

# **The change of customer behavior and its impact on hotel sustainability management**

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Bachelor Thesis for Obtaining the Degree  
Bachelor of Business Administration in  
Tourism, Hotel Management & Operations

Submitted to Univ.-Prof. Dr. Karl Wöber

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## **Affidavit**

I hereby affirm that this Bachelor's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

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## **Abstract**

Sustainability has become a new goal and a new pursuit for all industries. In truly achieving sustainable growth, companies need to make their efforts and adapt their strategies to the needs of their customers. For the hospitality industry, sustainability management has always been the goal pursued by various hotel brands. The difference is that different hotels have other sustainability management policies according to their customer groups. The income and age of the customer will influence the customer's behavior. Customers' awareness of sustainability directly affects their choice of hotel, but it does not affect their concern for sustainability in their hotels. The more sustainability-conscious customers are, the more they choose hotels that pay more for sustainability management. The customer's awareness of sustainability will also influence the hotel staff's perception of sustainability management, indirectly influencing the hotel's sustainability management. These factors determine how a hotel embodies its sustainability management in a customer-oriented industry. Based on the fact that hotels and customers influence each other in the direction of sustainability, the pursuit of sustainability goals in the future should focus more on mutual education with customers. It is essential that sustainability is embedded in the minds of hotel management and that customers are aware of the importance of sustainability. Achieving global sustainability requires a unilateral effort by the hotel and a joint effort by the customer and the hotel.

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## List of Abbreviations

TBL – Triple Bottom Line

GDP – Gross Domestic Product

OTA – Online Travel Agency

UN – United Nations

Covid-19 – Coronavirus Disease

CSR – Cooperation Social Responsibility

CA – Customer Awareness

CDM – Customer Decision Making

HSI – Hotel Sustainability Initiatives

HSM – Hotel Sustainability Management

# 1 Introduction

Over time and as the world has evolved, countries have changed their economic and industrial models. From the primary industry of raw materials to the secondary manufacturing industry, the tertiary industry of services has become the focus of development in many countries. In Austria, for example, the service sector has accounted for sixty percent of total GDP since 2010, and the share is gradually expanding. The primary sector, which is based on raw materials, accounts for only one percent of the total GDP<sup>(37)</sup>. The flourishing of the tertiary industry has led to the rapid development of related enterprises. Tourism, the main industry of the service sector, is also one of the focuses of the Austrian economy. Austrian tourism to account for 7.5% of total GDP in 2019<sup>(10)</sup>. It is not only Austria's tourism industry that is multiplying. Tourism is booming worldwide as of 2019, according to annual global and regional tourism data analyzed by the United Nations World Tourism Organization<sup>(43)</sup>. As consumers become more concerned about the tourism industry, this also means that consumers are demanding more from the industry.

The three sectors are not unrelated to the development of the hospitality industry. In the first industry, raw materials are processed and re-sold in hotels. Technology is invented and upgraded in the secondary industry to provide a good basis for the hospitality industry to provide high-quality services<sup>(24)</sup>. Travel has gone from being an activity that only the wealthy could afford to one that every family can now afford. As tourism has grown, the types of hotels, consumer groups, purposes and partners have changed from before <sup>(24)</sup>. In continuous improvement and upgrading, the tourism industry must face some problems. How to balance market demand and market requirements has become the tourism industry's focus today. Using the corporate hotel at the center of the tourism industry as a standard, the hotel has planned different levels of customer groups in terms of price and service. As it continues to move up the service ladder, the hospitality industry realizes that resources are not endless. While constantly meeting customer needs, the hospitality industry is also subject to environmental and social pressures. At this point, the tourism industry had to shift its service approach to balance supply and demand sustainably.

Sustainability as a hotel development goal, on the one hand, is to comply with the sustainability goals issued by the UN, but also a new business model and direction for hotels. On the other hand, sustainability as a part of the social responsibility of hotels is increasingly valued and monitored by the customer community and society. The wishes and ideas of the customer are always at the center of the hospitality industry's services. When the center of attention of the customer group shifts, hotels have to take corresponding measures to cater to the customer group. In recent years, large hotel chains have started implementing sustainability programs, and reports and plans can be easily found on their websites. Even in OTAs such as booking, there are clear indications of which hotels are "sustainable hotels"<sup>(1)</sup>. At the same time, however, many hotels do not show much commitment to sustainability.

Against the backdrop of the mutual influence of hotels and consumers, the development and promotion of sustainability have become a hot topic in the hotel industry. Sustainability awareness is not limited to the hotel itself but is more focused on the customer. Green awareness, environmental awareness, environmental knowledge, and green social awareness are all manifestations of sustainability awareness<sup>(28)</sup>. It is not only the hotel that influences the consumer's choice with its actions, but more often than not, it is the consumer's choice that influences the hotel's actions<sup>(19)</sup>. The hotel's dedication to sustainability management can positively increase customer satisfaction, loyalty, and even customer acceptance of product premiums<sup>(48)</sup>. But for the 3BL in the hotel for the social aspects of the pay, for the customer, these actions can not directly affect the customer's sense of use of the product. The hotel's contribution to maintaining its own socially responsible image still needs to be directly exported to the customer base<sup>(48)</sup>. In addition to the hotel's marketing campaign, which is an excellent opportunity to get the word out to customers about sustainability, promotion through employees is one way to manage sustainability in hotels<sup>(23)</sup>. When customers' awareness of sustainable management is raised, more sustainable management practices in hotels will be noticed<sup>(12)</sup>. The output of the hotel's awareness of sustainability management to the customer is also in the hotel's education of the customer about sustainability. T Raising customers' awareness of sustainability is also part of the hotel's social responsibility for sustainable development<sup>(33)</sup>.

With the development of the times, people's awareness of sustainability is developing and advancing. The sustainability management of hotels is also being updated according to the requirements of the times. Hotels like Hyatt, Hilton, and others point out in their annual summary reports, year over year, the contributions and initiatives made by the hotel in sustainability last year<sup>(15)(17)</sup>. Since the outbreak of Covid-19 in December 2019, people have started to re-examine their existence. People's environmental awareness has changed because of this long-lasting pandemic<sup>(36)</sup>.

Based on the available literature, it is clear that customer awareness of sustainability and hotel sustainability influence each other, but the depth of this influence still needs to be explored. For hotels, sustainability management awareness is not limited to the top management. Likewise, not all hotel sustainability management measures are known to the customer. Furthermore, for customers, their understanding of sustainability management is limited to the hotel's commitment to the environment. This paper will list some of Vienna's 4-5 star hotels' contributions to sustainable development in recent years and focus on consumer behavior in the management of hotel sustainability.

## 2 Literature Review

### 2.1 Sustainable management

The concept of sustainability management is divided into two dimensions, sustainability on the one hand and management on the other <sup>(26)</sup>. After people have satisfied the most basic physical requirements in Maslow's hierarchy of needs, they pursue higher-level needs, such as security, respect, social needs, and other spiritual satisfaction <sup>(45)</sup>. Udo and Jansson classified countries into five broad categories based on two indicators of social sustainability as well as scientific and technological sustainability, with high social sustainability-high-tech sustainability; medium social sustainability-medium technical sustainability; medium/high social sustainability-high/medium technological sustainability; and medium/low social sustainability-low/medium social sustainability. The analysis of these five classifications reveals that social sustainability is based on the development of scientific and technological sustainability, and only the stable output of social sustainability can guarantee the construction of scientific and technological sustainability. This leads to the conclusion that the state must satisfy the "physical needs" of the people before it can pursue the "self-realization" of sustainable development <sup>(41)</sup>. However, different countries have different needs, and for less developed countries, achieving the "physiological needs" of their people is accomplished by balancing environmental sustainability with social sustainability. On the other hand, developing countries need to pursue a balance of social and environmental sustainability through policies that lead to sustainable economic growth <sup>(45)</sup>.

Such needs constitute the self-growth of the individual, and at the same time, such mature individuals form a mature society. After people's basic needs are satisfied, they realize the importance of resources, and how to rationally allocate resources to meet more of their needs becomes a new issue for people. Sustainability is limited to the maintenance and use of ecological resources; in modern society, the concept of Triple bottom line (TBL) has been established to balance business, environment, and society. This concept refines sustainability goals in terms of economic, environmental, and social dimensions<sup>(7)</sup>. It allows companies to maximize the benefits of these three bottom lines of TBL rather than using resources in an uncontrolled manner. And it is

the management of sustainability that allows enough space for sustainability to take place and sets a bottom line, giving a clear perception to the company, the organization, and society. However, TBL is not as idealistic in its implementation as one might think. Although the purpose of TBL is to measure everything based on data, it is difficult to achieve the same standard and to have accurate data to support the theory because of the differences in company situations.

On the contrary, many companies attract customers by using the idea of promoting support for TBL, but they do not fully realize the promise. A better strategy would be to truly embrace sustainability as company culture and act on it <sup>(27)</sup>. Human needs grow with every in-depth discussion of sustainability management and the development of rules.

However, for the sake of a more stable society and social relations among all people, the UN has set sustainability goals in more detail to balance the development of different regions. UN has imposed a total of 17 generous sustainability goals, ranging from social goals to meet the physical needs of human beings, to security needs such as protecting the planet, to social needs to manage international relations. These 17 broad directions set small goals to ensure that the measures are on target <sup>(42)</sup>. Sustainability management in the general environment is to realize the progression of people's needs and consider the long-term survival of human beings. Among the 17 goals mentioned are the eradication of poverty in the world and the elimination of extreme poverty by 2030; promoting agricultural development, eradicating hunger; ensuring healthy lives; giving everyone access to education; giving women the opportunity to achieve gender equality; ensuring the sustainable use of water; the proper distribution of modern energy; promoting the economy through production; building infrastructure to improve industry; reducing income inequality; improving the construction of inclusive cities; advocating to ensure sustainable consumption; improving the climate through the control of energy consumption; protecting the underwater environment; protecting terrestrial biological systems; building peaceful societies and strengthening global cooperativeness<sup>(42)</sup>.

Compared with the vague concept of TBL, the 17 primary sustainability goals set by the UN give society a clear plan to work toward with more concrete data. Sustainable development is no longer just a slogan that companies use to promote but a direction for community to work together. Another reason companies promote sustainability on the ground is corporate social responsibility. Corporate Social Responsibility (CSR) is the business practice of companies to achieve corporate advantage and profitability by being responsible for their employees, society, and the environment. The attention of enterprises to corporate social responsibility will help them establish a good and accountable image in the community, which is conducive to corporate publicity. At the same time, it is also a good opportunity for enterprises to make innovations<sup>(49)</sup>. For employees, CSR is a positive output of corporate culture. Under the influence of strong CSR, employees will also enhance their self-awareness, create empathy with the company, and output positive corporate spirit in their daily work. When employees perceive the respect and care of the company for a long time, they will have trust in the company and thus have an interaction with the company. Such interaction will increase employees' sense of belief and responsibility, which is one reason for increasing employees' motivation<sup>(25)</sup>. As a positive cycle, the more socially responsible a company is, the more trustworthy it will be, and the more cooperation will follow<sup>(16)</sup>.

## **2.2 Sustainability awareness**

On the one hand, the company takes sustainability as its corporate spirit to reach the same goal to achieve corporate social responsibility. On the other hand consumer's green awareness is also one of the key points to promote sustainability. Only the organization that has high environmental awareness is not enough to raise consumer awareness of environmental protection can help environmentally conscious companies market their products<sup>(31)</sup>. The environmental awareness of customers is a prerequisite for companies to promote sustainability. When consumers choose companies with high social responsibility, companies prefer to continuously encourage sustainability as a strategy to cater to more consumers, thus improving market competitiveness and increasing consumer demand<sup>(12)</sup>. Such an impact is the positive cycle that companies need. The company is willing to disclose the company's

activities related to sustainability to gain competitiveness in the market and gain customer satisfaction. On the contrary, if the sustainability awareness comes from individuals in the company, the company does not promote it much<sup>(12)</sup>.

The growth in consumer awareness of environmental protection has not exactly been all that beneficial. As consumers encourage companies to practice sustainability, corporate orders will increase. However, such increased sales may also negatively impact, possibly growing carbon emissions, thus defeating the company's green intent <sup>(31)</sup>. Likewise, as consumer satisfaction increases with highly environmentally conscious companies, consumer expectations grow as well. At this point, companies are faced with the challenge of satisfying consumers and retaining these potential customers who are attracted to them because of their environmental awareness <sup>(12)</sup>. One of the direct ways to make the customer base aware of the importance the company places on sustainability is to put this spirit into the company's marketing communications. The marketing department should use advertising to educate and promote green development to its customer base and make them aware of the importance of valuing sustainability. The delivery of this information will give customers a clearer perception of the company and sustainability, thus highlighting the company's competitiveness in the market and achieving increased customer satisfaction <sup>(8)</sup>.

Needs like environmental awareness don't apply to all countries, and consumers don't give much thought to pursuing sustainability when the government can not yet meet basic physical needs <sup>(8)</sup>. For this reason, it is crucial to consider your target group when a company decides to promote its green awareness and its green products. Finding and identifying the customer groups that will encourage support for the company's products is also a topic that needs to be studied by the sales department. Except for those customers who are looking for green products as an immediate goal and can afford to incur costs due to green design. Companies should also be aware of the group of customers who are looking for low prices but are environmentally friendly <sup>(18)</sup>.

## 2.3 Sustainability development in the hotel industry

The tourism industry, which accounts for a large share of GDP in many countries, has also made many initiatives in terms of sustainability. In particular, the hotel industry in the tourism sector hosts travelers from all over the world. It is also an important industry that provides a large number of jobs and produces a large number of service activities for local governments. The hotel uses a lot of water and electricity to meet customers' needs, which is inevitable in business, including the purchase of large quantities of goods <sup>(11)</sup>. Many global hotel chains have also implemented measures based on the SDGs issued by the United Nations as a guideline for sustainability and have posted them on their official websites for public scrutiny. Likewise, more and more hotels are making sustainability a part of their corporate culture to educate their staff and promote it to their customers.

Global hotel chains such as Hyatt Hotels have been doing their part to contribute to sustainability. Beginning in 2014, Hyatt set sustainability goals for themselves for the year, which they felt through an analysis were the ones that would have the most significant impact. Over the years, they have made improvements in the areas of reducing pollution emissions, using more sustainable products, sustainable non-waste disposal, and green renovation of hotels. In terms of pollution emissions management, Hyatt has reduced low pollution emissions and water use by 25% from 2006 to 2020. Considering the geographical nature of Hyatt hotels, some Hyatt hotels in water-stressed countries have set a goal of a 30% reduction <sup>(21)</sup>. Dealing with waste products is also one of Hyatt's sustainability priorities. While ensuring customer satisfaction, Hyatt has offered buffets based on how Hyatt reduces its own waste output. Hyatt also donates edible food to local charities to address food waste. The disposal of disposable plastics is also a significant problem for hotels. Hyatt has eliminated plastic products such as cotton swabs to reduce waste, changed its in-room toiletries from small to large bottles, and replaced plastic water bottles with water bottles for meetings and events <sup>(21)</sup>. In addition to internal measures to reduce emissions and protect the environment, Hyatt starts from the source. To ensure quality, Hyatt is gradually replacing its previous supplies with certified appliances, room supplies, and meeting room supplies. Hyatt is also monitoring food sources, increasing the proportion of dietary fiber such as grains in meals, and complying with

the United Nations regulations on protecting marine life. Hyatt also ensures that suppliers comply with animal welfare<sup>(21)</sup>. In addition to food, energy use technology is also a highlight of Hyatt hotels. Some of Hyatt's hotels have implemented energy reuse and solar energy utilization technologies, and local governments have widely praised this energy-saving policy. Hyatt has been active in providing feedback to the community while recommending the implementation of these initiatives. The Sustainable Hotels Coalition and Hyatt are working together to set an excellent example for companies in the hospitality industry to be transparent and attract more industry participation in sustainability by creating a good corporate image.

Hyatt takes the Cornell Hotel Sustainability Index extremely seriously, proving itself through this index that can be measured in data<sup>(21)</sup>. The success of sustainability also relies on Hyatt's control of every detail. Take Grand Hyatt Singapore as an example, using electronic devices to input customer check-in and check out instead of paper grades<sup>(15)</sup>. This saves on the use of paper and makes it easier for Hyatt to organize the data. At the same time, Grand Hyatt Singapore has started to use many biodegradable products, such as sugar cane straws and trash bags in line with Hyatt's goal of reducing disposable products<sup>(15)</sup>. These products can be replaced by nature, but like some other products that cannot be replaced, Hyatt handles them differently. For example, as soap is an irreplaceable use item, Hyatt minimizes waste by re-collecting used soap from guest rooms and distributing it to short-supply communities<sup>(15)</sup>.

Hyatt's commitment to sustainability is not only about protecting the environment but also about caring for people. Hyatt's market is very large and not limited to one country, which leads to Hyatt's employees becoming diverse. Hyatt is committed to ensuring equal opportunities for each employee in such a complex work environment and embracing each individual's uniqueness. Such a work environment gives employees enough space to develop their strengths<sup>(13)</sup>. As a result, Hyatt achieves a sense of social responsibility in sustainability with equal treatment as office culture.

The Hilton Group, also an international hotel chain brand, has also contributed to sustainability. Hilton focused its goals on environmental protection, reducing energy and carbon emissions, reducing water and resource waste, and

purchasing sourcing<sup>(17)</sup>. Hilton distinguishes the policies he has adopted based on the 17 Sustainable Development Goals issued by the United Nations and has set targets for 2030 based on past achievements<sup>(17)</sup>. Carbon dioxide emissions contribute directly to global warming, and Hilton has already achieved a 56 percent reduction in carbon emissions at all hotels in 2020 and plans to achieve a 61 percent reduction by 2030. Energy savings are also planned, and in 2020, all Hilton hotels will reduce their emissions by nearly half compared to 2019, from 26 percent to 47 percent<sup>(17)</sup>. The reduction in water use has been a tremendous achievement at both the hotels managed directly by Hilton and those granted operating rights, with a decrease of about 48 percent, very close to achieving the goal of reducing to half by 2030<sup>(17)</sup>. The hotel's own control of water discharge is only one aspect; Hilton hotels are looking at the world. The World Wildlife Fund and the Water Association are partners of Hilton, and the partnership focuses on the conservation of aquatic biodiversity and the natural environment. The implementation of the project not only protects the environment by improving the green environmental knowledge of local farmers but also boosts the local job market through knowledge training<sup>(17)</sup>. Another major consumable of hotels is food, which has reached a reduction of 44 percent in 2019 in Hilton-owned hotels. Due to the inability of hotels to operate normally during the epidemic, food consumption was also much less than usual, reaching a reduction of 73 percent. But after the hotels resume normal operations, it would not be easy to maintain the amount of food consumed in 2020.

Therefore, Hilton has set a goal of reducing food waste to 50% by 2030<sup>(17)</sup>. Like Hyatt, Hilton is environmentally conscious in every detail. In addition to the same reduction in the use of disposables, Hyatt is transitioning from single-serve toiletries to large bottle dispensers. Hilton was also the first hotel group to initiate soap reuse and has called on other hotel brands to join the campaign<sup>(17)</sup>. As the owner of many high-end hotel brands, Hilton is also committed to giving its customer base the best service and products, but that doesn't mean they're overly extravagant and ignore the source of their products. The Hilton Singapore sets a good example by offering seafood food that has met many regulatory board certifications, the only hotel in Asia to receive multiple certificates<sup>(17)</sup>. The Hilton's preference for farmed seafood in its choice of seafood raw materials in order to maintain a balance between ecology and economic development is a move that has also inspired local businesses<sup>(17)</sup>. Cage-free

organic eggs are one of the programs that Hilton is implementing and enhancing at the same time. In the European and American markets, the use of organic eggs has exceeded 50 percent <sup>(17)</sup>.

Green consciousness is not just about protecting the environment and food; Hilton also values caring for its employees. The covid19 in early 2020 brought a huge crisis to the entire hotel industry, and Hilton could not be left alone. Even in the face of intense financial pressure, Hilton has taken steps to reassure its employees. During this period, Hilton adjusted employee hours and reduced expenses by lowering the salaries of top executives. Hilton's assistance fund also helped employees and their families through the financial crisis that arose during the outbreak. In addition to financial support, Hilton also provided psychological support to employees <sup>(17)</sup>. These are just a few things Hilton does to maintain a healthy work environment. As an international brand chain, this has led to a diverse workforce at Hilton, regardless of age, country, gender, or religion. On the way to building a friendly and equal work environment, Hilton Hotels eliminates child labor, maximizes employment opportunities for young people, and partners with the nonprofit organization 'she has a deal' to help promote women in the hospitality industry <sup>(17)</sup>. This egalitarian and friendly work environment has allowed Hilton Hotels to establish a thriving "volunteer program" to help employees at Hilton Hotels while encouraging them to help more people through donations <sup>(17)</sup>.

The ultimate goal of plan development is to implement it. Hilton has established a Board of Directors to oversee the implementation of all sustainability initiatives. In addition to Board oversight, Hilton also encourages employee feedback, which is done anonymously to protect employee rights. Hilton has again been selected as a finalist for Ethisphere's 2020 "Most Ethical Companies in the World" by balancing environment, society, and business. This is the third year that Hilton has received such an honor <sup>(17)</sup>.

Hyatt and Hilton, two global hotel chain brands as an example, is sufficient to prove that the goal of the pursuit of enterprises is no longer simply to maximize profits, to become a "green hotel" is increasingly the end of the hotel focus. Large hotels have made a strong push for sustainability under society and their customer base scrutiny, and relatively small hotels have followed suit. The Grand Hotel is located in the heart

of Vienna and serves as the local independent luxury 5-star hotel in Vienna<sup>(13)</sup>. In contrast to Hyatt and Hilton, The Grand Hotel does not conduct an annual report summarizing their achievements in sustainability. But they also summarize their relevant contributions to social sustainability on their website. Grand Hotel is an active participant in the Green Globe International Sustainable Tourism Development Program. With resource conservation at the center of the hotel's sustainability, the Grand Hotel has reduced the number of the automatic towel and linen changes. The hotel has improved savings in electricity consumption by replacing LED lights. And the new chillers adopted by Grand Hotel have made an outstanding contribution to the hotel in terms of energy saving. As with other hotels, Grand Hotel has achieved zero paper use in the reservation department<sup>(14)</sup>. In addition, the Grand Hotel has placed the bee breeding area, which was supposed to be removed, upstairs in the hotel to provide a comfortable environment for the bees to grow<sup>(13)</sup>. This is also a highlight of the Grand Hotel's sustainability efforts. The Grand Hotel does not have a clear numerical goal for future progress in sustainability but mentions that it will be as committed as ever to resource and energy conservation<sup>(13)</sup>.

Sacher Hotel is represented as another independent Austrian hotel brand. The Sacher Hotel is located in the heart of Vienna, behind the Opera House, famous for the dessert Sacher torte and one of the favorite five-star hotels in Vienna. Sacher Hotel has been in business for many years as a family-owned and operated business. As a privately owned hotel, the core of the corporate culture is the family philosophy, which makes Sacher Hotel's service unique<sup>(34)</sup>. The Sacher Hotel's official website does not have an explicit page on its contribution to sustainability, but information can be found in its annual magazine. In Sacher Hotels' 2021/2022 magazine, it can be seen that Sacher Hotels has focused its service goals on making the customer experience safe and comfortable even during a pandemic. Sacher Hotel has developed its app system, allowing customers to check-in and perform room service through the app, thus saving paper waste. At the same time, Sacher Hotel has upgraded new technology by using the app as the key to the room, which not only enhances the customer's experience but also saves waste<sup>(34)</sup>. Furthermore, the Sacher Hotel donates funds raised from art exhibitions to organizations that help "butterfly children." This initiative is also an expression of the Sacher Hotel's social responsibility<sup>(34)</sup>.

In addition to the hotel's own sustainability goals program, green products can also focus on the products used in the hotel. Luxury hotel brands will partner with some well-known toiletries brands to outsource this part. While the toiletries brand can do the branding, the hotel can also save costs by using professional products to improve customer satisfaction. For example, Hyatt Hotels in the U.S. is partnering with the well-known brand Pharmacopia starting in 2019 <sup>(29)</sup>. Pharmacopia was established in 1999, initially using aluminum or glass cans to package their products, but later began using recyclable plastics. Their goal is not just to change the bottle packaging, but Pharmacopia is committed to improving the use of metal in their products and maximizing sustainability <sup>(30)</sup>. In addition to the rush of its products, Pharmacopia is also involved in several sustainable development projects. For example, it cooperates with water organizations by donating a percentage of the profits from its products to water organizations <sup>(30)</sup>. This is more than just an ordinary collaboration. Pharmacopia has designed and supplied Hyatt with argan oils exclusively for the company. The products are packaged and formulated to be sustainable and fully recyclable. The products also meet Hyatt's sustainability requirements and enhance the guest experience <sup>(30)</sup>.

Compare international chain brand hotels like Hilton, Hyatt and independent brand hotels like Grand hotel, Sacher Hotel. All four are five-star hotels, but the level of management and commitment to sustainability is different. Their websites also differ in their promotion of sustainability.

## **2.4 Current Sustainability Trends**

The sustainability trend has been adjusted with the development of today's society. Qing Wang and Rui Huang analyzed the impact of the pandemic using three sustainability measures of TBL <sup>(46)</sup>. First, the rise in corona cases everywhere has made the trade and financial markets unstable. Consumer purchasing demand has changed during the pandemic, with a significant increase in demand for everyday consumables, directly affecting low-income countries where transportation is the primary industry <sup>(46)</sup>. The shortage of labor due to employee unemployment has led directly to the imbalance between food supply and demand in some developing countries <sup>(46)</sup>. Based

on the different circumstances of the pandemic in each region, many governments chose to phase in lockdown of cities and people were hampered in their travels. The reduction in energy demand has brought economic disadvantages, but it has also given the energy industry a new opportunity to promote sustainable energy development <sup>(46)</sup>. Social impact in TBL focuses on people's quality of life and social benefits. As with energy, the pandemic brought a massive drop in tourism, but it also allowed the tourism industry to promote sustainable tourism <sup>(46)</sup>. Finally, big data-related technologies have helped reduce exposure and facilitate health care workers during the outbreak <sup>(46)</sup>. All three parts of TBL are linked together, and when one is affected, the other two parts will change as well. The considerable reduction in tourism has led to a decrease in carbon emissions, a move that has made a massive contribution to global environmental protection. At the same time, because of the unique nature of medical products, the utilization rate of disposable products has become high, and the production of medical waste has increased <sup>(46)</sup>.

Because of the impact of Covid-19, many governments and companies have had to shift their focus to strategic deployment in response to the pandemic. As a result, sustainability is no longer the primary regulation of concern <sup>(9)</sup>. Fenner and Cernev based their analysis on the impact of covid19 on the countries of each country, combined with the sustainability goals issued by the United Nations to 2030 <sup>(9)</sup>. They suggest that businesses and governments balance the opportunities and difficulties that Covid-19 brings to sustainability. Through the disaster that Covid-19 brings, countries, companies, and consumers will have a deeper awareness of sustainability, but it will also slow down the push for sustainability <sup>(9)</sup>.

The hospitality industry is also changing its sustainable development strategies to keep up with the times as society evolves. For example, the hotel industry has been working to reduce the wasteful use of soap in its sustainability efforts. During the pandemic, the demand for handwashing products such as soap increased along with a sharp rise in demand for cleaning products. The non-biodegradable ingredients in these products bring enormous pressure on the human living environment <sup>(5)</sup>. In addition to hotels using sustainable toiletries, soap reuse programs like those adopted by Hyatt and Hilton are an excellent way to alleviate this

problem. In addition to the environmental aspects, the employees exemplify the social aspects. The pandemic brought many business closures and layoffs, and the hospitality industry was susceptible. Such problems have brought employees great life and psychological stress and reduced employee satisfaction <sup>(47)</sup>. Hyatt and Hilton help employees in various ways, including work environment, salary, and social pressure. Through these activities, we reduce employees' anxiety and try to ensure the survival of employees.

As a result of the pandemic, individual hotel figures on sustainability will vary due to the dramatic drop in traffic. But the focus of sustainability in the hospitality industry has been on reducing excess waste and replacing some of the traditional service methods with modern technology. In some hotels there is enough capacity to go out and help local or underdeveloped organizations. In addition to ensuring that they meet the sustainability goals of today's society, they are also helping others within their means.

Covid-19 has influenced development goals in many areas and has brought sustainability shocks and new opportunities. Hotels are changing their strategies in line with the general direction of society to balance the relationship between culture, environment, and business.

## **2.5 Relationship between sustainability management and customers' decision**

As the times change and the environment changes, people's awareness of environmental protection is gradually strengthened, and many companies have made green awareness one of the critical points of their corporate culture. In addition to the infiltration of corporate culture, products on the market are gradually becoming more sustainable and environmentally friendly. At this point, consumers have more room to choose. Consumers make a subjective inference about the value of a product by self-pricing it and perceiving it through a multifaceted value assessment before deciding to buy it <sup>(4)</sup>. It is difficult for consumers to decide when they have no basic

knowledge of environmentally friendly products and do not understand the effort made by businesses on environmentally friendly products <sup>(22)</sup> .

Products are broadly divided into three categories based on green awareness: sustainable, eco-friendly, and different products. As a branch of environmentally friendly products, sustainable products pay more attention to the green concept of the product's production process. Environmentally friendly products have a longer-term vision, which focuses on the product's life cycle and recycling <sup>(50)</sup> . When consumers become interested in environmental-friendly products and demand becomes high, the price of environmental-friendly products will rise. This will also increase revenue for each company in the entire supply chain <sup>(50)</sup> . Consumers are willing to go for environmentally friendly products in the food sector, but only if there is not much difference between the price of environmentally friendly products and ordinary products. Consumers who understand the green design and philosophy of a product are more determined to choose environmentally friendly products than those who are unaware of the information <sup>(22)</sup> . But when environmentally friendly products generate a premium, consumer choice changes. Based on the price sensitivity of consumers who are not seeking ecologically friendly products, the product's premium price can dissuade them from choosing environmentally friendly products <sup>(22)</sup> . Low-priced, eco-friendly products are more attractive to consumers and increase their satisfaction with the brand <sup>(39)</sup> .

A company's focus on sustainability can change a customer's purchasing awareness, and likewise, a customer's behavior can influence a company's focus on sustainability and related measures. For highly environmentally conscious consumers, participation in corporate social responsibility activities creates a positive self-identity and enhances their understanding of the meaning of life. Companies perceive the characteristics of such consumers and thus increase their sense of social responsibility, playing a mutual role with them <sup>(6)</sup> . In interaction, consumer engagement allows companies to have a higher commitment to sustainability. The direction of consumer concern is the market's direction, and understanding consumer demand is also the basis for understanding market demand. But consumers focus more on the environmental impact of the final consumer product than on any other part of the sustainability supply chain. Consumers are much less concerned with "social issues"

than "environmental issues" in the TBL decision-making process <sup>(2)</sup>. Less attention to "social issues" also directly leads to distrust of the company by customers. Companies need to be transparent about their information <sup>(2)</sup>.

Rather than passively catering to consumers after expressing their needs, hotels should make consumers' green needs transparent through interaction. Catering to customers' needs helps them achieve the final layer of Maslow's Hierarchy of Needs - self-actualization. In this interactive session, the hotel's staff plays an important role. It is up to the staff to understand the needs and motivations of the consumers and, after interacting with them, to involve them in the hotel's green initiatives <sup>(40)</sup>. Listening to customers' opinions also reflects the hotel's consumer-centric service philosophy as a service industry. As the main stakeholder group of the hotel, consumers suffer from behavioral and/or emotional resistance to the negative development of the hotel when consumers' green consciousness awakens <sup>(32)</sup>.

In addition to direct interaction to mobilize consumer awareness of environmental protection, companies also need to educate consumers about ecological awareness, thus indirectly improving the driving force of customer spending <sup>(2)</sup>. Educating customers is another way to generate interaction with them. In this process, not only can you record the customer's understanding of the brand from superficial to deep, but it also is an opportunity given to the company to discover potential customers and increase its competitiveness in the market <sup>(38)</sup>. Once customers have a more profound knowledge of the brand and a certain level of expertise, they can represent the brand in the customer base and achieve word-of-mouth publicity<sup>(38)</sup>. The selection of customer groups for education also needs to be divided according to market demand. New customer groups that are relatively lacking in brand expertise and branding are the best group for brand education <sup>(38)</sup>. Like the consumers of the Z-generation, they lack a sense of social responsibility in consumption <sup>(2)</sup>. Companies can inspire this customer group to be environmentally conscious through offline or/and online activities. Let generation Z start understanding social and environmental sustainability and then dive into corporate environmental initiatives. The goal is to focus on sustainability to their purchases <sup>(2)</sup>.

A company's sustainability plan is a summary and vision of its sustainability behavior and an opportunity for consumers to observe and monitor the company <sup>(44)</sup>. However, consumer perceptions of corporate sustainability activities are very diverse. They include local community activities and philanthropy and the use of green technologies and the protection of the environment <sup>(32)</sup>. Therefore, when companies want to meet consumers' perception of green, they have to start from many aspects.

### **3 Research Questions**

#### **Research Question 1:**

How does customer awareness of sustainability affect their choice of hotels?

Hypothesis 1

H0: Customer awareness of sustainability does not influence their choice of hotel.

H1: Customer awareness of sustainability influences their choice of hotels.

#### **Research Question 2:**

How do hotel sustainability initiatives influence customer awareness of sustainability?

Hypothesis 2

H0: The hotel's sustainability initiatives do not influence customer awareness of sustainability

H1: The hotel's sustainability initiatives influence customer awareness of sustainability

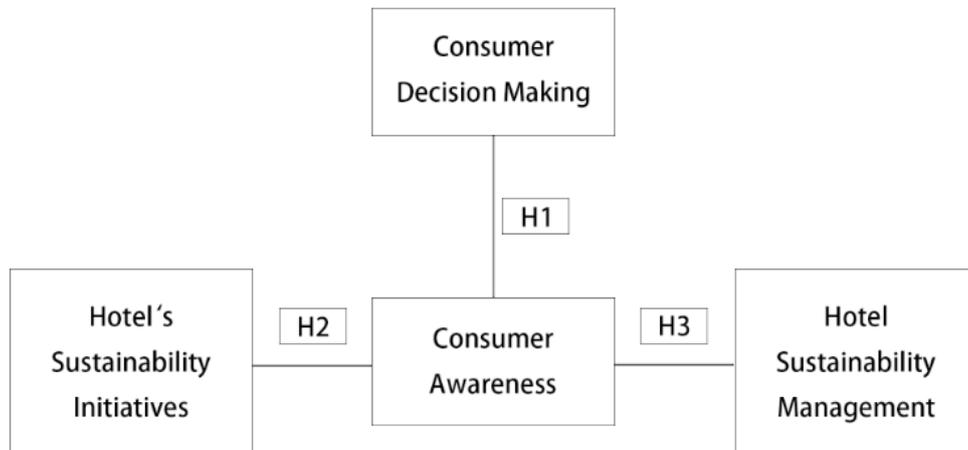
#### **Research Question 3:**

How do customer awareness of sustainability affect sustainability management in hotels?

Hypothesis 3

H0: Customer awareness of sustainability does not affect sustainability management in hotels

H1: Customer awareness of sustainability affects sustainability management in hotels



## 4 Methodology

### 4.1 Research Design

The setting of a research protocol in academic research gives the researcher a clearer orientation to think about the data collected and the data analysis put together <sup>(3)</sup>. The framework of the research program is broadly divided into three types: quantitative analysis, qualitative analysis, and mixed methods approaches. Mixed methods research is no longer the dominant research method in social sciences and humanities research. Nowadays, quantitative and directed analyses are more popular in research <sup>(3)</sup>. Quantitative analysis requires the researcher to continuously collect observed data, which also changes due to the flexibility of life. This makes the research process more flexible. Using the respondents' perspectives collected in the quantitative analysis as a starting point, analogies are constantly made with new data from which similarities and differences in the data can be drawn. The researcher uses time boundaries to get the most direct perspective on the research topic through in-depth discussions with the interviewees <sup>(3)</sup>. Quantitative research differs from the qualitative research approach. Quantitative research is more focused on using many questionnaires or interviews to obtain a large amount of data for analysis. Experiments and surveys are the common research strategies used in quantitative research <sup>(3)</sup>. In a quantitative design, researchers test a theory by using hypothesis-locked data collection. In contrast, in a qualitative design, more observations are made of the respondents' behavior <sup>(3)</sup>.

In this thesis quantitative design is used as the only research method. Quantitative analysis was used to study the sustainability awareness of hotel customers and the sustainability management of hotels. For the understanding of customer awareness of sustainability, a number of questionnaires were distributed to collect data. The quantitative analysis allows for the collection of information on customers with different aspirations. For information about sustainability management in hotels, this thesis decided to interview staff from different parts of the hotel to collect questionnaires, instead of conducting a qualitative analysis with hotel executives. Through the collection of data with employees in different positions in the hotel, it is possible to understand the impact of hotel management on the entire

hotel staff, thus reflecting the internal management made by the hotel for sustainability.

## **4.2 Survey Development**

To obtain better data and use the data to test the hypotheses, this thesis used a web-based questionnaire format. The questionnaire was divided into five parts. The first part of the questionnaire is to interview the basic information of the respondents; the second part of the questionnaire is to understand the customer awareness of the respondents; the third part of the questionnaire is expanded based on research question 1; the fourth part of the questionnaire is expanded based on research question 2; and the fifth part of the questionnaire is expanded based on research question 3.

In the first part of the questionnaire, the focus is on the basic background of the respondents. Perceptions of sustainable development differed according to education level and age. This includes differences in monthly income and therefore fluctuations in the choice of sustainable products. Regarding nationality, the total number of respondents was too small to directly indicate which country has a stronger perception of sustainable development.

### **Survey Part 1: Basic Information**

- 1) Gender
- 2) Age
- 3) Education Level
- 4) Nationality
- 5) Monthly Income
- 6) Way to book Hotel

The second part of the questionnaire with "How do customers' perceptions of sustainability influence their choice of hotel?" to investigate respondents' awareness of the concept of sustainability, their perceptions of hotels, and their concerns about

sustainability in hotels. The second part consisted of seven statements that focused on respondents' basic perceptions of sustainability. The answers to the statements in the second part of the questionnaire were provided by "strongly disagree, disagree, neutral, agree, and strongly agree". Respondents chose the appropriate answer based on their different levels of understanding of the questions.

### **Survey Part 2: Customer Awareness (CA)**

- 1) I follow sustainability-related news, reports, and tweets in my daily life.
- 2) In my daily life, I will pay attention to environmental protection, energy saving and other sustainability initiatives.
- 3) I am aware of what the 17 sub-tables of sustainability goals issued by the United Nations are.
- 4) I know that sustainability is not limited to environmental protection such as energy saving and recycling of waste materials. It also includes social aspects such as fighting gender inequality, reducing hunger, and increasing education rates.
- 5) I understand the contribution that the hospitality industry makes to sustainability.
- 6) I know some hotels that have sustainability goals associated with them.

In addition to understanding the respondents' knowledge of sustainability, the questionnaire also addressed the respondents' choice of hotels based on sustainability management. There were four statements in this section, where respondents were asked to reply with a 5 item Likert scale "strongly disagree, disagree, neutral, agree, and strongly agree". The final question was about respondents' concerns about sustainability management in different areas of the hotel, and respondents were allowed to choose from multiple of the seven options.

### **Survey Part 3: Customer Decision Making (CDM)**

- 1) When choosing a hotel, the hotel's focus on sustainability was one of the reasons I chose its hotel.
- 2) For the same price, I would choose the hotel that contributes more to sustainability.
- 3) I would look at the hotel's contribution to sustainability before booking.
- 4) When I stay at a hotel, I observe the hotel's sustainability initiatives.

- 5) What would be my main areas of concern?
- a) Check-in, Check-out
  - b) Housekeeping
  - c) Room layout
  - d) Spa
  - e) Gym
  - f) Food and Beverage
  - g) Others

The fourth part of the questionnaire was based on “How do hotel sustainability initiatives influence customers' awareness of sustainability?” It is important to uphold that the customer's awareness of sustainability and the hotel's sustainability are influenced by each other. The third part of the questionnaire focuses on how the hotel's sustainability initiatives influence the customer's choice. The third part of the question takes the hotel as a starting point to understand the sustainability of the hotel and how the initiative plays a role in the customer understanding and valuing the sustainability path. The answers to the statements in the third part of the questionnaire were provided by “Strongly disagree, Disagree, Neutral, Agree, Strongly agree”. Respondents chose their answers accordingly based on their different levels of understanding of the questions.

#### **Survey Part 4: Hotel's Sustainability Initiatives (HSI)**

- 1) I will choose a hotel to stay in because I know it contributes to sustainable development.
- 2) My sense of experience decreases because of the hotel's sustainability initiatives (no paper check-in, no disposable toothpaste in the bathroom, etc.), and my satisfaction with the hotel decreases.
- 3) In my opinion, a hotel's promotion of its sustainability initiatives is a sign of social responsibility, not just another marketing tool for the hotel.
- 4) I am willing to take on the premium that comes with sustainable hotel initiatives.
- 5) I will feel satisfied/proud to have participated and contributed to the sustainable development of a hotel because of my choice of hotel.

The fifth part of the questionnaire looks at the hotel itself to understand how customer awareness of sustainability affects the hotel's sustainability. The fourth part of the questionnaire was created for staff who work or have worked in the hotel. At the very beginning of the fourth section, the questionnaire investigated the hotels and departments where the respondents had worked (question 1 and 2). Next, the survey provides insights into the relevance of the hotel and department to the sustainability of the hotel. This section further consists of nine statements that provide insight into the hotel staff's understanding of sustainability management and an in-depth investigation into how customer awareness of sustainability affects the hotel's sustainability management. In addition to the first and second questions, the answers to the statements in the fourth part of the questionnaire were provided by the 5 item Likert scale "Strongly disagree, Disagree, Neutral, Agree, Strongly agree". Respondents chose their answers accordingly based on their different levels of understanding of the questions.

#### **Survey part 5: Hotel Sustainability Management (HSM)**

- 1) Which hotel have you worked/are you working in?
- 2) Which department of the hotel do you belong to?
- 3) I often focus on sustainability (management) issues during my work.
- 4) There are many sustainability management initiatives in my department. ( Not only environmental protection, but also the hotel offers reasonable salaries, working hours and equal opportunities).
- 5) As a hotel employee, I know what sustainability management practices are in place at the hotel.
- 6) Usually, there are clients who come to my department with suggestions about environmental protection and other sustainability issues.
- 7) If there is feedback from customers, we will make corrections and then give feedback to customers.
- 8) I think the hotel's sustainability goals should be displayed on the hotel's website.
- 9) I believe that sustainable management development is one of the current development goals of our hotel.
- 10) I think the sustainability awareness of our customers has changed a lot over the years and they are becoming more sustainable.

- 11) I think sustainable management is more a reflection of the hotel's responsibility to society and the environment, rather than a way to promote it.
- 12) I think sustainability management in hotels is more of a task for top management than something I should be thinking about.

### **4.3 Data Analysis**

All the data obtained from the questionnaire in this thesis was analyzed by SPSS software. Respondents' answers were distributed through various social networking software such as Instagram, Facebook community, and WeChat. Respondent data collection began on March 23, 2022 and ended on May 20, 2022. A total of 131 people participated in this questionnaire, of which 48 were men, 76 were women and 6 were others. The 131 respondents were hotel customers, of which 76 were also hotel staff. Female respondents accounted for more than half of the total respondents. In total, there were 131 respondents from different countries: Austria (8 respondents), Armenia (1 respondent), Australia (1 respondent), Brazil (1 respondent), Bulgaria (1 respondents), Bosnia (1 respondents), China (75 respondents), Canada (4 respondents), France (1 respondent), Germany (2 respondents), Hungary (1 respondent), Indonesia (1 respondent), India (2 respondents), Iran (1 respondent), Japan (6 respondents), Malaysia (1 respondent), Netherlands (1 respondent), Portugal (1 respondent), Russia (1 respondent), Romania (1 respondent), South Korea (4 respondents), Sweden (1 respondent), Singapore (1 respondent), Turkey (1 respondent), Thailand (5 respondents), UK (5 respondents), USA (3 respondents).

Among the hotels where respondents have worked/are working are DoubleTree by Hilton, Burj Al Arab, Marriott, Sheraton, Grand Hotel Schloss Wendorf, Renaissance Vienna Hotel, Park Hyatt, Meridien Cyprus, Ibis Styles, Ameri suites, Holiday Inn Express, Crowne Plaza Hotels & Resorts, Holiday Inn, Fairfield Inn, Hilton, Crowne Plaza Hotel, Express by Holiday, Days Inn, Howard Johnson Intercontinental, JI Hotel, Starway Hotel, Joya Hotel, Grand Mercure, M Hotels, Lotte Hotels, Copthorne Hotels, Design Hotels, Sheraton, Oberoi Hotels. Elan Hotel, JI Hotel, HanTing Hotel, Orange Hotel, Park Inn, Home Inn, Seven Days Hotel, Elan Hotel, Orange Selected, Element Hotels, Home2 Suite, Okura Hotels & Resorts, Four Seasons Hotels, Gran

Melia, Four Points by Sheraton, The Westin Wanning Shimei Bay Resort, Le Meridien, and Kempinski Hotel. Respondents work in different departments such as front desk, F&B, HR, housekeeping, reception, kitchen, guest relations, check-in, room layout, engineering department, security department, back office, gym, spa, sales department, customer service department, and so on.

		Number	Percentage (%)
Gender	Male	48	36.6
	Female	76	58.0
	Others	6	5.3
Total	Customers	131	100.0
	There of Employees	76	58.0

**Table 1: Gender**

The questionnaire was divided into six age groups, ranging from the youngest, ten years old, to the oldest, 70 years old. In this survey, the respondents mainly gathered in the age of 21-30, accounting for 74.8 of the total percentage. The second largest proportion is in the 31-40 age group, accounting for 17.6 percent. There is no share of respondents in the 51-60 and 61-70 age groups. The respondents are mainly young people.

		Number	Percentage (%)
Age	10-20	3	2.3
	21-30	98	74.8
	31-40	23	17.6

41-50	7	5.3
51-60	0	0
61-70	0	0

**Table 2: Age**

The questionnaire also investigated the educational background of the respondents, which was divided into six categories. The percentage of respondents whose educational background is undergraduate is 62.6 percent. The second highest percentage of respondents were those with a bachelor's degree in education, accounting for 21.4 percent of the total. Respondents' education levels varied, and although unevenly distributed respondents from each category of education were covered. Most respondents had a bachelor's degree.

		Number	Percentage (%)
Education Background	Elementary school	12	9.2
	High school	2	1.5
	Bachelor	82	62.6
	Master	28	21.4
	Doctor	1	0.8
	Others	6	4.6

**Table 3: Education Level**

In addition to educational background, the income of the respondents was also included. Respondents' income profiles are divided into six main categories, measured in euros. They are less than 1000 Euros, 1000-2000 Euros, 2000-3000 Euros, 3000-4000 Euros. The largest share of respondents had a monthly income of €1,000-2,000, accounting for 50.5% of the total share. The second largest share of "2000-3000" is 23.76%. The proportion of respondents with a monthly income of less than €1,000 and €3,000-4,000 is the same, at 12.8%. The data here exclude respondents who temporarily have no source of income or did not want to answer that question.

		Number	Percentage (%)
Monthly Income	Below 1000	13	12.8
	1000-2000	51	50.5
	2000-3000	24	23.8
	3000-4000	13	12.8
Total		101	100.0

**Table 4: Monthly Income (Based on Euro)**

Of the 131 respondents in the questionnaire, 76 of them were hotel employees. Hotel employees accounted for more than half of the entire questionnaire respondents. Among them, 55.2% were female, 36.8% were male and 7.8% were other.

		Number	Percentage (%)
Hotel Staff	Female	28	36.8
	Male	42	55.2
	Others	6	7.8
	Total	76	100

**Table 5: Hotel Employees**

In addition to analyzing the basic background of the respondents, in this questionnaire the respondents were also asked about their usual way of subscribing to the hotel. This question was answered by all 131 respondents. These were through online travel agencies, travel agents, hotel websites, through telephone reservations and others. This question was multiple choice, and respondents could choose more than one response. More than one-third of the 244 responses received were from respondents who would book a hotel through an online travel agency. The second largest percentage of rooms were booked directly through hotel websites, accounting for 26.2%. The percentage of respondents who booked directly through a travel agent and by phone is similar. There are also respondents who book hotels through other means, about 6.1%. Reserving a room through an online travel agency and through a hotel website are the two most popular ways to book a room.

		Number	Percentage (%)
Channels	Online Travel Agency	86	35.2
	Travel agency	39	16.0
	Hotel Website	64	26.2
	Reservation by phone	40	16.4
	others	15	6.1
	Total	244	100.0

**Table 6:** Channels to book hotels

Multiple choice questions are also conducted for respondents for hotels with different star ratings. Respondents can choose from one to five stars, and in view of the uncertainty of the choice, there is also a "Depends" option for respondents to

choose from. The table shows that respondents prefer 4-star hotels, with 4-star hotels accounting for 57.3% of the choices. The number of respondents who chose a three-star hotel was similar to the number of respondents who chose a four-star hotel, at 52.7%. The number of respondents who chose two-star hotels, five-star hotels and "Depends" was similar, accounting for about one-fifth of the respondents. It is worth noting that no selectors among all respondents chose a one-star hotel.

		Number	Percentage (%)
Star	1-star	0	0
	2-star	27	20.6
	3-star	69	52.7
	4-star	75	57.3
	5-star	34	26
	Depends	33	25.2
	Total	238	100

**Table 7:** Choice of star hotels

The research questions of the paper were divided into 4 main sections. 6 questions for CA, 4 questions for CDM, 5 questions for HSI, and 10 questions for HSM. The entire questionnaire consisted of 25 questions. The reliability of the questions was explicitly analyzed by Cronbach's Alpha derived from SPSS. The total Cronbach's Alpha value of the questionnaire was 0.901. The Cronbach's Alpha values for all three research questions exceeded 0.7, proving that this data survey is reliable. Such reliable data will help in the subsequent analysis.

	Cronbach's Alpha	Number of items
CA	0.802	6
CDM	0.774	4
HSI	0.810	5
HSM	0.855	10

**Table 8: Cronbach's Alpha of CA, CDM, HIS, HSM**

	Cronbach's Alpha	Number of items
Total	0.901	25

**Table 9: Cronbach's Alpha of total**

The survey questionnaire interviewed respondents about their concerns about hotel sustainability management initiatives when they entered the hotel. A total of seven options were offered, including Check-in, Check-out, Housekeeping, Room Layout, Spa, Gym, Food and Beverage and Others, with the housekeeping department receiving the most attention with 33.6 percent of respondents. Check-in, Check-out, Food and Beverage and Room Layout received a similar level of attention.

Department		Number	Percentage (%)
	Check-in, Check-out	22	16.8
	Housekeeping	44	33.6
	Room Layout	23	17.6
	Spa	6	4.6

Gym	5	3.8
Food and Beverage	27	20.6
Others	4	3.1

**Table 10:** Concerns about sustainability initiatives in the hotel department

CA, CDM, HSI, and HSM were presented in a single-choice format, and the questions were presented on a seven-point Likert scale to express respondents' perceptions of the questions. CA, CDM, and HSI were answered by a total of 131 respondents. The standard deviation was 0.72, 0.88 and 0.76. HSM had a total of 76 responses. The mean was 3.86 with a standard deviation of 0.6 (Likert scale 1-5: 1 = Strongly Disagree; 5 = Strongly Agree). Respondents' responses to all three questions were not very volatile, with responses focusing on "2- disagree, 3- neutral, and 4- agree".

	N	Mean	Standard Deviation
CA	131	3.66	0.72
CDM	131	3.55	0.88
HSI	131	3.68	0.76
HSM	76	3.86	0.60

**Table 11:** Mean and standard deviation of CA, CDM, HIS, HSM

Respondents' responses to the four quadrant questions also vary according to their own circumstances. As can be seen from the table below, age has no effect

on the feedback of CA and HSM. The p-values for CDM and HSI were 0.017 and 0.084, respectively, which were less than 0.05.

	10-20	21-30	31-40	41-50	51-60	61-70	F	P
CA	3.66±0.6	3.55±0.75	4.05±0.39	3.9±0.73	0	0	3.393	0.2
CDM	3.91±0.57	3.41±0.95	3.94±0.42	4.09±0.65	0	0	3.546	0.017
HSI	3.66±0.50	3.58±0.82	4±0.36	3.94±0.49	0	0	2.26	0.084
HSM	4.2	3.78±0.71	4±0.28	4±0.35	0	0	0.866	0.463

**Table 12: The effect of age on data**

Table 12 shows that there is no significant effect of education and respondents' awareness of sustainability management, choice of sustainability management hotels, observation of sustainability initiatives in hotels and sustainability management within hotels in questions CA, CDM, HSI and HDM. Where the p-value is less than 0.05.

	Elementary School	High School	Bachelor	Master	Doctors	Others	F	P
CA	3.69±0.72	3.16±0.47	3.65±0.7	3.8±0.66	2.5	3.36±1.18	1.131	0.347
CDM	3.16±0.93	3.33±0.47	3.71±0.76	3.36±1.05	2	3.45±1.25	1.935	0.09
HSI	3.33±0.78	2.9±1.2	3.82±0.6	3.61±0.87	2	3.3±1.27	3.01	0.15
HSM	3.71±0.89	2.7	3.9±0.47	3.93±0.4	3.5	3.46±1.37	1.58	0.175

**Table 13: The effect of education level on data**

In addition to the respondents' educational background, the respondents' income status is also likely to influence the respondents' responses regarding the four dimensions. Based on Table 13, it is evident that income status has a strong relationship with respondents' awareness of sustainability, hotel choice, concern for sustainability initiatives in hotels, and the hotels' own sustainability management. All p-values are less than 0.05. This proves that the income situation has a great impact on the purchasing behavior of customers and the sustainable management development of the hotel.

	Below 1000	1000- 2000	2000- 3000	3000- 4000	Others/Do not want to say	F	P
CA	3.87±0.49	3.71±0.56	3.85±0.5	3.8±1	3.26±0.91	3.435	0.011
CDM	3.63±0.73	3.59±0.81	3.87±0.69	3.87±0.97	3.06±1	3.746	0.006
HSI	3.66±0.74	3.65±0.76	3.85±0.52	4.15±0.36	3.38±0.93	2.82	0.027
HSM	3.86±0.37	3.92±0.54	4.04±0.22	4.06±0.25	2.7±1.1	9.03	<0.001

**Table 14:** *The effect of monthly income on data*

Table 14 is to analyze the correlation of the data in the four dimensions. \*\* means the p-value is less than 0.01. The data of CA, CDM, HSI, and HSM are all positively correlated.

	CA	CDM	HSI	HSM
CA	1			
CDM	.653**	1		
HSI	.484**	.719**	1	
HSM	.740**	.628**	.677**	1

**Table 15: Heterotrait-Monotrait (HTMT)**

With customer awareness of sustainability as the dependent variable, "customer decision making", "hotel sustainability initiatives" and "hotel sustainability management" as independent variables were analyzed by linear regression. The fit of this linear regression was moderate, with an R2 value of 0.596. The VIF values for the three data were 3.230, 3.605, and 1.899, with all values less than 5, proving that there was no multicollinearity among the three independent variables.

According to the data, the F-value is 35.335 and the p-value is less than 0.001, which means that at least one of the three independent variables has a significant effect on the dependent variable "customer awareness". The B-value of "customer's decision" is 0.336 greater than 0, and the P-value is 0.012 less than 0.05. "Customer decision making" and "customer' awareness" are positively correlated. The B-value of "hotel sustainability initiatives" is -0.106, which is less than 0. The P-value of 0.44 is greater than 0.05. Although there is a negative effect of "hotel sustainability initiatives" on "customer awareness", there is no significant negative effect as the p-value is greater than 0.05. The B-value for "hotel sustainability management" is 0.678, which is greater than 0. The p-value is less than 0.001. This indicates that "hotel sustainability management" is significantly and positively related to "customer awareness".

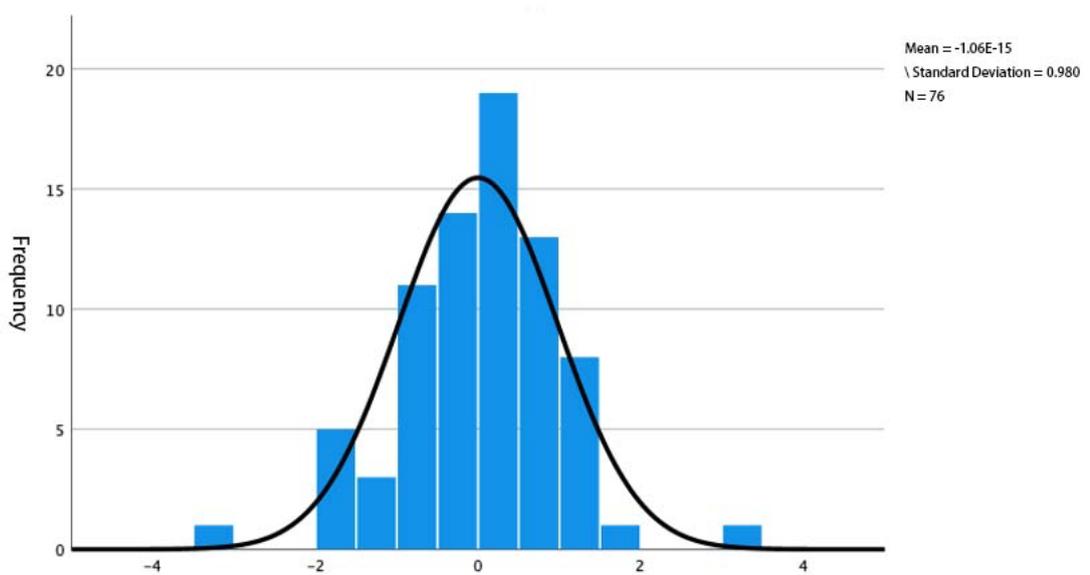
The higher the sustainability awareness of the respondents, the greater the influence of the customer on the choice of the hotel and the greater the influence on the sustainability management of the hotel. However, respondents' sustainability awareness was not significantly related to their concern for sustainability initiatives in hotels.

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value	VIF
	B	Standard Error	Beta			

CDM	0.336	0.131	0.346	2.569	0.012	3.230
HSI	-0.106	0.137	-0.110	-0.775	0.44	3.605
HSM	0.678	0.117	0.597	5.778	<0.001	1.899
		R <sup>2</sup>			0.596	
		F			35.335	
		P			<0.001	

Dependent variable: CA

**Table 16:** Multiple regression analysis



**Figure 1:** Histogram of regression standardized residual

## 5 Conclusion

The entire thesis examines the impact of different perspectives on "customer awareness of sustainability management" as a starting point. Data obtained from multiple respondents were used to successfully analyze the effect of "customer awareness of sustainability management." Even though there is a large amount of data to support because most of the hotel staff interviewed in this questionnaire are the grassroots staff of the hotel, and there are no senior hotel managers. Therefore, the thesis cannot accurately summarize the impact of customer awareness of sustainability management on the hotel's top leadership. However, it can indirectly reflect the effect of the hotel on the grassroots staff.

From the above data analysis, we can see that booking through online travel agencies and hotel websites is still the mainstream booking method nowadays. And 3-star and 4-star hotels are the most popular types of hotels. The respondents' age group is mainly between 21-30 years old, so this is not representative of other age groups' choice of hotel booking methods and hotel star ratings.

Customers' awareness of sustainability is not significantly influenced by age and education level but rather by the monthly income of the respondents. Equally clear are the customer's choice of hotel, the customer's interest in the hotel's sustainability initiatives, and the hotel's sustainability management. The higher the customer's income, the more sustainability-conscious they will be and the more concerned about sustainability management. Even respondents with the same level of education have different attitudes toward sustainability management depending on their income level. The hotels with high sustainability management mentioned in the literature review are all high-end hotels, such as Hyatt and Hilton. The choice of these hotels requires that the customer has good financial means. Because customers with economic power will be more conscious of sustainable management, high-end hotels will also invest more time and effort in sustainable management. But not all high-end hotels pay attention to sustainability management. For example, the Grand Hotel Vienna and the Sacher Hotel, both of which appear in the literature analysis, are five-star hotels. However, they do not report on managing in a sustainable manner nearly as well as the other hotels mentioned in the literature review. In the same table, it

can also be seen that monthly income has more influence on the sustainable management of the hotel than the other three variables. The higher the payment, the more the hotel employees are concerned about the sustainable management of the hotel itself. Even though no hotel executives filled out the questionnaire in this thesis, the data reflects that higher-income hotel executives have more responsibility for the hotel's sustainability management.

When staying at a hotel, customers are more concerned about the sustainability initiatives that the hotel is doing in Housekeeping. Housekeeping is the department where customers can most directly experience the impact of sustainable management. The hotel's use of recycled products and the disposal of plastic products in Housekeeping will be reflected to the customers. Front desk reception, and sustainable initiatives in the food and beverage department account for a very small portion of the total guest experience. However, sustainability initiatives in the front desk, food and beverage department are one of the essential activities in the sustainable management of a hotel.

In addition to the influence of the respondents' basic information on the four variables, the paper was conducted to test the three hypotheses by using "customer awareness" as the dependent variable, "customer decision making," "hotel's sustainability initiatives," and "hotel sustainability management" as the independent variables. Since "customer awareness" and "customer decision making" have a strong positive influence, H0 of hypothesis 1 was rejected. The strength of customers' awareness of sustainability influences their choice of hotel. But on the contrary, because "customer awareness" and "hotel sustainability initiatives" do not have this strong influence, H0 of hypothesis 2 could not be rejected. The hotel's sustainability initiatives do not affect the customer's sustainability awareness strength. The third hypothesis has a strong impact of "customer awareness" and "hotel sustainability management" period, thus H0 of the third hypothesis was also rejected.

The main purpose of the analysis in this paper is to help hotels in their future development for effective sustainability management. With the development of the times, the concern for sustainability management is increasing and permeating into various industries. Sustainability is a top priority for the long-term development of the hospitality industry as it is a service-centered industry with most hotel sectors being

extremely consumptive and products being renewed with high frequency. Sustainability is not only the hotel's return to the social balance, but also a new promotional and marketing point for the hotel. The hotel has to publicize the payment and initiatives for sustainability, so that every department of the hotel will try to maximize sustainability and use this new marketing point to keep pace with the times.

Sustainability requires both the hotel's own efforts and the customer's in-depth understanding and attention to sustainability management. The long-term development of hotel sustainability management relies on the interaction between hotels and their customers. Customers' perceptions of sustainability determine their choice of hotel, and hotels can improve their customers' perceptions of sustainability through sustainability management. This means that hotels need to continuously export sustainability initiatives in their operations to make the image of sustainability more visible. Hotels play an important role in this when customers are unable to change their sustainability perceptions on their own. As the hotel's sustainability initiatives enter the customer's mind, those who are less aware of sustainability will gradually take notice of the importance of sustainability management. Many customers will consider the price premium or the comfort level of the product when faced with a sustainable product, and hotels need to give their customers a sense of security while transmitting sustainability awareness to them. Hotels need to prove to their customers that even if they make changes in sustainability management, it does not affect their sense of experience. Not only that, but the social implications of sustainability management will also have an impact. When a hotel leads its customers to achieve sustainability goals, the beneficiaries are not the hotel itself, but the customers and society.

Sustainability is a long-term goal that only most high-end (chain) brands in the hospitality industry take very seriously. In the face of budgets, turnover and other reasons, many hotels are unable to make huge changes in sustainability management. Another perspective is that the utilization of sustainable products can save hotel expenses. Many shameful sustainable products can be recycled. But when purchasing some sustainable products have to face the risk of premium prices. The trend of modern society is to keep enough resources for the next generation and reduce waste. Sustainability management is no longer just a goal to be pursued by the hospitality

industry, but one that all industries have to strive for. Achieving a business system that is both profitable and socially beneficial, sustainability management remains the future direction for the entire hospitality industry.

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