalty. In recent years customer satisfaction has been studied thoroughly and many of its aspects are based on the perceptions of quality and the actual quality delivered (Prud'homme & Raymond, 2013).

(AbuKhalifeh & Ahmad Puad Mat Som, 2012) describe guest satisfaction as the evaluation of a quality of a service from a guest and whether it meets his or her expectations. Performance that falls far below expectations leaves guests dissatisfied. (El-Adly, 2018) also shows that a satisfied customer is one of the goals that service organizations desire, due to the long-term benefits of having satisfied customers. Benefits such as positive word of mouth comments, customer loyalty, and sustainable profitability.

(Poon & Low, 2005) (See also (Muslim Amin, 2013)) pointed out that there are 12 main factors which influence customer satisfaction in the hotel industry. They are (F1) hospitality, (F2) accommodation, (F3) food and beverage, (F4) recreation and entertainment, (F5) supplementary services, (F6) security and safety, (F7) innovation and value-added services, (F8) transportation, (F9) location, (F10) appearance, (F11) pricing and (F12) payment. The last two factors are considered the most important.

As for the first factor presented, hospitality refers to the feeling the guest receives when they stay at the hotel. It is the general vibe of the unit as well as the ease with which the visitor is welcomed into the hotel that creates an atmosphere of a hospitable stay. Friendly staff and happy cooperation among customers and employees is very important in that respect (Ravichandran, et al., 2010). Regarding the second point, accommodation has to do with the general facilities which were promised in the booking of the rooms. It is important to offer rooms which satisfy the guests and are suited to their needs. Similarly, food and beverages need to be of satisfactory quality so as to make the guests feel at ease with comfort selections of meals suited to their preferences. Directly related to the previous factor, the entertainment of guests needs to cover a great variety of media in order to target as many groups of visitors as possible while simultaneously attracting their interest. Guests should feel entertained and satisfied with the available recreational activities (Zaibaf, et al., 2013).

The fifth factor referring to supplementary services encompasses consultation and advice, information about products, as well as safekeeping consumers need information about goods and services and this is why it is very important for such information to be available. Consultation and advice on the other hand focuses on creating a tailored experience which suits the visitors' needs. Safekeeping can be another important supplementary service which refers to the safekeeping of personal possessions of the visitors. This last point is directly related to security and safety which is the sixth factor which influences customer satisfaction (Oh & Kim, 2017). Feeling secure and at ease with the hotel unit's surroundings inspires trust and creates a hospitable atmosphere which makes the visitor feel at home. Further to that value-added

service can provide visitors with the ability to improve their experience (Pizam, et al., 2016). Innovative technologies can also help with that by creating an easier way of communication or by creating an experience which is unique. More specifically by incorporating innovative technologies hotels can improve their overall technological presence and allow for easier, seamless communication and entertainment (Radojevic, et al., 2015).

Transportation from and to the hotel unit is also very important in the creation of an easy and effective way of commuting. However transportation is not limited to the above routes. For some visitors it is necessary for the hotel to be close to Metro stations, bus stations or other available public transport (Xu & Li, 2016). This is especially important in areas where the hotels are not in the city center. This is correlated heavily with the ninth factor which influences customer satisfaction. The location of a Hotel unit is important for the visitor, especially if they want to visit other significant sites in the area. This however may not be the case in all-inclusive hotels in which visitors tend to stay inside the hotel facilities in order to enjoy everything the hotel has to offer (Xu & Li, 2016). This is why needs analysis is very important and can pinpoint what exactly satisfies customers. For some, location can be important while for others it is not. Similarly, appearance may be important for some visitors. The appearance of the hotel plays a very significant role in the creation of a positive first impression. The hotel grounds need to be decorated and easy to navigate. Furthermore, guest rooms need to be carefully structured in order to create a homely atmosphere as visitors spend at least eight to ten hours of their day in their rooms.

Even though all of the above are very important aspects which influence satisfaction, in today's economically oriented world pricing and payment are of the greatest importance. Prices of the hotel bookings in any of the guest rooms is of the essence (Cao, et al., 2003). To that end there needs to be great correspondence between what was originally offered and what was delivered to the customer. In order for a customer to be satisfied they need to feel that the money they have spent in order to book the room is worth it. Furthermore, other items which are offered inside the Hotel facilities need to be rationally priced (Chen, et al., 2015). For example, dining in one of the restaurants of the hotel should not be extremely expensive if the hotel is a mid-range unit as this will create a disproportionate pricing difference. Items on the menu should correspond to the price levels of the hotel in general.

An effective pricing strategy sells the ideal room to the guest at the right price. For example, during high season most hotels value their rooms at the highest prices of the year. However it would be irrational to do so during the off-season as bookings and revenue would drop

significantly (Chen, et al., 2015). Pricing the rooms effectively and at the right time can have a very positive effect on occupancy. Furthermore, pricing perception influences the guests' purchasing behavior. This means that if the guests perceive a service or a room as very expensive they will not book it. When paying high prices for an experience or an activity guests have high expectations of the end results as well as the service quality. Payment is also very important regarding customer satisfaction as it is related to pricing (Radojevic, et al., 2015). Guests need to be able to pay with ease and no hidden fees need to be present at purchase. Booking should be very clear regarding payment methods as well as pointing out the importance of ease of access to payment methods. Paying online or paying when arriving at the hotel facilities creates an atmosphere of trust and strengthens the bonds between the customer and hotel (Yang, et al., 2009).

3.4   Elevators

The efficient circulation inside a big building that accomodates a significant number of people simulateously (airports, malls, hotels, hospitals) offers comfort to the customers and, above all, safety. Therefore, on an early stage in the building's design, traffic handling specialists determine the correct cilrculation routes and the mechanical elements that assist passengers to move between destinations. Vertical movement is performed with the use of elevators and escalators, whereas horizontal movement – mainly at airports – is achieved with the use of passenger conveyors. All mechanical elements must be adequately designed to receive and dispatch the appropriate number of passengers. Traffic circulation of people inside buildings is a complicated issue which (Barney, 2003) has broken down to the following factors:

- Horizontal and vertical movement: People generaly walk horizontally unless they need to move to another level, in which case they use an elevator or escalator.
- Natural or mechanical assisted movement: Which parts of the building routes include natural movement of the passengers or are mechanically assisted.
- Complications due to human behaviour: The diversity of the people occupying the building is significant. Age, gender, possible handicaps, level of urgency, all affect the way they move and their behaviour and add an unpredictible note to the analysis.

When calculating the interior circulation of a building, all the following must be met:

- All routes must be foreseen and dealt with. This means that circulation routes, emergency escape routes and waiting areas must be established.
- The above routes must be obvious, even to a person in a state of panic. Labels and distinct colouring of routes or areas are common practice.
- That all routes are rational. For example, an elevator waiting area must not be in the route of walking through passengers because this would be distrurbing for both.
- Incompatible type of routes must not cross. Some examples are that in a hotel, the route for moving food supplies to the kitchen should not pass-through routes that the guests use. or a hotel stretcher must never pass through non-sterile areas.
- Frequently used routes must be minimised as much as possible.

Minimizing the most frequently used routes means that all relevant rooms, offices, or areas must be grouped together and should not be scattered, which would lead to longer walks and more frequent use of the mechanical elements. For example, all administration offices of a hotel must be in the same area and the recreation activity areas must be grouped together. This arrangement will ensure that:

- There is an easy flow of people, goods and cars.
- Each group of activities will occupy the minimum amount of area, which will increase the income generating areas (hotel rooms, shopping areas).
- There will be decreased waiting lines and traffic jams.

Elevator Classes

(ISO 4190-1, 2010) distinguishes elevators, depending on their use, into 6 classes:

- Class I: Which are elevators designed for the transport of people and are mostly met in residential buildings with one family or in general buildings with up to 15 floors. The recommended passenger load (Rated Load) of residential elevators is: 450 kg, 630 kg and 1000 kg, and for general buildings: 630 kg, 800 kg, 1000 kg, 1275 kg and 1350 kg. 450 kg or bigger rated loads can accommodate wheelchairs, and loads from 1000 kg and above offer wheelchair access and the ability for it to rotate inside the cabin.

- Class II: These are elevators designed for the transportation of people, but in some occasions goods may be carried. Recommended rated loads are: 1000 kg, 1275 kg, 1350 kg, 1800 kg and 2000 kg.

- Class III: Elevators designed for health-care purposes (hospitals and nursing homes). Cabins here should accomodate 1275 kg, 1600 kg, 2000 kg, or 2500 kg, depending on the size of the bed (stretcher) it will move and if medical equipment will also be moved with it.

- Class IV: Designed for transporting mainly goods, which are usually accopanied by passengers.

- Class V: Lifting devices for the transportation of small objects, like office paperwork or food in restaurants. In North America they are called dumbwaiters and in Europe service lifts.

- Class VI: Elevators designed for buildings with heavy traffic and are used in high-rise buildings, which have more than 15 floors. Their speed is above 2.5 m/s and their size and speed should be determined after a detailed traffic analysis. The most efficient rated loads are: 1275 kg, 1350 kg, 1600 kg, 1800 kg and 2000 kg.

Handling Capacity and Passenger Waiting Time

As decribed by (Barney, 2003), the demand that the elevator or elevators must meet depend on two factors. The first is the passenger's Quantity of Service, which is the number of passengers the elevator system serves in a given amount of time. In traffic calculation, this is represented by the "Handling Capacity" variable. The second is the Quality of Service, which is the amount of time the passenger needs to wait to enter the lift, and it is represented by the term "Passenger Waiting Time". Quantity and Quality of Service are interconnected and depend on the building type and the people who move inside them. When the building is still on a design stage, speculating the number of passengers and their population on each served floors is a challenge.

In office buildings, the requested task in traffic calculations is to deliver acceptable handling capacity and waiting times during the most demanding part of the day, which is when office workers arrive in the morning to get to work. During that period, the elevators arrive empty in the lobby, start a trip where they deliver each person to the desired floor, and then return empty

at the lobby to repeat the process. This procedure is called "morning up-peak" and in traffic calculations the goal is to serve a 5-minute part of it. During the morning up-peak, it is assumed that there is no passenger movement between intermediate floors and from top to lower floors; but only from the lobby to the higher levels. It is considered that if the morning up-peak demand is adequate, then all the rest traffic senarios will also be adequate.

Hotels operate in a different manner than office buildings and the most demanding period is when hotel guests move to the restaurant during mealtimes. This means that - unlike office buildings - the incoming calls are scattered in all floors, but the final destination is only one.

In all building types, a traffic analysis is very important to the comfortable and uninterrupted flow of the people because a poor one may lead to lifting systems that are too small to serve everyone and will leave intending passengers behind, or to too big systems that will lead to big loading times as more people are entering the cabin.

Number of Elevators

According to IBC (International Building Code, (International Code Council, 2018)) guidelines, a hotel must have at least one elevator for buildings with four or more floors. Very often, hotel franchises have minimum requirements for elevators beyond these code requirements, as part of their brand standards and to offer more premium services to their customers.

Elevators play an important part in the circulation of guests and service staff in a hotel. (CIBSE, 2020) recommends that there should be at least one passenger elevator per 100 guests in a medium quality hotel and at least one elevator to accommodate the transfer of service/goods per two passenger elevators. Ideally there should be at least two service elevators to each floor in large hotels. Escalators should also be employed for short range movements, e.g., to connect function levels with the lobby.

Travel Time

A accepted rule of thumb for offices is that an elevator should be able to travel the distance between terminal floors in 20 seconds for prestige class buildings or 30 seconds for speculative buildings.

Table 1 shows a proposal of maximum travel times for various building according to (CIBSE, 2020).

Table 1. Travel times for building types other than offices

Building type	Travel time (s)
Large hotels	20
Small hotels	30
Hospitals, nursing/residential homes, etc.	24
Residential buildings	20 – 30
Factories, warehouses, shops, etc.	24 - 40

Again, major international hotel chains often have their own specific waiting time requirements, in order to offer more premium services to their guests.

Cabin Size

Tables 6 and 8 of standard (EN 81-20, 2014) combine the rated load of the elevator with the minimum and maximum free area of the cabin. This means that after the rated load is decided, the size of the cabin can be determined.

In hotels, the level of service regarding traffic intensity is not expected to be as high as that in office buildings, but the sizing of guest elevators should be generous to accommodate passengers with luggage and to ensure a necessary comfort level. Class II elevators with a cabin size for a passenger elevator of 1275 kg are suitable because this size also provides compliance with the recommendations of standard (EN81-70, 2018) for wheelchair access.

As mentioned in other parts of this paper, many hotel brands may have their own design standards and specify larger cars.

Noise Level

The acceptable level of noise generated by elevators will vary according to the function of the building and the building owner. Noise ratings (NR Values) for various areas within buildings are given in CIBSE Guide A (CIBSE, 2015). NR values are dependent on the frequency spectrum of the noise and there is no constant relationship between NR value and sound pressure levels in dB(A). However, for practical purposes, the NR is approximately equal to dB(A) − 6.0. The recommended NR for reception areas in offices and hotel lobbies is 35~40. The recommended noise rating for reception areas in offices and hotel lobbies is 35~40 (CIBSE, 2020).

Design / Aesthetics

Observation (glass) elevators are often installed in hotels, offices and shopping complexes to provide a feature, or a visual impact and they may attract a large percentage of pleasure riders. The use of glass as a decorative material offers pleasure but comes with some caveats. Firstly, it is recommended for safety reasons for glass cabins to travel in lower speeds and for glass doors to also open and close with lower speeds. Secondly, the door-dwell times are bigger because more often children and elderly cross the entrance and need extra time for the doors to be open. These characteristics lead to a reduced traffic handling performance of the lifting system.

The car interiors are often shaped for aesthetic and viewing purposes rather than easy circulation in the car. A cabin that is shaped for easy circulation is wide and has a small depth dimension because this way more people have access to the cabin buttons and are near the cabin door. On the other hand, observation elevators are shaped like a mushroom, where they are narrow and deep and have a semi-circular part at the top. Since the passengers are more interested in the panoramic view experience, they are willing to wait for a second pass of the car, when the first arrives with passengers already inside. (CIBSE, 2020) considers that this leads to a reduced occupancy of approximately 60% in comparison to the 80% used for a conventional elevator.

4 Research Hypotheses

Ekinci's work (Ekinci, et al., 2008), provided a detailed model of service dimensions and their impact on customer satisfaction. One of their key findings was that service quality is dependent on two dimensions, physical quality and behaviour of the staff; and that they both have a positive effect on satisfaction. It should be noted though, that it is not the service quality of the physical assets and the staff behaviour which deliver customer loyalty to the service firm. It is consumer satisfaction. This means that service quality must work as a servant to customer satisfaction, which will then increase the customer's intention to return in the future.

Having the above in mind, it is this paper's intention to investigate if and how the elevator's characteristics also have an impact on customer satisfaction, through the physical assets.

The elevator characteristics can be divided into two categories. First is the aesthetics, which include the design and everything that is visible to the passenger like glass walls, or the use of marble. So, the first hypothesis to be investigated is:

H1: There is positive relationship between elevator aesthetics and customer satisfaction

The second category of characteristics are the technical ones. The ones that improve the efficiency of the elevator towards traffic management of the guests in the hotel premises. This includes, the size and the speed of the cabin, and the number of the elevators. So, the second hypothesis to be investigated is:

H2: There is positive relationship between elevator characteristics and customer satisfaction

5   Methodology

5.1   Research Procedure

In the beginning, research through the existing literature was performed to investigate previous papers about customer satisfaction in the hotel business and how hotel dimensions affect it. At the end of the research, it was decided that the SERVQUAL model would reflect better the possible impact of the elevator service on customer satisfaction. More specifically, it would be examined through the "tangibles" dimension of SERVQUAL. Then, the questionnaire preparation took place. The questions introduced the two elevator dimensions: the aesthetics and the technical (vertical transportation) characteristics. Once the questionnaire was prepared, it was distributed through the internet. The questions were written in Greek and addressed to Greek hotel guests aged 18 years and older, who had visited a hotel - foreign or domestic - in their near past. The only limitation to the participants was for them not to be involved – directly or indirectly – to the elevator business. After the responses were collected, IBM's Statistical Process for Social Sciences (SPSS) software (version 28) was used for data analysis purpose.

5.2 Demographic Information

The majority of respondents (45.8%) ranged in age from 31 to 40, with the fewest respondents (8.3%) in the ages from 18 to 30. The respondents consisted of 71.7% males and 28.3% females. Between the five hotel categories, the five-star hotels, the four-star hotels, the three-star hotels, the two-star hotels and apartments, 48.7% of the respondents choose four-star hotels from the types listed on the questionnaire. An analysis of these results is given in Table 2 and Table 3.

Table 2. Frequency table of hotel preference

Your age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 30	10	8,3	8,3	8,3
	31 – 40	55	45,5	45,8	54,2
	41 – 50	42	34,7	35,0	89,2
	51 - 60	13	10,7	10,8	100,0
	Total	120	99,2	100,0	
Missing	System	1	0,8		
Total		121	100,0		

Table 3. Frequency table of hotel preference

In your travels, you usually stay in

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 star hotel	2	1,7	1,7	1,7
	3 star hotel	28	23,1	23,5	25,2
	4 star hotel	58	47,9	48,7	73,9
	5 star hotel	13	10,7	10,9	84,9
	Apartments	18	14,9	15,1	100
	Total	119	98,3	100	
Missing	System	2	1,7		
Total		121	100		

5.3   Data collection

A survey questionnaire was distributed, through the internet, to hotel customers aged 18 years and older and the answers were collected with the use of Google Forms between June 18 and July 22, 2021. The questionnaire was written in Greek and addressed to Greek hotel guests, who had visited a hotel - foreign or domestic - in their near past. The only limitation to the participants was for them not to be involved – directly or indirectly – to the elevator business.

The list of questions included in the questionnaire and their type of answers is in the Appendix.

120 forms were returned.

5.4   Data Analysis

The respondents were asked in these questions to indicate which factors are important to them to achieve satisfaction and make them recommend the hotel to others. Upon reception of the filled questionnaires, their data was analysed with SPSS software.

A factor analysis, with orthogonal VARIMAX rotation, was conducted to allow a grouping of the elevator variables.

6 Results

6.1 Factor Analysis

First, an exploratory factor analysis was performed using principal components analysis with varimax rotation utilized to better understand the elevator dimensions and to determine their effect on a hotel unit's image.

Traffic Handling & Aesthetics of Elevator

We used 8 practices (see Table 5) measured on a Likert-type scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". The scale includes the eight attributes of elevator design. The first attribute "waiting time" (question No 9) comprises the technical characteristics of the elevator, which lead to a small waiting period for the passenger to get served (see paragraph 3.3.2). The second attribute "cabin area" (question No 10) comprises the free floor area inside the cabin. The bigger the area is, the more passengers the elevator will be accommodated. Abundance of cabin floor area is important in hotels, due to the extra space needed for luggage. The third attribute is "elevator speed" (question No 11) and this also contributes to smaller waiting times (see paragraph 3.3.2). The fourth attribute is "elevator aesthetics" (question No 12) which includes all the design material and details which make the elevator distinguish from others. These details mainly refer to the cabin, as this is the component which the passenger interacts with. Other parts of the elevator may also play an important factor. The fifth attribute is "silent ride" (question No 13) which reflects the low noise level during the ride between stops. The sixth attribute is "smooth start/stop" (question No 14) which reflect the "kick" of the cabin at start and stop. Obviously, the bigger the "kick" is, the more unpleasant the experience will be. The seventh attribute is "clean" (question No 15), and the eighth "smell" (question No 16) reflect how clean and how nicely the cabin is. Research conducted by (Roussos, et al., 2019) show that when the cabin is clean and has a pleasant odor, the passenger feels safer during the ride.

By Principal Component Analysis and Varimax with Kaiser Normalization rotation method, 2 components are extracted with greater than 1 eigenvalue, attributes "waiting time" and "cabin area". The cumulative of variance is 65.15% which means that these 2 components explain 65.15% of the elevator characteristics and design.

Table 4. Traffic Handling & Aesthetics of Elevator: Principal Component Analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1 The waiting time for the elevator to arrive was small	4,098	51,221	51,221	4,098	51,221	51,221	3,305	41,311	41,311
2 The space inside the cabins were adequate and the passengers could move with ease	1,115	13,937	65,157	1,115	13,937	65,157	1,908	23,846	65,157
3 The speed of the elevators was sufficient	,733	9,158	74,316						
4 The elevators were aesthetically pleasing	,665	8,312	82,627						
5 The operation of the elevators was silent	,535	6,686	89,313						
6 The start and the stop of the elevators was smooth	,343	4,283	93,596						
7 The cabins were clean	,320	4,001	97,597						
8 The cabins smelled pleasantly	,192	2,403	100,000						

An exploratory factor analysis has been conducted using principal components analysis with varimax rotation utilized to determine the dimensions of the waiting time and elevator aesthetics. Results show that the eight-factor structure could be reduced to two dimensions; the "Waiting Time" which bundle questions No 9 through No 11, and the "Aesthetics" which bundle questions No 12 through No 16.

Table 5. Rotated Component Matrix [a]

	Component	
	1	2
The waiting time for the elevator to arrive was small		,779
The space inside the cabins were adequate and the passengers could move with ease		,715
The speed of the elevators was sufficient		,716
The elevators were aesthetically pleasing	,756	
The operation of the elevators was silent	,771	
The start and the stop of the elevators was smooth	,807	
The cabins were clean	,798	
The cabins smelled pleasantly	,815	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Hotel

This part incorporates the SERVQUAL attributes of the hotel. They are used to see if their influence is stronger than the elevator parameters in order to achieve customer satisfaction.

The five attributes of SERVQUAL are measured on a Likert-type scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". The first attribute "tangibles" (question No 17) comprises all the tangible material assets of the hotel. This is the attribute in which the elevators of the hotel unit are included. The second attribute "reliability" (question No 18) comprises level of reliability and accuracy the working staff of the hotel deliver their services. The third attribute is "responsiveness" (question No 19), and this states the level of willingness delivered to the customer. The fourth attribute is "assurance" (question No 20) which includes the confidence that the staff aspires to the guests. Lastly, the fifth attribute is "empathy" (question No 21) which reflects the sense of uniqueness that the hotel services pass to the guest.

The factor analysis produced the following results.

Table 6. Hotel SERVQUAL. Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The hotel facilities and tangible elements were of high quality	3,465	69,309	69,309	3,465	69,309	69,309
Hotel services were delivered with reliability and accuracy	0,533	10,67	79,978			
Hotel services were delivered with willingness	0,452	9,048	89,027			
The hotel staff knowledge inspired me confidence	0,293	5,869	94,896			
The hotel staff made me feel unique	0,255	5,104	100			

Extraction Method: Principal Component Analysis.

The results show that the first component is the only one with an eigenvalue higher than 1, which contributes 69.3% of the service quality variance. This means that the tangibles were the most important component of the SERVQUAL variables.

Table 7. Hotel SERVQUAL. Component Matrix [a]

Component Matrix[a]	
	Component 1
The hotel facilities and tangible elements were of high quality.	,837
Hotel services were delivered with reliability and accuracy.	,860
Hotel services were delivered with willingness.	,889
The hotel staff knowledge inspired me confidence.	,794
The hotel staff made me feel unique.	,778
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Customer Satisfaction Through Social Media

Customer satisfaction is also expressed through the eagerness of the guest to spread his or her satisfaction on social media. Satisfied guests are more prone to post their experience and their photographs on social media platforms than not satisfied ones.

On this topic, (Ryu, et al., 2012) examined the main three elements of a restaurant (physical environment, food, and staff service) and their relationship with customer satisfaction and customer behavioural intentions. The conclusion was that the food quality is the most important factor, to deliver customer satisfaction and to increase the intention to spread positive word of mouth. Not only that, but the research also concluded that the surroundings and tangibles influence customer satisfaction.

3 dimensions were used on a Likert-type scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". The first attribute "friend suggest" (question No 22) comprises the fact that the guest was so satisfied that he/she would consider suggesting the hotel to a friend. The second attribute "social post" (question No 23) comprises the fact that the guest tagged the hotel to a personal story in social media. Finally, the third attribute "rated hotel" (question No 24) comprises of the fact that the guest posted a review of the hotel on an online platform, such as Google Maps or Trip Advisor.

The factor analysis is given in Table 8.

Table 8. Customer Satisfaction. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Did you suggest the hotel to a friend?	1,726	57,538	57,538	1,726	57,538	57,538
Did you tag the hotel to post in social media?	,798	26,599	84,137			
Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	,476	15,863	100,000			

Extraction Method: Principal Component Analysis.

Results show that the first component (friend suggest), is the only one with an eigenvalue higher than 1, which contributes 57.53% of customer satisfaction. This means that customer satisfaction is mainly expressed through word of mouth.

6.2   Cronbach's Alpha

One of the first steps of a testing process is performing a reliability test. One method to calculate reliability is to check the degree of inter-correlation among items that are included in the model. The most widely measure of internal consistency is Cronbach's alpha which is the average of the correlation coefficient of each item with each other item (Azhar Mat Daud , et al., 2018). Alpha Cronbach's value above 0.6 is considered high reliability and acceptable index, whereas when the value of Alpha Cronbach is less than 0.6, it is considered low. Alpha Cronbach values in the range of 0.60 - 0.80 are considered moderate, but acceptable. While Alpha Cronbach in the ranges of 0.8 and up to 1.00 is consider very good.

The results of the model are given in Table 9

Table 9. Cronbach's Alpha Values

Measurement Constructs	Number of Items	Cronbach's Alpha
Waiting Time	3	0,651
Aesthetics	5	0,874
Hotel Service	5	0,880
Social Media	3	0,630

Waiting Time: Includes "Waiting Time", "Cabin Area" and Elevator Speed"
Aesthetics: Includes "Elevator aesthetics", Silent Ride", Smooth Start/Stop", Clean" and "Smell"
Hotel Service: Includes "Tangibles", "Reliability", "Responsiveness", "Assurance" and "Empathy"
Social Media: Includes "Friend Suggest", Social Post" and "Rated Hotel"

We notice that all Alpha values are above 0.6, which means that they are acceptable.

6.3   Correlations

A correlation matrix is a table showing correlation coefficients between variables. Each cell in the table shows the correlation between two variables. A correlation matrix is used to summarize data, as an input into a more advanced analysis, and as a diagnostic for advanced analyses. In our case, Pearson's Correlation (r) is used.

Correlation analysis was conducted, and the results are presented in the below table. We found the significant correlation between the customer satisfaction and the elevator dimensions ("Waiting Time" and "Aesthetics").

Table 10. Correlation Matrix

		How many elevators were at the hotel?	Did at least one elevator have marble decoration?	Did at least one elevator have a virtual TV screen?	Did at least one elevator have a voice announcer function?	Did the elevator play music inside the cabin?	How many of the hotel elevators were glass?	The number of elevators were sufficient.	Waiting Time	Aesthetics_Atmospherics	Service_Quality	Did you suggest the hotel to a friend?	Did you tag the hotel to post in social media?	Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	Gender	Age
How many elevators were at the hotel?	Correl. Coef.	1,000														
	Sig. (2-tailed)															
	N	120														
Did at least one elevator have marble decoration?	Correl. Coef.	,257**	1,000													
	Sig. (2-tailed)	0,005														
	N	120	120													

Table 10. Correlation Matrix (Continued)

		How many elevators were at the hotel?	Did at least one elevator have marble decoration?	Did at least one elevator have a virtual TV screen?	Did at least one elevator have a voice announcer function?	Did the elevator play music inside the cabin?	How many of the hotel elevators were glass?	The number of elevators were sufficient.	Waiting Time	Aesthetics_Atmospherics	Service_Quality	Did you suggest the hotel to a friend?	Did you tag the hotel to post in social media?	Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	Gender	Age
Did at least one elevator have a virtual TV screen?	Correl. Coef.	,291**	0,010	1,000												
	Sig. (2-tailed)	0,001	0,917													
	N	120	120	120												
Did at least one elevator have a voice announcer function?	Correl. Coef.	0,175	0,106	0,139	1,000											
	Sig. (2-tailed)	0,056	0,249	0,131												
	N	120	120	120	120											
Did the elevator play music inside the cabin?	Correl. Coef.	0,154	-0,013	,321**	,331**	1,000										
	Sig. (2-tailed)	0,093	0,891	0,000	0,000											
	N	120	120	120	120	120										

Table 10. Correlation Matrix (Continued)

		How many elevators were at the hotel?	Did at least one elevator have marble decoration?	Did at least one elevator have a virtual TV screen?	Did at least one elevator have a voice announcer function?	Did the elevator play music inside the cabin?	How many of the hotel elevators were glass?	The number of elevators were sufficient.	Waiting Time	Aesthetics_Atmospherics	Service_Quality	Did you suggest the hotel to a friend?	Did you tag the hotel to post in social media?	Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	Gender	Age
How many of the hotel elevators were glass?	Correl. Coef.	,321**	0,162	,246**	0,141	-0,019	1,000									
	Sig. (2-tailed)	0,000	0,077	0,007	0,125	0,835										
	N	120	120	120	120	120	120									
The number of elevators were sufficient.	Correl. Coef.	0,098	0,019	-0,041	0,050	0,133	,204*	1,000								
	Sig. (2-tailed)	0,287	0,833	0,659	0,587	0,148	0,025									
	N	120	120	120	120	120	120	120								
Waiting_Time	Correl. Coef.	0,136	0,013	0,067	0,093	,188*	,240**	,592**	1,000							
	Sig. (2-tailed)	0,138	0,885	0,468	0,315	0,039	0,008	0,000								
	N	120	120	120	120	120	120	120	120							
Aesthetics_Atmospherics	Correl. Coef.	0,158	0,051	,230*	,221*	,347**	,210*	,439**	,538**	1,000						
	Sig. (2-tailed)	0,085	0,577	0,012	0,015	0,000	0,022	0,000	0,000							
	N	120	120	120	120	120	120	120	120	120						

Table 10. Correlation Matrix (Continued)

		How many elevators were at the hotel?	Did at least one elevator have marble decoration?	Did at least one elevator have a virtual TV screen?	Did at least one elevator have a voice announcer function?	Did the elevator play music inside the cabin?	How many of the hotel elevators were glass?	The number of elevators were sufficient.	Waiting Time	Aesthetics_Atmospherics	Service_Quality	Did you suggest the hotel to a friend?	Did you tag the hotel to post in social media?	Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	Gender	Age
Service_Quality	Correl. Coef.	0,070	0,033	0,100	0,122	0,148	,215*	,446**	,472**	,638**	1,000					
	Sig. (2-tailed)	0,446	0,718	0,278	0,185	0,107	0,019	0,000	0,000	0,000						
	N	120	120	120	120	120	120	120	120	120	120					
Did you suggest the hotel to a friend?	Correl. Coef.	0,098	0,015	0,111	,185*	0,118	,188*	,313**	,336**	,436**	,574**	1,000				
	Sig. (2-tailed)	0,289	0,867	0,227	0,044	0,198	0,040	0,000	0,000	0,000	0,000					
	N	120	120	120	120	120	120	120	120	120	120	120				
Did you tag the hotel to post in social media?	Correl. Coef.	0,107	0,016	,258**	0,014	0,153	0,119	0,006	0,028	,205*	0,151	,317**	1,000			
	Sig. (2-tailed)	0,246	0,866	0,004	0,876	0,096	0,194	0,952	0,762	0,025	0,100	0,000				
	N	120	120	120	120	120	120	120	120	120	120	120	120			

Table 10. Correlation Matrix (Continued)

		How many elevators were at the hotel?	Did at least one elevator have marble decoration?	Did at least one elevator have a virtual TV screen?	Did at least one elevator have a voice announcer function?	Did the elevator play music inside the cabin?	How many of the hotel elevators were glass?	The number of elevators were sufficient.	Waiting Time	Aesthetics _Atmospherics	Service_ Quality	Did you suggest the hotel to a friend?	Did you tag the hotel to post in social media?	Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	Gender	Age
Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	Correl. Coef.	0,176	0,099	0,167	0,019	-0,031	0,160	-0,004	0,024	0,076	0,139	,204*	,530**	1,000		
	Sig. (2-tailed)	0,054	0,283	0,068	0,835	0,736	0,081	0,965	0,796	0,412	0,129	0,025	0,000			
	N	120	120	120	120	120	120	120	120	120	120	120	120	120		
Gender	Correl. Coef.	-0,005	0,053	-0,021	-0,113	-0,092	-0,011	-0,151	0,017	-0,035	-0,088	-0,009	0,017	-0,043	1,000	
	Sig. (2-tailed)	0,959	0,568	0,817	0,220	0,319	0,909	0,099	0,852	0,701	0,337	0,925	0,855	0,641		
	N	120	120	120	120	120	120	120	120	120	120	120	120	120	120	
Age	Correl. Coef.	0,074	0,008	-0,104	-0,157	-0,015	0,007	-0,061	0,072	0,089	0,004	-0,104	-0,103	-0,009	-0,105	1,000
	Sig. (2-tailed)	0,421	0,932	0,260	0,087	0,867	0,942	0,511	0,435	0,334	0,962	0,260	0,262	0,924	0,254	
	N	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120

When sig values are below or equal to 0.05, the correlation between the two variables are strong.

We notice from the above results that the attributes of the elevator do not influence directly the customer's satisfaction. The elevator influences the Service Quality, which in turn, affects customer satisfaction.

6.4   Regression Analysis

Regression analysis is a method of identifying which variables have an impact on a research topic. A regression allows to determine which factors are the most important, which factors can be ignored, and how these factors influence each other. In this case, it was conducted to examine the relationship between elevator service quality and customer satisfaction. A multiple regression model is constructed with service quality as the dependent variable and the variables from the below table as independent.

But what the hotel manager wants to know is if the elevator characteristics - waiting time, or aesthetics - have an impact on the constant variable which is service quality.

Table 11. Regression Analysis. Variables Entered/Removed (Dependent Variable: Service_Quality)

Model	Variables Entered	Variables Removed	Method
1	Age, Gender[b]	.	Enter
2	How many elevators were at the hotel?, Did the elevator play music inside the cabin?, Did at least one elevator have marble decoration?, Waiting Time, Did at least one elevator have a voice announcer function?, Did at least one elevator have a virtual TV screen?, How many elevators were at the hotel?, Aesthetics Atmospherics, The number of elevators were sufficient.[b]	.	Enter

a. Dependent Variable: Service_Quality

b. All requested variables entered.

The results are

Table 12. Regression Analysis. ANOVA (Dependent Variable: Service_Quality)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,568	2	,284	,731	,484[b]
	Residual	45,512	117	,389		
	Total	46,080	119			
2	Regression	20,516	11	1,865	7,880	<,001[c]
	Residual	25,564	108	,237		
	Total	46,080	119			

a. Dependent Variable: Service_Quality

b. Predictors: (Constant), Age, Gender

c. Predictors: (Constant), Age, Gender, How many of the hotel elevators were glass?, Did the elevator play music inside the cabin?, Did at least one elevator have marble decoration?, Waiting_Time, Did at least one elevator have a voice announcer function?, Did at least one elevator have a virtual TV screen?, How many elevators were at the hotel?, Aesthetics_Atmospherics, The number of elevators were sufficient.

Table 13. Regression Analysis. Coefficients (Dependent Variable: Service_Quality)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4,449	,260		17,096	<,001
	Gender	-,152	,127	-,110	-1,195	,235
	Age	-,022	,072	-,028	-,306	,760
2	(Constant)	2,220	,367		6,043	<,001
	Gender	-,090	,104	-,066	-,864	,389
	Age	-,025	,059	-,032	-,426	,671
	How many elevators were at the hotel?	-,047	,074	-,052	-,639	,524
	Did at least one elevator have marble decoration?	-,039	,094	-,031	-,415	,679
	Did at least one elevator have a virtual TV screen?	-,002	,120	-,002	-,019	,984
	Did at least one elevator have a voice announcer function?	,019	,102	,015	,188	,851
	Did the elevator play music inside the cabin?	-,100	,105	-,080	-,952	,343
	How many of the hotel elevators were glass?	,051	,057	,071	,890	,375
	The number of elevators were sufficient.	,105	,058	,173	1,825	,071
	Waiting_Time	,070	,073	,089	,959	,340
	Aesthetics_Atmospherics	,397	,072	,515	5,505	<,001

a. Dependent Variable: Service_Quality

The results show that there is significant relationship between elevator aesthetics (aesthetically pleasant, silent operation, smooth start and stop, clean cabins and pleasant smell) and customer satisfaction, since the figures are significant ($p < .05$).

7   Conclusions

This paper discussed the importance of the elevator as a tangible hotel unit in overall satisfaction as a parameter of perceived quality. Firstly, the academic basis was set through literature review focusing on customer satisfaction, service quality and customer loyalty. It was found that a unique experience is what drives customers to revisit a destination and hotel units are now trying to create loyalty programs in order to retain customers.

To distinguish the services based on their impact on customer satisfaction, (Cadotte, E. R. & Turgeon, N., 1988) created a classification model that includes criticals, satisfiers, dissatisfiers, and neutrals (See also (Muslim Amin, 2013)). Critical attributes (such as Food quality and room quietness) are the most likely to receive compliments for good performance. This means that critical attributes provide opportunities but are at the same time threats for the management, if they are overlooked. Satisfiers apply to the attributes where guests will give compliments only if the performance is extraordinarily good. (Ramanathan, U. & Ramanathan, R., 2011) showed that hotel service qualities and physical aspects can have a favorable impact on customer satisfaction.

Hotel managers are constantly searching for ways to improve their Unit's service quality and customer satisfaction, as the sector is faced with increasing competitive pressure and challenging conditions. An example of these challenges is the COVID-19 pandemic, which negatively affected the tourism industry in its entirety and threatened the existence of many companies. The goal of the improvements is to increase the customer's intention to revisit the hotel in the future, and to increase the willingness of the guest to propose the hotel to someone, or to mention it in social media. Word of mouth is one of the most significant marketing influences a customer can bring in a company. Many hotel units and especially hotel chains try to gain as much exposure as possible through this wise marketing strategy (Pourfakhimi, et al., 2020). A satisfied customer is much more likely to recommend a hotel to a member of their friends or family.

When measuring service quality, the SERVQUAL model is one of the most commonly used. Originally, it included 100 dimensions which affect customer satisfaction but over time, this number was reduced. In this paper, the investigated components were tangibles, reliability, responsiveness, assurance and empathy. Dimension "tangibles" includes all the physical facilities of the hotel unit, such as buildings, equipment and personnel and they are very important in four and five-star hotels. One part of the tangibles are the elevators in the unit, and

this paper investigates what their impact is to customer satisfaction. The goal of the paper was to pinpoint whether the elevator plays any significant role in the creation of a memorable experience and if so to what extent.

The first role of an elevator set is to contribute to the traffic circulation of the guests inside the hotel and to help them move between the floors and the services that each floor contains (reception, restaurant, roof garden, parking, etc). In large-scale hotels, the number of guests moving between floors is significant, which means that the elevators must be calculated carefully so as to keep the waiting time to be served to a normal. This is directly tied to three of the dimensions of the SERVQUAL model, namely assurance, responsiveness and reliability. Facilities of a hotel unit need to be reliable and responsive in order to create a safe atmosphere in the hotel. As it was found, waiting time is an important parameter which influences the perception of customers on the overall experience of quality service. Hoteliers should understand that in this tangible unit time is, literally, of the essence. This finding could mean that needs analysis is important in the design of a hotel. As a hotel calculates the expected visitors for each season it can focus on the managing of its tangible units. Elevators are one of them and these findings can help hoteliers and managers create an adequate managing plan.

 The second objective is to contribute to the design of the hotel. Many architects pay attention to the visible parts and propose cabins and doors with unique design and unique material to the hotel management. This directly affects the appearance of a hotel's tangible units which has been found to affect customer's perceptions of quality. HIgher quality standards affect revisit chances and create opportunities for loyal customers. These solutions add extra cost, which management expects to return in the form of customer satisfaction and increased loyalty. To this day, there is no research as to if and how the elevator will contribute to customer satisfaction, and this is the scope of this paper.

In order to test the hypotheses which were set in the introduction of this paper a survey questionnaire was distributed, through the internet, to Greek hotel guests who had visited a hotel -foreign or domestic - in the near past. The questionnaire included statements regarding the elevator traffic handling specifications and the elevator aesthetics and attempted to correlate them with the overall hotel service quality and customer satisfaction. Through the Likert scale, the recipients were asked to state the degree of agreement with the statements. Customer satisfaction focused on how the guest was willing to share his/her satisfaction through social media. 120 questionnaires were returned.

The conclusion was that the elevator aesthetics do have an impact on customer satisfaction, but not a direct one. The aesthetics component is bundled together with others into the tangible dimension, which then increases customer satisfaction. This means that the elevator must be a part of a complete package of tangible services that is offered to the guests. If a complete set of tangible amenities is not founded and implemented correctly by the management team, no innovative type of elevator will make a significant difference to the guest. Aesthetics matter, yet the functional part of an elevator matters significantly more. The characteristics of the elevator are more important than its decoration and overall added beautifying characteristics. Generally, functionality in technological appliances is more important than other aspects which do not directly affect its use. This is why a functioning device is more important than an appliance which is more beautiful.

Thus it is important to remember that responsiveness and assurance seem to be more important than tangibles in terms of influence on satisfaction levels of customers (Pizam, et al., 2016). This means that the creation of a unique and memorable experience which in turn yields economic results through customer loyalty is based more upon personal interaction than tangible goods and facilities (Radojevic, et al., 2015).

8   Research limitations

The sample size in this study was small and restricted to travelers from Greece. Future research may expand the scope of the enquiry to other countries. Although Greece is considered as a powerhouse in the global tourism industry, its traveling population cannot be a reliable metric which can generate widely applicable results (Maas & Hox, 2005). This happens because a geographically restricted sample does not provide adequate information with which researchers can work in order to propose a universal theory. However, these results may indicate a tendency of the Greek traveling population to value intangible experiences more to their overall satisfaction. It would be academically interesting to test out this hypothesis in future research in order to pinpoint why this phenomenon occurs or whether it can be extended to populations of other countries or even globally.

In this paper, it was not possible to prove the relationship between the independent and dependent variables due to the delay between the effects of elevator service, customer satisfaction and the effect on the hotel's profitability. A long-term study may provide more insights as to how relationships develop and their effect on service quality as well as customer satisfaction and hotel performance.

As an endnote it should be mentioned that more often than not customer satisfaction is a multivariate which cannot be accurately measured and is subjective to each visitor. However, managers and hoteliers should strive for the best possible quality in terms of service. That way they can improve the customer retention rate and create a foundation for customer loyalty. For most hotel units, tangibles do not play the main role in this process. High-end hotels however should focus on the creation of a top-notch tangible units management and this encompasses elevators as well.

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10 List of Tables

APPENDIX – QUESTIONNAIRE

All questions, their answer types, and the original Greek questions are listed in the below table

No	QUESTION	ANSWER TYPE
1	How many elevators were at the hotel? (Πόσους ανελκυστήρες είχε συνολικά το ξενοδοχείο;)	Numerical
2	Did at least one elevator have marble decoration? (Είχε ένας τουλάχιστον ανελκυστήρας μάρμαρο;)	Yes / No
3	Did at least one elevator have a virtual TV screen? (Είχε τουλάχιστον ένας θάλαμος οθόνη τηλεόρασης;)	Yes / No
4	Did at least one elevator have a voice announcer function? (Υπήρχε αναγγελία στάσεων;)	Yes / No
5	Did the elevator play music inside the cabin? (Έπαιζε μουσική κατά τη διάρκεια της διαδρομής;)	Yes / No
6	How many of the hotel elevators were glass? (Πόσους γυάλινους ανελκυστήρες είχε το ξενοδοχείο;)	Numerical
7	If there were at least one glass elevator at the hotel, did the cabin have at least one round wall? (Αν υπήρχε γυάλινος ανελκυστήρας είχε τουλάχιστον μια καμπυλωτή πλευρά;)	Yes / No
8	The number of elevators were sufficient (Ο αριθμός των ανελκυστήρων ήταν επαρκής)	Likert scale
9	The waiting time for the elevator to arrive was small (Ο χρόνος αναμονής στον/στους ανελκυστήρα/ες ήταν μικρός)	Likert scale
10	The space inside the cabins were adequate and the passengers could move with ease (Ο χώρος μέσα στον/στους θάλαμο/ους ήταν επαρκής και οι επιβάτες μετακινούνταν με άνεση)	Likert scale

No	QUESTION	ANSWER TYPE
11	The speed of the elevators was sufficient (Η ταχύτητα του/των ανελκυστήρα/ων ήταν η κατάλληλη)	Likert scale
12	The elevators were aesthetically pleasing (Αισθητικά ο/οι ανελκυστήρας/ες ήταν πολύ προσεγμένος/οι)	Likert scale
13	The operation of the elevators was silent (Η λειτουργία ήταν αθόρυβη)	Likert scale
14	The start and the stop of the elevators was smooth (Το ξεκίνημα και το σταμάτημα ήταν ομαλό)	Likert scale
15	The cabins were clean (Ήταν καθαρός/οί)	Likert scale
16	The cabins smelled pleasantly (Μύριζε/αν όμορφα)	Likert scale
17	The hotel facilities and tangible elements were of high quality (Τα χειροπιαστά χαρακτηριστικά του ξενοδοχείου (εγκαταστάσεις, εξοπλισμός, εμφάνιση προσωπικού) ήταν ποιοτικά)	Likert scale
18	Hotel services were delivered with reliability and accuracy (Οι υπηρεσίες μου προσφέρθηκαν με αξιοπιστία και ακρίβεια)	Likert scale
19	Hotel services were delivered with willingness (Οι υπηρεσίες μου προσφέρθηκαν με προθυμία)	Likert scale
20	The hotel staff knowledge inspired me confidence (Οι γνώσεις του προσωπικού μου ενέπνευσαν σιγουριά)	Likert scale
21	The hotel staff made me feel unique (Οι υπάλληλοι με έκαναν να αισθανθώ μοναδικός/ή)	Likert scale
22	Did you suggest the hotel to a friend? (Πρότεινα το ξενοδοχείο σε έναν φίλο / μία φίλη;)	Likert scale
23	Did you tag the hotel to post in social media? (Έκανα ανάρτηση στα κοινωνικά μέσα, με αναφορά στο ξενοδοχείο;)	Likert scale
24	Did you post a review of the hotel to a platform, e.g., Google Maps, Trip Advisor?	Likert scale

No	QUESTION	ANSWER TYPE
	(Βαθμολόγησα το ξενοδοχείο σε μία πλατφόρμα, π.χ. Google Maps, Tripadvisor;)	
25	Gender (Φύλο)	Selection List
26	Age (Η ηλικία σας)	Selection List
27	In your travels, you usually stay in (Στα ταξίδια σας, διαμένετε κυρίως σε)	List of hotel categories (2-star up to 5-star)