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Global Strategic Management

MASTER'S THESIS

The Benefits of Sustainable Tourism Management for Austrian Hotels: Environmental Certification as a Competitive Advantage?

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I. Declaration

I hereby confirm and declare that the present Master's thesis was composed by myself without any help from others and that the work contained herein is my own and that I have only used the specified sources and aids. The uploaded version is identical to any printed version submitted.

I also confirm that I have prepared this thesis in compliance with the principles of the FH JOANNEUM Guideline for Good Scientific Practice and Prevention of Research Misconduct.

I declare in particular that I have marked all content taken verbatim or in substance from third party works or my own works according to the rules of good scientific practice and that I have included clear references to all sources.

The present original thesis has not been submitted to another university in Austria or abroad for the award of an academic degree in this form.

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II. Abstract

The effects of global climate change are also becoming increasingly apparent in Austria, for example through changes in outdoor temperatures, changing rainfall levels and the increased occurrence of extreme weather events. The resource-intensive accommodation industry, an essential part of tourism that is so important for Austria, is thus faced with the challenge of operating more sustainably. To achieve this goal, the possibility of certification with the Austrian Ecolabel was identified, which ensures sustainable practices in all areas of the business. The question arises as to whether such certification can result in economic advantages for the company, also keeping the ongoing problems in the industry such as the shortage of skilled workers in consideration. To answer this question, an empirical study was conducted among accommodation establishments certified with the Austrian Ecolabel, based on a comprehensive literature review. The descriptive evaluation as well as the examination of the difference and correlation hypotheses show that companies can expect a reduction in operating costs through certification, especially in the long term. In addition, an easier search for employees, an improved image of the company, increased resilience to the negative effects of climate change as well as quality improvements in the company can be named as advantages.

Keywords: accommodation, hospitality, hotel, lodging, tourism, Austrian Ecolabel, eco-certification, climate change, sustainable tourism management, sustainable hospitality management, sustainable accommodation management, green hotel, sustainability, environmentally friendly practices, challenge, benefit, economical savings, strategic advantage, resilience, sustainability marketing

JEL classification: L83, Z30, Z32, Q51, Q56

III. Zusammenfassung

Die Auswirkungen des globalen Klimawandels sind auch in Österreich immer deutlicher spürbar, etwa durch Veränderungen der Außentemperaturen, sich wandelnde Niederschlagsmengen und das vermehrte Auftreten von Extremwetterereignissen. Die ressourcenintensive Beherbergungsindustrie, ein essenzieller Teil des für Österreich so wichtigen Tourismus, wird dadurch vor die Herausforderung gestellt, nachhaltiger zu wirtschaften. Um dieses Ziel zu erreichen, wurde die Möglichkeit der Zertifizierung mit dem österreichischen Umweltzeichen identifiziert, die nachhaltiges Handeln in allen Unternehmensbereichen sicherstellt. Hierbei stellt sich die Frage, ob sich durch eine solche Zertifizierung wirtschaftliche Vorteile für den Betrieb ergeben können, auch vor dem Hintergrund von anhaltenden Problemen der Branche wie dem Fachkräftemangel. Zur Beantwortung dieser Frage wurde, aufbauend auf einer umfassenden Literaturrecherche, eine empirische Studie unter Beherbergungsbetrieben durchgeführt, die mit dem österreichischen Umweltzeichen zertifiziert sind. Die deskriptive Auswertung sowie die Überprüfung der Unterschieds- und Zusammenhangshypothesen zeigen, dass Unternehmen durch eine Zertifizierung vor allem langfristig mit einer Reduktion der operativen Kosten rechnen können. Zudem können eine erleichterte Mitarbeitersuche, ein verbessertes Image des Betriebs, erhöhte Resilienz gegenüber den negativen Auswirkungen des Klimawandels sowie Qualitätssteigerungen im Betrieb als Vorteile genannt werden.

Stichworte: Beherbergung, Hotellerie, Hotel, Unterkunft, Tourismus, österreichisches Umweltzeichen, Umweltzertifizierung, Klimawandel, nachhaltiges Tourismusmanagement, nachhaltiges Hotelmanagement, nachhaltiges Beherbergungsmanagement, grünes Hotel, Nachhaltigkeit, umweltfreundliche Praktiken, Herausforderung, Vorteil, wirtschaftliche Ersparnisse, strategischer Vorteil, Resilienz, Nachhaltigkeitsmarketing

JEL-Klassifizierung: L83, Z30, Z32, Q51, Q56

IV. Table of Contents

V. List of Tables

VI. List of Figures

VII. List of Abbreviations

CO_2	Carbon dioxide
Covid-19	Coronavirus disease 2019
et al.	et alii (m.), et aliae (f.) et alia (n.)
n.d.	no date
SQ	Sub-question
GDP	Gross domestic product
CPI	Consumer price index
BMK	Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie
BMSGPK	Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz
BMAS	Bundesministerium für Arbeit und Soziales
BMNT	Bundesministerium für Nachhaltigkeit und Tourismus
BMAW	Bundesministerium für Arbeit und Wirtschaft
BML	Bundesministerium für Land- und Forstwirtschaft, Regionen und Wasserwirtschaft
AK	Kammer für Arbeiter und Angestellte
WKO	Wirtschaftskammer Österreich
VKI	Verein für Konsumenteninformation
VCÖ	Verkehrsclub Österreich
UNEP	United Nations Environment Programme
ITF	International Transport Forum
APCC	Austrian Panel on Climate Change
UNWTO	World Tourism Organization
IPCC	Intergovernmental Panel on Climate Change

1 Introduction

Numerous models can be found in the literature in which the ideal process of a market research study is constructed. A five-stage model is particularly common, consisting of a definition, design, data collection, data analysis and documentation phase, which are often called the “Five D's” of market research (Magerhans, 2016, p. 47). This introductory chapter will document the definition phase, where the problem explored in this master’s thesis is defined, leading to the central research question and the sub-questions.

1.1 Problem Statement

The year 2022 was the second warmest year in Austria's measurement history. October was the warmest since measurements began and recorded a tropical night for the first time. March, which was far too dry and sunny, also stood out, resulting in a rain deficit of 12 % over the entire year (Hiebl et al., 2023). The effects of climate change were clearly felt in the past year. The tourism sector plays a complicated role in this regard, being both one of the biggest producers of greenhouse gas emissions and also highly vulnerable to its effects (Scott & Gössling, 2022, pp. 10–11). This double-edged role of tourism is well reflected in the accommodation industry. It has negative influences on the environment by consuming extensive amounts of resources like fuel, energy or water (Verma & Chandra, 2016, p. 1), but is also directly affected by climate change impacts like uncertain snow conditions due to higher temperatures in winter, severe heat in summer or extreme weather events such as flooding or mudslides (Pröbstl-Haider, Lund-Durlacher, et al., 2021, pp. 20–22). This can be a deterrent for guests coming to Austria, as the ski slopes with snow-guarantee in winter or the nature and landscape for hiking in summer are the main reasons for tourists to come to

Austria (Pröbstl-Haider, Wanner, et al., 2021, p. 3). If these attractions for a vacation are no longer given due to climate change, it can negatively influence the booking situation in accommodation establishments. The effects of climate change therefore directly affect the operations of accommodation facilities in Austria.

In the tourism year 2021/22, 68,800 accommodation facilities (commercial and private) were available to guests throughout Austria, not counting camp sides. Compared to the previous year, this number rose by 2.0 % and thus also exceeded pre-covid19 levels (Statistik Austria, 2023b). The sector seems recover well from the global pandemic. However, with climate change, the next big challenge is already on the doorstep. The question now is how best to meet this challenge as a manager of an accommodation facility.

While many businesses may have different environmental-policies in place, such as an economical use of towels, energy-saving lighting or concepts for recycling, they might not consider sustainability in every facet of their operation, which raises the question of when an operation can be considered sustainability-oriented. International guidelines, such as the Statistical Framework for Measuring the Sustainability of Tourism (SF-MST), aim to respond to this question by describing a “common language” for discussing the sustainability in tourism through establishing shared concepts, definitions, classifications and reporting rules (UNWTO, 2022, pp. 9–11). However, this does not mean that this “common language” is already widely recognized. After all, sustainability still plays a rather subordinate role in Austrian tourism schools, despite the ever-increasing importance of this topic for this industry (Koller & Friedl, 2022, pp. 80–81).

One possible way to provide a common language on a national level in Austria is the Austrian Ecolabel (*Österreichisches Umweltzeichen*), which was established in 1996. This seal of approval demonstrates a company's environmentally and

socially responsible management. The certified businesses are committed to the preservation of livelihoods and look after the well-being of their guests, employees and the local population. Firms are being evaluated on a set of different criteria, ranging from energy-, water- and waste management to the procurement of food (BMNT, 2019, p. 13). Looking at the very comprehensive catalogue of criteria set by the Austrian Ecolabel, it is fair to assume that a certified business has considered sustainability in every aspect of their operation.

While the initial motivation for obtaining this label may be altruistic for some accommodation managers seeking certification, others might expect economic benefits. Anyway, the low prevalence of the ecolabel must be considered here. Of the 68,800 accommodation establishments in Austria (Statistik Austria, 2023b, p. 1), only 285 are currently certified with the Austrian Ecolabel (BMK, 2023b), a share of just 0.41 %. The reasons for that are certainly multifaceted, but the resource and time-intensive certification process, the application and annual fee, which can range up to EUR 1,500 and EUR 920 respectively (Preslmair et al., 2023b, p. 20), consulting costs and the need for investment in different areas certainly weigh heavy.

The ministry responsible for the label itself, namely the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology (BMK), states cost savings, quality increase and better image and marketing opportunities as the main advantages for obtaining the Austrian Ecolabel (Preslmair et al., 2023a, p. 3). The literature also determines similar advantages for sustainable practices in hotels, namely higher overall guest satisfaction and loyalty (Merli et al., 2019, p. 176), employee loyalty and overall competitive advantages in the long term (Chen et al., 2018, p. 1398) or improvement of overall efficiency (Kularatne et al., 2019, p. 213). The question arises, therefore, to which extend accommodation facilities in Austria have significant economic advantages in case of a certification with the Austrian Ecolabel, especially in the context of

changing circumstances because of climate change, but also considering other challenges such as the high inflation rate of 8.6 % in Austria in 2022 (BMAW, 2023, p. 33), the lack of skilled workers in the sector (Bliem et al., 2022b, pp. 68–69) or technical advancements changing the business (Bliem et al., 2022a, p. 18).

1.2 Aim and Limitations of the Master's Thesis

The aim of this master's thesis is to explore to which extent a certification with the Austrian Ecolabel offers significant economic advantages for accommodation facilities in Austria, if additional benefits such as higher guest satisfaction and loyalty (Merli et al., 2019, p. 176) or advantages in recruitment and higher employee satisfaction (Chen et al., 2018, p. 1398) are experienced in practice, and if certified businesses are more resilient to climate change. Furthermore, the contribution of a certification to the long-lasting success in the tourism market will be explored.

However, this thesis will not develop specific plans or approaches for the maximization of strategic benefits of the Austrian Ecolabel. The goal is to determine if certified businesses of the Austrian accommodation market experience measurable benefits. This way, the results of this thesis could help in the decision-making process of further businesses that are interested in a certification. Additionally, this thesis will only look at the Austrian Ecolabel and hence only at Austrian accommodation facilities, thus not considering businesses awarded with other Ecolabels such as the European (*EU-Ecolabel*), German (*Blauer Engel*) or Nordic (*Nordic Swan*) Ecolabel.

1.3 Central Research Question

The following central research question is the basis of this master's thesis:

What economic advantages arise for hotels which are certified with the Austrian Ecolabel and thus acts sustainably?

1.4 Sub-questions

By exploring the central research question, the following sub-questions arise as well, which will also be answered in this thesis:

SQ1	What are the main challenges for hotels when aiming for a certification with the Austrian Ecolabel?
SQ2	What economical savings effects result in the short-, medium-, and long-term for hotels that are certified with the Austrian Ecolabel?
SQ3	What strategic advantages arise when a hotel is certified with the Austrian Ecolabel?
SQ4	In which way does the qualification of a hotel for the Austrian Ecolabel contribute to its resilience in the face of climate warming?
SQ5	How relevant is the Austrian Ecolabel in the marketing of the certified accommodations?
SQ6	Under what circumstances would a certification with the Austrian Ecolabel be beneficial for Austrian hotels in a short, medium, and long-term perspective?

Table 1: Sub-questions of this master's thesis

1.5 Ethical Aspects and Data Protection

The basis for the work on this master thesis are the “European Code of Conduct for Research Integrity” (ALLEA, 2023) as well as the “FH JOANNEUM Guideline for Good Scientific Practice and Prevention of Research Misconduct” (FH Joanneum, 2021).

Primarily, the author of this master’s thesis follows the four fundamental principles in research, as defined by ALLEA – All European Academies, throughout the working process: Reliability, Honesty, Respect and Accountability. This way, the practical, ethical and intellectual challenges inherent when conduction research are mitigated (ALLEA, 2023, p. 5). This commitment to working with integrity is also critical due to the focus on the topic of climate change in this thesis. Although a large part of the Austrian population, according to a survey conducted by the Austrian Federal Environment Agency (*Umweltbundesamt*) in 2023, sees climate change as a major threat (85 % of participants) and is in favor of countermeasures (84 % of participants) (Klima- und Energiefonds, 2023, p. 5), a certain polarization of this topic in society cannot be denied. Highest scientific reliability in this thesis should therefore provide well-founded results and thus enable factual arguments.

To ensure the protection of any personal data obtained in the research process, the survey is conducted anonymously, and all data is treated confidentially. The data will not be passed on to third parties and will only be published in summarized form. Therefore, no conclusions can be drawn about individual companies in the published thesis, protecting any sensible data on the highly competitive tourism market. Completion of the questionnaire is voluntary. Additionally, the participants are informed about the aim and content of the survey. Beyond that, no personal data is requested.

1.6 Structure of the Thesis

This master's thesis consists partly of literature research, partly of empirical research and its evaluation and roughly follows the five-stage model of market research, which comprises of a definition, design, data collection, data analysis and documentation phase (Magerhans, 2016, p. 47). This should help the reader navigate through the different stages of this thesis. The result of the documentation phase is a written report of the results of the market research study (Magerhans, 2016, pp. 49–50), which is this master's thesis as a whole.

After this introductory section (*definition phase*), chapter 2 (*design and data collection phase for the theoretical part*) deals with literature on the accommodation industry in Austria, the accommodation sector in times of climate change and the Austrian Ecolabel. After the depiction of the literature research (see chapter 2.1) and the explanation of key-terms for this thesis (*Accommodation Facility, Austrian Ecolabel, Climate Change, Overnight Stay, Resilience, Sustainable Accommodation Management, Tourism Mobility* – see chapter 2.2), chapter 2.3 (*The Austrian Accommodation Sector*) describes the sector in its historical and current state, providing mainly the basis for answering the sub-questions SQ1 and SQ3. Chapter 2.4 (*The Accommodation Sector in times of Climate Change*) focusses on climate-caused changes, providing mainly the basis for answering the sub-questions SQ2 and SQ4. Chapter 2.5 (*The Austrian Ecolabel*) describes the intention behind the creation of the Austrian Ecolabel, follows its historical development, portrays the certification process with a focus on accommodation facilities and discusses benefits and challenges of a certification. Therefore, chapter 2.5 provides valuable information for all sub-questions. Generally, the separation of the chapters 2.3 and 2.4 between sub-questions is only very roughly, as the whole theoretical part depicts the status of research for the relevant topics.

Chapter 3 (*design and data collection phase for the empirical part*) illustrates the empirical market research conducted for this master's thesis, which is a quantitative study in the form of a questionnaire, conducted among accommodation businesses that are certified with the Austrian Ecolabel. The methodology and research design is detailed, hypotheses based on the literature research are made and the process of conducting the study is described.

In chapter 4 (*data analysis phase*), the results of the market research are outlined in detail, in descriptive form as well as by testing of the hypotheses. Afterwards, an in-depth discussion follows. This involves the interpretation of the obtained results, their theoretical and practical implications, the limitations that must be considered as well as possible approaches for further research on this topic. Finally, in chapter 5, the sub-questions as well as the central research question of this master's thesis are answered.

2 Eco Certification in Accommodation

Following the five-stage model of market research (definition, design, data collection, data analysis and documentation phase), the design and data collection phases for this theoretical part come next. In the design phase, the research plan is determined (Magerhans, 2016, pp. 48–49), which in the case of the theoretical part is the depiction of the literature research. The results of the data collection phase are documented in the subsequent chapters of the theoretical part. Existing data material that has already been collected for other purposes is gathered, which constitutes secondary research (Magerhans, 2016, p. 63). This is intended to serve as a basis for the empirical market research and should mainly provide the basis for answering the sub-questions, as described before.

2.1 Depiction of Literature Research

After the problem of this thesis was defined (see chapter 1.1) and the central research question as well as the sub-questions were formulated (see chapter 1.3 and 1.4), keywords for the literature research were outlined. It must be emphasized that all keywords were used in English and German language to expand the possible results as well as to account for the fact that some key resources will only be available in German due to the focus on the Austrian accommodation sector.

The primary keywords of the search are "accommodation", “hospitality”, "hotel", “lodging”, “tourism”, “Austrian Ecolabel”, "eco-certification", "climate change", "sustainable tourism management", “sustainable hospitality management”, “sustainable accommodation management”, “Green hotel”, “sustainability”, "environmentally friendly practices", “challenge”, “benefit”, “economical savings”,

“strategic advantage”, “resilience”, “sustainability marketing”. All keywords were also used in modified form and in conjunction with each other.

The next step was to define the libraries and databases for adequate literature. The libraries of the FH JOANNEUM in Graz and Bad Gleichenberg, those of the Karl-Franzens-University Graz as well as the library of the Austrian university association (*Österreichischer Universitätsverbund*) served as the first point of contact for physical literature. For electronic literature, the online catalogs of these libraries were used, as well as the databases Springer Link, Emerald Insight, Ebsco host, Google Scholar and Science direct. The selected literature was obtained in the best case via free online access through the FH JOANNEUM, by borrowing print copies from libraries, or by purchasing the literature.

For obtaining statistical material on the accommodation industry, the “Statistik Austria”-website (*www.statistik.at*) was a key source. Other important sources for acquiring industry-specific data were the websites of the Austrian federal ministry of labor and economy (*www.bmaw.gv.at*), the Austrian federal ministry for climate protection, environment, energy, mobility, innovation and technology (*www.bmk.gv.at*), the Austrian chamber for workers and employees (*www.arbeiterkammer.at*), the Austrian labor market service (*www.ams.at*), the Austrian economic chamber (*www.wko.at*), the Austrian National Tourist Office (*www.austriatourism.com*) and the tourist offices for the individual Austrian regions. For specific information regarding the Austrian Ecolabel, their website (*www.umweltzeichen.at*) was the primary source.

The next step was to review and assess the available data material. Magerhans (2016, p. 66) defined four prerequisites for evaluating the quality of literature: usefulness, actuality, credibility and completeness. To understand what is exactly meant by these prerequisites in the context of these master’s thesis, they will be elaborated upon:

- **Usefulness**: In the most general sense, the value of information is measured by how useful the knowledge gained is for the author (Berekoven et al., 2009, p. 24). Thus, if the information serves to answer one or more sub-questions, opens a new perspective and/or adds new aspects to the answer, it is considered useful.
- **Actuality**: It is reasonable to assume that more recent information is more valuable than older data (Magerhans, 2016, p. 66). However, the type of literature must be distinguished here. If it is basic literature or literature on historical aspects (see chapter 2.3.1: *Historical Development*), older sources can also be used. However, this thesis deals with the current situation of the accommodation sector in Austria as well as with the effects of climate change, which are topics that constantly entail new developments. This requires the use of the most current literature, which is why an age of five years (publication: 2018) is set as the upper limit, but the most current data possible is always sought. Exceptions are only made if the information is general, and the author believes that it is still up to date. Attention must also be paid to the Covid-19 pandemic, which resulted in major restrictions in the accommodation industry in Austria, especially in 2020 and 2021. This significantly skewed various statistics for the industry for these years, which is why data from before the crisis is used in certain cases to ensure representativeness.
- **Credibility**: The first criterion here is the traceability of the information. The source must be verifiable, and the author(s) clearly stated. Journal articles were checked for a clear structure, research question(s) and methodology, appropriate study design, and comprehensibility and verifiability of results. Conclusions reached must also appear plausible to the author. In addition, the quality of the journal was assessed using the journal impact factor, which was retrieved from the SCImago Journal Rank (*www.scimagojr.com*). The same criteria applied to books, for which the publisher was used to check quality. For statistical data, official bodies and

advocacy groups, whose credibility can be assumed, were used, as previously mentioned.

- **Completeness**: What constitutes completeness in a given case is determined by the expertise of the market researcher (Berekoven et al., 2009, p. 24). In doing so, he must consider the respective object of investigation and must not overlook or neglect any decisive aspects (Magerhans, 2016, p. 66). The assessment of this is difficult to implement due to the subject matter's dynamics, as many crucial aspects will only become apparent during the research process. Thus, this prerequisite can be neglected.

2.2 Explanation of Key Terms

To avoid ambiguities at the fundamental level during the reading, some terms essential for this master thesis are defined now. Some of these terms will be discussed in more detail in subsequent chapters.

Accommodation Facility: The definition of the guideline UZ 201 of the Austrian Ecolabel is used, which specifies it as a facility that provides, for a fee, a sheltered overnight housing facility in appropriately equipped rooms, which includes, as a minimum, the provision of a bed as the primary service to tourists, travelers, and long-term overnight guests. This may include the provision of meals, fitness facilities and/or green areas (Preslmair & Fichtl, 2023, p. 5).

Austrian Ecolabel: It is considered the most important state-certified environmental seal in Austria and is awarded in five different categories. It is only awarded to those products and services that meet many environmental criteria as well as high standards of quality and durability. The Austrian Ecolabel is thus an orientation for environmentally conscious consumers when making purchasing

decisions in everyday life (Lenhardt et al., 2023, p. 3). Compliance with the criteria is monitored by independent auditors (BMNT, 2019, p. 7).

Climate Change: Long-term shifts in weather patterns and surface temperatures globally mainly caused by human activities, primarily through emissions of greenhouse gases and unsustainable energy and land use (IPCC, 2023, p. 8).

Overnight Stay: A tourist spends one night in a tourist accommodation facility. This is particularly relevant for the accommodation statistics used, which are collected on the basis of the location method, which records overnight stays in a selected accommodation (Mundt, 2013, pp. 11–13).

Resilience: It describes the tolerance of a system, in this master thesis more precisely a company, to disturbances caused by climate change, and is often translated to "crisis resistance" (WUA, 2018). In this master's thesis, this means the resilience of an enterprise to changes in the natural environment in terms of temperature, precipitation amount and frequency, biodiversity, and resulting impacts such as extreme weather events, rising snowlines and melting of glaciers.

Sustainable accommodation management: The long-term organization of all processes of an accommodation business which, in addition to economic success, also aims at environmental, climate and resource protection as well as social responsibility (Balderjahn, 2013, pp. 82–83).

Tourism mobility: Movement of people for touristic activities by different means of transport, including arrival to and departure from a destination as well as the movement within the destination itself (Gühnemann et al., 2021, pp. 1–2).

2.3 The Austrian Accommodation Sector

To answer the central research question of this master's thesis (*What economic advantages arise for hotels which are certified with the Austrian Ecolabel and thus acts sustainably?*), the current situation of the Austrian accommodation sector must be understood. The aim of this chapter is to describe the place of this industry within the Austrian economy by going through its historical development, understanding its economic significance and highlighting some of its problems. By doing this, this section helps to find answers to sub-questions SQ1 and SQ3.

- **SQ1**: What are the main challenges for hotels when aiming for a certification with the Austrian Ecolabel?
- **SQ3**: What strategic advantages arise when a hotel is certified with the Austrian Ecolabel?

2.3.1 Historical Development

For a long time, travel was mainly a means to an end and served primarily for trade between different cultures. The first traces of travel as a form of luxury or pastime can be found in Ancient Egypt in 1,500 B.C. and later in Ancient Greece in 500 B.C. (Ludwig et al., 1990, pp. 28–30). The Romans (from 300 B.C.) brought an enormous increase in traffic activity on the whole European continent (Friedl, 2002, p. 32) with the construction of a road network of over 90.000 kilometers in cross-country connections and over 200.000 kilometers of smaller streets (Ludwig et al., 1990, p. 31). This, in connection with the spread of Greek and Latin and increased safety on the road (Friedl, 2002, p. 32), laid the foundation for the first forms of travel.

With the fall of the Roman Empire in the West (around 500 A.D.), this first form of “tourism” was forgotten. Besides the armies that marched in search for conquest and new territories, the run-down Roman roads were mainly used by merchants, craftsmen, pilgrims, monks, nuns, and beggars but also robbers and thieves (Ludwig et al., 1990, pp. 31–32). Nevertheless, there was still a lively stream of visitors in medieval Vienna, for example. Crusaders stopped here on their way to the Holy Land, but merchants also regularly visited the capital of the Habsburg Monarchy and, in some cases, also set up their branches here (Czeike, 2004). Later, in the High Renaissance, Vienna already had 14 larger inns, with the inn "Zum goldenen Hirschen" being the most well-known. In 1696, compulsory registration of strangers was introduced, which led to the emergence of the first tourist accommodations outside the cities. In the Baroque era, improved roads and stagecoaches made travel easier. Vienna became the destination of many wealthy travelers, and the inns were now already divided into quality classes according to their furnishings and reputation (Czeike, 2004).

The Industrial Revolution changed the society fundamentally and set the stage for mass-tourism, utilizing new forms of transportation like the railroad (Friedl, 2002, p. 35). In addition, industrialization also had positive effects on the economic prosperity of the population (Kaspar, 1996, p. 24), although at first only the elites benefited from it (Ludwig et al., 1990, pp. 36–37). The early history of organized Austrian tourism also begins in this period. In 1884, due to the increasing importance of tourism, the first conference of delegates for the promotion of tourism in the Austrian Alpine countries was held in Graz. In 1896, the Imperial and Royal Ministry of Railways was established, also with the task of taking fundamental measures to increase tourism in the monarchy (Österreich Werbung, n.d.). These are the predecessors of the Austrian Nacional Tourist Office today. During this period, many inns were transformed into modern hotels. The first hotel building boom took place in the early 1870s. In 1876, for example,

the delicatessen trader Eduard Sacher opened the Hotel Sacher, named after him (Czeike, 2004).

During this time, several tourism or “beautification associations” ("*Verschönerungsvereine*") were formed for many parts of the empire (Benedik, 2023), like 1882 for Vienna (Czeike, 2004), 1889 for Tyrol (Tirol Werbung, n.d.) or 1893 for Vorarlberg (Vorarlberg Tourismus, n.d.). The aim of these associations was to develop tourist infrastructure, build excursion destinations and network tradespeople. The resulting guesthouses (“*Fremdenzimmer*”) made vacations affordable for those who did not own houses in the countryside or could not afford hotel rooms (Benedik, 2023).

Several developments in the following years, like the statutory annual leave for employees, which was introduced in-between the two World Wars, reinforced the trend to mass-tourism further. After World War II, the income of most workers exceeded the living expenses in such a way that a lot of money was left for leisure activities like tourism (Friedl, 2002, p. 35). These developments, of course, also directly affected the accommodation sector, as their potential target group continued to grow.

The resulting consumer society of the postwar period and the "economic miracle" made travelling for Austrians a broad phenomenon. From the 1950s onward, travelling became fashionable, especially to Italy. But also vacations at home were popular. Particularly the Wachau, the Salzkammergut, the Carinthian lakes and the Alps as such became attractive destinations for excursions and stays. And even before mass city tourism began, the provincial capitals, especially Salzburg and Vienna, were the epitome of conveying one's "own" culture and history (Benedik, 2023). The intensification of international city tourism, for example the inclusion of Vienna also in European trips of tourists from overseas, led to the construction of more hotels, especially those of the upper classes (Czeike, 2004).

The Development of the Austrian Accommodation sector is best depicted by looking at the numbers. In 1950, the first year that Statistik Austria published reliable numbers, over 14 million overnight stays were registered in Austria, with around 9.5 million coming from Austrian nationals and 4.5 million from foreigners. That number rose continuously over the next years, with 43.7 million total overnight stays in 1960, 86.3 million in 1970 and 118.7 million in 1980. Over the next decade, the numbers were more stable, before another significant increase was measured in 1989 (Statistik Austria, 2023c), possible due to the fall of the iron curtain, which led to an overall increase in tourism activities (Friess, 2019). Over the next two decades, the overnight stay numbers remained stable, before from 2011 to 2019, a major increase can be measured (2011: 126 million stays; 2019: 152.7 million stays).

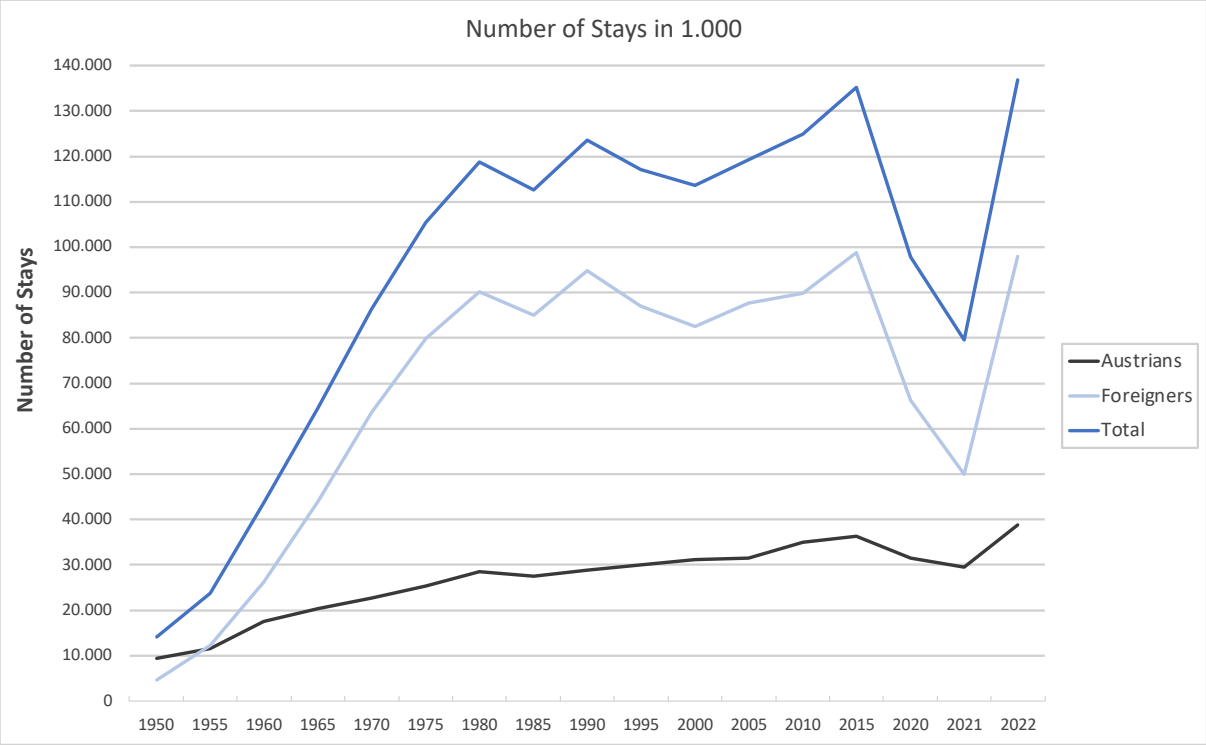

Figure 1: Number of stays in Austria from 1950 onwards (based on Statistik Austria, 2023)

This can be explained by a multitude of factors. After the global financial crisis of 2007 – 2008, the travel industry, especially the accommodation sector and airlines, have seen clinical recoveries. Global trends in the travel industry, like the

shift to online travel agencies, the rise of cheap air travel and an increased outbound travel from emerging markets like China, India and Latin America, were slowed by the financial crisis, but picked up pace in the following decade (Borko, 2018). Additionally, the upcoming sharing economy with platforms such as Airbnb made additional private accommodations available to travelers (BML, 2020, p. 11). Also, the growing role of social media in tourism should not be underestimated. It fundamentally changed the way people search, read and collaboratively produce information about tourism suppliers and tourism destinations (Zeng & Gerritsen, 2014, p. 33).

It was expected that this trend towards more guest arrivals would continue, but the global Covid-19 pandemic brought it to a sudden halt (Gühnemann et al., 2021, p. 1). After the record year 2019 with around 152.7 million overnight stays in Austria, a massive decline to around 97.9 million stays (- 35.9 % compared to 2019) was recorded in 2020, which was mainly due to lockdowns and restrictions in air travel for international tourists. Only a quarter of bed capacities were utilized, while the decline in the hotel industry was most the pronounced (BML, 2021a, p. 12). This decline continued in 2021. With around 79.6 million overnight stays, the result was about the same as in 1969 and 1988, respectively, and nearly half the pre-crisis and previous peak level of 2019 (overnight stays -47.9 % compared to 2019). For Austria key winter months January until March were completely affected by a lockdown, so that the demand for overnight stays came to a virtual standstill in the first quarter of 2021 (-94.4 % compared to 2019). The following months of 2021 brought a substantial recovery (on average + 37.5 % overnight stays compared to 2020), but overall, the tourism industry in Austria was hit the strongest in 2021 (BML, 2022, p. 11).

After the lockdown-ridden pandemic years of 2020 and 2021, most of the restrictive measures gradually expired in the first months of 2022, resulting in a strong recovery in tourism demand on average for the year, with a total of 136.9

million overnight stays (+72.1 % compared to 2021). Especially international tourists returned to Austria, but also domestic tourism increased. In the year 2021/22 (November 2021 to October 2022), approximately 68,600 accommodation facilities (excluding campgrounds) in Austria had about 1.15 million beds available, with occupancy rates similar to those before the outbreak of the Covid-19 pandemic (BML, 2022, pp. 18–19). Looking at the first half of the summer season (May until July) in 2023, pre-covid-19 levels have already been reached and an increase in overnight stays of + 1.7 % compared to 2019 was recorded (39.5 million stays) (Statistik Austria, 2023a). It can therefore be expected that the pre-covid-19 trend towards more guest arrivals in Austrian accommodation businesses will continue in the coming years.

Conclusion:

Looking at the history of tourism in general, it shows its development from a luxury good for a few to a mass phenomenon. The history of organized tourism in Austria, which began in the last decades of the 19th century, displays that this branch of the economy became increasingly important for Austria in general. Above all, this becomes clear by the steady increase in the number of overnight stays from the 1950s to the present day, interrupted only by events such as the Covid-19 pandemic. Like many other industries, the accommodation industry has been keen to attract more and more customers in recent decades. To counter the effects of climate change, a different approach is needed, since it also affects the operational business of accommodation establishments, as will be described in chapter 2.4.2. The importance of this sector for the Austrian economy, especially in some regions, is discussed in the following chapter.

2.3.2 Economic Significance of the Austrian Accommodation Sector

If you look at the development of tourism in Austria in figures, as presented in the previous chapter, it not only shows the enormous importance of tourism, but

also the high competitiveness of the country in international comparison (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 4). Despite the significant decline in overnight stays in the Covid-19 years 2020 and 2021, Austria still ranked 11th of 117 countries in the Travel & Tourism Development Index (TTDI) in 2021, which was published by the World Economic Forum. The TTDI measures countries based on a set of different factors and policies that enable the sustainable and resilient development of the travel and tourism sector. Behind the leaders of this ranking, Japan and the United States, Austria is the 7th best ranked country in Europe, better than countries like the Netherlands, Denmark or Portugal (Uppink & Soshkin, 2022, p. 13). Looking at the international tourist arrivals per country, Austria was the 12th most visited country in 2019 with a total of 31.9 million arrivals. The most visited countries in that ranking were France (89.4 million arrivals), Spain (83.5 million arrivals) and the United States (79.3 million arrivals) (UNWTO, 2021, pp. 18–22). Considering its relatively small size compared to these countries, both in terms of land mass and population, Austria is one of the most intensively traveled countries in the world.

The economic importance of tourism can also be easily understood from the following key figures: According to estimates based on the concept of the Tourism Satellite Account for Austria, tourism spending by domestic and foreign visitors in Austria is expected to reach EUR 35.9 billion in 2022, only 5.3 % below the pre-crisis level of 2019. The distribution between domestic (48.3 % of total spending) and foreign guests (50.5 % of total spending) was almost at the same level. The remaining 1.2 % are imputed rents for weekend homes and second homes. The resulting direct and indirect value-added effects amounted to EUR 27.9 billion (-7.7 % compared to 2019) and their contribution to GDP was 6.2 % (BMAW, 2023, p. 31). Tourism activities contribute significantly to the preservation of prosperity in Austria.

Taking a closer look into the provinces, another interesting aspect comes up. By examining the distribution of overnight stays by province, it becomes clear that tourism is especially vital for some regions. Tyrol had with 44.8 million overnight stays almost a third (32.7 %) of the total stays in Austria in 2022. Second place takes Salzburg with around 27 million overnight stays or 19.7 % of the total stays. Vienna (9.6 %), Styria (9.5 %) and Carinthia (9.4%) are almost on the same level, each having between 12.8 million and 13.2 million stays recorded in 2022. The remaining provinces of Vorarlberg (6.2 %), Upper Austria (5.8 %), Lower Austria (4.8 %) and Burgenland (2.1 %) are further behind (BMAW, 2023, p. 78). This illustrates the enormous importance of tourism for regions like Tyrol. Examining the numbers for 2020, the direct tourism gross value added of Tyrol amounted to about EUR 4.8 billion, which corresponds to 10.6 % of the total Tyrolean gross value added. For Austria as a whole, the value added effects of tourism amounted to about 3.5% of total value added (GDP) in 2020, showing the great weight of tourism for the Tyrolean economy (Kreuz, 2023, p. 38).

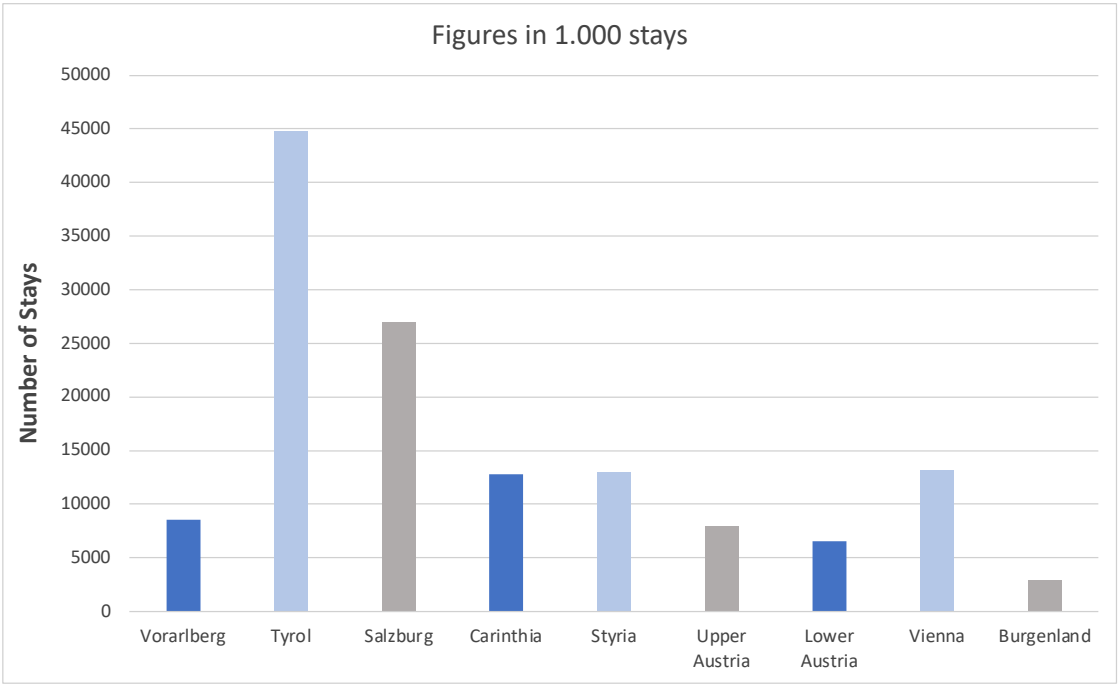

Figure 2: Overnight stays in 2022 by province (based on BMAW, 2023, p. 78)

Since the figures for 2022 were still estimates at the time of writing, a precise breakdown of tourist spending by use for that year was not yet available. For illustration purposes, figures for 2019 are used. This is because the years 2020 and 2021 were pandemic years and therefore less meaningful. In total, guest spent around EUR 37.7 billion on tourism related goods and services in Austria in 2019. Just over half of all spending was on the core tourism sectors of accommodation (27.1 %) and gastronomy (23 %), 20.1 % on passenger transportation, 9.4 % on culture and entertainment, and 3.7 % on travel agency and tour operators. The remainder (16.7 %) falls on tourism-related and non-tourism goods and services as well as valuable goods (BML, 2021a, p. 23). Over a fourth of all spending happened in accommodation facilities, showing the immense significance of this industry for tourism consumption in Austria.

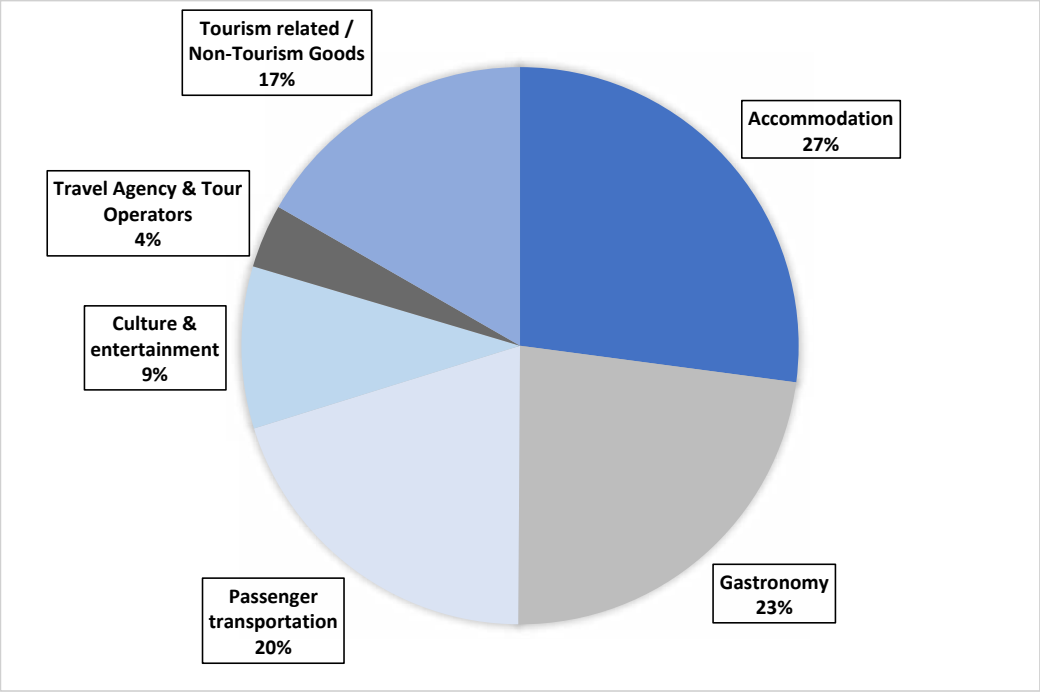

Figure 3: Structure of tourism consumption for Austria 2019, shares in % (based on BML, 2020, p. 23)

Another good metric for determining the importance of tourism is nominal tourism exports per capita. After nominal tourism exports relative to the resident population in the pandemic years 2020 and 2021 declined significantly more in Austria than in the European average of 32 countries (-59.4 % in Austria

compared to -46.8 % in the European average), the ratio in this country remained 7.2 % below the comparative value of 2019, while it increased by 13.5 % in the European average. However, at EUR 2,143, Austria is once again be among the leaders in per capita international tourism revenues in 2022, only exceeded by Island, Cyprus, Croatia, Malta and Portugal (BMAW, 2023, p. 34).

Due to its great importance and the associated employment effects, tourism in Austria makes a significant contribution to overall employment in the country (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 5). Accommodation plays a vital role in that regard. Not only is it considered the strongest pillar of tourism consumption, as highlighted before, but it is also the largest employer within the tourism sector (38.9% of the workforce in the tourism sector in 2019). Therefore, developments in this sector significantly influence the stability of the sector and related areas (Bliem et al., 2022a, pp. 16–17). A total of 217,472 employees were registered in the accommodation industry in Austria in 2022. While the number of employees increased by only 4.9 % in 2021 compared to 2020, it increased more strongly in 2022 (+ 16.5% or 30,755 employees) compared to the previous year. Although every province recorded an increase in employees, the pre-crisis level has not yet been fully reached (-1.3 % compared to 2019) (WKO, 2023, p. 75). The employment structure of the sector continues to stand out due to its high share of women (55 %) and its high share of foreigners (55 %) (BMAW, 2023, p. 45).

Here, too, it is worth taking a look at the provinces: Vienna had the most employees in this sector with around 47,700, followed by Tyrol (38,700 employees), Salzburg (26,400 employees) and Styria (25,500 employees) (WKO, 2023, p. 75). But of course, there are also differences within the regions. For the Tyrolian districts of Landeck (approx. 23 % of all jobs in the accommodation sector), Kitzbühel, Reutte (approx. 18 % each) and Imst (approx. 17 %) jobs in

accommodation play a vital role. On average, the share of employees in accommodation in Tyrol amounts to almost 13 % (Kreuz, 2023, p. 35).

Another aspect worth mentioning is the difference between summer and winter tourism in Austria. The average daily spending of a tourist in Austria (lodging, meals, transportation costs, excluding travel) was EUR 205 in winter 2022/23, compared to only EUR 163 in summer 2022 (Werbung Österreich, 2023, p. 1). Thus, the different categories of vacation types must also be taken into account, according to which, for example, the winter sports vacationer spends more money compared to the hiking vacationer in summer (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 5). Consequently, despite the higher number of overnight stays in summer (about 53 %) than in winter (about 47 %), higher revenues are generated during the winter season (Werbung Österreich, 2023, p. 1).

Conclusion:

This subchapter described the enormous importance of tourism in general and the accommodation industry in particular for the Austrian economy. Not only are significant contributions made to the overall value added, but the importance as an employer is equally significant and contributes to maintaining prosperity in Austria. More than a quarter of all tourism spending happens in accommodation establishments, and nearly 40 % of all tourism workers are employed there. These effects are even stronger in some regions than in Austria as a whole, as the example of Tyrol shows. As will be explained in more detail in chapter 2.4.2, climate change will have serious consequences for tourism activities in these regions, particularly for the important winter tourism. If this form of tourism is no longer possible in its current shape due to warmer temperatures in winter for example, not only will many revenues be lost, but jobs will also be at risk. About sub-question SQ4, the aim of this thesis is to explore to what extent the Austrian Ecolabel could make businesses more resilient to these effects, and if a

certification could bring advantages (sub-question SQ3). The following chapter will dive into the specific problems the accommodation sector faces.

2.3.3 Current Challenges in the Accommodation Sector

The accommodation facilities are a central factor of the tourism offer, because without an adequate supply of beds, a large part of tourism can practically not take place (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 75). One of the biggest challenges currently facing tourism and the accommodation sector is one that is not limited to this area but is currently preoccupying the entire economy and society: Inflation. Pandemic and war-related disruptions in global supply chains coupled with high demand for certain products and the energy crisis resulting from the EU's gas and oil embargo against the Russian Federation caused inflation in Austria to rise to an annual average of 8.6 % in 2022 - a similarly high level was last recorded in 1975 (BMAW, 2023, p. 33).

With an inflation rate of +39.2 % and a weight of 7.4 % in the overall CPI, energy costs, which had already risen at an above-average rate of +12.3 % in 2021, accounted for a large share of this inflation in 2022. Other major price drivers were transport (+ 16.2 %) and food (+9.9 %). In the accommodation sector, inflation was also above the overall dynamic at + 11.8 %. However, at a share of just 1.6 %, this had hardly any impact on the CPI. This was also slightly below the EU average, which is 12.6% inflation in the accommodation sector (BMAW, 2023, p. 33). The increased cost of living for many households, coupled with the rising price of tourist offerings, is also likely to have an impact on their travel activities. It can be assumed that many will therefore refrain from taking a vacation in winter in particular (BMAW, 2023, p. 18). As discussed in the previous subchapter (see chapter 2.3.2), vacations in winter are generally more expensive than in summer, as well as more energy-intensive, due to things like more demand for heating, the running of cable cars, slope preparation and artificial snowmaking (BMAW, 2022).

The measures that accommodation companies can take to become more energy efficient will be discussed in more detail in chapter 2.4.3. However, it should be noted here that certification with the Austrian Ecolabel requires several measures to ensure energy-efficient management. More detailed information to these aspects is provided in chapter 2.5.

One related aspect is that Russian tourists have been among the most affluent guests in many domestic tourist areas in recent years. Some regions of Austria had focused strongly on them (Sempelmann, 2022). However, the effects of foreign policy tensions are evident here. In 2013, before the annexation of Ukraine's Crimea by Russia and the resulting sanctions imposed by the European Union, 1.95 million overnight stays by Russian guests were registered in Austria. This number dropped to 1.19 million in 2019 and finally – also due to the Covid-19 pandemic – to just over 96,000 in 2021 (APA, 2022). Vienna and winter sports areas in Salzburg and Tyrol such as Mayrhofen, Sölden, Ischgl and Zell am See were particularly popular destinations for Russian tourists before that. They often stayed in luxury hotels and spent a lot of money in the destination (Karp, 2014). How long it will take for Russians to come back to Austria to spend their vacations is difficult to estimate in view of the Russian war of aggression in Ukraine (Sempelmann, 2022).

One of the biggest challenges within in the sector is, without a doubt, the lack of skilled workers (Severin, 2022). Demand for workers is above average in the hotel and hospitality industry in 2022, with an annual average of 14,767 vacancies, 48.3 % higher than in 2021 and 65.6 % higher than in pre-crisis 2019. The number of apprenticeship vacancies (2,264) is also comparatively high, up 37.5 % (BMAW, 2023, p. 45). It is not only businesses in tourism-strong federal states such as Salzburg and Tyrol that suffer from the shortage of skilled workers, but also in Lower Austria and Styria. The problem is perceived least strongly in Vienna, Upper Austria and Burgenland. One reason could be the greater seasonal independence

of these regions and, at least in Vienna, the significantly higher labor potential (Bliem et al., 2022b, p. 74). Many factors contribute to this shortage, the most important ones of will be discussed now.

The usual working hours in tourism are sometimes very different from other sectors such as trade or industry. In many cases, duty starts early or ends late. In many companies in this sector, employees are also required to work weekends and holidays. Regular overtime and a certain degree of flexibility in terms of time are among the basic requirements for employees in tourism, especially in companies that are strongly characterized by seasonal peaks in summer and / or winter. In 2019, 57.2 % of employees in the accommodation sector worked on at least two Sundays in the last three months. If compared to other sectors, in only one economic sector, agriculture and forestry, work is done more often on weekends, 55.2 % of the time (Bliem et al., 2022b, pp. 64–65). The labor market in tourism is also strongly characterized by seasonal work (Bliem et al., 2022b, pp. 57–58). Only about 48 % of the industry's workforce in 2018 was counted as core, the rest was characterized as seasonal (27 %) or temporary (25 %) (WKO, 2023, p. 77).

Like the working time factor, pay in the tourism industry is a controversial topic when it comes to the attractiveness of the industry for skilled workers. One argument often cited is the comparatively low wage level in the industry. With a media gross monthly income of EUR 1,890 in 2019, the accommodation and catering sector has by far the lowest income of all 22 sectors included, with women earning 8.8 % less than men in the sector (EUR 1,984) with an average gross monthly income of EUR 1.809. The next lowest average income can be found in agriculture and forestry (EUR 2.145), trade (EUR 2.717) and health and social work (EUR 2.931) (Bliem et al., 2022b, p. 67). This also causes considerable concern among employees in the industry. According to the chamber of labor's work climate index form January 2023, more than 60 % of employees say that

they barely or not at all manage with their low income. Similarly, 30 % of employees assume that their future pension will not be enough to live on. 53 % doubt that they will last until then. By way of comparison, more than half of employees in the construction industry are also worried about being able to hold out until retirement. But only 12% believe they won't be able to get by on their pension (AK, 2023, p. 4).

The effects of low wages and difficult working hours are also reflected in demographic change: There is a steady decline in younger workers and an increase in older workers in the sector. This is particularly problematic because at the same time there is a clear decline in apprentices and thus in future skilled workers in the sector (Bliem et al., 2022b, p. 76). This is particularly concerning since the hospitality industry is experiencing a significant transformation, not only in terms of management and operations but also in terms of interaction with consumers. Adaptation to the digital age and technological developments have become one of the sectors' biggest challenges (Rafa'al & Sangadji, 2023, p. 469). Young employees could be more receptive to this change, and participation in in-company training is below average in the accommodation sector compared to other sectors (Bliem et al., 2022b, p. 114). Certain activities could be taken over or supported by computers. This automation trend, which has manifested itself throughout the world of work, is leading to shifts in tasks because, for employees, areas of activity that are predominantly characterized by routines can increasingly be dispensed with as a result. The communication and advisory skills of the staff become more important, as well as the know-how on accessing information in order to provide guests with suggestions for activities and information on places of interest and infrastructure (Bliem et al., 2022b, pp. 148–149).

Furthermore, other technical advancements that go beyond the shift to online-booking (Bliem et al., 2022a, p. 18) will influence the sector in the future. Travelers rely less on traditional sources of information. Social media has led to increased

demand from travelers and play an important role in shaping travelers' choices and sharing experiences. This prompts companies to adjust their market strategies, because without a strong online presence, they may struggle to attract visitors (Rafa'al & Sangadji, 2023, p. 470). Other innovations may not be in wide usage just yet but might shape the industry in the future. Big data analytics capabilities (BDAC) is expected to impact organizational agility, marketing and organizational innovations (Khalil et al., 2023, p. 9). Technologies related to the virtual hotel concept in the context of virtual reality (VR) and augmented reality (AR) technologies have the potential to transform the hospitality industry and are considered a way to enhance the guest experience and differentiate hotels from their competitors (Rafa'al & Sangadji, 2023, p. 469). Customers, for example, could gain visual insights into tourism destinations that are otherwise inaccessible through these applications (Bliem et al., 2022b, p. 148).

Conclusion:

As outlined in this chapter, the challenges facing the accommodation industry are numerous. Inflation has increased price pressure on establishments and discourages guests from taking vacations. This could have far-reaching consequences, especially for the important winter tourism, which is generally more expensive and energy-intensive than summer tourism. As mentioned, certification with the Austrian Ecolabel includes a wide range of energy efficiency measures and thus potentials for cost savings. The extent to which certification can prepare businesses for this challenge will be explored in this master's thesis. Another problem identified is the shortage of skilled workers, which is related, among other things, to the difficult working conditions. It is worth mentioning here that the Austrian Ecolabel includes some criteria (e.g. the target criterion M17) that seem to be specifically designed to make the workplace in the accommodation sector more attractive. These include social benefits such as time off for further training, travel allowances or working hours that are more compatible with family life (Preslmair & Fichtl, 2023, p. 57). Whether certified

businesses can thus better cope with the problem of a shortage of skilled workers is also to be researched. The last major challenge identified were further technical developments. However, these should not only be seen as a problem to be "solved". Rather, they offer the opportunity to stand out from the competition and to better present one's own business. Also, special qualifications, such as certification with the Austrian Ecolabel, could be better advertised. The importance of certification for marketing activities is being researched as part of the sub-question SQ5. One aspect that has been deliberately left out so far is the impact of climate change on the accommodation industry in Austria. This will be discussed in the following chapter.

2.4 The Accommodation Sector in times of Climate Change

The previous chapter discussed the Austrian accommodation sector in general, its historical development, the significance for the Austrian economy and the challenges that are currently being faced. However, one aspect that is essential for answering the central research question of this thesis (*What economic advantages arise for hotels which are certified with the Austrian Ecolabel and thus acts **sustainably**?*) is sustainability in accommodation, especially in times of climate change. After all, the Austrian Ecolabel for tourism certifies environmentally friendly business activities that contribute to the preservation of an intact nature and environment (BMNT, 2019, pp. 4–5), which is a central concept in the theory of sustainable business management (Balderjahn, 2013, pp. 75–78). In more detail, this section provides important foundations for answering the sub-questions SQ2 and SQ4:

- **SQ2**: What economical savings effects result in the short-, medium-, and long-term for hotels that are certified with the Austrian Ecolabel?
- **SQ4**: In which way does the qualification of a hotel for the Austrian Ecolabel contribute to its resilience in the face of climate warming?

2.4.1 Sustainability and Global Warming

The first step is to clarify what is meant by sustainability within this master's thesis. The concept of sustainability is much older than the expression itself, dating back to early human civilizations. The transition from nomadism to settled life made it necessary for people to deal with a responsible use of resources (Dhanani, 2022). The word "sustainability" has its origins around 300 years ago in forestry, where it encompassed the requirement to cut only as much wood as can grow back through planned reforestation (Balderjahn, 2013, p. 11). The ecological and economic aspects were primarily considered here. Much later, in 1987, the

holistic definition of "sustainable development" appeared for the first time in a published report by the UN World Commission on Environment and Development (WCED), where sustainable development is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Augsbach, 2020, p. 13). Following on from this, Pufé (2014, p. 13) defines sustainability as a resource-economic principle that ensures that a system can be maintained in its functionality in the long term. Many authors, like Balderjahn (2013, pp. 21–32), understand sustainability as having an economical, ecological and social dimension. Evidently, sustainability is often defined in a variety of ways in the literature. The definitions differ in precision, level of detail, and the views and perspectives that the authors take (Leßmann, 2016, p. 7). Since the concept of three dimensions fits well in the context of the Austrian Ecolabel, it will be adopted for this master thesis and explained in more detail below. It must be said, however, that the definition of the three dimensions of sustainability is not set in stone. It is merely a helpful concept for looking at the term from different angles. After all, the environmental and social impacts of an activity can also ultimately be expressed in terms of economic costs, even though it may be difficult to quantify them precisely.

In addition, the dimensions described above are sometimes supplemented by a fourth dimension, the so-called institutional-political dimension. This addition is made because sustainable development cannot be implemented without political or institutional regulation of individual and collective behavior. Another way to introduce a fourth dimension is to consider the cultural dimension (Leßmann, 2016, p. 12). These dimensions could also be considered with respect to the Austrian Ecolabel but would ultimately lead to more ambiguity rather than valuable contributions to the central research question. As mentioned before, the dimensions are pure constructs whose differentiation from each other in the case of the three “original” dimensions economy, ecology and social can be made in

theory, but often does not correspond to practice. These ambiguities would only be strengthened by adding even more dimensions.

Today, the areas of economic efficiency, environmental protection and resource conservation as well as social responsibility are regarded as the basis of sustainable business activity. From this “Triple-Bottom-Line”-approach (*People, Planet, Profit*), economic, ecological and social objectives of sustainability are derived (Balderjahn, 2013, p. 21). It is important to understand that these three pillars are not in competition with each other but should be in balance (Augsbach, 2020, pp. 16–17). However, this must not be misunderstood that particularly resource-intensive activities can be "offset" by a strong focus on social activities, for example, in order to achieve the above-mentioned balance. The main task is to analyze conflicting goals of the dimensions and to formulate possible solutions (Augsbach, 2020, p. 17). After all, activities can only be sustained in the long term if they are environmentally compatible, fulfill social responsibility and are economically profitable at the same time.

Figure 4: Triple-Bottom-Line-Concept (based on Augsbach, 2020, p. 16)

The **ecological dimension of sustainability** includes the conservation of resources, the reduction of air, water and soil pollution, climate protection and the preservation of biodiversity. Considering the regenerative capacity of ecological systems, the goal of resource conservation can only be achieved if the rate of depletion of renewable resources does not exceed their rate of recovery, and the level of pollutants does not overwhelm the regenerative capacity of the natural environment. In this context, climate protection means significantly reducing the release of greenhouse gases such as carbon dioxide and methane. The preservation of biodiversity requires the protection of plants, animals, genes and ecosystems. Companies can meet these requirements through a variety of measures, such as the use of environmentally compatible production techniques in all phases of the value chain, the reduction of risks to the environment, the improvement of energy efficiency or the increasing use of renewable energies (Balderjahn, 2013, pp. 23–27).

Since sub-question SQ4 (*In which way does the qualification of a hotel for the Austrian Ecolabel contribute to its resilience in the face of climate warming?*) specifically deals with the issue of global warming, it should also briefly be discussed here, as it is a part of the ecological dimension of sustainability. However, climate-caused challenges of the accommodation industry will be examined in detail in chapter 2.4.2. According to the latest synthesis report by the IPCC, human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature in 2020 already reaching 1.1 °C above the level of 1850. Global greenhouse gas emissions have continued to increase over the past years, with unequal historical and ongoing contributions arising from unsustainable energy use, land use, lifestyles and patterns of consumption and production. Human caused climate change is already affecting many weather and climate extremes in every region across the globe, which has led to widespread adverse impacts on food and water security, human health and on economies and society in general. Disproportionately

affected are often vulnerable communities, who have historically contributed the least to current climate change (IPCC, 2023, p. 42). In the context of this thesis, the objective is to investigate to what extent the Austrian Ecolabel can be an opportunity for accommodation establishments not only to reduce their own contribution to global warming, but also to be prepared for the effects of global warming on their business.

The **economic dimension of sustainability** is about the fact that only a company that is competitive also has the potential for social-ecological commitment. However, this competitiveness must not be achieved at the expense of social and ecological concerns or worse if competitiveness is only achieved by deliberately ignoring social and ecological necessities. In contrast to that, it is about creating a decent standard of living and, related to that, eradicating poverty in a society (Balderjahn, 2013, pp. 29–30). Companies can make a variety of contributions in this dimension. These include the creation of livelihood-securing jobs, the payment of fair wages, the fight against corruption within the company, the strengthening of regions where the company is based, or the participation of economically weak countries in the company's success (Balderjahn, 2013, pp. 30–31). Here, however, it must again be remembered that sustainability is also only a theoretical concept that can reach its limits in practice. A company must therefore always make judgements based on the individual situation.

The **social dimension of sustainability** is about the willingness to assume social responsibility for the community, for the products and for the dependent employees of a company involved in the value creation, as well as for the suppliers. For companies, this means, for example, compliance with occupational health and safety laws, the implementation of international labor standards, fair pay for employees, or social commitment in the regions in which the company operates (Balderjahn, 2013, pp. 28–29). The social dimension is therefore about

human rights and dignity, discrimination, diversity, equality, exploitation or abuse (Augsbach, 2020, p. 18).

In the context of the social dimension, the concept of **corporate social responsibility (CSR)** should also be mentioned, as it is a term that is often used in official statements of businesses. It can be defined as a company's willingness to engage with the relevant social groups and their demands. The idea is to integrate social and environmental concerns into the company's activities and into its interactions with the relevant stakeholders on a voluntary basis. However, the idea has now become a central factor for corporate credibility and thus also for corporate success. Consequently, assuming responsibility and communicating on this is a strategic necessity for the company (Nelke, 2016, p. 83). As can be seen from this definition, the terms “sustainability” and “CSR” are interlinked and are often used as synonyms for each other in the context of businesses. For instance, some companies speak of a “sustainability strategy” and a “sustainability report” in their official statements, others of a “CSR strategy” and a “CSR report”. In theory, however, CSR as a concept is narrower than sustainability: CSR refers to the specific activities that an individual company can perform in order to act in a sustainable manner, while sustainability in used as the more general term (BMAS, n.d.). Since sustainability more accurately describes the interplay of the various relevant aspects - defined in the context of this thesis as economy, ecology and social - than CSR, this term is used for this thesis.

Conclusion:

The term sustainability is described differently in the literature. For this master thesis, the “Triple-Bottom-Line”-approach (Balderjahn, 2013, p. 21) is adopted as the definition, as it not only illuminates sustainability in all relevant facets and perspectives, but is also perceived by the author to be most appropriate in the context of the Austrian Ecolabel. Since the actions of an accommodation establishment not only affect its own profitability, productivity and competitive

situation, but also society and the environment, all three dimensions are also of great importance in the certification process of the Austrian Ecolabel. Likewise, the aspect of global warming, which is similarly significant for this work, finds its best place in this definition. The next chapter will depict the challenges that climate change poses on the accommodation sector.

2.4.2 Climate-caused Challenges in the Accommodation Sector

As discussed in the previous chapter, the effects of climate change are undeniable. The global surface temperature in 2020 was around 1.1 °C higher than in the year 1850 and have continued to rise in recent years (IPCC, 2023, p. 42). The last decade can even be described as the hottest since measurements began in 1850 (GeoSphere Austria, 2023). To reach the 2015 Paris agreement, which aims to limit the temperature increase in this century to 1.5 °C compared to preindustrial limits, serious action needs to be taken. All sectors of the economy need to act, including tourism (UNWTO & ITF, 2019, p. 13). Looking at the tourism sector in Austria, a large part of summer and winter tourism involves outdoor activities and is thus highly sensitive to changes in climate, especially in terms of rainfall levels and temperatures. Climate change thus has a major impact on the demand by tourists as well as on the supply of attractions in Austria (Köberl et al., 2014, p. 1). To provide the basis for answering sub-questions SQ2, SQ4 and consequently the central research question, this subchapter will depict the challenges that the Austrian accommodation sector specifically experiences because of climate change.

First and foremost: climate change can reduce the attractiveness of destinations, causing negative consequences for accommodation providers. Rising temperatures or other changes in the climate system have an impact on certain tourism offers. Some winter sports offers can be lost if the snow line rises, or cities potentially become less attractive in summer because extreme heat in

combination with humidity can be stressful (APCC, 2020, p. 12). For Austria, a look at the important ski resorts is especially interesting. The time of natural snow cover and snow depths have evidently decreased since the 1950s and are expected to decline further, depending on future emissions (Olefs et al., 2021, p. 10). It can be assumed that skiing will still be possible towards the end of the 21st century, but not in all locations where it is practiced today. 52–72% of Austrian ski areas are projected to be snow-reliable in the middle of the 21st century, considering today's snowmaking technology and capacity, which would leave a sufficient number of snow-reliable ski areas serving as substitutes for non-snow-reliable areas. This, however, will lead to regional shifts in demand, with serious consequences for affected destinations and businesses (Steiger et al., 2021, p. 8).

This includes accommodation businesses, which are exposed to these consequences and have limited or no opportunities to adapt. A good example for that were the heavy snowfalls in January 2019, which led to the closure of ski resorts and roads, and consequently a decline in guest nights in January and February. Also, weather extremes like storms, heavy rainfall, flooding and landslides have become more prominent in Austria in recent years. Longer durations of extreme drought have caused fluctuations in water levels of rivers and lakes and changed their water quality. In lower altitudes, snow certainty is generally reduced, and forest fire risks have increased significantly. All of these weather conditions have relevance for the accommodation sector, directly or indirectly (Gössling & Lund-Durlacher, 2021, p. 2).

This change in conditions will impact the travel behavior of tourists coming to Austria. After all, guests are mainly attracted to Austria in winter by the appeal of the ski areas, the winter sports offers, hotels, snow guarantee on the slopes, and the mountains. In summer, the mountains, the landscape, and nature as well as the range of hiking trails are influential attracting factors, followed by lakes and rivers (Pröbstl-Haider, Wanner, et al., 2021, p. 3). Adaptation measures, like

snowmaking, are only possible to a limited extent since the periods in which the technology can be used efficiently are also decreasing. In summer, an increase of risk is expected in the activities of climbing and mountaineering due to a decrease in permafrost and an associated increased danger in alpine regions. Small-scale extreme events and changed wind conditions and thermals will affect all sports, and lower water levels specifically water sports (Pröbstl-Haider, Mostegl, et al., 2021, p. 2). While there are adaptation measures possible for some of these outdoor activities, like the construction of pools to compensate for deteriorated lakes, these measures are cost intensive and may have a negative influence on the overall holiday experience (Pröbstl-Haider, Hödl, et al., 2021, p. 1). A change in biological conditions from an increase in harmful insects, an increase in algal growth in warmer waters and from the spread of neophytes and allergenic plants might also become an increased burden for guests, while considerable health problems can arise from increased heat (Pröbstl-Haider, Mostegl, et al., 2021, p. 2).

Although tourists can react very flexibly to such changes by preferring "weather-proof" destinations, booking at shorter notice or, in the event of extreme events, canceling their vacation and switching to other resorts, accommodation providers are tied to a specific location and have little flexibility. Weather extremes can therefore have a very negative impact on the booking situation. However, the risk for accommodation establishments in cities is generally lower than for establishments in rural areas, since more alternative, weather-independent offers exist. On the other hand, cities will potentially become less attractive in summer, as heat stress in relation to temperature and humidity is already a burden today and this development will increase (Pröbstl-Haider, Lund-Durlacher, et al., 2021, pp. 78–79).

Nonetheless, there will also be a very direct impact on accommodation establishments. These include the immediate danger to building fabric triggered

by small-scale extreme weather events (storms, heavy rain, floods, land- and mudslides), increasing costs for the repair of weather damage sustained or the disruption to traffic caused by the closure of roads, having a negative impact on the booking situation. Cost increases for energy or for CO_2-intensive consumer goods can also lead to additional burdens on businesses (APCC, 2020, p. 10).

Another development in the accommodation industry must be mentioned here: guests' length of stay. In the 1970s, guests in Austria spent an average of just under seven nights (for guests from abroad) or six nights (for domestic guests) in holiday accommodations (Gühnemann et al., 2021, p. 4). This decreased to 5.3 days (for guests overall) in 1987, to 3.4 days in 2017 and to only 3.3 days the following year in 2018. Since then, there is a tendency towards shorter lengths of stay worldwide, not only in Austria, and a reversal of this trend is not likely. In Vienna and Upper and Lower Austria, which are characterized by intensive city and conference tourism, the average length of stay is significantly shorter yet again (Pröbstl-Haider, Wanner, et al., 2021, p. 3). Together with an increase in number of arrivals and number of overnight stays at accommodation establishments in Austria (see chapter 2.3.1), this means that travel intensity in general has gone up, resulting an overlap of arrival and departure traffic with local traffic also on weekdays (Gühnemann et al., 2021, p. 4). This is not only a burden for the local population, but an increase in travel intensity unequivocally means more transport related CO_2-emissions, which is the biggest contributing factor of greenhouse gas emissions in the tourism sector as a whole (UNWTO & ITF, 2019, pp. 11–12).

While finding adequate answers to this development is certainly not a challenge facing the accommodation industry alone and involves many more stakeholders like policymakers on regional and federal levels, tourism organizations and the guests themselves, they must certainly be part of the solution with an attractive range of mobility services tailored to the needs of guests. Hotels must play an

important role, especially in the areas of information, incentives and in bridging the so-called "last mile". Embedding arrival information or links to public transportation on the hotel website, providing electric cars in car sharing or other transport options on site can be just as much a part of operational measures as a pick-up service from the train station (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 83).

Speaking of the guests themselves, their expectations and possible involvement in “green” practices in an accommodation business must be addressed as well. Some researches, like Han et al. (2018, p. 64), Merli et al. (2019, p. 169) and Verma & Chandra, (2016, p. 1), suggest that there is growing pressure from guests for sustainable solutions in hotel’s operations, and that they are becoming increasingly concerned regarding the environment and environmentally friendly products. Therefore, it is crucial for the lodging industry to explore this in more detail. Akgiş İlhan et al. (2022, pp. 1–3) propose that members of the generation Z are strongly shaped by climate change in their travel characteristics . However, this pressure also seems to have its limits when it comes changes that significantly affect the travel experience. Mörth & Friedl (2021) were able to determine a high level of approval for climate and environmentally friendly measures in a study among students at FH JOANNEUM. However, if these measures meant restrictions on personal travel behavior, they quickly lost ground. The contradiction between the opportunity to travel freely and cheaply and the demand to implement measures to combat climate change is evident.

Referring to the previously discussed travel intensity and resulting CO_2 emissions, holidaymakers are willing to use more sustainable forms of mobility while being in their destinations, but there is little acceptance to forego the usual form of travel (car, plane) on arrival and departure (Gühnemann et al., 2021, pp. 10–11). Returning to the accommodation business itself, guests can be involved in environmentally conscious behavior in several areas, including the choice of food

and the economical use of towels, bed linen and hot water. It should be noted, however, that tourists are difficult to motivate to support sustainable actions directly, especially if this means to forego something, because the willingness to do that on vacation is low (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 81). It can thus be seen that the guests' increased awareness of sustainable offers and their low willingness to forgo something on vacation are at odds with each other here. In the context of this master thesis, it will therefore be interesting to explore to what extent this conflict plays a role for accommodation establishments that are certified with the Austrian Ecolabel.

Another important aspect is that accommodation businesses use high amounts of energy, with the highest share of total energy consumption is used for space heating and hot water generation, followed by power consumers without drive (minibar, kettle, sauna, etc.) and lighting (APCC, 2020, p. 10). However, the area of air conditioning is becoming increasingly important, and it can be assumed that the demand for building cooling and air conditioning will rise in the future, on the one hand due to rising temperatures, and on the other hand due to the increasing comfort requirements of guests. For Austria, studies predict an increase in energy consumption for building cooling and air conditioning with a simultaneous significant decrease in heating energy demand, which means that the total energy demand should remain approximately the same (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 87). However, because air conditioning systems require most of their energy in the form of electricity, there would be a large increase in electricity consumption and peak loads during the summer. This would require an expansion of the electricity infrastructure (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 80) and could make photovoltaic systems more appealing, also in terms of energy independence. This, however, would require investments (Kularatne et al., 2019, p. 214). In general, the energy consumption of hotels also depends on star-rating and the services offered. It similarly correlates with occupancy rates. Although 5-star hotels use most energy in absolute terms, energy consumption is mainly a

cost factor for accommodations without star rating, 1-star or 2-star ratings, because energy accounts for a larger share of operational cost in these establishments (Gössling & Lund-Durlacher, 2021, p. 7).

Conclusion

Climate change is putting pressure on the accommodation industry in many areas. The most diverse challenge here is the general loss of attractiveness of destinations in Austria, which is to be expected in the future, especially in the important winter tourism. It is important to become aware of this future development now and to make preparations. In that regard, Pröbstl-Haider, Lund-Durlacher, et al. (2021, pp. 83–84) suggest that lodging establishments position themselves with additional offers that are nature-oriented or independent of the weather (e.g. wellness, culture, events). The extent to which the Austrian Ecolabel can be a meaningful and, above all, economically viable component of this preparation will be part of the answer to sub-question SQ4. Also, the previously mentioned conflict between the guests' increased awareness of sustainable offers and their low willingness to do without on vacation has to be explored in the context of the Austrian Ecolabel and is a basis for answering sub-question SQ5, since increased customer loyalty, better image and marketing opportunities are seen as one of the main benefits of certification (Preslmair et al., 2023a, p. 2). This chapter also identified that increased energy demand, for example through increased air conditioning, can be expected in the accommodation industry in the future. In the context of sub-questions SQ2 and SQ4, certification should of course be of great benefit here since energy efficiency and associated savings potentials play an essential role. To give some insight into possibilities for accommodation establishments to take on these challenges and to act sustainable in their business operations, the following chapter will deal with sustainability in accommodation.

2.4.3 Sustainability in Accommodation

Every measure for more sustainability within an accommodation business should have the guest in mind. After all, guests are key. They make the purchase decision, deliver revenue and they use most of the resources, contributing heavily to the business's environment footprint. They can act either responsible or irresponsible in what they see and do, and in terms of where they spend their money in the destination (Warren, 2023, p. 2). While some guests cannot be involved at all in measures towards more sustainability and may even understand indulgent consumption as a main aspect of their holiday (see chapter 2.4.2), a share of guests can be involved in environmentally responsible behavior in several areas, including food choices or towel and bed linen use (Gössling & Lund-Durlacher, 2021, p. 5). It is important that new concepts promoting sustainability must be introduced to guests. Regularly, visitors are unfamiliar with the accommodation they book, the local climate, and how things generally work at the facility, which can lead to energy and water waste. It is important to understand that every guest is unique in the way they know how to use heating and cooling systems, laundry, and kitchen appliances. They will use things the way they understand, but that does not mean they know how to save (Warren, 2023, p. 182). Hence, staff members are key to bring these messages and concepts across, explain them to the guests and promote their advantages. Of course, this means that the workforce needs to be educated and trained adequately (Gössling & Lund-Durlacher, 2021, pp. 4–5).

Hotel management can find it difficult to motivate guests to consume sustainably via renunciation, but there are several options available to raise awareness of climate-friendly consumption. These include information about the CO_2 savings of dispensing with minibars, conscious consumption at the buffet, or a call to reuse hotel towels. This information on saving energy and water consumption results in a win-win situation: the guest is aware of his eco-friendly role and the

hotel company saves money (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 84). Many studies investigated the guest's possible involvement in environmentally friendly practices, specifically with regard to bed linen reuse (Chan et al., 2022), towel reuse (Gössling et al., 2019) or energy saving practices in general (Wang et al., 2023). However, these studies vary in their methodology, being conducted in different regions and cultural backgrounds as well as using different approaches. However, all studies came to the conclusion that measures work better the more precisely they are tailored to the respective target group, for example the nationality (Wang et al., 2023, pp. 9–10), age (Gössling et al., 2019, p. 282) and personality profiles (Wang et al., 2023, p. 10) of guests. The more precisely the target group was addressed, the higher the measured savings effects were. However, this can be difficult to implement for individual accommodation businesses. In this regard, the concept of "nudging" should be mentioned, which refers to purposeful changes in the choice architecture that influence peoples' behavior and guide them to make choices almost automatically, by simplifying the information provided or by offering default choices in a way that promotes desirable decisions (Lehner et al., 2016, p. 167). However, the effectiveness of these nudging-techniques in accommodation businesses also seem to rely on the hoteliers knowledge of their clientele and a careful tailoring of measures towards it (Holmström, 2016, p. 28).

As mentioned before, these strategies are also influenced by the guests' countries of origin. For example, high temperatures alone are not the deciding factor for air-conditioned rooms in many cultures. In many places, air conditioning is simply standard. Prestige also plays a decisive role (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 84). These cultural aspects need to be considered when involving the guests in the business's sustainability measures.

Regarding energy consumption, hotels have generally three options for avoiding CO_2 emissions: reducing energy consumption, increasing energy efficiency, and

switching to renewable energy sources (Gössling & Lund-Durlacher, 2021, p. 5). It is neither the aim nor the task of this master thesis to present all these options in detail. Therefore, reference is made to the online guide "Energy Management in the Hotel and Catering Industry" *(“Energiemanagement in der Hotellerie und Gastronomie*”), which has already been published in its 5th edition. This was created under the initiative "klimaaktiv" and represents a cooperation of the Federal Ministry of Labor and Economy, the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology and many interest groups from the accommodation and catering industry (BMAW et al., 2022, p. 2). It is a very comprehensive and practical guide with checklists and good practice examples and is available to the Austrian hotel and catering industry for the introduction and support of successful energy management (BMAW et al., 2022, p. 4). Only a few interesting aspects are to be discussed here.

The highest potential for efficiency improvements is in heating systems and building insulation, followed by hot water, electrical appliances, lighting, and refrigeration (Jandrokovic et al., 2012, p. 48). Together, building envelope and heating efficiency improvements are believed to achieve 25 – 70 % savings in total energy use, though investments in these areas generally have long payback times (UNEP, 2019, p. 9). Thermal insulation has a special role in that regard, as it is also relevant in the context of anticipated outcomes of climate change, such as greater heat stress in summer leading to a growing demand for air conditioning (Gössling & Lund-Durlacher, 2021, p. 5). Air conditioning in buildings is therefore often described as a vicious circle, as higher heat stress in summer leads to more demand for air conditioning, which in many cases increases electricity consumption and greenhouse gas emissions, again worsening climate change and summer heat stress. It can also exacerbate the effect of heat islands in urban areas, as waste heat from the operation of air conditioning systems has an evident effect on the ambient temperature in the streets (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 83). Air conditioning should therefore only be used where building

insulation options have been exhausted. In buildings where it cannot be avoided, various alternatives to conventional air conditioning, like geothermal cooling, may be used (Gössling & Lund-Durlacher, 2021, p. 5).

Technological possibilities for more sustainable solutions in accommodation could involve information and communication technologies (ICT) and the increasing availability and use of online booking services and smartphone applications. This can simplify the planning of trips and the combination of booking of tickets from different providers, which could make the use of more climate-friendly public transport as part of a multimodal travel chain more attractive (Gühnemann et al., 2021, p. 7). As explained in the previous chapter (see chapter 2.4.2), accommodation facilities could play an important role in that regard by providing information. However, research is currently still lacking to what extent these technologies can contribute to a shift to environmentally friendly means of transport and consequently to a reduction in greenhouse gas emissions (Gühnemann et al., 2021, p. 7).

It should be noted positively that Austrian hotels currently have a good starting point to decarbonize energy and electricity use. Heating systems based on oil and gas are no longer dominant, while wood pellet heating systems and electric heat pumps are gaining ground. Many hotels already have implemented decarbonization measures, which are primarily focused on food, transport (see chapter 2.4.2), and buildings. Also, the cost of solar panels has declined significantly in recent years, which could strengthen the interest in these technologies (Gössling & Lund-Durlacher, 2021, p. 4). In 2020, the share of renewable energy in accommodation and catering was 55 %, which is already above the target corridor of the National Energy and Climate Plan for 2030 (the target corridor is between 46 % and 50 %). Over the period 2008 - 2020, the share increased by 19 percentage points (BMAW, 2023, pp. 40–41).

Conclusion

As outlined in this subchapter, accommodation facilities have a variety of options to introduce more sustainable measures into their business operations. It was found that guests must always be at the center of these changes but are sometimes difficult to involve in these sustainable solutions. That is noteworthy for the answer to the sub-questions SQ5 and SQ6. Since hotels that are certified with the Austrian Ecolabel are also obliged to promote their certification, it is interesting whether their guests are also difficult to motivate, or if a certain "filtering process" takes place before guests even book a stay at a certified hotel, which would mean only environmentally conscious visitors would be attracted in the first place. Regarding energy consumption, the certification process for the Austrian Ecolabel should provide a good "roadmap" to savings in this regard, as already mentioned before, an important component for answering sub-question SQ2. Since the literature often mentions the increasing demand for air conditioning systems in the future which could lead to increase energy demand, it remains to be seen how certified hotels resolve this issue.

After extensive literature review, it was found that many hotels have some practices in place to increase sustainability. While one hotel may have very established linen re-use programs and waste management systems, another may have taken widespread steps to reduce energy consumption by installing various energy saving appliance in lobby and hotel rooms (Verma & Chandra, 2016, p. 3). However, only very few have embraced sustainability in every facet of their operation. This brings us to the next chapter: The Austrian Ecolabel for accommodation facilities.

2.5 The Austrian Ecolabel

After the previous two chapters of this theoretical part discussed the accommodation sector in general as well as in times of climate change, the focus now shifts to the very center of this master's thesis: The Austrian Ecolabel. To answer the central research question (*What economic advantages arise for hotels which are certified with the Austrian Ecolabel and thus acts sustainably?*), it must be understood what a certification demands of a business, what the implications and requirements for the accommodation sector in particular are, which possible challenges and benefits it creates and whether it can lead to sustainable conscious practices. Since authors like Bruhn (2016, pp. 466–470) and Kersten (2016, pp. 89–91) determine that certifications in general bring competitive advantages for businesses, the question remains why of the 68.800 accommodation establishments (not including mountain cabins) that were operating in Austria in 2022 (Statistik Austria, 2023b, p. 1), only 285 are currently certified with the Austrian Ecolabel according to its website (BMK, 2023b), representing a mere 0.41 %. Eliciting the reasons for this will be an important way to answer the central research question. Since this chapter will be relevant for answering all sub-questions SQ1 – SQ6, they will not be listed here individually.

2.5.1 Development of the Austrian Ecolabel

The Austrian Ecolabel is primarily aimed at consumers, but also at the industry. The label is intended to provide consumers with orientation for their purchases and to draw their attention to products that are more environmentally friendly than the current range of products serving the same purpose. The aim is to influence the demand behavior of consumers in such a way that these products and services are given preference. The ecolabel is also intended to motivate manufacturers and retailers to develop and offer products that are less harmful to the environment, thereby triggering a dynamic process in the market that will

positively influence the structure of supply in the direction of environmentally friendly products. Only those products and services that have been proven to be environmentally friendly and are of an appropriate quality are awarded the ecolabel. In this way, it guarantees a higher environmental standard without having to fear a loss of quality and safety (BMNT, 2019, pp. 2–3). However, the kickoff to a process towards more environmentally friendly services seems to go at a rather slow pace in the accommodation industry, considering only 0.41 % of businesses in the sector are certified. Of course, some establishments might strive for more sustainability without the guidance of the Austrian Ecolabel. After all, progress seems to be made to decarbonize energy use in the industry, for example (Gössling & Lund-Durlacher, 2021, p. 4), as mentioned in the previous chapter. The competitive advantage of a certification may have been negligible until now, or may not have been perceived adequately. Exploring this is the goal of this master's thesis.

The Austrian Ecolabel has now been in existence for over 30 years. It was introduced in 1990 on the initiative of the Ministry of the Environment as the first reliable governmental orientation aid for easy recognition of environmentally friendly products (BMK, 2023a, p. 2). It was intended to provide the public with information on the environmental impact of consumer goods through their production, use and disposal and to make consumers aware of environmentally friendly product alternatives and services (BMNT, 2019, p. 4). To this day, this is the central benefit of the label for consumers. For companies, this can be seen as both an advantage and a disadvantage. On the one hand, they can promote their own environmentally friendly products. On the other hand, it can also be a disadvantage compared to competitors who may produce in a more environmentally harmful way but do so within the framework of the applicable laws. As discussed above, the low proportion of certified establishments currently points more to the latter in the accommodation sector.

The label has continued to develop over the following years, adding more and more products and services to its portfolio. The Austrian Ecolabel for Tourism was created in 1996 as a seal of quality that demonstrates to the public the environmentally conscious management and social actions of a tourism enterprise. These businesses are committed to preserving the basis of life, look after the well-being of guests and save on operating costs (Preslmair et al., 2023a, p. 2). In 2002, the ecolabel was introduced for the educational sector (BMK, 2023a, p. 2), which is given to educational institutions that integrate characteristics for sustainable development into their educational program (Kreuzpointner et al., 2023, p. 2). On the initiative of the Austrian meetings industry, criteria for Green Meetings & Events were developed in 2010, enabling Austria to position itself internationally as a green meetings country. For example, the Eurovision Song Contest 2015 was held in Vienna as a certified Green Event, for the first time in the events history. In the arts and culture sector, a guideline for Green Producing in film and television has been in place since 2017. Since 2018, museums and exhibition halls and, since 2022, theaters and cinemas can be certified with the Austrian Ecolabel. In January 2022, a separate guideline for sustainable tourism destinations was launched. By the end of 2022, more than 4,800 products, around 460 tourism businesses and almost 40 cultural businesses are certified. In addition, 220 educational institutions and around 110 organizers of green meetings and events are entitled to bear this seal of approval (Lenhardt et al., 2023, pp. 3–4).

The Austrian Ecolabel is awarded by the Republic of Austria (BMNT, 2019, p. 10). Interested parties can apply for it at the Association for Consumer Information (*Verein für Konsumenteninformation – VKI*). Applicant can be any natural person or legal entity that has its residence or registered office in Austria, manufactures products in Austria or imports them to Austria or offers a service in Austria. The use of the label depends on the category (see chapter 2.5.2). On the one hand, individual products can be certified. In tourism, educational institutions,

museums, theaters and cinemas, the entire operation is certified. In the case of tourism destinations, regions are evaluated regarding their sustainable orientation. In the Green Meetings & Events category, companies that organize events become licensees of the Austrian Ecolabel. This allows them to certify suitable events as Green Meetings or Green Events. Film production companies can have their film and TV productions certified (Lenhardt et al., 2023, p. 6).

The basis for certification is formed by various industry-specific guidelines with binding criteria. A qualified expert committee chaired by the Association for Consumer Information (VKI) is responsible for their development. This committee is made up of representatives of the administration (federal government, provinces, municipalities), business and NGOs, as well as experts in the respective subject area (BMNT, 2019, pp. 4–7). These guideline recommendations are reviewed by the Ecolabel Advisory Board (*Beirat Umweltzeichen*), an advisory body of the Austrian federal ministry for climate protection, environment, energy, mobility, innovation and technology (BMK), and, if approved, adopted. The guidelines are then published by the BMK (Lenhardt et al., 2023, p. 7).

Figure 5: Logo of the Austrian Ecolabel (BMK, 2023a, p. 1)[1]

The logo of the Austrian Ecolabel was designed by Austrian art and environmental pioneer Friedensreich Hundertwasser, who provided his designs free of charge. It

[1] The use of the logo of the Austrian Ecolabel was permitted by the copyright holder (see appendix).

symbolizes the elements earth, water, air and nature (BMNT, 2019, p. 4). On the question of awareness of the Austrian Ecolabel, the Gallup Institute conducted a study in 2022, which showed that 15% of respondents were spontaneously aware of the ecolabel (unsupported awareness). 58% were able to correctly identify the ecolabel when asked directly about it (aided awareness) (Gallup Institut, 2022, p. 1). If this value of aided awareness is compared to well-known Austrian quality labels, the Austrian Ecolabel can be described as quite established. The best-known seal of quality is the “AMA Gütesiegel” (97.5 % aided awareness), followed by Fairtrade (89.5%), the “AMA Bio Siegel” (75.8 %) and “ARGE Gentechnik-frei” (75.4 %). The Austrian Ecolabel would rank in fifth place, above quality labels like the “Marine Stewardship Council-label” (54.5 %) and “Bio Austria” (46.3 %) (Statista Research Department, 2022). In the Gallup Institute survey, 48% of respondents also said they had bought products with the ecolabel in the last month, with cleaning products and detergents being by far the most frequently cited products, followed by toiletries and hygiene products, writing materials and cosmetics (Gallup Institut, 2022, p. 2). Since the exact sample size of this survey could not be determined by the author, not too much should be read into this survey. In general, however, it is fair to say that consumers mainly associate physical products with the ecolabel, whereas it does not seem to be so well established in tourism, or more precisely in the context of this master's thesis, with accommodation establishments. Since, as previously noted, only 0.41 % of accommodation establishments in Austria are certified, this is not surprising. Here it will be interesting to see how the certified establishments perceive this and how they deal with it.

In the context of the Austrian Ecolabel, the international cooperation with other environmental certifications are noteworthy, particularly with the EU Ecolabel and the “Blauer Engel” (the German Ecolabel). This helps companies to establish themselves in export markets with their products and services. (Lenhardt et al., 2023, pp. 3–4). Many criteria of the Austrian Ecolabel are equivalent to those of

the EU Ecolabel, which is why both can be applied for at the same time (Preslmair et al., 2023b, p. 12,17). It was launched in 1992 by the European Commission. By the end of 2022, the EU Ecolabel for products was used by almost 110 licensees offering a total of 760 Ecolabel products. In Austria, more than 100 accommodation and camping facilities bear the European Ecolabel (Lenhardt et al., 2023, p. 8).

Conclusion:

When looking at the history of the Austrian Ecolabel, it shows that it has constantly evolved. The first major expansion can already be deemed to be the introduction of the Austrian Ecolabel for tourism, which highlights the central importance of this sector for the environment and the economy in Austria. Nevertheless, despite its relative familiarity, consumers seem to associate the label mainly with physical products and less with tourism services. As mentioned above, it will be interesting to see how certified businesses perceive this (sub-question SQ5). It is also evident that quite a few stakeholders are involved in the development of the guidelines, which raises the question whether the certification process itself is perceived as unbureaucratic and simple by the businesses. In this context, it must be mentioned that a separate Austrian Ecolabel software was developed for the application process (Preslmair et al., 2023b, p. 5).

2.5.2 Categories of the Ecolabel

The Austrian Ecolabel is awarded in a total of five categories, which are now briefly presented (Lenhardt et al., 2023, pp. 4–6):

- **Products & Services**: The Austrian Ecolabel is awarded to products and services that stand for guaranteed high environmental compatibility and range from household products to financial products and mobility. These fulfill strict criteria in terms of quality, usability, durability, health

protection and safety. In addition, the entire life cycle from raw material extraction to packaging and disposal is checked for sustainability.

- **Tourism & catering businesses**: Responsibility for guests and employees as well as environmental and social compatibility are prerequisites for being awarded the Austrian Ecolabel in tourism. Certified are five-star hotels, catering businesses as well as small private guesthouses, campsites and mountain cabins. Energy-saving measures, environmentally sound waste management and efficient use of resources are just some of the many requirements placed on businesses. Tour operators can certify travel offers that meet the specified environmentally and socially responsible criteria. In addition, a separate ecolabel guideline for sustainable tourism destinations was launched in January 2022.
- **Educational institutions**[2]: Kindergartens, schools and extracurricular educational institutions contribute to environmental protection with educational, health-promoting and ecological measures. Particular attention is paid to the quality of the learning culture, the assessment of the social school climate and the promotion of children's and young people's health to comply with the principles of education for sustainable development.
- **Green Meetings & Events**: Many events leave a large ecological footprint and place an enormous burden on the environment. Organizers who host events that are certified with the Austrian Ecolabel pay attention to things like regional value creation and social compatibility, the environmentally friendly arrival and departure of guests, and sustainable products when supplying guests.
- **Art & Culture**: Since 2022, the guidelines for museums, Green Producing for film and TV, and cinema and theater operations have been combined under the "Art & Culture" category.

[2] The FH JOANNEUM in Bad Gleichenberg was the first university of applied sciences in Austria certified with the Austrian Ecolabel (2011-2023) (UBZ, 2020)

Conclusion:

Each of these categories include different guidelines, depending on the product or service that is to be certified. For this master thesis, mainly the guideline "Tourism, Catering & Cultural Establishments" (UZ 200) is important, which includes a variety of types of establishments. Going into more detail, guideline UZ 201 regulates accommodation establishments in particular (Preslmair & Fichtl, 2023, p. 5). To comprehend what the challenges of a certification are (sub-question SQ1), what economical saving effects can result of it (sub-question SQ2), what strategic advantages can arise (sub-question SQ3) and how relevant it is in the marketing strategy of certified businesses (sub-question SQ5), one must first understand in which areas of business in particular the Austrian Ecolabel is relevant. That is the reason for a more detailed discussion of the guidelines UZ 200 and UZ201 below, where the criteria for certification will be presented.

2.5.3 Criteria for the Ecolabel for Accommodation Businesses

The basic requirement for the award of the Austrian Ecolabel is compliance with all relevant laws and regulations of the European Union, the federal government, the state and the responsible municipality (BMNT, 2019, p. 13). Furthermore, there are no pending environmental or nature conservation proceedings and employees are legally employed, insured and are paid at least the minimum wage according to the collective labor agreement (Preslmair & Fichtl, 2023, p. 8).

The criteria of the guideline UZ 200 (or UZ 201) are basically divided into mandatory and additional criteria. The mandatory criteria must be met by the company in any case to be certified and depend on the exact type of operation and the offer. For the additional criteria, the company must fulfill a certain number of criteria in order to achieve a required minimum number of points. These criteria deal in more detail with the specific situation of the respective company (BMNT, 2019, p. 13). The catalog of mandatory criteria is divided into

eleven thematic groups. Since the presentation of each guideline relevant for accommodation establishments would not only exceed the scope of this master thesis but can also be read quite easily on the website of the Austrian Ecolabel (*www.umweltzeichen.at*), only the individual thematic groups are presented below. If applicable, these are then related to the relevant sub-questions to filter out the information relevant to this master thesis. Findings from the previous chapters, most notably the defined challenges of accommodation providers (see chapters 2.3.3 and chapter 2.4.2), are likewise discussed at appropriate points. Since meeting all the guidelines can, of course, generally be seen as a challenge regarding sub-question SQ1, it will not be addressed individually.

2.5.3.1 Mandatory Criteria

1. Management and communication (guidelines M01 – M14)

This group of guidelines is about establishing a sustainability and environmental management system for the most relevant aspects of energy, water and waste. This is to be documented and reviewed on a regular basis. The company employs men and women equally and does not discriminate against minorities. Employees are also trained in environmental aspects. Guests are to be informed about the sustainability concept and are encouraged to support it (by saving energy, water, no food waste etc.). Guideline M09 specifies the correct use of the ecolabel in the company's communications. Leisure activities or excursions organized by the company are also regulated to ensure that they have no negative impact on people or the environment (Preslmair & Fichtl, 2023, pp. 12–17).

The establishment of a management system is also seen in the literature as an important cornerstone of sustainable hotels (Butler & Szromek, 2019, pp. 28–30). Regarding sub-questions SQ2 and SQ6, it is important to determine whether the establishment of this system also revealed savings opportunities to hotels of which they were previously unaware and which they still benefit from today.

Many guidelines also include the involvement of guests in the sustainability concept. In previous chapters (see chapters 2.4.2 and 2.4.3), however, it was noted that motivating guests to do this is often difficult. The extent to which this also applies to certified hotels needs to be determined. The guideline M09 on communication is of course directly relevant for sub-question SQ5. In chapter 2.4.2, it was also noted that many leisure activities in Austria can no longer be carried out or can only be carried out to a limited extent due to climate change, which leads to a loss of attractiveness and thus the absence of guests. The guidelines for environmentally compatible leisure activities could provide businesses with some resilience against this.

2. Energy and climate protection (guidelines E01 – E14)

This group refers to various energy saving measures. An energy performance certificate or energy audit must be performed before an application is submitted. Windows must be well insulated, boilers must be properly maintained, and energy-efficient appliances must be used for space heating, water treatment and air conditioning. Guideline E09 closely regulates energy efficient lighting. Fossil energy sources must generally be avoided. Instead, 100 % of the energy demand must be covered by renewable energy sources, either from own production (photovoltaic system) or by purchasing 100 % green electricity with Austrian certificate of origin. The CO_2 emissions caused by the company must be estimated and documented (Preslmair & Fichtl, 2023, pp. 18–23).

Clearly, this group is directly related to sub-question SQ2, as many guidelines aim to reduce energy consumption. Indeed, it has been noted that inflation, caused in large part by high energy prices, is one of the biggest challenges facing the accommodation industry (see chapter 2.3.3). It is interesting to know the time period in which savings measures become visible, also in terms of energy independence, and how long it takes for companies to see a return on investment (e.g. for insulation measures or a photovoltaic system). In previous chapters, it

was noted that air conditioning may become increasingly important in the future, and thus require more energy (see chapters 2.4.2 and 2.4.3). Certification with the Austrian Ecolabel could prepare companies for this, as it prescribes energy-efficient air-conditioning units in combination with insulation measures. The combination of all these various measures should companies prepare for the anticipated outcomes of climate change (Gössling & Lund-Durlacher, 2021, p. 5), which is directly linked to sub-question SQ4.

3. Water (guidelines W01-W04; W12)

This group is concerned with the sustainable use of water in operations. Water-saving measures must be implemented for things like toilets, urinals, water taps and showers. Mobile dishwashers must be operated in a water-saving manner (Preslmair & Fichtl, 2023, p. 24). This, in turn, helps to increase resilience to the negative effects of climate change, such as the phases of drought already mentioned several times before, which are also to be expected more frequently in Austria in the future (Gössling & Lund-Durlacher, 2021, p. 2). Careful handling of drinking water is thus not only a potential savings measure, but a necessity in some regions in the future.

4. Waste and circular economy (guidelines A01 – A04; A12)

The company has an up-to-date written waste management concept. Attention must be paid to waste separation and proper input into recycling systems. Guests are to be asked to participate in this waste management concept and to separate waste properly. Special emphasis is also to be placed on avoiding food waste (Preslmair & Fichtl, 2023, pp. 25–26). However, it should be kept in mind that environmentally friendly waste disposal is only partly in the hands of the companies themselves. The municipalities must also offer appropriate opportunities to dispose of or recycle the waste properly. This could be a challenge, especially in more rural regions, which in turn would mean more effort and thus costs for the companies.

5. Air / Noise (guideline L07)

Smoking is prohibited in common (indoor) areas, rooms and in the entire leisure and wellness area (Preslmair & Fichtl, 2023, p. 27).

In guidelines of groups 3, 4 and 5, the guest is also often at the center of attention. Again, the question is whether guests are willing to support these guidelines and how companies motivate them to do so. Since, for example, a smoking ban has already been in effect in restaurants in Austria since November 1, 2019 (BMSGPK, 2021), implementation should not be too much of a problem for certified businesses. However, it could certainly make the work environment more pleasant for employees.

6. Office / Print (guideline B01 – B02)

Office papers and stationery provided by the company must be certified with an ecolabel (according to ISO Type-1) (Preslmair & Fichtl, 2023, p. 28). Unlike other requirements that are seen or experienced by guests, this aspect has limited marketability because it happens mainly in the background. However, since it is also not an insignificant cost factor, it could in turn motivate to avoid paper.

7. Cleaning / Chemistry / Hygiene (guideline R01 – R06)

Storage, use, handling and disposal of chemicals is properly performed and managed. The use of potentially polluting products is minimized and only undertaken when more innocuous products or processes are not available. Washing and cleaning products shall be certified with ecolabels (according to ISO Type-1). The use of disposable products in sanitary areas shall be minimized (Preslmair & Fichtl, 2023, pp. 29–30). Like the L07 guideline on air/noise, this not only has an impact on the environment, but in turn can contribute to the well-being of employees and guests by avoiding potentially harmful substances.

8. Building / Living / Equipment (guideline G01 – G03)

New constructions and alterations may only be carried out in accordance with legal requirements and on appropriately dedicated land. These must also not have a negative impact on ecosystems and the activities of the operation must not jeopardize the supply of neighboring facilities and municipalities. The entire operation must be usable without barriers. In addition, so-called "open-front coolers" are prohibited in self-service areas (Preslmair & Fichtl, 2023, p. 31). This group is also linked to sub-question SQ4, as the guidelines aim to reduce negative impacts on the environment, making operations more resilient to the effects of climate change. It is also intended to avoid negative effects of the operation on the local region. This is in the interest of the company, since a good local network can only be beneficial. In addition, some guidelines regarding food and beverage /kitchen require a certain amount of locally produced food. In the spirit of inclusion, the guidelines of this thematic group also ensure that people with physical disabilities can use the facility.

9. Food and beverage / Kitchen (guidelines K01 – K18)

Portion packs (e.g. coffee capsules) must be avoided or at least properly recycled. Disposable tableware and disposable products are to be avoided in general. Attention must also be paid to the regional and organic origin of the products used, which is defined in individual guidelines for various food products. Regionality and organic cultivation must also be made recognizable to guests. Products that are not available regionally should at least have the Fairtrade seal. Various dishes may not be offered at all because of the protection of species and ethical animal keeping (Preslmair & Fichtl, 2023, pp. 32–39).

The abandonment of disposable products should also be seen in the context of the guidelines regarding waste and circular economy. Due to the use of regional and organically grown products in the certified accommodation facilities, it can be assumed that they are also of high quality. This could mean the advantage of

a high customer satisfaction and thus customer loyalty as well as a good integration of the business into the local community, since it cooperates with regional suppliers (sub-question SQ3). Especially in regions that are known for a regional specialty, for example the white wine region of Southern Styria, this could represent a competitive advantage and help in marketing (sub-question SQ5). Regarding the example of wine it should be noted, however, that only about 13 % of the wine-growing area in Austria is cultivated organically (BML, 2021b).

10. Transport / Mobility (guidelines V01 – V04)

Guests and employees are to be provided with easily accessible information on climate-friendly arrival and departure as well as on climate-friendly transport options on site (public transport, bicycles, sharing offers, etc.). In addition, the company takes explicit measures to encourage guests and employees to travel to and from the location in a climate-friendly manner. If the company is located near an international airport or train station, it must be accessible by public transport or a shuttle service must be set up. Guideline V04 also regulates the extent to which the company's own vehicle fleet must be designed to be climate-friendly for possible transport services (Preslmair & Fichtl, 2023, pp. 40–41).

Looking back at chapter 2.4.2, it was stated that accommodation establishments must certainly be part of the solution for climate-friendly mobility for guests, especially by bridging the so-called “last mile” (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 83). The Austrian Ecolabel has cast this into concrete guidelines. Here, it will be exciting to see to what extent guests and employees accept these measures and what role this plays for guests when booking accommodation. However, it can also be assumed that businesses in regions with poor public transport connections are likely to have a difficult time here and will have to rely on creative solutions. In 2018, the Austrian Transport Club (*Verkehrsclub Österreich – VCÖ*) launched an own project for this purpose, entitled "Last Mile" (VCÖ, 2018). The results were very differentiated, as each region has different

requirements and thus needs its own solutions. As with many other services, however, the better the service is communicated and the easier it is to use, the more likely it is to be accepted (VCÖ, 2019).

11. Outdoor / Open spaces / Biodiversity (guidelines F01-F02)

Any new planting of outdoor areas shall be done with native plant species adapted to the site. Also, any disturbance to natural ecosystems caused by activities of the operation, such as outdoor activities for guests or the growing of own food, should be minimized and, when necessary, remediated and compensated for (Preslmair & Fichtl, 2023, p. 43). These guidelines should not only prevent the loss of attractiveness of destinations, one of the biggest identified threats to accommodation businesses (see chapter 2.4.2), but also make them more resilient to changes caused by climate change (sub-question SQ4).

2.5.3.2 Additional Criteria

In addition to the mandatory criteria just described, an accommodation facility must also fulfill additional criteria to be certified with the Austrian Ecolabel. These criteria can be taken from the given criteria catalog or can be defined by the hotel itself. Each criterion is worth a certain number of points, depending on the required measures. In total, 35 points must be achieved, or more depending on the scope of services offered by the establishment (Preslmair et al., 2023b, p. 12). In the criteria catalog, these are again subdivided into the eleven thematic groups mentioned. Since they can be very individual for each company, only two criteria are presented here as an example that can be linked well to the research questions and to the findings of the previous chapters. The entire catalog of

criteria is in again available on the website of the Austrian Ecolabel (*www.umweltzeichen.at*[3]).

Criterion M17 deals with employee policy and social benefits. The company actively implements measures that go beyond the legal requirements to promote youth training, equal treatment of all employees or the integration of minorities. Furthermore, employees receive additional benefits such as time off for educational measures or free meals. The private situation of employees is also considered when arranging working hours, thus enabling a "work-life balance" and, when recruiting personnel, the company cooperates with businesses that support disadvantaged people in re-entering the labor market. Criterion M18 also contains several provisions for training employees in environmental aspects (Preslmair & Fichtl, 2023, pp. 57–58)

These two guidelines are singled out as examples because the shortage of skilled workers was identified in chapter 2.3.3 as one of the biggest current problems in the accommodation industry. Here, difficult working hours combined with low pay were identified as the main reasons. However, both guidelines M17 and M18 seem to be designed precisely to address this problem by taking steps to make the workplace more attractive. Regarding sub-question SQ2, it will therefore be interesting to see whether certified companies meet these additional criteria and whether they can report advantages in personnel recruitment as a result.

Conclusion:

After a detailed examination of the individual criteria of the Austrian Ecolabel for accommodation establishments, it is obvious that they are designed to be practical. They are revised regularly and supplemented by additional guidelines (Lenhardt et al., 2023, p. 8). Almost all problems of accommodation

[3] The entire catalog of criteria can be accessed here: https://www.umweltzeichen.at/file/Richtlinie/UZ%20205/Long/Uz205_R6a_Campingplätze_2017.pdf

establishments identified in the previous chapters can be transferred to concrete guidelines and are addressed there. Also, all sub-questions could be directly assigned to at least one topic group, thus laying important groundwork for answering them. However, what has not yet been considered here is the implementation in practice and the challenges of the certification process. Primarily, this will be done in the empirical part of this work. In the following, possible challenges for companies are described that the author encountered during the literature research.

2.5.4 Challenges for a Certification

To put the challenges of certification, which were found during the literature research, into a framework, the problem groups defined by Bruhn (2016) for certification processes are used. This is done before the empirical study of this master thesis, so there is no claim to completeness. It merely provides an initial overview and should provide groundwork for answering sub-question SQ1:

1. Certification standard related problems

This group includes problems related to rigid framework conditions of certifications, so that the individual situation of the company might not be addressed. Issues relating to the definition of quality targets, employee motivation and high bureaucratic costs are also classified here (Bruhn, 2016, pp. 470–471). In this context, it must be borne in mind that certifications of a certain quality always involve a dilemma. On the one hand, strict rules of an eco-certificate, in the case of the Austrian eco-label especially concerning the mandatory criteria, are also a great sign of quality. Consumers can thus be sure that it meets high standards. The Austrian Ecolabel specifically advertises this quality assurance for consumers. On the other hand, strict rules always mean more difficult implementation, monitoring and higher bureaucratic effort. The division of the criteria into mandatory and additional criteria can be seen as an

attempt at finding a balance. The mandatory criteria ensure that the quality standard is maintained, while the additional criteria address the individual situation of the company.

The criteria described before are to be implemented in the intended form and documented for verification. Many of them can be verified by self-declaration or are determined during on-site inspections. For some criteria, however, written proof is required (e.g. inspection records regarding heating maintenance, regulated in guidelines E04 and E06). Furthermore, the waste concept and the environmental concept must be presented in convincing quality. In addition, either an energy certificate in accordance with guideline OIB 6 of the Austrian Institute for Building Technology or an energy assessment by an energy technician must be provided. For the documentation of the criteria in a simple and standardized form, there is an own ecolabel software. Nevertheless, for the implementation of the requirements, the involvement of an external consultancy is recommended (Preslmair et al., 2023b, p. 17). Of course, this can cause considerable additional costs, depending on the type and scope of the consultation. According to information from the Ecolabel itself, the daily rates for a consulting day are usually the rates set by the chambers of commerce for subsidized consulting, which are approximately between EUR 700 and EUR 900 (excl. VAT) (Preslmair et al., 2023b, pp. 23–24). The Austrian Ecolabel website lists advice centers for the individual federal states (Österreichisches Umweltzeichen, n.d.). However, both documentation and implementation always involve effort, whether it is additional staff time for proper documentation or costs for an external consultant.

2. Certification process related problems

Certification process related problems include aspects related to the certification process itself, such as the cost of certification or lack of objectivity in auditing the companies (Bruhn, 2016, p. 471). Documentation of compliance with the criteria

has been discussed previously. Of course, the ongoing monitoring of the fulfillment of the criteria must also be considered, again associated with personnel effort and thus costs. Also, for the use of the Austrian Ecolabel, annual user fees are to be paid depending on the size of the awarded company. In addition, a one-time application fee must be paid. The costs for any consulting services must, of course, be borne by the companies themselves (Preslmair et al., 2023b, p. 20). The fees also include the costs of the inspection (Preslmair et al., 2023a, p. 4). The list of fees can be found in the table below (see table 2).

Austrian Ecolabel	Application Fee (one-time)	User Fee (annually)
CATEGORY 1 Accommodation up to 20 Beds	EUR 490	EUR 170
CATEGORY 2 Accommodation with 21 – 100 Beds	EUR 780	EUR 300
CATEGORY 3 Accommodation with 101 – 200 Beds	EUR 960	EUR 470
CATEGORY 4 Accommodation with 201 – 300 Beds	EUR 1.140	EUR 680
CATEGORY 5 Accommodation with over 301 Beds	EUR 1.500	EUR 920

Table 2: Fees for certification with the Austrian Ecolabel (based on Preslmair et al., 2023b, p. 20)

3. Company-related problems

Company-related problems are found within the company to be certified, such as lack of motivation of employees in the certification process, unclear distribution of tasks, internal communication difficulties and problems in cooperation with the certification company (Bruhn, 2016, pp. 471–472). Pröbstl-Haider et al. (2021, p. 78) conclude that there is a correlation between company size and a certification with the Austrian Ecolabel, according to which smaller companies are less likely to be certified. In addition, certified companies are not able to become steadily

more sustainable. Instead, performance stagnates at a good level (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 78). It will be the task of the survey to verify these findings or to address the potential reasons for them.

4. Industry-related problems

Industry-related problems include those with the credibility of the certification. Once certification is established within an industry, in some cases there is a certain pressure on competitors to certify, which is then often interpreted as a standard (Bruhn, 2016, pp. 472–473). Such problems could not be identified during the literature search. On the contrary, it is not possible to speak of any establishment of the Austrian Ecolabel in the accommodation sector and an associated pressure for certification, as it was found that only 0.41 % of Austrian accommodation establishments are certified with the Austrian Ecolabel. However, it is precisely this lack of establishment that can be seen as one of the main problems, as customers are thus unable to perceive the ecolabel at all to trigger a dynamic process in the market.

Conclusion:

The main challenge identified in this chapter is the effort involved in providing all documentation (e.g., environmental, waste, and energy concept, audit trails, own records). In addition, the help of external consultants is recommended for the implementation of many requirements, which can again increase the costs. So, it will be interesting to see in the survey data to be obtained which of these documentations is the most difficult to provide according to the experiences of the certified businesses, how the certification process is generally perceived, and whether the costs of certification ultimately pay off. On the other hand, of course, there are all the benefits that come with certification. These are the subject of the following chapter.

2.5.5 Benefits of the Certification

Bruhn (2016) divides the benefits of a certification into two groups. The **external effects** of certification include things like increased information security and transparency for consumers, a positive advertising and image effect for the company, or advantages in marketing. In general, a company can differentiate itself from its competitors in this way (Bruhn, 2016, p. 466). Authors like Kersten (2016, p. 89) and Blind & Mangelsdorf (2016, p. 26) also attribute potential competitive advantages for companies to certifications.

In terms of **internal effects**, increases in efficiency and an improvement in the cost-benefit ratio are directly associated with certification. In many cases, the overall costs of the company are reduced in the medium to long term. An increase in employee motivation and an improvement in quality awareness within the company can also be mentioned here (Bruhn, 2016, pp. 466–467). In the following, benefits of a certification with the Austrian Ecolabel are now described, which were found during the literature research.

Environmentally oriented operational management, such as the sensible use of energy, water and cleaning products as well as waste avoidance through conscious purchasing and waste separation, can result in considerable operating cost savings for accommodation businesses certified with the Austrian Ecolabel (Preslmair et al., 2023a, p. 3; Pröbstl-Haider et al., 2021, p. 78). Also international studies that examined hotels with sustainable management found were able to identify such savings (Franco et al., 2020, p. 6; Chen et al., 2018, p. 1398). However, it must be remembered that the level of these savings depends on numerous factors, which is why this cannot be directly transferred to the Austrian location.

Certification with the Austrian Ecolabel also acts as a positive image signal. It signals to the target groups of the certified businesses a high level of environmental and health compatibility or a consistent orientation toward the environment and sustainability. In this context, the ecolabel functions as an "additional brand" alongside other important decision-making factors such as price, service and quality. The weight of the Austrian Ecolabel in the decision-making process depends heavily on the environmental sensitivity of the target group, but also on the convincing positioning of the label in advertising (BMNT, 2019, p. 9). Studies of Ecolabels on other products came to similar conclusions. Williams et al. (2023) explored the impact of an ecolabel on purchasing decisions for meat products and found that while ecolabels had the potential to influence purchasing decisions, other factors such as price or habitual shopping played a far greater role. In addition, consumers' low knowledge about the label is an obstacle (Williams et al., 2023, p. 9). Baumeister et al. (2022) came to similar conclusions in their study of airline passengers' purchasing decisions. Those who were environmentally aware in advance were more open to the label, and the great importance of informing customers about the label was also found here (Baumeister et al., 2022). The low dissemination of the Austrian Ecolabel and the associated low level of awareness among consumers could therefore undermine the effect of a positive image signal.

The criteria of the Austrian Ecolabel could be used by other companies for orientation and as a reliable environmental standard. They provide an overview of the state of environmental protection in the service segment and can motivate them to surpass it through innovation (Lenhardt et al., 2023, p. 7). In the case of accommodation establishments, this still seems to work little due to the low proportion of certified establishments. However, it must be considered that a business can take steps towards more environmental awareness without being certified.

The certification can be considered a quality guarantee of the accommodation facility for guests. They can expect an enjoyable and restful stay with healthy and regional food. The well-being of the guests is also ensured by things such as a comfortable indoor climate with optimized heating control and thermal insulation or creation of a pleasant indoor air through selected materials and a non-smoking area (Preslmair et al., 2023a, p. 3). Since the awarded hotels are encouraged to support their guests in climate-friendly mobility (Preslmair & Fichtl, 2023, pp. 40–41), guests can benefit from assistance from the establishments in planning their journey. Some ecolabel hotels even offer guests who travel in a climate-friendly manner a lower overnight rate (Umweltzeichen-Hotels, 2023). These measures are intended to achieve a high level of customer satisfaction and thus customer loyalty, should customers value this. In this context, reference should again be made to numerous international studies, such as Merli et al. (2019, pp. 176–177), Han et al. (2018, p. 64), Verma & Chandra (2016, pp. 2–3), Kularatne et al. (2019, p. 214), and Chen et al. (2018, p. 1398), which have established a link between sustainable accommodation management and increased customer satisfaction or customer loyalty in hotels in various parts of the world. It will be interesting to see if Austrian Ecolabel certified hotels have similar experiences and whether they can report advantages in attracting guests. The aforementioned studies by Williams et al. (2023) and Baumeister et al. (2022) in other product groups assign ecolabels a rather subordinate role in purchasing decisions.

Also worth mentioning is the advantage that licensees of the label benefit from extensive cooperation and marketing activities as part of the network of product manufacturers, tourism businesses and destinations, event companies and educational institutions (Lenhardt et al., 2023, p. 8). This includes free entries for businesses on the ecolabel website (*www.umweltzeichen.at*) as well as in target group-specific publications, promotion with at trade fairs and events, and the awarding of the ecolabel by the minister of the environment (BMNT, 2019, p. 10). Finally, there are benefits for the region in which the certified company operates.

These include the company's contribution to improving the environmental situation in the region, lower CO_2 emissions through the use of renewable energies and the strengthening of the regional economy and culture through preferential purchasing in the region (Preslmair et al., 2023a, p. 3). What actual value the certified companies attach to these benefits will be part of the survey.

Conclusion:

As previously described in the criteria of the Austrian Ecolabel (see chapter 2.5.3), numerous measures are to be taken to increase efficiency in the areas of energy, water and waste. In this chapter, it could now be established that this also results in savings effects for certified companies, which is directly linked to sub-question SQ2. Increased customer satisfaction and thus loyalty among guests was noted (sub-question SQ3), which is also related to various opportunities in marketing (sub-question SQ5). This is interesting because in chapter 2.4.3 it was stated that any change in a hotel towards more sustainability should have the guest himself in mind, as he ultimately decides on their success (Warren, 2023, p. 2). In addition, the region itself also benefits from a certification of the establishment with the Austrian Ecolabel. This in turn could result in various strategic advantages for the company, as also discussed in chapter 2.5.3.

Now that the theoretical part of this master's thesis has laid important foundations for answering the sub-questions and the central research question, the empirical part follows. The ultimate goal of the empirical part is to provide a satisfactory answer to the research questions based on this foundation.

3 Empirical Market Research

After defining the problem and formulation the central research question in the introductory chapter of this master's thesis (see chapter 1) and conducting secondary research on the problem in chapter 2, the design and data collection phases for the empirical part will be documented and described now, which will build on the knowledge gained in the theoretical part.

3.1 Methodology and Research Design

A research design is a framework for conducting a marketing research project, which details the procedures necessary for obtaining the information needed to structure or solve the research problems (see chapters 1.3 and 1.4). It can be seen as the foundation for conducting the project, as it ensures that the marketing research project is conducted effectively and efficiently (Malhorta et al., 2017, p. 61). Within market research, a distinction is made between **secondary** and **primary research**. The type of data acquisition and the data material used serve as differentiation criteria. Secondary research, often referred to as desk research, involves obtaining and analyzing data material that already exists and has been collected for other purposes in order to solve a problem (Magerhans, 2016, p. 63). As already explained before, the theoretical part of this master's thesis (see chapter 2) is therefore secondary research.

In contrast to secondary research, primary research, also called field research, involves the acquisition of original data material for the solution of the respective problem. The data collection methods used are surveys and/or observation (Magerhans, 2016, p. 67). It is important to understand that secondary and primary research should not be viewed as competing, but rather complementary

(Field et al., 2012, p. 3). Correspondingly, this master's thesis utilizes both approaches, with the theoretical part providing the basis for the empirical part.

Within primary research, a further distinction is made between **qualitative** and **quantitative research**. Qualitative research is characterized by an unstructured, primarily exploratory design based on small samples, and is intended to provide depth, insight and understanding. Quantitative research are research techniques that seek to quantify data and, typically, apply some form of measurement and statistical analysis (Malhorta et al., 2017, p. 150).

For this master's thesis, the advantages and disadvantages of both methods were weighed, and finally a quantitative approach in the form of a standardized questionnaire was chosen. Thus, **quantitative primary research** is applied. With the answer to the central research question (*What economic advantages arise for hotels which are certified with the Austrian Ecolabel and thus acts sustainably?*) statements concerning the whole population are to be possible, which in the context of this thesis are all accommodation enterprises certified with the Austrian Ecolabel. Marko (2021) and Dockal (2021) also dealt with the effects of a certification with the Austrian Ecolabel, but concentrated their empirical research to one hotel enterprise each and, accordingly, used qualitative methods. However, the aim of this thesis is to achieve results that are generalizable, which is a key advantage of quantitative research (Magerhans, 2016, pp. 70–71). Another important reason for using this approach was already discussed in the theoretical part, namely the lack of qualified personnel in the accommodation industry (see chapter 2.3.3). Having that in mind, it was concluded that it would be difficult to find a reasonable number of interview partners for a qualitative survey, as representatives of the industry simply would not have time to participate. A quantitative approach was deemed more suitable, as the completion of a questionnaire is less time-consuming than the participation in an interview or a group discussion. It also removes the interviewer bias, as it ensures

a consistent form of measurement (Malhorta et al., 2017, pp. 273–274), which was deemed as another valuable benefit.

When evaluating data, the market researcher must be guided by the available data material. Within quantitative data analysis, a distinction is made between descriptive and inductive statistical methods. Descriptive methods only allow statements to be made about the available data set. Inductive methods are based on probability theory and thus allow conclusions to be drawn about the population. (Magerhans, 2016, p. 107). In this master's thesis, both methods are used. To depict the results of the survey itself, **descriptive methods** are used, while **inductive methods** are utilized to test the hypotheses, which are described in the following chapter (see chapter 3.2).

3.2 Hypotheses

An essential goal of secondary research is the collection and formulation of hypotheses for concrete problems and market research studies (Magerhans, 2016, p. 64). In this regard, a hypothesis is an unproven statement or proposition about a factor or phenomenon that is of interest to the researcher. In contrast to research questions, hypotheses go beyond because they are statements of relationships or propositions rather than merely questions to which answers are sought. While research questions are interrogative, hypotheses are declarative and can be tested empirically (Malhorta et al., 2017, p. 54). A hypothesis that states that there is an effect is referred to as the **alternative hypothesis**, often called an experimental hypothesis. The opposite of this is the **null hypothesis**, which states that there is no effect. This differentiation is needed because the alternative hypotheses cannot be proven using statistics, but the null hypothesis can be rejected. This means that if the data gives the researcher confidence to

reject the null hypotheses, it provides support for the alternative hypothesis (Field et al., 2012, p. 28).

Hypotheses can also be distinguished in their nature. First, it must be clarified whether correlation or difference hypotheses are used. **Difference hypotheses** consider whether there is a difference between two or more groups. **Correlation hypotheses** test correlations between variables (DATAtab Team, 2023). Furthermore, both **directional** and **non-directional hypotheses** can be used. A directional hypothesis states that there is an effect, but also states the direction of that effect. Non-directional hypotheses do not specify the direction of the effect (Field et al., 2012, pp. 28–29). In this paper, **non-directional and directional difference hypotheses** as well as **non-directional correlation hypotheses** are used and tested. These were formulated building on the findings of the theory section. The derivation of these hypotheses is now described in more detail. Both the alternative (H-A) and the null hypothesis (H-0) are stated.

Hypothesis 1: *difference – directional*

In chapter 2.3.3 of this thesis, the shortage of skilled workers was identified as one of the biggest problems facing the accommodation industry in Austria. The main reasons for this are the challenging working conditions, characterized by a low wage level compared to other industries (Bliem et al., 2022b, p. 67) and difficult working hours (WKO, 2023, p. 67, Bliem et al., 2022b, pp. 67–68). However, this problem does not seem to be perceived as strongly in cities, especially in Vienna, where there is a larger supply of labor than in rural regions (Bliem et al., 2022b, p. 74). Making one's own business attractive to potential employees could therefore play a greater role for businesses in rural regions when it comes to certification with the Austrian Ecolabel.

Relevant Variables: Geographical Area (Q2)
Reasons for certification (Q7)

H1-A: Making one's business more attractive to **potential employees** as a reason for certification is significantly more important for businesses located in **rural/alpine areas** than for businesses located in **urban/peri-urban areas**.

H1-0: Making one's business more attractive to **potential employees** as a reason for certification is not significantly more important for businesses located in **rural/alpine areas** than for businesses located in **urban/peri-urban areas**.

Hypothesis 2: *difference – directional*

Certification with the Austrian Ecolabel involves several direct costs, such as the application fee, the user fee and costs for external consulting (Preslmair et al., 2023b, p. 20). This could be a financial burden especially for small businesses. In addition, Pröbstl-Haider, Lund-Durlacher, et al. (2021, p. 78) have found that there is a correlation between company size and certification, according to which larger companies are more likely to be certified.

Relevant Variables: Size of Establishment (Q3)
Direct costs of certification (Q10)

H2-A: The **direct costs of certification** represent a significantly higher financial burden for **small** (<= 100 beds) **accommodation facilities** than for **large** (> 100 beds) **accommodation facilities.**

H2-0: The **direct costs of certification** represent no significantly higher financial burden for **small** (<= 100 beds) **accommodation facilities** than for **large** (> 100 beds) **accommodation facilities.**

Hypothesis 3: *difference – non directional*

The ongoing monitoring of the fulfillment of the criteria is an essential aspect that entails certification with the Austrian Ecolabel (Preslmair et al., 2023b, pp. 19–20). At the same time, this could be one of the main burdens in implementing the

certification. It could be interesting to check whether there is a difference between first-time and repeatedly certified companies in the assessment of the complexity of the monitoring.

Relevant Variables: Circumstance of certification (Q5)
Implementation of the criteria (Q9)

H3-A: There is a significant difference in the assessment that **ongoing monitoring** is a challenging criterion in implementing certification between businesses that are certified for the **first time** and those that are certified for a **repeated time.**

H3-0: There is no significant difference in the assessment that **ongoing monitoring** is a challenging criterion in implementing certification between businesses that are certified for the **first time** and those that are certified for a **repeated time**.

Hypothesis 4: *difference – directional*

The potential loss of attractiveness of destinations has been identified as one of the biggest challenges facing the accommodation industry in the context of climate change (APCC, 2020, p. 12). This could affect winter tourism in particular, through things like rising snow lines and generally warmer temperatures in winter (Gössling & Lund-Durlacher, 2021, p. 2). However, foreign guests mention the ski resorts with their guaranteed snow as the main arguments for a vacation in Austria (Pröbstl-Haider, Wanner, et al., 2021, p. 3). In addition, winter tourism tends to generate higher revenues than summer tourism (Werbung Österreich, 2023, p. 1). Therefore, it is investigated whether businesses for which the winter season is more important evaluate the effects of climate change differently than businesses for which the summer season is important.

Relevant Variables: Importance of season (Q6)
Impact of climate change (Q15)

H4-A: The assessment that the impact of climate change will have a considerably negative impact on the **operations of the business** is stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.

H4-0: The assessment that the impact of climate change will have a considerably negative impact on the **operations of the business** is not stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.

Hypothesis 5: *difference – non directional*

Building on the premise of hypothesis 4, the following hypothesis 5 addresses sub-question SQ4 in more detail. As explained in chapter 2.5.3, certification with the Austrian Ecolabel includes numerous measures to increase energy efficiency (Preslmair & Fichtl, 2023, pp. 18–23). At the same time, winter tourism is generally more energy-intensive than summer tourism (BMAW, 2022). It is therefore appropriate to examine whether there is a difference in the assessment of the extent to which certification prepares for the effects of climate change.

Relevant Variables: Importance of season (Q6)
Preparation for climate change (Q16)

H5-A: The assessment that the certification with the Austrian Ecolabel **prepares the business** well for the negative impacts of climate change is stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.

H5-0: The assessment that the certification with the Austrian Ecolabel **prepares the business** well for the negative impacts of climate change is stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.

Hypothesis 6: *correlation – non directional*

Operating cost savings through the sensible use of energy, water and cleaning products, as well as waste avoidance through conscious purchasing and waste separation, are mentioned as one of the most important benefits of certification with the Austrian Ecolabel (Preslmair et al., 2023a, p. 3). However, it would also be possible for the operating costs of the business to increase (in the short term) because of the direct costs of certification, increased personnel expenses, or aspects such as the switch to green electricity. Therefore, it should be checked whether there is a correlation between the estimation of the development of the operating costs in the short to medium term and in the medium to long term.

Relevant Variables: Costs short to medium term (Q11)
Costs medium to long term (Q12)

H6-A: There is a significant correlation between the change in an establishment's operating costs caused by certification in the **short to medium term** with the expected development of operating costs in the **medium to long term**.

H6-0: There is no significant correlation between the change in an establishment's operating costs caused by certification in the **short to medium term** with the expected development of operating costs in the **medium to long term**.

Hypothesis 7: *correlation – non directional*

Image and marketing aspects are mentioned as advantages of certification with the Austrian Ecolabel, as this represents a quality guarantee of the company (Preslmair et al., 2023a, p. 3). At the same time, it was noted in chapter 2.4.2 that environmental awareness often plays a rather subordinate role for guests on vacation and that it is therefore difficult to motivate them to act in an environmentally friendly manner (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p.

81). However, it could be that a business pursuing certification with the goal of gaining a competitive advantage with guests will then advertise this more heavily. This could in turn be seen as a selling point by guests.

Relevant Variables: Reasons for certification (Q7)
Importance for guests (Q17)

H7-A: There is a significant correlation between the importance for businesses to **appeal to potential guests** through certification with the assessment that certification is an **essential argument for guests** when booking a stay.

H7-0: There is no significant correlation between the importance for businesses to **appeal to potential guests** through certification with the assessment that certification is an **essential argument for guests** when booking a stay.

The last six hypotheses have the intention of providing important insights for answering sub-question SQ6 (*Under what circumstances would a certification with the Austrian Ecolabel be beneficial for Austrian hotels in a short, medium, and long-term perspective?*). Since they are very similar, they will not be described individually. Difference hypotheses are formulated, in which the certified businesses are compared based on the characteristics **location** (urban/peri-urban – rural/alpine), **size** (large – small) and **season** (summer – winter) in the development of operating costs. Similar to hypothesis 6, the above-mentioned advantage of cost savings due to certification (Preslmair et al., 2023a, p. 4) is thus examined. This is to check whether this advantage is particularly significant for a certain type of business.

Relevant Variables: Geographical Area (Q2), Size of Establishment (Q3), Importance of season (Q6)
Costs short to medium term (Q11)
Costs medium to long term (Q12)

Hypothesis 8a (Location): *difference – non directional*

H8a-A: There is a significant difference in the change in operating costs in the **short to medium term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.

H8a-0: There is no significant difference in the change in operating costs in the **short to medium term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.

Hypothesis 8b (Location): *difference – non directional*

H8b-A: There is a significant difference in expected development of operating costs in the **medium to long term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.

H8b-0: There is no significant difference in expected development of operating costs in the **medium to long term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.

Hypothesis 9a (Size): *difference – non directional*

H9a-A: There is a significant difference in the change in operating costs in the **short to medium term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.

H9a-0: There is no significant difference in the change in operating costs in the **short to medium term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.

Hypothesis 9b (Size): *difference – non directional*

H9b-A: There is a significant difference in expected development of operating costs in the **medium to long term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.

H9b-0: There is no significant difference in expected development of operating costs in the **medium to long term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.

Hypothesis 10a (Season): *difference – non directional*

H10a-A: There is a significant difference in the change in operating costs in the **short to medium term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.

H10a-0:There is no significant difference in the change in operating costs in the **short to medium term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.

Hypothesis 10b (Season): *difference – non directional*

H10b-A: There is a significant difference in expected development of operating costs in the **medium to long term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.

H10b-0:There is no significant difference in expected development of operating costs in the **medium to long term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.

3.3 Sample and Power Analysis

The target group of this empirical study are accommodation establishments that have been awarded the Austrian Ecolabel. These are establishments certified with the Ecolabel guideline "Tourism, Gastronomy & Culture Establishments" (UZ 200), more precisely the guideline UZ201 for commercial accommodation establishments and the guideline UZ201a for private accommodation establishments (Preslmair & Fichtl, 2023, p. 5). On the website of the Austrian Ecolabel, a list of currently certified companies can be found under this guideline. At the time the survey was conducted, this applied to a total of 285 businesses (Österreichisches Umweltzeichen, 2023).

According to Cohen (1988), four parameters are crucial to define the significance of an empirical study: the **level of significance (a)**, the **sample size (n),** the **effect size (ES)**, and the desired **test strength (1-β).** This means that if three of these parameters are known, the fourth parameter can be determined (Cohen, 1988, p. 14). For this empirical study, responses from 107 participants could be acquired, thus the sample size (n) is defined as 107.

The level of significance (a) is also often called Type I error or alpha error (α). This error indicates the probability that the results of the test lead to the rejection of the null hypothesis, although it is in fact correct. This error is controlled by defining a tolerable risk of rejecting a correct null hypothesis (Malhorta et al., 2017, p. 567). The direction of the underlying hypotheses must also be considered. In a one-sided test (α1), the direction of the hypotheses is determined; in a two-sided test (α2), it is not determined (Cohen, 1988, pp. 2–3). Since both non-directional and directional hypotheses are tested in this thesis, both a one-sided and a two-sided test are applied in the analysis. Type I error is

determined to be 0.05 for this thesis. This corresponds to a 5 % probability that the null hypothesis is falsely rejected.

Effect size (ES) is an objective and standardized measure of the strength or magnitude of the observed effect in the population (Field et al., 2012, p. 57). If this value is 0, for example, there is no effect and the null hypothesis is true. The larger this value is, the stronger the effect is in the population (Cohen, 1988, pp. 10–11). Various measures are proposed in the literature to determine this effect size (ES). Widely used is Cohen's d, which is also applied in this work. Others would be Pearson's correlation coefficient (r) and the odds ratio (Field et al., 2012, p. 57). A small effect is assumed at d = 0.20, a medium effect at d = 0.50, and a large effect at d = 0.80 (Cohen, 1988, pp. 25–27). The total population for this study is known and relatively small at 285. Since the number of respondents with 107 corresponds to a proportion of 37.5 % of the total population, the effect size is set at 0.5.

The β-error or Type II error is the probability of accepting the null hypothesis even though it is actually false. Consequently, the test strength (1-β) indicates the probability of rejecting the null hypothesis when it is also false. It should be noted here that α-error and β-error are related to each other. The assumption of a very low α-error inevitably leads to a high number of β-errors. Cohen (1988, pp. 30–31) provides tables for determining the test strength (1-β), in which the three variables just determined are combined. Assuming a significance level (a) of 0.05, an effect size (ES) of 0.5, and a sample size of 107, a test strength (1-β) of 0.97 is thus determined.

3.4 Data Collection

In the data collection phase of the market research project, the relevant market data is collected (Magerhans, 2016). This will now be described for the empirical part of this master's thesis.

3.4.1 Collection Method

As already mentioned, the survey was conducted in the form of an online questionnaire. This method has several advantages, such as quick implementation compared to other methods, inexpensive execution and ensuring the objectivity of the survey (Malhorta et al., 2017, pp. 273–274). The online survey was created and conducted with the survey software QuestionPro (www.questionpro.com).

The survey was carried out between October 2, 2023, and October 16, 2023. Since the target group of the survey are accommodation establishments certified with the Austrian Ecolabel, representatives of the Austrian Ecolabel were contacted for the distribution, who sent out the accompanying letter with the link to the survey (see appendix) via their e-mail distribution list to the contact persons of the respective establishments. A total of 285 companies were thus contacted that are certified with the UZ201 ecolabel guideline relevant to this survey (Preslmair & Fichtl, 2023, p. 5). The currently certified companies can be retrieved via the website of the Austrian Ecolabel (www.umweltzeichen.at[4]).

To further increase the response rate, 50 of the certified establishments were contacted again on October 7, 2023, with a slightly modified accompanying letter for this purpose (see appendix), which were selected randomly. However, it was ensured that their selection corresponds to the proportion of certified businesses

[4] The list of certified accommodation establishments can be found here: https://www.umweltzeichen.at/de/zertifizierung/richtlinien/

per province, therefore reflecting the composition of the total population. Overall, 107 participants took part in the survey.

Before the actual survey was carried out, the questionnaire was tested by several independent persons to eliminate any possible content, technical or linguistic deficiencies and thus ensure that the survey can be carried out smoothly. This was done on different end devices. Minor adaptations were then made to the questionnaire.

3.4.2 Questionnaire structure

The questionnaire consists of 19 main questions and can be divided into five sections, each of which deals with different aspects of content. Another question (question 14a) was asked if the previous one was positively evaluated. Four different structured question types were used, as the answer options and the answer format were predetermined in each case (Malhorta et al., 2017, p. 387). When participants' opinions or assessments were asked, Likert scaling was used in which question items were to be ranked on a scale from very positive (1) to very negative (4) (Berekoven et al., 2009, p. 74). In question 7, the participants were asked to rank the reasons for certification with the Austrian ecolabel in an ordinal scale. This allows statements to be made about whether one characteristic expression is "greater" or "less" than another (Magerhans, 2016, p. 93). If there were only two different logical answer choices, a dichotomous question was used (Malhorta et al., 2017, p. 388). In question 14, a third neutral option was also added (I can't remember/I'm not sure). The last type of question used were simple single-choice questions in which various mutually exclusive response options were offered. It should also be noted that for questions eight, nine, and 13, participants were given the option of providing additional individual answers should they not be satisfied with the answer choices provided or wish to add another characteristic.

The first part of the questionnaire (questions 1 - 6) served to obtain classification information (Malhorta et al., 2017, p. 394). The participants were asked about the federal state, the geographical area, the size, the importance of seasons and the target group of their company as well as whether the company is certified for the first time or already for the repeated time. This served primarily to divide the participants into groups for the formulated difference hypotheses (see chapter 3.2) and thus subsequently to answer sub-question SQ6.

The second part of the questionnaire (questions 7 - 10) dealt with the certification process of the Austrian Ecolabel. The reasons for a certification, the challenges in the preparation as well as the implementation of the criteria of the Austrian Ecolabel were explored, which is relevant for the **hypotheses H1**, **H2** and **H3**.

The third part (questions 11 - 14) focused on the direct impact of certification, both in terms of the development of operational costs and benefits perceived by participants. In addition, the target criterion M17 was specifically addressed, which revolves around employee policy (Preslmair & Fichtl, 2023, p. 57). This part of the questionnaire thus provided information for **hypotheses H6**, **H8**, **H9** and **H10**.

Part four (questions 15 and 16) focused on the impact of climate change on the certified establishments. This provides important insights to answer sub-question SQ4, builds strongly on the insights gained in chapter 2.4 and puts this directly into the context of the certified accommodation businesses. These questions are important for **hypotheses H4** and **H5**.

Finally, the last part (questions 17 – 19) was about guest behavior, which was identified in chapter 2.4.3 as a key element of any sustainably oriented accommodation business, and thus provides information for **hypothesis H7**.

3.4.3 Data Protection and Research Ethics

Aspects relating to data protection and research ethics have already been addressed in the introductory chapter of this thesis (see chapter 1.5). Here, it will be discussed in more detail and specifically in relation to the empirical study. Throughout the entire work process, the author follows four fundamental principles of good scientific practices, as specified in the "European Code of Conduct for Research Integrity" (ALLEA, 2023, p. 5). These principles are now introduced and concretized in the context of this master thesis:

- **Reliability**: This is to be understood as ensuring the quality of the research, which is reflected in the methodology, design, analysis as well as the sources used (ALLEA, 2023, p. 5). This is done by not only explaining and presenting the methodology and research design transparently, but also by addressing the rationale behind it. Therefore, in chapter 3.1 the reasons for choosing a quantitative method in the form of a questionnaire were discussed. In addition, reliability should also be achieved by following the five-stage-model of market research (Magerhans, 2016, p. 47) throughout the entire master's thesis which gives the work process a certain framework and thus ensures traceability. The process of selecting adequate literature has already been discussed extensively before (see chapter 2.1: *Depiction of Literature Research*). Here it is again referred to the fact that all sources had to fulfill the prerequisites usefulness, actuality, credibility and, to a lesser degree, completeness.
- **Honesty**: Research should be developed, conducted, analyzed, and communicated in an unbiased, fair, and transparent manner (ALLEA, 2023, p. 5). Here, in the context of the empirical study, it is pointed out that the study was designed and conducted based on scientific literature to avoid possible biases. The choice of a questionnaire as a survey method removes interviewer bias, for example (Malhorta et al., 2017, pp. 273–274). In the spirit of honesty, however, it must also be said that the author cannot

completely free himself from possible biases, of which he may not even be aware. This, though, applies to all works to some degree that require a creative process of the writer. The author is also aware of research misconduct, which is defined as fabrication, falsification, or plagiarism in proposing, performing, reviewing and reporting research (ALLEA, 2023, p. 10), and prevents it.

- **Respect**: A respectful interaction with all persons and organizations involved in the research process (ALLEA, 2023, p. 5). The representatives of the participating companies were informed about the reason, the objectives as well as the general conditions (name of the author, institution, study program) of the empirical study via the accompanying letter (see appendix). They also had the possibility to contact the author for comments or questions and are informed about the outcome of the study should they be interested. Relevant information regarding data protection is also communicated in this way. The author maintains a respectful interaction with all relevant persons of this master thesis, such as the acting persons of FH JOANNEUM, the supervisor of this thesis as well as the representatives of the Austrian Ecolabel.
- **Accountability**: It should be ensured from idea to publication of the research, for its management and organization, as well as for its wider societal impacts (ALLEA, 2023, p. 5). For those participating in the survey, this is guaranteed by the accompanying letter as well as the possibility to give feedback. To ensure accountability towards FH JOANNEUM as well as the society, reference is made, besides to the above mentioned “European Code of Conduct for Research Integrity” (ALLEA, 2023), to the “FH JOANNEUM Guideline for Good Scientific Practice and Prevention of Research Misconduct” (FH Joanneum, 2021), whose guidelines are followed during the entire work process.

Now, aspects regarding data protection for this master thesis are discussed. Personal data are protected in article eight of the Charter of Fundamental Rights of the European Union:

> *"Everyone has the right to the protection of personal data concerning him or her. Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified. Compliance with these rules shall be subject to control by an independent authority"* (EU, 2012).

However, no personal data in this sense is collected in the questionnaire. With the help of the first six questions, classification information is obtained, which are socio-economic and demographic characteristics used to classify participants (Malhorta et al., 2017, p. 394). This is done mainly to formulate hypotheses (see chapter 3.2) with the goal to provide answers to sub-question SQ6 (*Under what circumstances would a certification with the Austrian Ecolabel be beneficial for Austrian hotels in a short, medium, and long-term perspective?*). Here, the federal state, the approximate geographical area (urban/peri-urban – rural/alpine), the approximate size of the establishment (large: > 100 beds; small: <= 100 beds), the target group, the importance of summer and/or winter season of the business and whether it is certified for the first time or already for the repeated time are inquired. All these questions are very vague and only serve to divide the participants into groups for the evaluation of the survey and thus do not allow any conclusions to be drawn about individual companies. In order not to be able to identify a single company even if several answers are combined, the data is only published in summarized form.

As previously outlined, the accompanying letter informs participants of all relevant background information about the study, as well as the privacy issues discussed here. The study is thus anonymous and voluntary for participants to complete. For any feedback or questions, the author could be contacted via a link at the end of the questionnaire. This link led to a prefabricated e-mail to the author, which could still be edited accordingly by the participant. Due to this procedure, this message cannot be assigned to individual answers from the questionnaire. Participants were informed about this possibility for feedback before the start of the study. Through this channel, the participant could also state the desire of receiving the finished results as soon as they are available.

3.5 Objectivity, Reliability & Validity

The quality of the data generated by the measurement depends crucially on the quality of the measuring process, in particular the measuring instrument. In order for the measurement results and the resulting conclusions to be reliable, the measurement process must take the quality criteria **objectivity**, **reliability** and **validity** into account (Berekoven et al., 2009, p. 80).

Objectivity of information means that it is free of subjective influences and thus intersubjectively verifiable. It is given when different persons arrive at the same result on the basis of the same measuring instrument (Magerhans, 2016, p. 87). There are the sub-forms of implementation objectivity, evaluation objectivity and interpretation objectivity (Berekoven et al., 2009, p. 80). Implementation objectivity requires that the entire process of the market research study is free of subjective influences (Magerhans, 2016, p. 87). This is ensured by the choice of a standardized questionnaire as the survey method. Evaluation objectivity is given if the question items are standardized (Berekoven et al., 2009, p. 80). This is also given by the choice of the questionnaire with standardized answer options as well

as a consistent evaluation method (see chapter 3.7). The objectivity of interpretation ensures that the market researcher draws the right conclusions from the data obtained. In doing so, the current state of research must be considered. It is often difficult to verify compliance with interpretive objectivity in practice (Magerhans, 2016, pp. 87–88). In the theory part of this thesis, the current state of research on the relevant topics was reported, which is why the objectivity of interpretation was ensured as far as it was possible for the author.

Reliability is the formal accuracy of the measurement of a characteristic. A measuring instrument is reliable under the condition of constant measuring conditions if the measured values are reproducible with repeated measurement. A measurement error that occurs with repeated measurement can have three causes. In the case of a lack of constancy of conditions, external influences lead to fluctuating measurement results. Lack of characteristic constancy refers to the phenomenon that the attitude of a respondent under the same conditions and with an error-free instrument produces different values. Lack of instrumental constancy refers to the lack of precision of a measurement instrument, for example because learning effects occur in the respondent (Berekoven et al., 2009, p. 80). Since at least a certain lack of characteristic constancy must be assumed for the underlying survey, reliability cannot be clearly determined.

The validity of a test procedure is given if it really measures what it claims to measure. Validity thus refers to the material accuracy of test results. It should be noted that there is a relationship between the quality criteria. Objectivity is a prerequisite of reliability and reliability is in turn a prerequisite of validity (Berekoven et al., 2009, pp. 82–83). Since the reliability of the study could not be guaranteed beyond doubt, the same applies to validity.

3.6 Analysis of Results

For the evaluation, the survey data were exported from the survey software QuestionPro to the statistics program Jamovi. The first step then was to perform data cleaning, which is checking the data for consistency as well as for missing responses (Malhorta et al., 2017, p. 541). However, in order not to have to eliminate an entire data record due to one missing answer, the so-called item mean imputation was used, in which the respective missing value is supplemented by the mean value of the available answers of the other survey participants (Magerhans, 2016, p. 106). This procedure was chosen due to the relatively small sample size and the very low number of missing answers. For the descriptive analysis as well as the creation of tables and graphs, the spreadsheet creator Microsoft Excel was used.

Descriptive analysis was performed for each question individually, also to get a first overview of the results. For the questions using Likert scales, the parameters **mode** and **arithmetic mean** (m) were calculated for each survey characteristic. The mode indicates the most frequently selected value, and the arithmetic mean (m) indicates the average value (Berekoven et al., 2009, pp. 190–191). The lower the arithmetic mean (m) and the mode for the respective survey characteristic, the more positively it was rated by the respondents. Question seven asked participants to rank the answer options, which was evaluated descriptively using the average rank of each option. For each answer option to be evaluated, the number of answers per rank was first multiplied by the rank position. This was done for ranking positions 1 – 5 and the results were summed. This result was finally divided by the sum of the total answers for each answer option to obtain the average rank per answer option. The dichotomous questions and the single-choice questions were evaluated using frequency tables. When appropriate, frequency tables were also created to evaluate other questions or additional aspects. In questions eight, nine and 13, participants were given the opportunity

to provide open responses. These answers were sorted and summarized according to superordinate topics.

A T-test for independent samples is used to test the difference hypotheses. First, it is necessary to fulfill the three conditions for this: Independence, normal distribution and variance homogeneity (Navarro & Foxcroft, 2019, p. 260). Independence is given by the fact that the survey was conducted by using an online questionnaire. Regarding the normal distribution, reference is made on the one hand to the central limit theorem, which states that the arithmetic mean of a sufficiently large sample is always normally distributed in practice. In the literature, 30 is specified as a sufficiently large sample size (Berekoven et al., 2009, p. 191). This is given for the compared groups of hypotheses H1, H2, H3, H8 and H9. For the remaining difference hypotheses H4, H5, and H10, the importance of summer and winter seasons is relevant, respectively. To obtain the required two groups, the answers to question six "The winter season is clearly most important" and "The winter season is rather important" are grouped into "The winter season is more important". The same procedure happens with the answers about the summer season. This gives 17 participants in the group "The winter season is more important" and 31 participants in the group "The summer season is more important". The normal distribution of these two groups was then checked using the Shapiro-Wilk test, which showed that normal distribution was not given. For this reason, the Mann-Whitney U test, which does not require normal distribution (Navarro & Foxcroft, 2019, p. 278), was used to test hypotheses H4, H5 and H10.

Variance homogeneity, which means that both groups have the same standard deviation, is rarely given in practice. However, to be able to test the hypotheses anyway, the Welch T-test for independent samples is used for hypotheses H1, H2, H3, H8 and H9, which does not specify variance homogeneity as a prerequisite.

When testing the correlation hypotheses, the normal distribution of the compared variables is also decisive for the selection of the correct test procedure. This was checked using the Shapiro-Wilk test again. If the test is not significant ($p > 0.05$), there is a normal distribution. However, if the test is significant ($p < 0.05$), there is no normal distribution (Field et al., 2012, p. 182).

As the result of the test is clearly significant with $p < 0.01$ in each case, there is no normal distribution. Consequently, a Spearman correlation is performed, which allows work with data that are not normally distributed. The significance value (p) calculated in this process indicates whether the correlation is significant or not. Spearman's rho also indicates the direction of this correlation (Field et al., 2012, pp. 224–225). The author uses the following classification for the interpretation of the correlation (see table 3), which indicates their strength.

Correlation	Strength	Direction
0.9 to 1.0	Very strong	Positive
0.7 to 0.9	Strong	Positive
0.4 to 0.7	Moderate	Positive
0.2 to 0.4	Weak	Positive
0.0 to 0.2	Negligible	Positive
0.0 to -0.2	Negligible	Negative
-0.2 to -0.4	Weak	Negative
-0.4 to -0.7	Moderate	Negative
-0.7 to -0.9	Strong	Negative
-0.9 to -1.0	Very strong	Negative

Table 3: Guide for interpreting correlations (based on Navarro & Foxcroft, 2019, p. 288)

4 Results of the Study

The final section of this master thesis deals with the evaluation of the data obtained, their analysis and interpretation. As described in the previous chapter, this will be done in three steps. First, the descriptive analysis will be performed to present the results of the study. This is followed by the evaluation of the hypotheses formulated in chapter 3.2. Finally, the findings are discussed. Within the framework of the five-stage models of market research, this chapter represents the data evaluation phase (Magerhans, 2016, p. 49). The entire statistical analysis can be found in the appendix.

4.1 Descriptive Data Evaluation

Question 1

First, participants were asked about the federal state in which their company operates. If the shares of participants per state are compared with the composition of the total certified companies per state (see table 4), these proportions are very close to one another in each case. It can therefore be argued that the composition of the population is reflected in the surveyed sample, which increases the informative value of the results.

Federal State	Certified Companies		Participants	
	Total Number	Share	Total Number	Share
Vienna	52	18%	21	20%
Lower Austria	16	6%	8	7%
Upper Austria	22	8%	8	7%
Burgenland	6	2%	1	1%
Styria	36	13%	7	7%
Carinthia	34	12%	12	11%
Salzburg	55	19%	16	15%
Tyrol	49	17%	26	24%
Vorarlberg	15	5%	8	7%
Total	**285**	**100%**	**107**	**100%**

Table 4: Participants per State compared to total certified companies (own illustration)

Questions 2 – 6

The following questions two to six served to obtain classification information, which is why they are now presented collectively. Participants were asked about the geographical area, the size and the target group of their company, whether it is certified for the first or for the repeated time as well as the importance of the summer and winter season.

Characteristic		Number	Share
Geographical Area	Urban/peri-urban	42	39,3 %
	Rural/alpine	65	60,7 %
	Total	*107*	*100 %*
Size	Large (> 100 beds)	58	54,2 %
	Small (<= 100 beds)	49	45,8 %
	Total	*107*	*100 %*
Certification	First Time	49	45,8 %
	Repeated Time	58	54,2 %
	Total	*107*	*100 %*

Table 5: Results of questions 2, 3 and 5 (own illustration)

The results presented in table 5 also show the balance of the sample. The accommodation establishments are almost equally divided in terms of size as well as the circumstance of certification, which facilitates the comparability of these groups. In terms of geographic area, there is an overhang of about two-thirds in favor of establishments in rural regions compared to about one-third in urban regions.

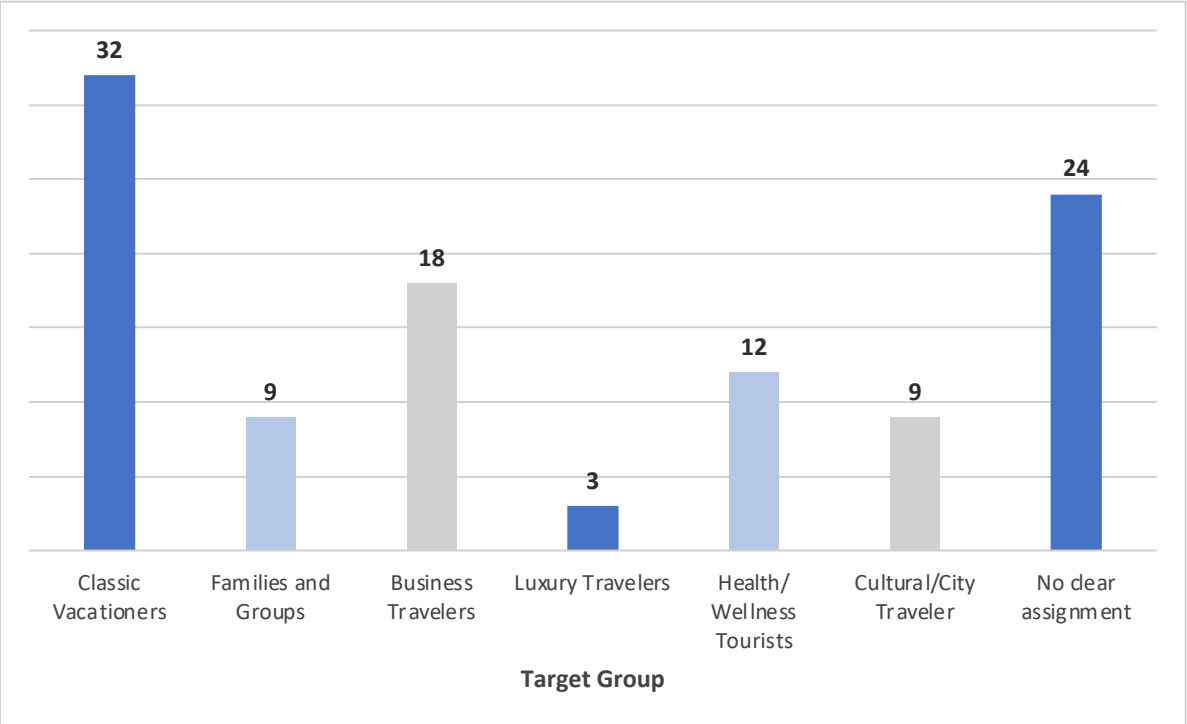

Figure 6: Target groups of participating companies, question 4 (own illustration)

If looking at the target groups of the accommodation establishments surveyed (see figure 6), classic vacation guests are the most important group (33), followed by business travelers (18) and health travelers (12). However, many establishments cannot be clearly assigned to any target group (24). In general, it is fair to say that the establishments certified with the Austrian Ecolabel have diverse target groups, as each answer option was selected several times.

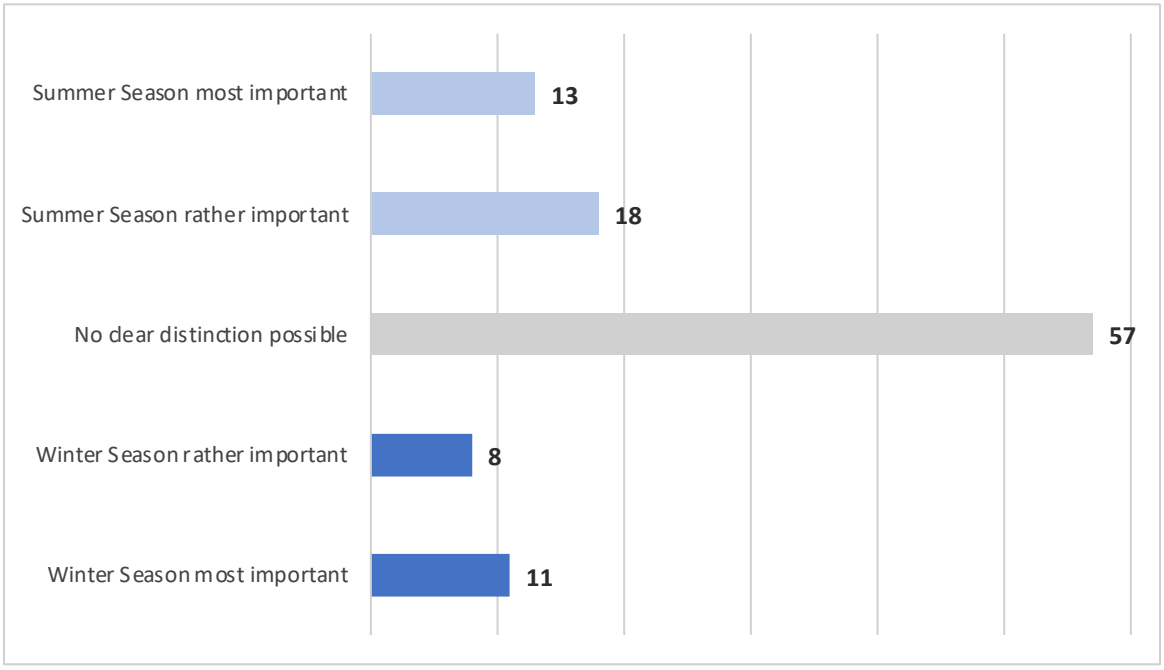

Figure 7: Importance of Seasons for participating companies (own illustration)

Question six asked participants to rate the importance of summer and winter seasons. Here, the situation is clear, as more than half of the respondents see no significant difference between summer and winter for their business. 31 participants have a tendency towards the summer season and only 17 a tendency towards the winter season. Unsurprisingly, every establishment for which the winter season is rather important is located in rural/alpine regions in the provinces of Carinthia, Tyrol, Vorarlberg and Salzburg.

Question 7: *The following reasons were decisive for me to strive for certification with the Austrian Ecolabel:*

This question asked for a ranking of the reasons for certification with the Austrian Ecolabel. The following graph shows the evaluation based on the average ranking of the respective options (see figure 8).

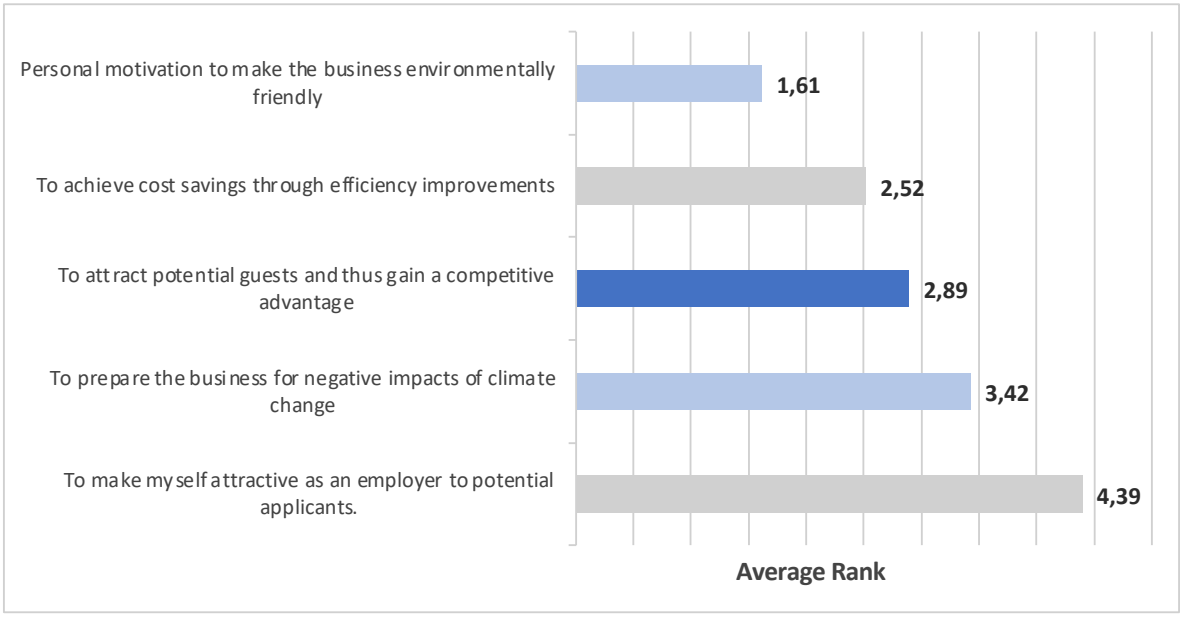

Figure 8: Reasons for a certification with the Austrian Ecolabel (own illustration)

By far the most important reason for certification for the respondents was personal motivation, which is in line with the assumption from the introductory chapter (see chapter 1.1). The following two reasons ("cost savings" and "attraction of guests") are at a similar level, and behind them comes "preparation for climate change". Like the first rank, the last rank can also be clearly identified with "attractiveness as an employer", which seems to be least important to the participants.

Question 8: *The following factors were challenging for me during the preparation for certification with the Austrian Ecolabel:*

During the preparation for certification, "Finding enough time" (m = 2.11) was the most challenging for respondents, followed by "Proper documentation" (m = 2.21) and "Creating a sustainability concept" (m = 2.41). The items "Energy certificate or energy survey" (m = 2.56) and "Motivating employees" (m = 2.67) were rated as the least challenging.

A total of 14 participants took advantage of the opportunity to provide additional input on this question. Their answers can be summarized in the following four topics:

- **Financial challenges**: Respondents stressed additional costs as a burden. These range from the financial burdens specifically for small businesses to the presentation of energy costs to the cost of training and procurement of sustainable products.
- **Knowledge and information needs**: Understanding the individual criteria of the Ecolabel, both in terms of content and language, as well as the need to gain new knowledge and collect information in different areas.
- **Time and organizational challenges**: These range from preparation and compilation of documents to training needs, digitization and documentation.
- **Personnel challenges**: The need for training, problems caused by staff turnover or simply a lack of personnel are cited.

Question 9: *The following factors were challenging for me in implementing the Austrian Ecolabel criteria:*

In the implementation of the criteria, "Climate-friendly arrival and departure of guests and employees" (m = 2.13) was the most challenging for the participants, followed by "Ongoing monitoring" (m = 2.31). The items "Training of employees on the environmental concept" (m = 2.62), "Investments" (m = 2.68) and "Purchase of regional products" (m = 2.73) were at a very similar level. In terms of implementation, "Informing guests about the environmental concept" (m = 2.88), "Avoiding disposable products" (m = 2.93) and "Electricity demand from renewable energy sources" (m = 3.07) were seen as the least challenging. It can be observed that the mean values of this question are generally higher than for question eight. Thus, the participants see the preparation for the certification

with the Austrian Ecolabel more challenging than the implementation of the required criteria.

This question also offered the possibility of free feedback. The answers can be summarized as follows:

- Complaint about bureaucratic burdens due to a lot of documentation work and thus challenges in time management
- Difficulty in convincing and motivating employees to support environmental initiatives.
- Question about traceability of product value and quality, especially comparing regional and imported goods.
- Difficulties in waste disposal (lack of provision of trash cans, additional costs)

Question 10: *The direct costs of certification with the Austrian Ecolabel (e.g. application and usage fees, costs for external consulting) represented a considerable financial burden for me.*

The question on the assessment of the direct costs of certification reveals a tendency to disagree with this statement, with m = 2.71. 39.3 % selected "fully agree" or "somewhat agree", while 60.7 % selected "somewhat disagree" or "fully disagree". Only 7.5 % of the respondents selected “fully agree”. Hypothesis 2 investigates whether there is a difference between large and small companies in this respect.

Question 11: *In the short to medium term, the operational costs of the business changed because of certification with the Austrian Ecolabel as follows (compared to the time before certification):*

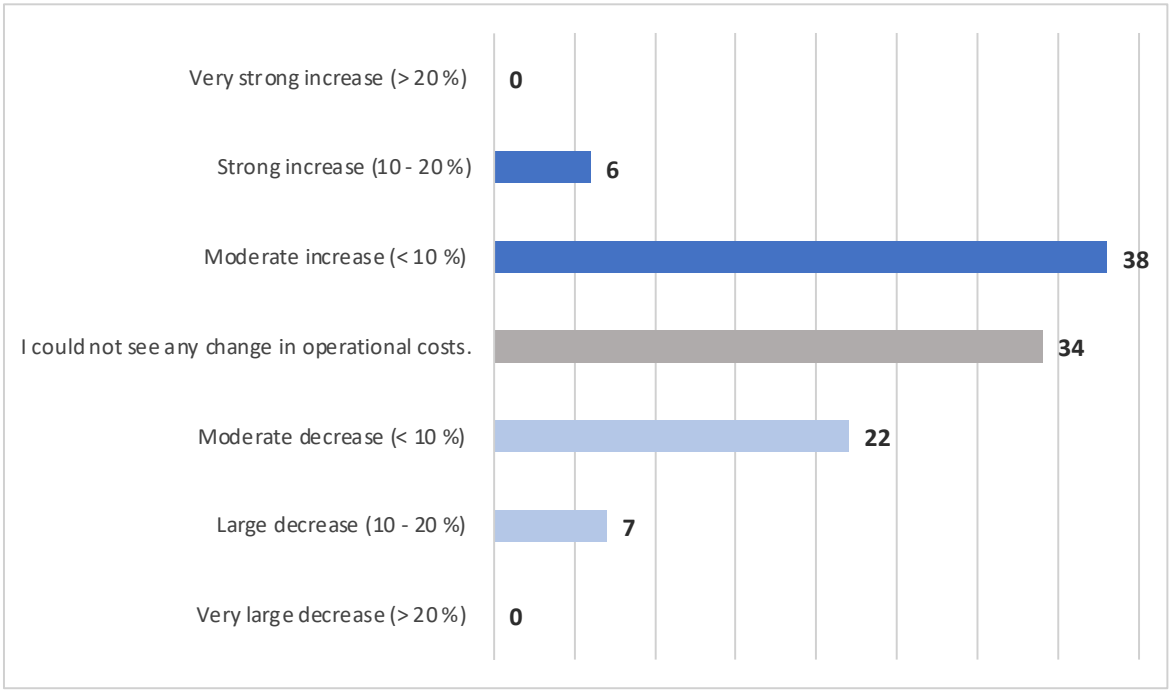

Figure 9: Development of operational costs in the short to medium term (own illustration)

44 participants (41.1 %) saw an increase in operating costs in the short to medium term, whereas 29 participants (27.1 %) saw a decrease. 34 participants (31.8 %) could not detect any change compared to the time before the certification. It is worth noting that the most extreme answer choices "Very strong increase" and "Very large decrease" were never selected.

Question 12: *In the medium to long term, I expect the operational costs of the business to change because of certification with the Austrian Ecolabel as follows (compared to the time before certification).*

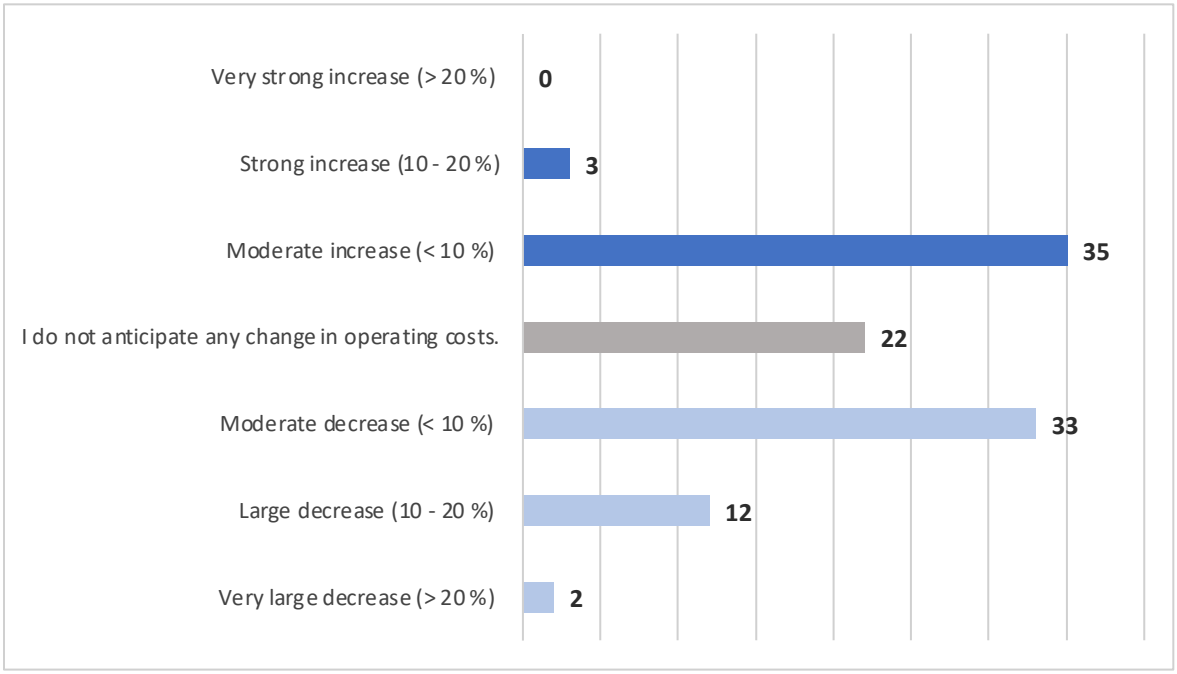

Figure 10: Development of operational costs in the medium to long term (own illustration)

38 participants (35,5 %) expect an increase in operating costs in the medium to long term compared to the time before the certification, whereas 47 participants (43,9 %) expect a decrease in costs. 22 participants (20.6 %) do not expect any change. Comparing the results of this question with those from the previous question eleven, a shift in participants' responses in favor of reducing operational costs can be detected. Hypothesis six therefore examines whether there is a correlation in the answers to these two questions. The analysis should also happen in the light of the fact that in chapter 2.3.3 inflation and the related price pressure on businesses was identified as one of the current main problems of the accommodation industry.

Question 13: *The following advantages of certification with the Austrian Ecolabel have proven to be particularly decisive for me:*

"Positive image of the business" (m = 1.52) was found to be the most decisive advantage of certification, followed by "Quality improvement in the business" (m = 1.73) and "Increased resilience to climate change impacts" (m = 1.93). The items

"Stronger demand from environmentally sensitive customers" (m = 2.06), "Cost savings" (m = 2.12), and "Strengthening networking in the region" (m = 2.35) follow next. “Benefiting from the network of the Austrian Ecolabel" (m = 2.57), "Increasing the satisfaction of existing employees" (m = 2.85) and "Advantages in the search for new employees" (m = 2.94) were seen as rather not decisive. These three items are also the only ones that have a mode of 3.00, which also indicates their rather negative evaluation.

The free responses to this question can be summarized as follows:

- **Eco-friendliness and sustainability:** Respondents are actively striving to establish and validate eco-friendly practices, include environmentally conscious dining choices and demonstrate a strong dedication to environmental preservation.
- **Education, role model function and innovation:** The respondent’s organizations serve as educational provider and environmental exemplar, seek to engage new customers from the education sector and consistently review and enhance all operational aspects.

Question 14: *I have implemented the additional criterion M17 in the certification of my company with the Austrian Ecolabel*.

71 participants (66.4%) did so, and 26 participants (24.3%) could not recall or were not sure anymore. The rest denied this statement.

Follow-up question: *By implementing the additional criterion M17, I have clear advantages over non-certified companies when looking for new employees.*

Of the 71 participants who implemented criterion M17, 42 (59.2 %) rated this statement positively and 29 (40.8 %) rated it negatively. Thus, the majority could see an advantage in finding employees due to the implementation of criterion

M17. It must be remembered, however, that only 8 people fully agree with the statement and 34 only somewhat agree. This question has been posed against the background that in chapter 2.3.3 the shortage of skilled workers was identified as one of the greatest challenges facing the accommodation industry. In criterion M17 of the Austrian Ecolabel, measures against this shortage are cast into guidelines.

Question 15: *I have an assessment that the effects of climate change will have a significant negative impact on the operations of my accommodation business.*

15.0 % of the respondents fully agreed with this statement, 33.6 % somewhat agreed. This results in a total of 48.6 % of the participants who expect significant negative effects due to climate change on their business. In contrast, 42.1 % somewhat disagree with this statement, and 9.3 % fully disagree.

Question 16: *I have the assessment that my company is well prepared for the effects of climate change due to the certification with the Austrian Ecolabel.*

The result of this question is clearer than that of the previous one. 11.2 % of respondents fully agree and 57.0 % somewhat agree. Only a minority gave a negative assessment of this statement: 24.3 % somewhat disagree and 7.5 % fully disagree. A majority of 68.2 % of respondents therefore feel well prepared for the impacts of climate change through certification with the Austrian Ecolabel.

Question 17: *I have the opinion that the certification with the Austrian Ecolabel is an essential argument for my guests when booking a stay in my accommodation business.*

The distribution of responses to this question is quite even: 44.9 % of participants rated it rather positively (6.5 % fully agree; 38.3 % somewhat agree) and 55.1 %

chose negative responses (46.7 % somewhat disagree; 8.4 % fully disagree). It is again striking that the extreme answer options (fully agree, fully disagree) were rarely chosen.

Question 18: *My guests are generally easy to motivate to participate in the implementation of my sustainability concept.*

Motivating guests to participate seems to come easily to a majority of respondents. 5.6 % fully agree with this statement, and 57.0 % somewhat agree. In contrast, 34.6 % somewhat disagree and 2.8 % fully disagree. Again, it is evident that only a few participants opted for the extreme response options (fully agree fully/fully disagree).

Question 19: *When booking a stay at my accommodation, it plays an essential role for my guests to be able to arrive and depart in a climate-friendly way and to be supported by my business in doing so.*

A large proportion of respondents could not support this statement. Only 7.5 % fully agreed and 21.5 % somewhat agreed. In contrast, 59.8 % somewhat disagree with this statement and 11.2 % fully disagree.

4.2 Testing the Hypothesis

The hypotheses described before are now tested. For this purpose, the significance (p), which is decisive for the acceptance or rejection of the alternative hypothesis, was calculated. The significance level (a) was defined as a = 0.05 for this thesis. If the calculated significance (p) is above this value, the null hypothesis is accepted and the alternative hypothesis is rejected. If the significance (p) is

below this value, the null hypothesis is rejected and the alternative hypothesis is accepted (Malhorta et al., 2017, p. 582).

Hypothesis 1

In the first hypothesis, the item “To make myself attractive as an employer for potential applicants” of question seven was compared between businesses in rural/alpine areas (m = 4.35) and those in urban/peri-urban areas (m = 4.33). The mean difference is -0.0205 with a significance (p) of 0.544 (t = -0.112; df = 91.5). The null hypothesis is accepted and the alternative hypothesis is rejected. Making themselves attractive to potential applicants as an employer is therefore no more important to businesses in rural/alpine areas as a reason for certification than it is to those in urban/peri-urban areas.

Hypothesis 2

The answers to question ten (direct costs of a certification) was compared between small (m= 2.45) and large (m = 2.93) accommodation facilities. The mean difference is -0.482 (p = 0.002; t = -3.00; df = 93.9). This leads to the adoption of the alternative hypothesis and the rejection of the null hypothesis. The direct costs of a certification with the Austrian Ecolabel are a significantly higher financial burden for small businesses.

Hypothesis 3

The item “Ongoing monitoring of the fulfillment of the criteria” was compared between businesses that are certified for the first time (m = 2.35) and for a repeated time (m = 2.28). The mean difference is 0.0711 (p = 0.664; t = 0.435; df = 103). The null hypothesis is accepted and the alternative hypothesis is rejected. Thus, ongoing monitoring is seen as almost equally challenging in each case.

Hypothesis 4

Responses to question 15 (impact of climate change on operations) were compared between establishments for which the summer season (m = 2.39) or the winter season (m = 2.05) is more important. The Shapiro-Wilk test was significant (p =< 0.01), which is why a Mann-Whitney-U test was performed (U = 232; p = 0.094). The null hypothesis is accepted and the alternative hypothesis is rejected. Businesses for which the winter season is more important therefore do not have a significantly higher concern that climate change will negatively affect their business.

Hypothesis 5

The answers to question 16 (preparation for climate change) was compared between businesses for which the summer season (m = 2.48) or the winter season (m = 2.32) is more important. The Shapiro-Wilk test was significant (p =< 0.01), which is why a Mann-Whitney-U test was performed (U = 271; p = 0.307). The null hypothesis is accepted and the alternative hypothesis is rejected. Businesses for which the winter season is more important therefore do not feel significantly better prepared due to certification with the Austrian Ecolabel than businesses for which the summer season is more important.

Hypothesis 6

The evaluation of hypothesis H6 showed a significance of p = < 0.001 and a Spearman's rho of 0.556. This suggests a moderate positive correlation between the answers to questions eleven and twelve. Since the significance (p) is clearly below the defined significance level (a), the null hypothesis is rejected and the alternative hypothesis is accepted. The higher respondents see operating costs increasing/decreasing in the short to medium term, the higher they expect them to increase/decrease in the medium to long term.

Hypothesis 7

A significance of p = 0.751 was determined. Spearman's rho was determined with a value of -0.031. In this case, no correlation could be found. Thus, for hypothesis H7, the null hypothesis is accepted and the alternative hypothesis is rejected. Establishments for which appealing to potential guests was an important reason for certification with the Austrian Ecolabel do not find that this certification was important to their guests when booking a stay.

Hypothesis 8 – Hypothesis 9 – Hypothesis 10

In each of the last hypotheses, two groups were compared in the development of the operating costs of the accommodation business in the short to medium term (question eleven) and in the medium to long term (question twelve). The results of these tests are shown in the following table:

Groups	Q11 (short to medium)	Q12 (medium to long)
H8: Urban/peri-urban	m = 0.357	m = 0.119
H8: Rural/alpine	m = -0.0154	m = -0.415
Mean Difference	0.373	0.534
Welch's t ; df	2.01; 104	2.51; 101
Significance	p = 0.047	p = 0.014
H9: Large	m = 0.143	m = -0.265
H9: Small	m = 0.121	m = -0.155
Mean Difference	0.0222	-0.1101
Welch's t ; df	0.110; 96.0	-0.484; 96.5
Significance	p = 0.912	p = 0.629
H10: Summer Season	m = -0.0323	m = -0.516
H10: Winter Season	m = 0.00	m = -0.105
Shapiro Wilk test	p = 0.017	p = 0.024; 0.057
Mann-Whitney U	291	231
Significance	p = 0.942	p = 0.191

Table 6: Analysis of hypotheses 8, 9 & 10

Since the calculated significances for hypotheses nine and ten are both above the defined significance level of p = 0.05, the null hypotheses are accepted and the alternative hypotheses rejected. However, a significant difference can be found in hypothesis eight. There is a significant difference in the development of operating costs, both in the short to medium term as well as in the medium to long term, between businesses in urban/peri-urban areas and those in rural/alpine areas. The mean values for businesses in the city are slightly positive, indicating that they tend to expect a slight increase in operating costs. The opposite is the case for rural establishments, whose mean values are slightly negative. They therefore tend to expect a slight reduction in operating costs, both in the short to medium term and in the medium to long term.

For a simple overview, the accepted hypotheses are listed in the following table:

Accepted Hypotheses		
H1	**Null**	Making one's business more attractive to **potential employees** as a reason for certification is not significantly more important for businesses located in **rural/alpine areas** than for businesses located in **urban/peri-urban areas**.
H2	**Alternative**	The **direct costs of certification** represent a significantly higher financial burden for **small** (<= 100 beds) **accommodation facilities** than for **large** (> 100 beds) **accommodation facilities.**
H3	**Null**	There is no significant difference in the assessment that **ongoing monitoring** is a challenging criterion in implementing certification between businesses that are certified for the **first time** and those that are certified for a **repeated time**.
H4	**Null**	The assessment that the impact of climate change will have a considerably negative impact on the **operations of the business** is not stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.

Table 7: Accepted Hypotheses H1 – H4 (own illustration)

H5	**Null**	The assessment that the certification with the Austrian Ecolabel **prepares the business** well for the negative impacts of climate change is not stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.
H6	**Alternative**	There is a significant correlation between the change in an establishment's operating costs caused by certification in the **short to medium term** with the expected development of operating costs in the **medium to long term**.
H7	**Null**	There is no significant correlation between the importance for businesses to appeal to **potential guests** through certification with the assessment that certification is an **essential argument for guests** when booking a stay.
H8a	**Alternative**	There is a significant difference in the change in operating costs in the **short to medium term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.
H8b	**Alternative**	There is a significant difference in expected development of operating costs in the **medium to long term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.
H9a	**Null**	There is no significant difference in the change in operating costs in the **short to medium term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.
H9b	**Null**	There is no significant difference in expected development of operating costs in the **medium to long term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.
H10a	**Null**	There is no significant difference in the change in operating costs in the **short to medium term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.
H10b	**Null**	There is no significant difference in expected development of operating costs in the **medium to long term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.

Table 8: Accepted Hypotheses H5 – H10 (own illustration)

4.3 Discussion

The purpose of the following discussion section is to put the theoretical and the empirical part of this master's thesis in context to each other and to relate their respective results the sub-questions as well as the central research question.

4.3.1 Interpretation of the Results

In chapter 2.5.4 (*Challenges for a certification*), the main challenge identified during the certification process was the effort to provide all necessary documentation. The empirical investigation confirms this, as "Finding enough time" and "Proper documentation" were the items rated most challenging. Many of the free responses are in the same vein. The aforementioned dilemma that a meaningful and quality-assuring certification is associated with a high bureaucratic effort thus clearly also applies to the Austrian Ecolabel. The catalog of criteria can certainly be considered extensive, and the criteria themselves, to be applicable to the entire Austrian accommodation industry, are kept general. As the results of the first six questions show, businesses in all federal provinces, with different target groups and in different geographical areas were able to obtain a certification. The downside is that it requires time and effort to understand the meaning of all relevant criteria for one's own business. All of this must also be considered against the background that the industry suffers from a shortage of skilled workers, as noted in chapter 2.3.3 (*Current Challenges in the Accommodation Sector*), which is certainly not beneficial to the resources needed to prepare for certification.

The direct costs of certification (user fees, costs for external consulting) are seen as a significantly higher financial burden by smaller companies than by larger ones, as the evaluation of hypothesis H2 shows. However, certification is difficult to implement without external help, which is why it is also recommended

(Preslmair & Fichtl, 2023, p. 17). Together with the fact that smaller companies also tend to have fewer staff available, certification is a major challenge for them. These are certainly the main reasons why Pröbstl-Haider, Lund-Durlacher, et al. (2021, p. 78) found that smaller establishments are less likely to be certified. The evaluation of hypotheses H9a and H9b showed no significant difference in the development of operating costs between small and large companies. Both groups tend to expect an increase in the short to medium term and a reduction in the medium to long term. Despite these reasons, the distribution between large (54.2 %) and small companies (45.8 %) is relatively balanced among participants. Part of this can be explained by looking at the reasons for certification, in which "Personal motivation to make the business environmentally friendly" was identified as by far the most important reason, followed by "Achieve cost savings". Especially in smaller companies, the attitude of individual persons seems to be enormously decisive in striving for certification, despite the comparatively high effort involved.

The burden of bureaucracy is perceived as a major challenge in the implementation of the criteria, which was emphasized again by participants in the free responses. There was no difference between first-time and repeat certified companies – both groups find the ongoing monitoring of the fulfillment of the criteria demanding. Only the item "Climate-friendly arrival and departure of guests and employees" is perceived as more challenging in the implementation phase. This is especially relevant because measures for this purpose not only represent the whole thematic group "Transport/Mobility" of criteria of the Austrian Ecolabel (Preslmair & Fichtl, 2023, pp. 40–41), but it was also found in the literature review that accommodation facilities must be a central part of the solution for climate-friendly mobility, especially for bridging the "last mile" (Pröbstl-Haider, Lund-Durlacher, et al., 2021, p. 83). Here, too, a dilemma can be seen. Accommodation providers are required to enable climate-friendly travel, which is seen as very challenging. However, this only plays a minor role for guests

when booking a stay, as the evaluation of question 19 shows. A great deal of effort is set against a rather small return. It is noteworthy that the supply of 100 % electricity from renewable energy sources does not seem to be a major problem. The good starting position identified by (Gössling & Lund-Durlacher, 2021, p. 4) for the decarbonization of energy use in Austria can be supported.

In chapter 2.4.3 (*Sustainability in Accommodation*) it was concluded that guests must always be at the center of any change towards more sustainability but are often difficult to motivate to support sustainable measures. However, this does not seem to be the case for a majority of respondents, as the analysis of question 18 shows. Around two-thirds find it easy to motivate guests to act sustainably. The low willingness to do without something on vacation therefore seems to apply less to guests of Ecolabel-certified businesses. The presumed "filtering process" at the time of booking, after which more environmentally conscious customers decide for a stay, can be confirmed to a certain extent. Of course, this also speaks for the ability of the certified establishments to integrate environmentally friendly measures seamlessly and not to create any burdens for guests. As mentioned before, the possibility of a climate-friendly arrival does not play a particularly important role for guests.

Looking at the development of the operational costs due to a certification with the Austrian Ecolabel, a large part (41.1 %) of the participants noted an increase in the short to medium term. However, only six participants quantified this as strong and no one as very strong. 31.8 % found no change and 27.1 % detected a decrease. Things like buying regional products, switching to green power, additional costs from monitoring, or training for employees seem to increase operational costs for many operations. However, for most, this increase is in the range of less than 10 %. Nevertheless, it should be noted that the increasing price pressure is one of the main problems of the industry, as discussed in chapter 2.3.3. However, when looking at the expected development in the medium to long term,

the response behavior is shifting in favor of a reduction in operating costs. Only 35.5 % of the respondents expect an increase, which is in the range of less than 10 %. 43.9 %, on the other hand, expect a reduction. The cost savings resulting from certification, which is mentioned by the representatives of the Austrian Ecolabel as one of the main arguments, can therefore be detected in a large proportion of the respondents when the long-term development is considered.

While no significant differences were found in this aspect in groups large-small and summer season-winter season, this was very much the case when comparing businesses located in urban/peri-urban areas and rural/alpine areas. Urban businesses tend to expect a slight increase in operating costs in both the short and long term, with this expected increase lessening in the long term. Establishments in rural areas, in contrast, tend to expect operating costs to be reduced or to remain the same in the short term, and expect a further reduction in the long term. The expected development of these two groups is therefore exactly opposite. The reasons for this are certainly manifold. Increased collaboration with local food producers may be easier in rural areas than in urban areas. In addition, rural accommodation establishments are more likely to offer diverse outdoor activities, which may well offer potential for energy savings. The operation of an outdoor pool is a glaring example of this. In general, cost savings are seen as one of the greatest benefits of Austrian Ecolabel certification.

The strongest benefit of certification is perceived to be the positive image that comes with it. However, this positive image seems to be reflected only to a limited extent in an improved booking situation. In question 17, 45 % of the respondents stated that certification with the Austrian Ecolabel is an important argument for their guests when booking a stay. Around 55 % were therefore unable to confirm this. It is also interesting to note here that the extreme answer options (fully agree/fully disagree) were selected by only a few respondents. Certification, therefore, is very rarely the main argument for booking. As discussed in chapter

2.5.5 (*Benefits of the certification)*, Williams et al. (2023) and Baumeister et al., (2022) concluded in studies of ecolabel certified products in other sectors that environmental certification plays only a minor role in the purchase decision. This can also be confirmed in this master thesis for certified accommodation establishments. The location, public accessibility and the price are certainly main criteria when booking.

Although the Austrian Ecolabel is well established as a brand when compared to other quality labels (see chapter 2.5.1 – *Development of the Austrian Ecolabel)*, there certainly seems to be a need for action in this area, as consumers tend to associate the label with physical products and less with services in the tourism sector. The insufficient marketing of the label was often raised as a criticism in the free responses. This is also underlined by the fact that the item "Benefiting from the ecolabel network" is seen as a rather negligible advantage of certification. In this context, however, it must be mentioned that the certified companies themselves often do not use the ecolabel very aggressively in their marketing, as a review of their websites shows. Similarly, the evaluation of hypothesis H7 displays that establishments that expected certification to acquire guests did not find that this was an important argument for their guests when booking.

Nevertheless, it should not be underestimated that almost half of the respondents could perceive an influence on the booking behavior of the guests. Correspondingly, the third most important advantage was found to be the stronger demand from environmentally sensitive customers. Together with the perceived increase in quality in the business (the second most important benefit of certification), certified businesses can present a very attractive offer on the market. It can be deduced from this that it is not so much the ecolabel as a brand that attracts guests, but rather the effects of certification itself: Environmentally conscious management, which can make guests a high-quality offer through numerous measures that are framed in the guidelines of the Austrian Ecolabel.

In view of the shortage of skilled workers in the industry, it was naturally of great interest to find out whether certified companies have advantages when looking for new employees. Around two thirds of the respondents have also implemented the target criterion M17. Around 60 % of them can report advantages in finding employees as a result of implementing this criterion, while around 40 % cannot. Since the lack of qualified workers is one of the main problems of the accommodation industry, this result is quite remarkable. However, it is not necessarily surprising, as the implementation of this criterion ultimately means that the company is taking steps to improve working conditions. That this is attractive to applicants is hardly surprising. Also, the item "Attractiveness as an employer" was identified as by far the least important reason for certification. The evaluation of hypothesis H1 could not find any difference between rural and urban businesses in this context. The question arises, therefore, whether there is still a lot of untapped potential here. This will be discussed in more detail in chapter 4.3.3. Motivating existing employees to become certified, as well as training them on the environmental concept, seems to be perceived as rather unchallenging by most participants.

A central question of this master thesis was also to which degree a certification with the Austrian Ecolabel prepares for the negative effects of climate change. First, it should be noted that about half of the respondents expect negative impacts on the operational business of their company due to climate change. The other half rather not. In the theoretical part of this thesis, the general loss of attractiveness of destinations in Austria, especially in the important winter tourism in regions like Tyrol, was identified as one of the biggest climate-related challenges facing the industry in the future. Having that in mind, hypotheses H4 investigated if establishments for which the winter season is more important “fear” the effects of climate change more than those for which the summer season is more important. The evaluation showed, however, that there was no significant difference in that regard between these two groups. It therefore seems

to depend more on the individual situation of the companies as to how they assess the climate-related challenges in the future.

Furthermore, almost 70 % of the respondents feel well prepared for the negative effects of climate change through certification with the Austrian Ecolabel. Also in this aspect, no significant difference could be found between the groups "summer season more important" and "winter season more important". Considering the various challenges discussed in chapter 2.4.2 (*Climate-caused challenges in the Accommodation Sector*) for the accommodation industry due to climate change in the future, this is indeed a very strong argument for a certification. The participants of the survey seem to agree with this as well, as the item "Increased resilience against negative impacts of climate change" was seen as a decisive advantage of a certification. As already stated and discussed in Chapter 2.5.3 (*Criteria for the Ecolabel for Accommodation Businesses*), many of the Austrian Ecolabel guidelines appear to have been designed to be as practical as possible. While the documentation work this creates is perceived as burdensome, respondents do seem to feel an increased resilience to climate change. Again, the dilemma of a meaningful certification is apparent.

4.3.2 Theoretical Implications

This master thesis dealt with the effects of environmental certification on the operational business of accommodation businesses in Austria. This was done in view of the negative effects of climate change on this industry, which are to be expected in the future. It was thus explored to what extent an accommodation business that considers sustainability in all aspects of its operation can be resilient to these impacts and whether economic benefits can be generated beyond this.

This thesis thus contributes to research on sustainable tourism management, specifically related to the accommodation industry. It thus builds on previous

work such as Merli et al. (2019), Chen et al. (2018) and Kularatne et al. (2019) and considers this for Austria, a country for which tourism is an extremely important industry. Likewise, a contribution was made to the understanding of environmental certifications in the booking behavior of guests, whereby the quality-guaranteeing effect of this certification was identified as crucial.

4.3.3 Practical Recommendations

Based on the results of this research project, some options for action can be formulated for different decision makers. A major challenge for certified companies turned out to be the large amount of documentation required, both in preparing for certification and in implementing the various criteria. On the one hand, this is an essential tool for ensuring the validity of the Austrian Ecolabel. On the other hand, in view of the still very low dissemination of the label in the accommodation industry in Austria, the simplification of this aspect must come to the front. In view of the very tense personnel situation in the industry and the high amount of time spent on monitoring tasks by all respondents, there is a need for action here.

Furthermore, the fact that ensuring climate-friendly arrival and departure is perceived as very challenging by guests and employees shows that many businesses need additional assistance in this area. Various projects of the VCÖ on the topic of "Last Mile" show that the individual situation of the companies often requires individual solutions. However, this is not only in the hands of the accommodation businesses themselves. It requires the strong involvement of local policymakers and the help of organizations such as VCÖ to bring about improvements here. This should also be done with a view to achieving the Paris Climate Agreement, which Austria has signed.

In the results of this survey, many certified businesses reported advantages in finding employees. This is of course extremely interesting in view of the prevailing shortage of skilled workers in the industry. For this purpose, the implementation of the target criterion M17 was queried, which provides for measures to improve the working situation that go beyond the legal requirements, such as additional benefits like time off for educational measures, enabling a better work-life-balance and the integration of minorities and disadvantaged people. Although it is hardly surprising that applicants find these aspects appealing, this example shows that the accommodation industry can take active measures to combat the labor shortage. To strengthen the label's appeal, this benefit should play a much bigger role in marketing. Looking at the reasons given by respondents for opting for certification, "To make myself attractive as an employer to potential applicants" is rated as very unimportant. This shows that the ecolabel is not viewed from this angle in the industry. However, it could prove to be a tool to actively address one of the industry's biggest problems. Of course, the shortage of skilled workers is a very complex problem with multiple causes (see chapter 2.3.3) and a certification cannot be a universal solution. However, the Austrian Ecolabel could still contribute to a solution approach.

4.3.4 Limitations

The first limitation that should be mentioned is the chosen survey method itself. The reasons for choosing a quantitative questionnaire were discussed in chapter 3.1 (*Methodology and Research Design*). The weaknesses of this method were therefore accepted. The standardized answers must be mentioned. Participants could have selected answer options, which only best corresponds to their opinion, but not completely reflects it. Although the possibility of free feedback was given in two questions, this does not rule out the possibility that the opinion of many participants was not fully captured. Also, the standardized questions could have

been interpreted differently by different participants, since the possibility of further questions was thus not given.

The survey method also had the consequence of a certain lack of characteristic constancy, as already mentioned in the methodology chapter. This is because the online questionnaire was completed by the participants under different conditions. Since many of them may have been under time pressure, possibly caused by the shortage of skilled workers in the industry, it must be assumed that they would have chosen different answer options under different conditions. For this reason, the reliability of the survey cannot be guaranteed beyond doubt. As a result, validity cannot be established either. However, this is not only due to the method chosen, but also to the complexity of the subject area studied. The success of sustainable measures in an Austrian accommodation business certainly depends largely on the individual situation of each business, which, however, cannot be addressed within the framework of an empirical study. Such a study will therefore always be vulnerable in terms of validity and reliability to a certain degree.

The composition of the sample must be discussed as well. The individual situation of the individual participants could not be addressed. Thus, both establishments that have only recently been certified and those that have been bearing the Austrian Ecolabel for years were surveyed. Consequently, the assessment of the future development of the business based on the certification will have been made by people with different levels of information. Since the personal motivation to run an environmentally friendly business turned out to be the most important reason for certification, it can also be expected that the respondents were particularly interested in the topics of environmental and climate protection. It can therefore be assumed that they carry out the required measures of the Austrian Ecolabel with a particularly high degree of determination, which might not be the case for people to whom these topics are not as important.

Nevertheless, the survey of 107 participants and thus 37.5% of all certified companies does allow conclusions to be drawn about the basic population of the 285 companies certified with the Austrian Ecolabel. However, conclusions about the entire accommodation industry should be drawn with caution. The above-mentioned importance of personal motivation for sustainability and the low dissemination of the ecolabel should are limiting aspects.

Likewise, only one side was surveyed, namely that of the certified companies. Especially questions about the behavior of the guests, both in terms of their participation in the environmental concept, as well as the importance of environmental certification in the booking process, could therefore only be considered from the company side. This was also the aim of this thesis, but should be considered with regard to results on guest behavior.

Concerning the theoretical part of this thesis, some critical reflections are appropriate. The nature of this subject matter meant that the author had to draw heavily on published material from representatives of the ecolabel itself. This is of course especially true for chapter 2.5 (*The Austrian Ecolabel*). Although care has been taken to reflect critically on this information with appropriate literature from other sources, a certain bias cannot be ruled out.

4.3.5 Further Research Approaches

This master thesis looks at the side of certified accommodation businesses, their challenges and problems, but also the potentials that arise from a certification. Building on this, it would be interesting to examine the guests' side in more detail to better understand their motivation and views. The goal should be to investigate in which way the quality assurance measures of an environmental certification actually lead to higher guest satisfaction. After all, guests are ultimately the ones who decide on the success or failure of the Austrian Ecolabel.

The evaluation of hypothesis H8 revealed that rural accommodation establishments are more likely to expect a reduction in operating costs than those in urban areas. The reasons for this should be investigated in more detail to adapt the Austrian Ecolabel more precisely to the requirements of the industry and thus to be able to attract even more certified establishments.

Similarly, to further understand the benefits and challenges of certification, a study that includes both certified and non-certified operations would be fitting. It would help to better understand why some representatives of accommodation establishments have opted for certification and what prevents others from doing so. The low prevalence of the Austrian Ecolabel shows that this should be much better understood.

5 Conclusion

In the conclusion of this paper, the findings are summarized. This is done by first answering the sub-questions SQ1 – SQ6, and finally addressing the main objective of this paper, the central research question.

Regarding **sub-question SQ1** *"What are the main challenges for hotels when aiming for a certification with the Austrian Ecolabel?"*, it can be affirmed that the documentation effort, both in the preparation for certification and the ongoing monitoring of compliance with the criteria, is perceived as the greatest challenge by the companies surveyed. The time required for this should also be mentioned here, as well as ensuring the climate-friendly arrival and departure of guests and employees.

Sub-question SQ2 *"What economical savings effects result in the short-, medium-, and long-term for hotels that are certified with the Austrian Ecolabel?"* can be answered to the extent that certified companies perceive a slight increase in operating costs in the short to medium term but expect them to decrease slightly in the medium to long term. Environmentally oriented management through certification with the Austrian Ecolabel, involving the sensible use of energy, water as well as waste avoidance, results in cost savings for accommodation businesses especially in the long term.

The positive image resulting from certification with the Austrian Ecolabel, which is also reflected in stronger demand from environmentally sensitive customers at many of the accommodation facilities surveyed, can be cited as an important strategic advantage. Also, to a certain extent, advantages in the search for new employees could be identified, which can be essential in times of shortage of

skilled workers. This answers **sub-question SQ3** *"What strategic advantages arise when a hotel is certified with the Austrian Ecolabel?"*

To answer **sub-question SQ4** "*In which way does the qualification of a hotel for the Austrian Ecolabel contribute to its resilience in the face of climate warming?",* a close study of the criteria revealed that they are very practical in addressing the climate-related challenge expected in the future for the accommodation industry in Austria. This is also perceived by a large part of the respondents, who feel well prepared for the negative impacts of climate change through certification.

Research into **sub-question SQ5** "*How relevant is the Austrian Ecolabel in the marketing of the certified accommodations?"* revealed that the Austrian Ecolabel plays a rather subordinate role as a brand for the marketing of the companies. Rather, it is the effects that certification brings with it that appear relevant: environmentally conscious management that delivers a high-quality offer.

The results of **sub-question SQ6** "*Under what circumstances would a certification with the Austrian Ecolabel be beneficial for Austrian hotels in a short, medium, and long-term perspective?"* show that especially accommodation establishments in rural or alpine regions expect decreasing operational costs due to certification. These cost reductions are expected to be stronger in the medium to long term than in the short to medium term. It should also be noted that larger establishments consider the direct costs of certification to be less challenging.

About the **central research question** of this master thesis "*What economic advantages arise for hotels which are certified with the Austrian Ecolabel and thus acts sustainably?"*, it was found that companies can expect a reduction in operating costs, especially in the long term. In addition, numerous advantages result from a certification, which are only indirectly quantifiable. A higher demand from environmentally sensitive customers due to a good image offers the possibility to address new customer segments. In addition, certification can help

to make one's own accommodation business more attractive as an employer, thus providing possible solutions to one of the industry's biggest problems. Since the environmental label is likewise a quality guarantee for the outstanding offer of the own enterprise, this can be communicated in the marketing activities also in such a way. The increased resilience to the negative effects of climate change can be identified as an enormously important advantage in the long term. The entire Austrian tourism will be confronted with new climatic challenges in the future. Certification with the Austrian Ecolabel can make a decisive contribution to ensuring the long-term successful management of an accommodation business.

6 References

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7 Appendix

7.1 Accompanying Letter

Betreff: Umfrage zum Thema "Umweltzertifizierung in österreichischen Beherbergungsbetrieben"

Sehr geehrte Damen und Herren!

Mein Name ist Laurenz Mörth und ich absolviere den Masterstudiengang "Global Strategic Management" an der FH JOANNEUM in Graz. Im Rahmen meines Studiums schreibe ich an meiner Masterarbeit zum Thema **"The benefits of sustainable tourism management for Austrian hotels: environmental certification as a competitive advantage?"** unter der Betreuung von Prof. (FH) Dr. Harald A. Friedl.

Teil meiner Masterarbeit ist eine empirische Studie, deren Zielgruppe **Umweltzeichen-zertifizierte Beherbergungsbetriebe** sind. Dabei möchte ich erforschen, unter welchen Umständen diese Zertifizierung zum **Betriebserfolg** spürbar beiträgt und welche **wirtschaftlichen Vorteile** eine Zertifizierung mit sich bringt.

Ich möchte mit meiner Forschung dazu beitragen, die Umweltzeichen-Familie weiter zu vergrößern. Ich bitte Sie, mich bei diesem Vorhaben zu unterstützen!

Die Befragung in deutscher Sprache umfasst 19 kurze Fragen und nimmt etwa 5 – 10 Minuten Zeit in Anspruch.

Link zu der Umfrage: https://fh-joanneum.questionpro.com/beherbergung-uwz

Das Ausfüllen des Fragebogens ist **freiwillig**. Diese Befragung wird **anonym** durchgeführt und alle Daten werden **vertraulich** behandelt. Die Daten werden nur in **zusammengefasster Form** veröffentlicht.

Es sind somit keine Rückschlüsse auf einzelne Unternehmen in den veröffentlichten Daten möglich!

Die Resultate dieser Untersuchung sind sicher auch für Sie von Interesse. Deswegen lasse ich Ihnen die Ergebnisse auf Wunsch gerne zukommen. Klicken Sie dazu auf den **Link am Ende der Umfrage**. Voraussichtlich werden die Ergebnisse der Studie auch in einem Journal (Tourismus Wissen – *quarterly*) veröffentlicht. Auch diesen Artikel kann ich Ihnen dann gerne zusenden.

Vielen Dank, dass Sie sich die Zeit für die Beantwortung meiner Fragen nehmen!

Alles Gute, mit freundlichen Grüßen,
Laurenz Mörth

7.2 Accompanying Letter – modified

Betreff: REMINDER: Umfrage zum Thema "Umweltzertifizierung in österreichischen Beherbergungsbetrieben"

Sehr geehrte Damen und Herren!

Mein Name ist Laurenz Mörth, und darf mir erlauben Sie nochmals auf meine Umfrage zum Thema "**Umweltzertifizierung in österreichischen Beherbergungsbetrieben**" aufmerksam zu machen.

Aufgrund Ihres Engagements für umweltbewusstes Management und sozialer Verantwortung dient Ihr Betrieb als Vorbild für die gesamte Branche. Ihre Erfahrungen und Einschätzungen sind somit von größter Bedeutung. Diese können weitere Betriebe dazu motivieren, sich ebenfalls mit dem österreichischen Umweltzeichen zertifizieren zu lassen.

Ich bitte Sie deshalb, mich bei meiner Forschung durch das Ausfüllen eines Fragebogens zu unterstützen. Die 19 kurzen Fragen in deutscher Sprache nehmen lediglich 5 – 10 Minuten Ihrer Zeit in Anspruch.

Sollten Sie bereits so freundlich gewesen sein, die Befragung auszufüllen, danken ich Ihnen herzlich und bitte für diese Erinnerung um Nachsicht.

Link zu der Umfrage: https://fh-joanneum.questionpro.com/beherbergung-uwz

Lassen Sie uns gemeinsam dazu beitragen, die Umweltzeichen-Familie weiter zu vergrößern!

Gerne lasse ich Ihnen die Ergebnisse der Umfrage zukommen. Verwenden Sie dafür bei Interesse den **Link am Ende der Umfrage**.

Die Umfrage ist Teil meiner Masterarbeit zum Thema **"**The benefits of sustainable tourism management for Austrian hotels: environmental certification as a competitive advantage?" unter der Betreuung von Prof. (FH) Dr. Harald A. Friedl, die ich im Rahmen des Masterstudiengangs „Global Strategic Management“ an der FH JOANNEUM in Graz verfasse.

Das Ausfüllen des Fragebogens ist **freiwillig**. Diese Befragung wird **anonym** durchgeführt und alle Daten werden **vertraulich** behandelt. Die Daten werden nur in **zusammengefasster Form** veröffentlicht.

Es sind somit aus den veröffentlichten Daten keine Rückschlüsse auf einzelne Unternehmen möglich!

Vielen Dank für Ihre Unterstützung!
Alles Gute, mit freundlichen Grüßen,
Laurenz Mörth

7.3 Online-Questionnaire

Liebe Teilnehmerin, lieber Teilnehmer!

Herzlich willkommen zur Umfrage:
"Umweltzertifizierung in österreichischen Beherbergungsbetrieben"

Ich möchte erforschen, unter welchen Umständen die Zertifizierung eines Beherbergungsbetriebs in Österreich förderlich für dessen dauerhaften Erfolg ist und welche wirtschaftlichen Vorteile sich aus einer Zertifizierung ergeben.

Dies soll interessierten Betrieben weitere Argumente liefern, sich der Umweltzeichen-Familie anzuschließen!

Das Ausfüllen des Fragebogens ist freiwillig. Diese Befragung wird anonym durchgeführt und alle Daten werden vertraulich behandelt. Die Daten werden nur in zusammengefasster Form veröffentlicht.
Es sind somit keine Rückschlüsse auf einzelne Unternehmen in den veröffentlichten Daten möglich!
Um über die Ergebnisse dieser Umfrage informiert zu werden, verwenden sie ganz einfach den Link am Ende der Umfrage. Auf diesem Wege können Sie mir auch Fragen oder Anregungen übermitteln.

Vielen Dank für Ihre Teilnahme!

Next

Question 1

In welchem **österreichischen Bundesland** liegt Ihr Beherbergungsbetrieb?

Steiermark
Kärnten
Tirol
Vorarlberg
Salzburg
Oberösterreich
Niederösterreich
Wien
Burgenland

Next

Question 2

In welchem **geografischen Raum** liegt Ihr Beherbergungsbetrieb?

Städtischer/Stadtnaher Raum
Ländlicher/Alpiner Raum

Next

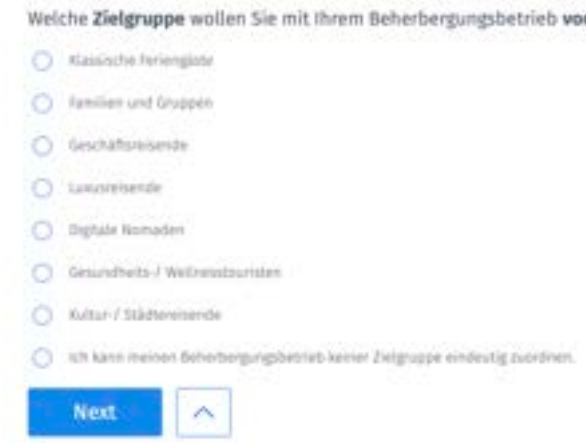
Question 3

In welchem **geografischen Raum** liegt Ihr Beherbergungsbetrieb?

Städtischer/Stadtnaher Raum
Ländlicher/Alpiner Raum

Next

Question 4



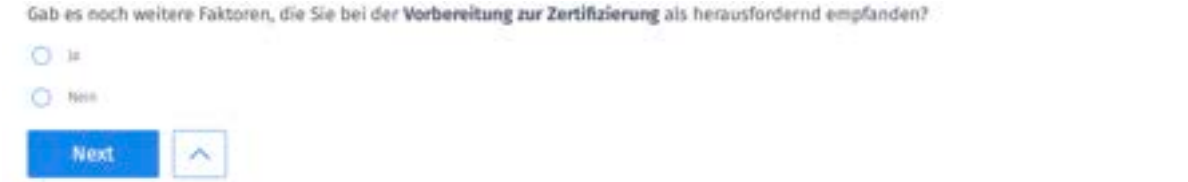
Question 5

Question 6

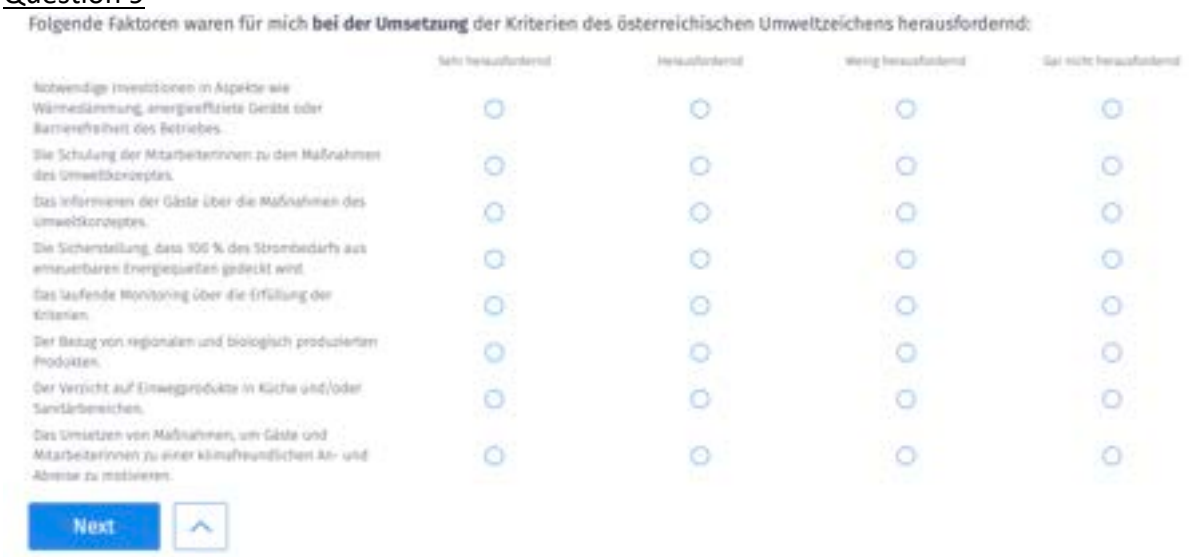
Question 7

Question 8

Question 8-1



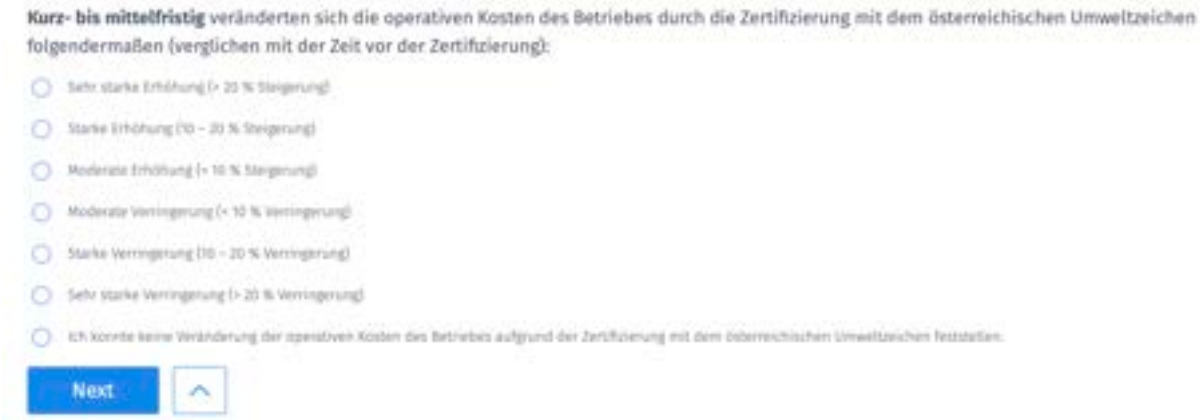
Question 9



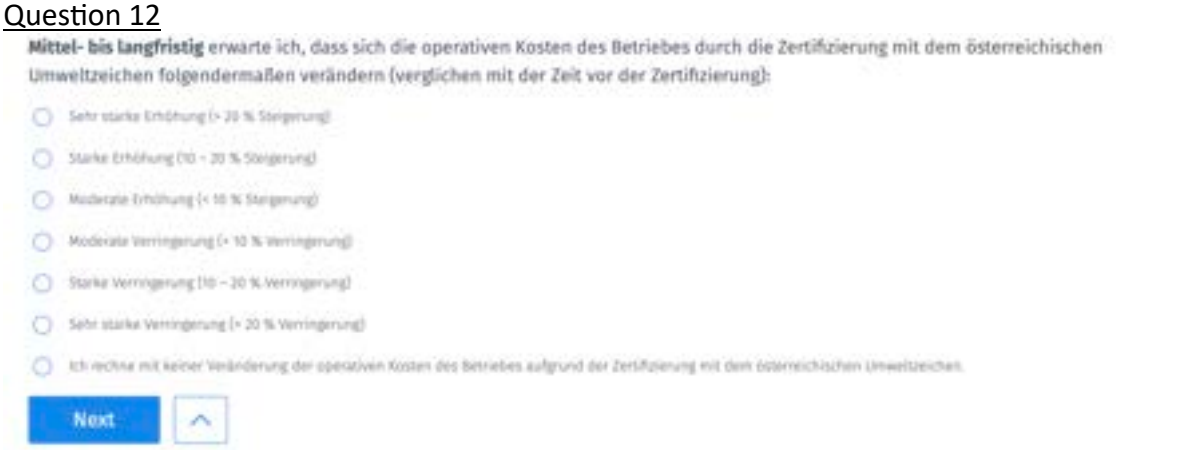
Question 9-1

Question 10

Question 11



Question 12



Question 13

Question 13-1

Question 14

Das **Soll-Kriterium M17** des österreichischen Umweltzeichens befasst sich mit **Mitarbeiterpolitik und Sozialleistungen**. Über die gesetzlichen Vorgaben hinaus setzt das Unternehmen aktiv Maßnahmen zur Förderung der Jugendausbildung, der Gleichbehandlung aller Mitarbeiter oder der Integration von Minderheiten um. Darüber hinaus erhalten die Mitarbeiter Zusatzleistungen wie Freistellungen für Bildungsmaßnahmen oder kostenlose Mahlzeiten. Bei der Gestaltung der Arbeitszeiten wird auch die private Situation der Mitarbeiter berücksichtigt und so eine „Work-Life-Balance" ermöglicht (Preslmair & Fichtl, 2023, S. 57)

Ich habe das Soll-Kriterium M17 bei der Zertifizierung meines Betriebes mit dem österreichischen Umweltzeichen umgesetzt.

- Ich stimme zu
- Ich stimme nicht zu
- Ich kann mich nicht erinnern./Ich bin mir nicht sicher

Next

Question 14-1

Durch die **Umsetzung des Soll-Kriteriums M17** habe ich klare Vorteile bei der Suche neuer Mitarbeiter gegenüber nicht-zertifizierten Betrieben.

Stimme voll zu | Stimme eher zu | Stimme eher nicht zu | Stimme gar nicht zu

Next

Question 15

Die Auswirkungen des Klimawandels sind durch Indikatoren wie Extremwetterereignisse, steigende Temperaturen oder Veränderungen der Niederschlagsmengen auch in Österreich bereits zu spüren.

Ich habe die Einschätzung, dass die Auswirkungen des Klimawandels **erhebliche negative Folgen für das operative Geschäft** meines Beherbergungsbetriebes haben werden.

Stimme voll zu | Stimme eher zu | Stimme eher nicht zu | Stimme gar nicht zu

Next

Question16

Ich habe die Einschätzung, dass mein Betrieb **durch die Zertifizierung** mit dem österreichischen Umweltzeichen gut auf die Auswirkungen des Klimawandels vorbereitet ist.

Stimme voll zu | Stimme eher zu | Stimme eher nicht zu | Stimme gar nicht zu

Next

Question 17

Ich bin der Meinung, dass für meine Gäste die Zertifizierung mit dem österreichischen Umweltzeichen **ein wesentliches Argument bei der Buchung** ihres Aufenthalts in meinem Beherbergungsbetrieb ist.

Stimme voll zu | Stimme eher zu | Stimme eher nicht zu | Stimme gar nicht zu

Next

Question 18

Meine Gäste sind generell **leicht zu motivieren**, bei der Umsetzung meines Nachhaltigkeitskonzeptes mitzuwirken.

Stimme voll zu | Stimme eher zu | Stimme eher nicht zu | Stimme gar nicht zu

Next

Question 19

7.4 Descriptive Analysis

Descriptive Statistics

Question 1

In welchem österreichischen Bundesland liegt ihr Beherbergungsbetrieb?

Frequencies

Frequencies of Q1

Levels	Counts	% of Total	Cumulative %
Steiermark	7	6.5%	6.5%
Kärnten	12	11.2%	17.8%
Tirol	26	24.3%	42.1%
Vorarlberg	8	7.5%	49.5%
Salzburg	16	15.0%	64.5%
Oberösterreich	8	7.5%	72.0%
Niederösterreich	8	7.5%	79.4%
Wien	21	19.6%	99.1%
Burgenland	1	0.9%	100.0%

Question 2

In welchem geografischen Raum liegt ihr Beherbergungsbetrieb?

Frequencies

Frequencies of Q2

Levels	Counts	% of Total	Cumulative %
Städtischer/Stadtnaher Raum	42	39.3%	39.3%
Ländlicher/Alpiner Raum	65	60.7%	100.0%

Question 3

Wie hoch ist die Bettenanzahl in Ihrem Betrieb?

Frequencies

Frequencies of Q3

Levels	Counts	% of Total	Cumulative %
100 verfügbare Betten oder weniger.	49	45.8%	45.8%
Mehr als 100 verfügbare Betten.	58	54.2%	100.0%

Question 4

Welche Zielgruppe wollen Sie mit Ihrem Beherbergungsbetrieb vorranging ansprechen?

Frequencies

Frequencies of Q4

Levels	Counts	% of Total	Cumulative %
Klassische Feriengäste	32	29.9%	29.9%
Familien und Gruppen	9	8.4%	38.3%
Geschäftsreisende	18	16.8%	55.1%
Luxusreisende	3	2.8%	57.9%
Gesundheits-/ Wellnesstouristen	12	11.2%	69.2%
Kultur-/ Städtereisende	9	8.4%	77.6%
Ich kann meinen Beherbergungsbetrieb keiner Zielgruppe eindeutig zuordnen.	24	22.4%	100.0%

Question 5

Ist Ihr Betrieb **erstmals** oder bereits **zum wiederholten Male** mit dem österreichischen Umweltzeichen zertifiziert?

Frequencies

Frequencies of Q5

Levels	Counts	% of Total	Cumulative %
Mein Betrieb ist erstmals zertifiziert.	49	45.8%	45.8%
Mein Betrieb ist bereits zum wiederholten Male zertifiziert.	58	54.2%	100.0%

Question 6

Beim Vergleich der Sommersaison (Mai – Oktober) mit der Wintersaison (November – April) trifft für meinen Beherbergungsbetrieb folgendes zu:

Frequencies

Frequencies of Q6

Levels	Counts	% of Total	Cumulative %
Die Wintersaison ist klar am wichtigsten.	11	10.3%	10.3%
Die Wintersaison ist eher wichtig.	8	7.5%	17.8%
Es gibt keinen signifikanten Unterschied zwischen Sommer- und Wintersaison.	57	53.3%	71.0%
Die Sommersaison ist eher wichtig.	18	16.8%	87.9%
Die Sommersaison ist klar am wichtigsten.	13	12.1%	100.0%

Season - Federal State

Frequencies

Frequencies of Q6

Q6	Q1								
	Steiermark	Kärnten	Tirol	Vorarlberg	Salzburg	Oberösterreich	Niederösterreich	Wien	Burgenland
Die Wintersaison ist klar am wichtigsten.	0	0	5	3	3	0	0	0	0
Die Wintersaison ist eher wichtig.	0	2	1	0	5	0	0	0	0
Es gibt keinen signifikanten Unterschied zwischen Sommer- und Wintersaison.	5	1	16	1	8	4	5	16	1
Die Sommersaison ist eher wichtig.	2	2	2	1	0	3	3	5	0
Die Sommersaison ist klar am wichtigsten.	0	7	2	3	0	1	0	0	0

Season - Geographical Area

Frequencies

Frequencies of Q6

Q6	Q2	
	Städtischer/Stadtnaher Raum	Ländlicher/Alpiner Raum
Die Wintersaison ist klar am wichtigsten.	0	11
Die Wintersaison ist eher wichtig.	0	8
Es gibt keinen signifikanten Unterschied zwischen Sommer- und Wintersaison.	28	29
Die Sommersaison ist eher wichtig.	10	8
Die Sommersaison ist klar am wichtigsten.	4	9

Question 7

Folgende Gründe waren für mich ausschlaggebend, eine Zertifizierung mit dem österreichischen Umweltzeichen anzustreben (Bitte um Reihung der Optionen):

Frequencies

Evaluation as Rank 1:

Frequencies of Q7Rank1

Levels	Counts	% of Total	Cumulative %
Die persönliche Motivation, den Betrieb umweltfreundlich zu gestalten.	78	72.9%	72.9%
Potenzielle Gäste anzusprechen und so einen Wettbewerbsvorteil zu erlangen.	11	10.3%	83.2%
Den Betrieb durch eine Zertifizierung auf negative Auswirkungen des Klimawandels vorzubereiten.	6	5.6%	88.8%
Durch Effizienzsteigerungen (z. B. bei Energie, Wasser) Kosteneinsparungen zu erzielen.	11	10.3%	99.1%
Mich für potenzielle BewerberInnen als Arbeitgeber attraktiv zu machen.	1	0.9%	100.0%

Evaluation as Rank 2:

Frequencies of Q7Rank2

Levels	Counts	% of Total	Cumulative %
Die persönliche Motivation, den Betrieb umweltfreundlich zu gestalten.	8	7.5%	7.5%
Potenzielle Gäste anzusprechen und so einen Wettbewerbsvorteil zu erlangen.	29	27.1%	34.6%
Den Betrieb durch eine Zertifizierung auf negative Auswirkungen des Klimawandels vorzubereiten.	23	21.5%	56.1%
Durch Effizienzsteigerungen (z. B. bei Energie, Wasser) Kosteneinsparungen zu erzielen.	42	39.3%	95.3%
Mich für potenzielle BewerberInnen als Arbeitgeber attraktiv zu machen.	5	4.7%	100.0%

Evaluation as Rank 3:

Frequencies of Q7Rank3

Levels	Counts	% of Total	Cumulative %
Die persönliche Motivation, den Betrieb umweltfreundlich zu gestalten.	8	7.5%	7.5%
Potenzielle Gäste anzusprechen und so einen Wettbewerbsvorteil zu erlangen.	36	33.6%	41.1%
Den Betrieb durch eine Zertifizierung auf negative Auswirkungen des Klimawandels vorzubereiten.	20	18.7%	59.8%
Durch Effizienzsteigerungen (z. B. bei Energie, Wasser) Kosteneinsparungen zu erzielen.	30	28.0%	87.9%
Mich für potenzielle BewerberInnen als Arbeitgeber attraktiv zu machen.	13	12.1%	100.0%

Evaluation as Rank 4:

Frequencies of Q7Rank4

Levels	Counts	% of Total	Cumulative %
Die persönliche Motivation, den Betrieb umweltfreundlich zu gestalten.	7	6.5%	6.5%
Potenzielle Gäste anzusprechen und so einen Wettbewerbsvorteil zu erlangen.	25	23.4%	29.9%
Den Betrieb durch eine Zertifizierung auf negative Auswirkungen des Klimawandels vorzubereiten.	39	36.4%	66.4%
Durch Effizienzsteigerungen (z. B. bei Energie, Wasser) Kosteneinsparungen zu erzielen.	11	10.3%	76.6%
Mich für potenzielle BewerberInnen als Arbeitgeber attraktiv zu machen.	25	23.4%	100.0%

Evaluation as Rank 5:

Frequencies of Q7Rank5

Levels	Counts	% of Total	Cumulative %
Die persönliche Motivation, den Betrieb umweltfreundlich zu gestalten.	5	4.7%	4.7%
Potenzielle Gäste anzusprechen und so einen Wettbewerbsvorteil zu erlangen.	7	6.5%	11.2%
Den Betrieb durch eine Zertifizierung auf negative Auswirkungen des Klimawandels vorzubereiten.	21	19.6%	30.8%
Durch Effizienzsteigerungen (z. B. bei Energie, Wasser) Kosteneinsparungen zu erzielen.	3	2.8%	33.6%
Mich für potenzielle BewerberInnen als Arbeitgeber attraktiv zu machen.	71	66.4%	100.0%

Question 8

Folgende Faktoren waren für mich **während der Vorbereitung zur Zertifizierung** mit dem österreichischen Umweltzeichen herausfordernd:

Descriptives

	Ordnungsmäße Dokumentation	Erstellung eines Nachhaltigkeitskonzeptes	Energieausweises bzw. Energieerhebung	Das Motivieren der MitarbeiterInnen	Genügend Zeit zur Vorbereitung der Zertifizierung
Mean	2.21	2.41	2.56	2.67	2.11
Mode	2.00	2.00	2.00	3.00	2.00

(1) Sehr herausfordernd - (2) Herausfordernd - (3) Wenig herausfordernd - (4) Gar nicht herausfordernd

Question 8-1

Gab es noch weitere Faktoren, die Sie bei der **Vorbereitung zur Zertifizierung** als herausfordernd empfanden?

Frequencies

Frequencies of Q8-1

Levels	Counts	% of Total	Cumulative %
Ja	14	13.1%	13.1%
Nein	93	86.9%	100.0%

Question 9

Folgende Faktoren waren für mich **bei der Umsetzung der Kriterien** des österreichischen Umweltzeichens herausfordernd:

Descriptives

	Investitionen (Wärmedämmung, Energieeffizienz, Wärmedämmung)	Schulung der MitarbeiterInnen zum Umweltkonzept	Informieren der Gäste über das Umweltkonzept	100 % des Strombedarfs aus erneuerbaren Energiequellen	Laufendes Monitoring über die Erfüllung der Kriterien	Der Bezug von regionalen und biologisch produzierten Produkten.	Verzicht auf Einwegprodukte in Küche und/oder Sanitärbereich	Klimafreundliche An- und Abreise von Gästen u. MitarbeiterInnen
Mean	2.68	2.62	2.88	3.07	2.31	2.73	2.93	2.13
Mode	3.00	3.00	3.00	4.00	2.00	2.00	3.00	2.00

(1) Sehr herausfordernd - (2) Herausfordernd - (3) Wenig herausfordernd - (4) Gar nicht herausfordernd

Question 9-1

Gab es noch weitere Faktoren, die Sie bei der **Umsetzung der Kriterien** als herausfordernd empfanden?

Frequencies

Frequencies of Q9-1

Levels	Counts	% of Total	Cumulative %
Ja	5	4.7%	4.7%
Nein	102	95.3%	100.0%

Question 10

Die direkten Kosten einer Zertifizierung mit dem österreichischen Umweltzeichen (z. B. Antrags- und Nutzungsgebühren, Kosten für externe Beratung) stellen für mich eine beträchtliche finanzielle Belastung dar.

Descriptives

	Q10
Mean	2.71
Mode	3.00

(1) Stimme voll zu - (2) Stimme eher zu - (3) Stimme eher nicht zu - (4) Stimme gar nicht zu

Frequencies

Frequencies of Q10

Levels	Counts	% of Total	Cumulative %
Stimme voll zu	8	7.5 %	7.5 %
Stimme eher zu	34	31.8 %	39.3 %
Stimme eher nicht zu	46	43.0 %	82.2 %
Stimme gar nicht zu	19	17.8 %	100.0 %

Question 11

Kurz- bis mittelfristig veränderten sich die operativen Kosten des Betriebes durch die Zertifizierung mit dem österreichischen Umweltzeichen folgendermaßen (verglichen mit der Zeit vor der Zertifizierung)

Frequencies

Frequencies of Q11

Levels	Counts	% of Total	Cumulative %
Starke Erhöhung (10 – 20 % Steigerung)	6	5.6 %	5.6 %
Moderate Erhöhung (< 10 % Steigerung)	38	35.5 %	41.1 %
Moderate Verringerung (< 10 % Verringerung)	22	20.6 %	61.7 %
Starke Verringerung (10 – 20 % Verringerung)	7	6.5 %	68.2 %
Ich konnte keine Veränderung der operativen Kosten des Betriebes aufgrund der Zertifizierung mit dem österreichischen Umweltzeic ...	34	31.8 %	100.0 %

Question 12

Mittel- bis langfristig erwarte ich, dass sich die operativen Kosten des Betriebes durch die Zertifizierung mit dem österreichischen Umweltzeichen folgendermaßen verändern (verglichen mit der Zeit vor der Zertifizierung)

Frequencies

Frequencies of Q12

Levels	Counts	% of Total	Cumulative %
Starke Erhöhung (10 – 20 % Steigerung)	3	2.8 %	2.8 %
Moderate Erhöhung (< 10 % Steigerung)	35	32.7 %	35.5 %
Moderate Verringerung (< 10 % Verringerung)	33	30.8 %	66.4 %
Starke Verringerung (10 – 20 % Verringerung)	12	11.2 %	77.6 %
Sehr starke Verringerung (> 20 % Verringerung)	2	1.9 %	79.4 %
Ich rechne mit keiner Veränderung der operativen Kosten des Betriebes aufgrund der Zertifizierung mit dem österreichischen Umwel ...	22	20.6 %	100.0 %

Question 13

Folgende Vorteile einer Zertifizierung mit dem österreichischen Umweltzeichen haben sich für mich als besonders entscheidend herausgestellt:

Descriptives

	Kosteneinsparungen	Qualitätssteigerung im Betrieb	Erhöhte Resilienz ggü. negativer Auswirkungen des Klimawandels	Vorteile bei der Suche neuer Mitarbeiterinnen	Erhöhung der Zufriedenheit der bestehenden Mitarbeiterinnen	Positives Image des Betriebes	Stärkung Vernetzung in der Region	Profitieren vom Netzwerk des Österreichischen Umweltzeichens	Stärkere Nachfrage von umweltbewussten Kunden
Mean	2.12	1.79	1.93	2.94	2.85	1.52	2.35	2.57	2.06
Mode	2.00	2.00	2.00	3.00	3.00	1.00	2.00	3.00	2.00

(1) Sehr entscheidend - (2) Entscheidend - (3) Wenig entscheidend - (4) Gar nicht entscheidend

Question 14

Ich habe das Soll-Kriterium M17 bei der Zertifizierung meines Betriebes mit dem österreichischen Umweltzeichen umgesetzt.

Frequencies

Frequencies of Q14

Levels	Counts	% of Total	Cumulative %
Ich stimme zu.	71	66.4 %	66.4 %
Ich stimme nicht zu.	10	9.3 %	75.7 %
Ich kann mich nicht erinnern./Ich bin mir nicht sicher.	26	24.3 %	100.0 %

Question 14-1

Durch die Umsetzung des Soll-Kriteriums M17 habe ich klare Vorteile bei der Suche neuer Mitarbeiter gegenüber nicht-zertifizierten Betrieben.

Descriptives

	Q14-1
Mean	2.41
Mode	2.00

(1) Stimme voll zu - (2) Stimme eher zu - (3) Stimme eher nicht zu - (4) Stimme gar nicht zu

Frequencies

Frequencies of Q14-1

Levels	Counts	% of Total	Cumulative %
Stimme voll zu.	8	11.3 %	11.3 %
Stimme eher zu.	34	47.9 %	59.2 %
Stimme eher nicht zu.	21	29.6 %	88.7 %
Stimme gar nicht zu.	8	11.3 %	100.0 %

Question 15

Ich habe die Einschätzung, dass die Auswirkungen des Klimawandels **erhebliche negative Folgen für das operative Geschäft** meines Beherbergungsbetriebes haben werden.

Descriptives

	Q15
Mean	2.46
Mode	3.00

(1) Stimme voll zu - (2) Stimme eher zu - (3) Stimme eher nicht zu - (4) Stimme gar nicht zu

Frequencies

Frequencies of Q15

Levels	Counts	% of Total	Cumulative %
Stimme voll zu.	16	15.0 %	15.0 %
Stimme eher zu.	36	33.6 %	48.6 %
Stimme eher nicht zu.	45	42.1 %	90.7 %
Stimme gar nicht zu.	10	9.3 %	100.0 %

Question 16

Ich habe die Einschätzung, dass mein Betrieb **durch die Zertifizierung** mit dem österreichischen Umweltzeichen gut auf die Auswirkungen des Klimawandels vorbereitet ist.

Descriptives

	Q16
Mean	2.28
Mode	2.00

(1) Stimme voll zu - (2) Stimme eher zu - (3) Stimme eher nicht zu - (4) Stimme gar nicht zu

Frequencies

Frequencies of Q16

Levels	Counts	% of Total	Cumulative %
Stimme voll zu	12	11.2%	11.2%
Stimme eher zu	61	57.0%	68.2%
Stimme eher nicht zu	26	24.3%	92.5%
Stimme gar nicht zu	8	7.5%	100.0%

Question 17

Ich bin der Meinung, dass für meine Gäste die Zertifizierung mit dem österreichischen Umweltzeichen **ein wesentliches Argument bei der Buchung** ihres Aufenthalts in meinem Beherbergungsbetrieb ist.

Descriptives

	Q17
Mean	2.57
Mode	3.00

(1) Stimme voll zu - (2) Stimme eher zu - (3) Stimme eher nicht zu - (4) Stimme gar nicht zu

Frequencies

Frequencies of Q17

Levels	Counts	% of Total	Cumulative %
Stimme voll zu	7	6.5%	6.5%
Stimme eher zu	41	38.3%	44.9%
Stimme eher nicht zu	50	46.7%	91.6%
Stimme gar nicht zu	9	8.4%	100.0%

Question 18

Meine Gäste sind generell **leicht zu motivieren**, bei der Umsetzung meines Nachhaltigkeitskonzeptes mitzuwirken.

Descriptives

	Q18
Mean	2.35
Mode	2.00

(1) Stimme voll zu - (2) Stimme eher zu - (3) Stimme eher nicht zu - (4) Stimme gar nicht zu

Frequencies

Frequencies of Q18

Levels	Counts	% of Total	Cumulative %
Stimme voll zu	6	5.6%	5.6%
Stimme eher zu	61	57.0%	62.6%
Stimme eher nicht zu	37	34.6%	97.2%
Stimme gar nicht zu	3	2.8%	100.0%

Question 19

Bei der Buchung eines Aufenthalts in meiner Unterkunft spielt es für meine Gäste eine wesentliche Rolle, dass sie **klimafreundlich an- und abreisen** können und dabei von meinem Betrieb unterstützt werden.

Descriptives

	Q19
Mean	2.75
Mode	3.00

(1) Stimme voll zu - (2) Stimme eher zu - (3) Stimme eher nicht zu - (4) Stimme gar nicht zu

Frequencies

Frequencies of Q19

Levels	Counts	% of Total	Cumulative %
Stimme voll zu.	8	7.5%	7.5%
Stimme eher zu.	23	21.5%	29.0%
Stimme eher nicht zu.	64	59.8%	88.8%
Stimme gar nicht zu.	12	11.2%	100.0%

7.5 Inductive Analysis

Testing of Difference-Hypotheses

Hypothesis 1: difference - directional

H1-A: Making one's business more attractive to **potential employees** as a reason for certification is significantly more important for businesses located in **rural/alpine areas** than for businesses located in **urban/peri-urban areas**.
H1-0: Making one's business more attractive to **potential employees** as a reason for certification is not significantly more important for businesses located in **rural/alpine areas** than for businesses located in **urban/peri-urban areas**.

Descriptives

	Q2	Attraktivität als Arbeitgeber
N	Städtischer/Stadtnaher Raum	42
	Ländlicher/Alpiner Raum	65
Mean	Städtischer/Stadtnaher Raum	4.33
	Ländlicher/Alpiner Raum	4.35
Median	Städtischer/Stadtnaher Raum	5.00
	Ländlicher/Alpiner Raum	5
Standard deviation	Städtischer/Stadtnaher Raum	0.902
	Ländlicher/Alpiner Raum	0.959

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference
Attraktivität als Arbeitgeber	Welch's t	-0.112	91.5	0.544	-0.0205	0.183

Note. H_a $\mu_{\text{Städtischer/Stadtnaher Raum}} > \mu_{\text{Ländlicher/Alpiner Raum}}$

H1-0 is accepted; H1-A is rejected

Hypothesis 2: difference - directional

H2-A: The **direct costs of certification** represent a significantly higher financial burden for **small** (<= 100 beds) **accommodation facilities** than for **large** (> 100 beds) **accommodation facilities.**
H2-0: The **direct costs of certification** represent no significantly higher financial burden for **small** (<= 100 beds) **accommodation facilities** than for **large** (> 100 beds) **accommodation facilities.**

Descriptives

	Q3	Q10
N	100 verfügbare Betten oder weniger.	49
	Mehr als 100 verfügbare Betten.	58
Mean	100 verfügbare Betten oder weniger.	2.45
	Mehr als 100 verfügbare Betten.	2.93
Median	100 verfügbare Betten oder weniger.	2
	Mehr als 100 verfügbare Betten.	3.00
Standard deviation	100 verfügbare Betten oder weniger.	0.891
	Mehr als 100 verfügbare Betten.	0.746

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference
Q10	Welch's t	-3.00	93.9	0.002	-0.482	0.161

Note. H_a $\mu_{100 \text{ verfügbare Betten oder weniger.}} < \mu_{\text{Mehr als 100 verfügbare Betten.}}$

H2-A is accepted; H2-0 is rejected

Hypothesis 3: difference - non directional

H3-A: There is a significant difference in the assessment that **ongoing monitoring** is a challenging criterion in implementing certification between businesses that are certified for the **first time** and those that are certified for a **repeated time.**
H3-0: There is no significant difference in the assessment that **ongoing monitoring** is a challenging criterion in implementing certification between businesses that are certified for the **first time** and those that are certified for a **repeated time**.

Descriptives

	Q5	Laufendes Monitoring über die Erfüllung der Kriterien
N	Mein Betrieb ist erstmals zertifiziert.	49
	Mein Betrieb ist bereits zum wiederholten Male zertifiziert.	58
Mean	Mein Betrieb ist erstmals zertifiziert.	2.35
	Mein Betrieb ist bereits zum wiederholten Male zertifiziert.	2.28
Median	Mein Betrieb ist erstmals zertifiziert.	2
	Mein Betrieb ist bereits zum wiederholten Male zertifiziert.	2.00
Standard deviation	Mein Betrieb ist erstmals zertifiziert.	0.830
	Mein Betrieb ist bereits zum wiederholten Male zertifiziert.	0.854

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference
Laufendes Monitoring über die Erfüllung der Kriterien	Welch's t	0.435	103	0.664	0.0711	0.163

H3-0 is accepted; H3-A is rejected

Hypothesis 4: difference - directional

H4-A: The assessment that the impact of climate change will have a considerably negative impact on the **operations of the business** is stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.
H4-0: The assessment that the impact of climate change will have a considerably negative impact on the **operations of the business** is not stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.

Descriptives

	Q6 - Einteilung Saison	Q15
N	Die Wintersaison ist wichtiger	19
	Die Sommersaison ist wichtiger	31
Mean	Die Wintersaison ist wichtiger	2.05
	Die Sommersaison ist wichtiger	2.39
Median	Die Wintersaison ist wichtiger	2
	Die Sommersaison ist wichtiger	3
Standard deviation	Die Wintersaison ist wichtiger	0.911
	Die Sommersaison ist wichtiger	0.882
Shapiro-Wilk W	Die Wintersaison ist wichtiger	0.865
	Die Sommersaison ist wichtiger	0.853
Shapiro-Wilk p	Die Wintersaison ist wichtiger	0.012
	Die Sommersaison ist wichtiger	< .001

No Normal distribution.

Independent Samples T-Test

Independent Samples T-Test

		Statistic	p
Q15	Mann-Whitney U	232	0.094

Note. H_a $\mu_{\text{Die Wintersaison ist wichtiger}} < \mu_{\text{Die Sommersaison ist wichtiger}}$

H4-0 is accepted; H4-A is rejected

Hypothesis 5: difference - directional

H5-A: The assessment that the certification with the Austrian Eco-label **prepares the business** well for the negative impacts of climate change is stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.
H5-0: The assessment that the certification with the Austrian Eco-label **prepares the business** well for the negative impacts of climate change is stronger for businesses for which the **winter season** is more important than for those for which the **summer season** is more important.

Descriptives

	Q6 - Einteilung Saison	Q16
N	Die Wintersaison ist wichtiger	19
	Die Sommersaison ist wichtiger	31
Mean	Die Wintersaison ist wichtiger	2.32
	Die Sommersaison ist wichtiger	2.48
Median	Die Wintersaison ist wichtiger	2
	Die Sommersaison ist wichtiger	2
Standard deviation	Die Wintersaison ist wichtiger	0.582
	Die Sommersaison ist wichtiger	0.890
Shapiro-Wilk W	Die Wintersaison ist wichtiger	0.744
	Die Sommersaison ist wichtiger	0.855
Shapiro-Wilk p	Die Wintersaison ist wichtiger	< .001
	Die Sommersaison ist wichtiger	< .001

No Normal Distribution.

Independent Samples T-Test

Independent Samples T-Test

		Statistic	p
Q16	Mann-Whitney U	271	0.307

Note. H_a $\mu_{\text{Die Wintersaison ist wichtiger}} < \mu_{\text{Die Sommersaison ist wichtiger}}$

H5-0 is accepted; H5-A is rejected

Testing of Correlation-Hypotheses

Hypothese 6: correlation - non directional

H6-A: There is a significant correlation between the change in an establishment's operating costs caused by certification in the **short to medium term** with the expected development of operating costs in the **medium to long term**.
H6-0: There is no significant correlation between the change in an establishment's operating costs caused by certification in the **short to medium term** with the expected development of operating costs in the **medium to long term**.

Descriptives

	Q11 - T	Q12 - T
N	107	107
Mean	0.131	-0.206
Median	0	0
Standard deviation	1.02	1.16
Shapiro-Wilk W	0.897	0.899
Shapiro-Wilk p	< .001	< .001

Both variables are not normally distributed.

Correlation Matrix

Correlation Matrix

		Q11 - T	Q12 - T
Q11 - T	Spearman's rho	—	
	p-value	—	
Q12 - T	Spearman's rho	0.566	—
	p-value	< .001	—

H6-A is accepted; H6-0 is rejected
There is a moderate positive correlation.

Hypothesis 7: correlation - non directional

H7-A: There is a significant correlation between the importance for businesses to **attract potential guests** through certification with the assessment that certification is an **essential argument for guests** when booking a stay.
H7-0: There is no significant correlation between the importance for businesses to **attract potential guests** through certification with the assessment that certification is an **essential argument for guests** when booking a stay.

Descriptives

	Gäste anlocken	Q17
N	107	107
Mean	2.89	2.57
Median	3	3
Standard deviation	1.08	0.741
Shapiro-Wilk W	0.915	0.844
Shapiro-Wilk p	< .001	< .001

Both variables are not normally distributed.

Correlation Matrix

Correlation Matrix

		Gäste anlocken	Q17
Gäste anlocken	Spearman's rho	—	
	p-value	—	
Q17	Spearman's rho	-0.031	—
	p-value	0.751	—

H7-0 is accepted; H7-A is rejected

Hypothesis 8: difference - non directional

H8a-A: There is a significant difference in the change in operating costs in the **short to medium term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.
H8a-0: There is no significant difference in the change in operating costs in the **short to medium term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.
H8b-A: There is a significant difference in expected development of operating costs in the **medium to long term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.
H8b-0: There is no significant difference in expected development of operating costs in the **medium to long term** between businesses located in **urban/peri-urban areas** and those located in **rural/alpine areas**.

Descriptives

	Q2	Q11 - T	Q12 - T
N	Städtischer/Stadtnaher Raum	42	42
	Ländlicher/Alpiner Raum	65	65
Mean	Städtischer/Stadtnaher Raum	0.357	0.119
	Ländlicher/Alpiner Raum	-0.0154	-0.415
Median	Städtischer/Stadtnaher Raum	0.00	0.00
	Ländlicher/Alpiner Raum	0	-1
Standard deviation	Städtischer/Stadtnaher Raum	0.791	0.968
	Ländlicher/Alpiner Raum	1.12	1.22

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference
Q11 - T	Welch's t	2.01	104	0.047	0.373	0.185
Q12 - T	Welch's t	2.51	101	0.014	0.534	0.213

H8a-A & H8b-A are accepted; H8a-0 & H8b-0 are rejected

Hypothesis 9: difference - non directional

H9a-A: There is a significant difference in the change in operating costs in the **short to medium term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.
H9a-0: There is no significant difference in the change in operating costs in the **short to medium term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.
H9b-A: There is a significant difference in expected development of operating costs in the **medium to long term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.
H9b-0: There is no significant difference in expected development of operating costs in the **medium to long term** between **large** (> 100 beds) and **small** (<= 100 beds) **accommodation facilities**.

Descriptives

	Q3	Q11 - T	Q12 - T
N	100 verfügbare Betten oder weniger.	49	49
	Mehr als 100 verfügbare Betten.	58	58
Mean	100 verfügbare Betten oder weniger.	0.143	-0.265
	Mehr als 100 verfügbare Betten.	0.121	-0.155
Median	100 verfügbare Betten oder weniger.	0	0
	Mehr als 100 verfügbare Betten.	0.00	0.00
Standard deviation	100 verfügbare Betten oder weniger.	1.10	1.24
	Mehr als 100 verfügbare Betten.	0.957	1.09

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference
Q11 - T	Welch's t	0.110	96.0	0.912	0.0222	0.201
Q12 - T	Welch's t	-0.484	96.5	0.629	-0.1101	0.227

H9a-0 & H9b-0 are accepted; H9a-A & H9b-A are rejected

Hypothesis 10: difference - non directional

H10a-A: There is a significant difference in the change in operating costs in the **short to medium term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.
H10a-0: There is no significant difference in the change in operating costs in the **short to medium term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.
H10b-A: There is a significant difference in expected development of operating costs in the **medium to long term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.
H10b-0: There is no significant difference in expected development of operating costs in the **medium to long term** between businesses for which the **summer season** is more important and those for which the **winter season** is more important.

Descriptives

	Q6 - Einteilung Saison	Q11 - T	Q12 - T
N	Die Wintersaison ist wichtiger	19	19
	Die Sommersaison ist wichtiger	31	31
Mean	Die Wintersaison ist wichtiger	0.00	-0.105
	Die Sommersaison ist wichtiger	-0.0323	-0.516
Median	Die Wintersaison ist wichtiger	0	0
	Die Sommersaison ist wichtiger	0	-1
Standard deviation	Die Wintersaison ist wichtiger	1.11	1.41
	Die Sommersaison ist wichtiger	1.05	1.09
Shapiro-Wilk W	Die Wintersaison ist wichtiger	0.874	0.882
	Die Sommersaison ist wichtiger	0.914	0.934
Shapiro-Wilk p	Die Wintersaison ist wichtiger	0.017	0.024
	Die Sommersaison ist wichtiger	0.017	0.057

Independent Samples T-Test

Independent Samples T-Test

		Statistic	p
Q11 - T	Mann-Whitney U	291	0.942
Q12 - T	Mann-Whitney U	231	0.191

H10a-0 & H10b-0 are accepted; H10a-A & H10b-A are rejected

7.6 Logo Use Austrian Ecolabel

Von: **Preslmair Regina** Regina.Preslmair@bmk.gv.at
Betreff: Re: Verwendung des UWZ-Logo in MA
Datum: 28. Oktober 2023 um 13:43
An: Laurenz Mörth laurenz.moerth@gmail.com

Vielen Dank für die Rückfrage lieber Herr Mörth
Die Verwendung in der von Ihnen erwähnten Weise ist hiermit gerne genehmigt
Beste Grüße Regina Preslmair

Am 28.10.2023 um 11:03 schrieb Laurenz Mörth <laurenz.moerth@gmail.com>:

[EXTERNE EMAIL] Bitte klicken Sie NICHT auf Links oder Anlagen, es sei denn, Sie kennen die Absenderadresse und wissen, dass der Inhalt sicher ist.

Sehr geehrte Frau Preslmair,

Ich melde mich bei Ihnen, da ich nun in den finalen Zügen der Arbeit an meiner Masterarbeit bin und hierbei noch eine Frage aufgekommen ist.

Ich habe in meiner Masterarbeit das Logo des Umweltzeichens als Foto eingefügt, um dem Leser dessen Bedeutung besser vermitteln zu können. Ich mache dies in dem Kapitel, in dem ich die Geschichte des österreichischen Umweltzeichens beschreibe. In den Richtlinien der FH JOANNEUM steht bezüglich der Verwendung von Bildern o.Ä. Folgendes:

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Ich möchte Sie nun fragen, ob es in Ordnung ist, dass ich das Logo in dieser Form in meiner Masterarbeit verwende. In der Arbeit würde es folgendermaßen aussehen:

<PastedGraphic-1.png>

Quelle: BMK. (2023a). *Das Österreichische Umweltzeichen: Factsheet 2023* (p. 2). BMK. https://www.umweltzeichen.at/de/zertifizierung/publikationen/

Vielen Dank für Ihre Hilfe!

Freundliche Grüße,

Laurenz Mörth

Re