MARKET SEARCH REPORT

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3win Action

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INTRODUCTION

1.1. Introductory information

Sustainability has evolved into a crucial factor for businesses across all industries. With the increasing pursuit of sustainability and social responsibility, businesses seek ways to measure, assess, and improve their sustainability levels. Digital, online, and offline sustainability assessment tools are key tools for this self-assessment. Tourism's responsibility for 8% of global CO2 emissions annually highlights the urgent need for environmental reforms within the industry. By 2050, these emissions are expected to reach 7% of total human-caused warming impacts.Sustainability level assessment includes a large list of negative and positive control points in which every accommodation establishment has impact to the destination.

Sustainable tourism is defined by the UN Environment Program and UN World Tourism Organization (UNWTO) as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities." It is operationalized as efforts to ensure balance between the three dimensions and guarantee its long-term sustainability" (UNEP & UNWTO, 2005: 11-12. Making Tourism More Sustainable – A Guide for Policy Makers).

Negative impacts to a destination include overcrowding, pressure on quality and availability of natural resources (e,g, water, air pollution) through over-consumption, often in places where resources are already scarce, enormous stress on local land use, and can lead to soil erosion, increased pollution (e.g. water, air) and damage to the natural environment, to name a few. **Positive impacts** to a destination include job creation, strenghtening resilience in entrepreneurship, cultural heritage preservation, wildlife preservation, landscape restoration, and more.

This study aims to approach the topic of sustainability level, assessment tools to understand the current state and trends in the market. It analyzes the needs of businesses, available solutions, and key players in the field. Through this analysis, we aim to provide insights and empirical data that contribute to understanding the dynamics of this important sector and support decision-making in the selection and use of sustainability assessment tools.

We further analyse current trends in sustainability assessment, focuse on the challenges faced by businesses, and study the criteria used to evaluate the effectiveness of sustainability assessment tools. By examining market demand, existing tools, and emerging innovations, this research seeks to provide a comprehensive overview of the landscape of sustainability self-assessment.

Furthermore, this exploration aims to identify gaps in the market and opportunities for improvement or innovation in sustainability assessment tools. By understanding the needs and expectations of businesses, as well as the capabilities and limitations of existing tools, we can lead the way for the development of more robust and effective solutions to support sustainable business practices.

Finaly, this report serves as a valuable resource for businesses, researchers, and policymakers interested in advancing sustainability efforts through the use of assessment tools. By shedding light on the current state of the market and future directions, we hope to foster continued progress towards a more sustainable and resilient global economy.

As acknowledged, this subject is complex, and it would be advisable to implement a long-term strategy.
We recommend focusing our tool design on identifying and analyzing the current landscape of sustainability monitoring tools, emphasizing their applicability, strengths, and limitations.
This deliverable aims to assess tools that support monitoring and evaluation processes, which are crucial for addressing sustainability challenges and achieving inclusive tourism growth. Instead of reiterating broader policy recommendations, the focus should remain on the functionalities, gaps, and opportunities associated with monitoring tools.
Our recommendations prioritize tool development and implementation strategies based on a thorough assessment of the market landscape, aiming to enhance the capacity of stakeholders to track, evaluate, and improve sustainability practices.

- Take into account that tourism is not simply the responsibility of central governments, but encompasses all levels of government, where different mandates and levels of autonomy apply in different countries.

- Have the support and leadership of policy makers, and adopt a medium- to long-term focus.

- Clearly identify the roles, functions, and interactions of key public and private sector stakeholders and bring them together in an effective manner

- Recognize the value of strong dialogue between government, industry, and civil society (including social partners and academic institutions) in the development, implementation and monitoring phases.

- Fully consider the trade-offs and complementarities with related policy areas, including transport, environment, culture, security, education, agriculture, new technologies, digital transformation, and wider economic policy.

- Identify win-win solutions that deliver stability for industry and promote economic growth, quality jobs, and prosperity for countries and regions

- Promote environmentally sustainable growth and support country efforts to meet national and international commitments

- Encourage tourism development and the creation of added value based on identified comparative advantages, diverse high quality tourism offerings, and sustainable management of natural and cultural resources; Use tourism as an engine for inclusive growth, to create quality jobs, business and regional development opportunities, mitigate the negative impacts on

local communities, and better spread the benefits to all people and territories[1].

1.2. Climate change

The climate crisis represents one of the most critical issues facing humanity today. The impacts of climate change are severe and diverse, including rising sea levels due to melting ice caps, extreme weather events such as heatwaves, droughts, and floods, worsening air and water pollution, loss of biodiversity, exacerbation of living conditions for many species, as well as effects on agriculture, human health, and the economy.

Climate change represents one of our planet's most serious global challenges. [Red Text] For example, the Seychelles lost 90% of its coral reefs due to rising sea temperatures, demonstrating tourism's potential contribution to ecological degradation. The Paris Agreement and subsequent EU energy policies aim to mitigate these effects through targeted CO2 reductions. With the increase in greenhouse gas emissions and the shift in climate patterns observed on a global scale, the need for action becomes urgent. However, addressing climate change requires not only global action but also innovative solutions and careful assessment of its impacts on various sectors of society and the economy.

According to an ongoing temperature analysis led by scientists at NASA,s Goddard Institute for Space Studies (GISS), the average temperature of the planet, compared to pre-industrial levels, has increased by approximately 1°C and continues

[1] OECD, 2017 Policy Statement - Tourism Policies for Sustainable and Inclusive Growth

to rise, accompanied by an increasing rate of change (Climate Change, n.d.). Specifically in the Mediterranean, the global average temperature has risen by approximately 1°C compared to pre-industrial levels and continues to increase, with the rate of change accelerating (Climate Change, n.d.). This issue is particularly pronounced in the Mediterranean region, where temperatures are rising 20% faster than the global average issue seems to be exacerbated, with temperatures rising 20% faster than global averages" (Dr et al., 1986, NASA 2024).

This research seeks to understand how climate change affects the "Sustainability level self-assessment Tools." Through an analysis of the impacts of climate change, we aim to highlight critical aspects related to the development of sustainable practices and the need for efficient self-assessment tools."

All these should be included in a long-term strategy : "Sustainability level self-assessment Tools" must be examined under the general idea, which is to provide a long term strategy for Environmental Protection.

"The Paris Agreement on Climate Change (2016) declares the intention of participating governments to act to limit the increase in temperature to 1.5°C. In 2018, the scientific community, through the IPCC Special Report, provided clear guidance on achieving this target with actions to halve CO2 emissions by 2030 and achieve net-zero emissions by 2050. At the United Nations Climate Change Conference (COP27) in Sharm El-Sheikh, Egypt (November 2022), the EU states that its commitment to 'climate neutrality by 2050 and clean net-zero emissions' remains strong, despite the challenges posed by the energy crisis exacerbated by the war in Russia (United Nations Climate Change Conference (COP27), Summit for the Implementation of Climate Commitments, Sharm El-Sheikh, Egypt - Consilium, n.d.)."

These aspects suggest that monitoring landscape should focus on identifying the actual climate change indicators, drivers of tourism induced climate change (e.g. energy consumption, GHG emissions), resources of these drivers (e.g. tourism related transportation, energy consumption) and effectiveness of interventions aimed at reducing tourism contribution to climate change (e.g. energy efficient devices, biowaste reduction). Addressing climate change requires international cooperation and action on multiple levels, including reducing greenhouse gas emissions, adapting to new conditions, and developing sustainable technologies and practices.

1.3. International policies and Actions for Climate Change

I) United Nations Framework Convention on Climate Change (UNFCCC, 1992). It set as an overall objective the stabilization of carbon dioxide emissions by the year 2000 at 1990 levels. The Framework Convention recognizes that industrialized countries are responsible for the majority of global greenhouse gas emissions and also possess the institutional and financial capacity to limit them.

II) Kyoto Protocol. During the first commitment period (2008-2012) of the Kyoto Protocol, participating countries committed to reducing greenhouse gas (GHG) emissions on average by 5% below 1990 levels. The European Union (EU) and its member states (15 at the time) committed to reducing emissions at the EU level by 8%. Amendments to the Kyoto Protocol were adopted at the climate conference in Doha in December 2012 to bridge the gap between the end of the first commitment period in 2012 and the start of the new global agreement (Paris Agreement) in 2020.

For the second commitment period (2013-2020), participating countries agreed to reduce greenhouse gas emissions by at least 18% below 1990 levels. The EU, its member states, and Iceland agreed to achieve a joint reduction target of 20%. According to the Protocol, parties must achieve their targets primarily through domestic measures. However, the Protocol also provides for three market-based mechanisms as additional means to achieve the target:

1. **Emissions trading,**
2. **Joint implementation,**
3. **Clean development mechanism.**

III) Paris Agreement. The Paris Agreement on climate change aims to stabilize global temperature rise below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. It also aims to enhance the ability of parties to adapt to the adverse impacts of climate change and achieve "economic flows that reduce greenhouse gas emissions and are consistent with a climate-friendly development pathway."

1.3.1. European Union Climate Change Policy

Package of policies "Climate - Energy for 2020" (20-20-20 targets) (Decision 406/2009/EC).

The European Council adopted a comprehensive approach that will help the EU achieve its ambitious climate and energy goals for 2020. It aims to address climate change and improve energy security, while also enhancing its competitiveness and transforming it into an energy-efficient, low-emission economy.

The three primary objectives are outlined as follows:

- **20% reduction in EU greenhouse gas emissions compared to 1990 levels.**
- **20% improvement in the EU's energy efficiency.**
- **20% of the EU's energy from renewable sources (Wind, solar, biomass, etc.).**

Package of policies "Climate - Energy for 2030".

The European Commission proposes an EU policy framework for climate and energy for the period 2020-2030. This framework builds on the significant progress made towards the 2020 targets for greenhouse gas emissions, renewable energy sources, and energy savings. The framework for 2030 aims to reduce greenhouse gas emissions by 40% by 2030 compared to 1990 levels.

More specifically :

- Reduction of greenhouse gas emissions by 40% by 2030 compared to 1990 levels, to be achieved solely through domestic measures. This measure includes a combination of reducing emissions by 43% below 2005 levels under the Emissions Trading System (ETS) and national measures of Member States to reduce emissions by 2030 in sectors outside the ETS.
- Increase the share of energy from renewable sources consumed in the EU by at least 27%, binding at EU level but not at national level, to give Member States the flexibility to achieve their targets in the most efficient manner.
- Alongside this announcement, a revision of the ETS was announced through the creation of a new market stability reserve and a restriction of the cap on annual emission limits from 2020. A legislative proposal for the establishment of this reserve was also published.
- Further improvement of energy efficiency, which is necessary for competitiveness, energy security, and sustainability. The revision of the 2012 Energy Efficiency Directive by the end of 2014 will contribute to shaping future energy efficiency policies.

- A new European governance system to achieve climate and energy goals. Member States develop national plans for competitive, secure, and sustainable energy. These plans are reviewed and evaluated by the European Commission.
- Key indicators for monitoring progress in all aspects of competitiveness, security, and sustainable energy.

Energy Roadmap 2050.

The Energy Roadmap 2050, examines how emissions of carbon dioxide can be reduced by more than 80% by 2050 without jeopardizing energy supply and competitiveness. By analyzing various scenarios, the document describes the impacts of a carbon-free energy system and the necessary policy framework. It will enable Member States to make the necessary choices in the energy sector and create a stable business environment for private investment, especially before 2030.

1.4. From Green Bible to Covenant of Mayors

Green Bible

The European Union has launched and published the Green Bible, in which the EU officially contributed to the global discussion on climate change adaptation. The Green Paper was born out of the need to address the impacts of extreme weather events. In recent years, European countries have experienced (floods and forest fires) and marked the beginning of a public consultation on policy measures required to reduce the impacts and costs associated with global warming. In 2013, a Green Paper was published describing a comprehensive climate and energy policy with a 20-year horizon.

European Union Strategy on Climate Change Adaptation (2013).

The EU adaptation strategy is designed to help the EU become more prepared and capable of handling the impacts of climate change effectively at local, regional, national, and EU levels. This includes improving coordination among all EU institutional bodies. The three main objectives of the EU strategy will be achieved through specific actions.

- **Promoting action by Member States:**
  - Encouraging Member States to develop national climate change adaptation strategies,
  - Financing through the LIFE program to develop capacity and accelerate action on climate change adaptation (2013-2020),
  - Integration of adaptation into the Covenant of Mayors (2013/2014).
- **Making decisions based on more complete information:**
  - Filling knowledge gaps on climate change adaptation,
  - Further development of the Climate-ADAPT online platform to serve as a central information point for climate change adaptation.
- **Actions to strengthen the EU against climate change:**
  - Strengthening the Common Agricultural Policy (CAP),
  - Cohesion Policy, and Common Fisheries Policy (CFP) against climate change,
  - Protecting infrastructure against climate change,
  - Promoting insurance programs and other financial products for climate - resilient investment and business decisions.

Covenant of Mayors for Climate and Energy (2015).

The Covenant of Mayors for Climate and Energy brings together local and regional authorities committed to implementing the EU's energy and climate objectives within their territories. Participating local authorities share a common vision to decarbonize their cities and enhance their adaptive capacity, ensuring that their citizens have access to safe, sustainable, and economically accessible energy. The signatories commit to reducing CO2 emissions by at least 40% by 2030 and enhancing their capacity to adapt to the impacts of climate change.

The Covenant of Mayors helps municipalities achieve their greenhouse gas reduction targets, taking into account significant differences between municipalities. It provides signatories with a unique harmonized data collection system (unique in Europe, a harmonized framework for data collection and reporting) and supports a systematic approach to energy planning and monitoring at the local level.

1.5. Carbon and Energy Footprint

In modern society, the perception of greenhouse gas emissions has emerged as crucial for understanding the impact of human activities on the environment. Two fundamental concepts used to measure these emissions are the Carbon Footprint and the Energy Footprint.

Definition and Measurement: The Carbon Footprint refers to the total greenhouse gas emissions caused by human activities, such as the combustion of fossil fuels and industrial production. Similarly, the Energy Footprint refers to the total energy consumed during the lifecycle of a product or service.

The equivalent of carbon dioxide is calculated by multiplying the emissions of each of the six greenhouse gases of the Kyoto Protocol: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6), by their Global Warming Potential (GWP) over a 100-year period. GWP is calculated for a specific time period and is often expressed relative to CO2, which has a value of 1. For example, over a 100-year period with CO2 = 1, CH4 is 21 and N2O is 310. The main contributors to the greenhouse effect are primarily carbon dioxide (CO2, 64%), methane (CH4, 19%), and nitrous oxide (N2O, 5.7%). The main source of CO2 is the combustion of hydrocarbons, while methane is mainly sourced from livestock farming and other agricultural activities. (Janssens-Maenhout et al., 2019).

Measurement Methods: Measuring the Carbon and Energy Footprint requires the use of various methods and measurement standards. These may include assessing emissions during production, transportation, and product use, as well as analyzing the energy footprint through the integrated supply chain.

Examples and Applications: Businesses and governments use Carbon and Energy Footprints to identify areas for improvement in production processes and energy efficiency policies.

Challenges and Prospects: Despite their value, measuring and reducing the Carbon and Energy Footprints face challenges, including issues related to data accuracy and technology utilization.

Connection to Policies and Initiatives: Carbon and Energy Footprints are closely linked to policies and initiatives aimed at reducing greenhouse gas emissions at the local, national, and international levels.

Overall, understanding the Carbon and Energy Footprints is a critical tool for analyzing and addressing the environmental challenges facing modern society.

Engines or software for measuring carbon footprints have served as tools for self-confrontation regarding the impact of human, or societal, or group behavior on the environment. When individuals realize they are violating personal or social behavior norms, guilt arises. Studies have shown that participants who had a higher carbon

footprint than the average U.S. citizen experienced personal guilt. And guilt acts as a driver for behavior change. (Mallett et al., 2013).

According to data from the Emission Database for Global Atmospheric Research (EDGAR) and CO2 Emissions from Fuel Combustion – IEA (Martin, n.d.), for 2021, the United States, China, the EU27, Russia, India, and Japan, which represent 49.2% of the population, continue to be the largest producers of CO2 emissions.

The average CO2 emissions per capita globally for 2021 are 4.81 tn/person/year.

For Europe, it is 6.25 tn/person/year, for Greece it is 4.82 tn/person/year, for Russia 13.524 tn/person/year, and the highest is held by the USA with 14.237 tn/person/year.

It is estimated that to avoid the rise in global temperature to 2℃, the average global carbon footprint must fall below 2 tonnes/year by 2050.

The Statistical Framework for Measuring the Sustainability of Tourism (SF-MST), developed by the UNWTO, provides a structured approach to gathering and analyzing tourism data. It integrates economic, environmental, and social dimensions to assess the sustainability of tourism activities across various geographic scales. This aligns closely with the objectives of the MAST Market Search Report, which focuses on tools for sustainable practices in Mediterranean tourism SMEs. SF-MST's comprehensive framework enables data-driven strategies that support the development of tools tailored to SMEs' needs.

SF-MST emphasizes the importance of local-level data collection while maintaining coherence with national and global frameworks. This approach allows the identification of sustainability gaps in tourism while addressing challenges such as seasonality, resource depletion, and infrastructure strain. Similarly, the MAST report advocates for scalable tools that empower SMEs to adopt sustainable practices while addressing localized environmental and social concerns.

Both the SF-MST and the MAST report recognize the role of established frameworks like the System of Environmental-Economic Accounting (SEEA) and Tourism Satellite Account (TSA) in enhancing data quality and comparability. The SF-MST builds on these frameworks to integrate broader sustainability metrics, supporting the design of tools that monitor and improve SME practices. This connection ensures that solutions remain relevant and actionable across different scales and contexts.

A shared focus of the two initiatives is the promotion of niche markets like eco-tourism and the development of user-friendly, cost-effective monitoring tools. SF-MST facilitates this by organizing data that highlights tourism's impact on natural resources and human capital. Meanwhile, the MAST report's SWOT analysis emphasizes opportunities in innovation and education, driving the implementation of sustainable solutions that SMEs can adopt with ease.

In conclusion, the alignment between the SF-MST and the MAST Market Search Report highlights the importance of the common goal of promoting sustainable tourism. By leveraging frameworks like SF-MST, the MAST initiative can ensure that the tools developed are effective, adaptable, and capable of addressing the sustainability challenges unique to Mediterranean SMEs. This aligned target will strengthen the capacity of tourism stakeholders to achieve long-term environmental, economic, and social sustainability.

2. Feasibility Study: Self-Assessment Tool for SMEs in the Accommodation Sector

2.1. Introduction

This feasibility study examines the current landscape of sustainability self-assessment tools available to small and medium-sized enterprises (SMEs) in the accommodation sector. Its aim is to inform the consortium on how to develop a "best of the best" self-assessment tool tailored to SMEs, addressing the specific requirements outlined in the project application. The study explores existing tools, identifies gaps and challenges faced by SMEs, highlights best practices and provides strategic recommendations to guide tool development.

Current Landscape of Self-Assessment Tools:

The accommodation sector has access to a range of sustainability self-assessment tools. These tools aim to support facilities in measuring and improving sustainability performance, but their accessibility and effectiveness for SMEs vary.

Examples include:

Green Key: Focuses on waste management, water conservation and guest engagement.

Hotel Carbon Measurement Initiative (HCMI): Provides standardised methods for calculating carbon footprints, helping to reduce emissions.

Travelife: Offers certifications and practical guidance to strengthen environmental and social practices.

WEEVa: Monitors resource use (water, energy, emissions and waste) in real time, offering actionable recommendations.

However, despite the availability of these tools, SMEs face significant barriers to adoption due to high costs, lack of user-friendly interfaces and limited access to training. This highlights the need for a more tailored approach to tool design and implementation.

Gaps and challenges in current tools:

The feasibility study identifies several critical challenges that prevent SMEs in the housing sector from effectively using self-assessment tools:

- Cost barriers: Many tools and certifications require a significant upfront investment, often out of reach for SMEs with limited budgets.

- Complexity and usability: Tools designed for larger businesses are often too complex for SMEs, requiring additional expertise or resources.
- Lack of standardization: Diversity in tool criteria and scope creates inconsistencies in implementation and benchmarking.
- Insufficient training and support: Limited access to user-friendly guides and training materials prevents SMEs from effectively utilizing these tools.

Addressing these gaps is essential to designing an effective self-assessment tool that meets the needs of SMEs, while aligning with broader sustainability goals.

Insights from existing tools

Drawing from successful features of current tools, the survey identifies best practices to inform tool development:

- Real-time monitoring: Tools such as WEEVa demonstrate the importance of actionable insights through real-time resource monitoring.
- Adaptation for SMEs: Simplified tools, such as EcoHotel Plus, provide accessible and affordable solutions tailored to smaller accommodations.
- Embedded training modules: Embedded guidance, as seen in Travelife, enhances usability and encourages engagement.
- Global standards alignment: Adherence to frameworks such as ISO 21401 ensures credibility and facilitates widespread adoption.

These practices can guide us in creating a user-friendly, accessible and effective self-assessment tool for SMEs.

Recommendations and Strategic Actions

- To develop a superior self-assessment tool for SMEs, the study recommends targeted research and piloting in targeted focus groups to understand the specific needs and challenges of SMEs in the tourism industry. Specifically:
- Prototyping and Testing: Develop and test prototypes with various accommodation providers to improve usability and functionality.
- Educational Approach: Provide comprehensive educational materials and resources to support tool adoption.
- Partnerships: Collaborate with industry associations, certification bodies and technology providers to enhance credibility and usability.

Conclusion

This feasibility study demonstrates the critical need for a tailored self-assessment tool designed specifically for SMEs in the accommodation sector. By addressing gaps in existing tools and incorporating best practices, the consortium can develop a “best of the best” solution that empowers SMEs to achieve their sustainability goals. This new tool will set a benchmark for accessible, efficient, and impactful sustainability practices in the industry.

2.2 Analysis of the Current Situation

Analysis of the Current Situation

In the Mediterranean region, sustainability self-assessment tools for the tourism sector remain underutilized, particularly among SMEs [UNTO 2019, UNTO 2020, Font, X. & Lynes, J. (2018), Plan Bleu (2017)]. While the three pillars of sustainability—environmental, socioeconomic, and cultural—are widely recognized, the adoption of tools to evaluate and enhance these dimensions is limited due to accessibility challenges, cost barriers, and a lack of tailored resources for small-scale operators. This analysis focuses on the current landscape of self-assessment practices, highlighting their gaps and opportunities for improvement in addressing sustainability comprehensively.

Environmental Pillar

The environmental impacts of tourism in Mediterranean countries, such as CO2 emissions, water overuse, and pollution, underscore the urgent need for effective self-assessment tools. Currently, tools like the Green Key and HCMI offer mechanisms for measuring environmental performance, but their adoption by SMEs is inconsistent. Many tools are not designed with smaller operators in mind, leading to difficulties in assessing resource efficiency, waste management, and carbon footprints. Improving the accessibility and usability of these tools is essential to empower SMEs to mitigate their environmental impact and contribute to regional sustainability goals.

Socioeconomic Pillar

Tourism significantly influences the socioeconomic well-being of local communities, including employment, income distribution, and infrastructure development. However, existing self-assessment tools often lack indicators to measure socioeconomic outcomes, such as job quality, equitable economic benefits, and support for local businesses. Furthermore, many tools fail to provide guidance on how tourism activities can improve community well-being or reduce negative impacts like seasonal employment fluctuations. Developing tools with integrated socioeconomic metrics would allow businesses to better understand and optimize their contribution to local economies and social resilience.

Cultural Pillar

Cultural heritage is both a vital asset and a vulnerability for Mediterranean tourism. Over-tourism and commercialization often threaten the authenticity of local traditions, arts, and monuments. While some self-assessment tools touch on cultural aspects, such as Travelife's social responsibility metrics, most fail to provide robust indicators for preserving cultural identity and fostering intercultural dialogue. Tailored tools are needed to help SMEs evaluate their cultural impact, promote responsible tourism practices, and ensure that cultural heritage remains a source of pride and prosperity for local communities.

Summary of Challenges and Opportunities

The analysis highlights significant gaps in the current availability and use of sustainability self-assessment tools for SMEs in the Mediterranean tourism sector. Many tools focus narrowly on environmental metrics, overlooking the broader socioeconomic and cultural dimensions of sustainability. Barriers such as cost, complexity, and lack of standardization further hinder their adoption. To address these challenges, the development of an integrated, user-friendly self-assessment tool that aligns with the three pillars of sustainability is crucial. Such a tool would enable SMEs to holistically evaluate and enhance their practices, contributing to a more sustainable and resilient tourism ecosystem in the Mediterranean.

The complexity of existing sustainability self-assessment tools often arises from several factors, which go beyond just the questions themselves. Here's a breakdown of what contributes to their perceived complexity:

Technical Language and Terminology: Many tools use highly technical or industry-specific jargon that can be difficult for SMEs, particularly those without sustainability expertise, to understand.

Extensive Criteria and Indicators: Tools often include a wide array of indicators spanning environmental, social, and economic dimensions. For small businesses with limited resources, addressing all these criteria can feel overwhelming.

Data Collection Requirements: Some tools require extensive data collection, such as detailed energy consumption metrics, carbon emissions data, or community engagement statistics, which SMEs may not have the infrastructure to track or report.

Customized Implementation: Tools designed for larger organizations may not scale well for SMEs. The need to adapt these tools to the smaller scale and unique contexts of SMEs can add layers of complexity.

Lack of User-friendly Interfaces: Many tools lack intuitive interfaces or clear guidance on how to input data and interpret results, leading to frustration and reduced usability.

Unclear Outcomes and Benefits: SMEs may find it hard to see the immediate benefits of using these tools, especially if the results are presented in a highly technical format without actionable insights.

Time and Resource Intensity: Completing the assessment process may require significant time, personnel, or external consultancy services, which many SMEs cannot afford.

By addressing these factors—through simplified language, streamlined criteria, accessible guidance, and an intuitive design—a self-assessment tool can become more user-friendly and effectively support SMEs in aligning with the three pillars of sustainability.

Conclusions

The feasibility study concludes with findings on the opportunities and challenges of sustainable tourism development in the Mediterranean. Based on the analysis, the study proposes specific actions and strategies that can be implemented within the MAST possible project framework to enhance the sustainability and resilience of tourist destinations.

3. Object of Market Search

Current market search focuses on stakeholders involved or responsible for sustainability impacts of the accommodation sector in Mediterranean region. **The key objectives of market research are as follows:**

- **Identifying Target stakeholders**

Define and understand the specific segments groups of stakeholders most relevant to the project, including personal characteristics and behaviors relevant to the sustainability footprint.

- **Defining Geographical Focus Areas**

Pinpoint the regions or locations where market activities are most likely to yield significant insights or opportunities, ensuring alignment with strategic goals.

- **Determining Key Variables of Interest**

Identify critical factors influencing market dynamics, such as demand trends, competitive landscape, sustainability metrics, and customer satisfaction drivers.

- **Implementing Effective Data Collection Methods**

Utilize robust methodologies to gather accurate and comprehensive data, including surveys, interviews, focus groups, and secondary research relevant to the sustainability footprint.

- **Providing avenue for conclusions and actionable recommendations**

Develop clear and practical recommendations based on research findings, offering strategies to address identified challenges and leverage opportunities.

3.1 Target Market Identification:

- **Tourists**: Understanding the preferences, behaviors, and motivations of tourists interested in sustainable tourism. This includes analyzing demographic segments, travel patterns, and factors influencing their choice of sustainable tourism options or drivers behind tourists self-restricted unsustainable behaviour.
- **Tourism providers**: Identifying the needs, expectations, and roles of various stakeholders, including local communities, businesses, tourism operators, and governmental bodies, in promoting and supporting sustainable tourism.

3.2 Key Variables of Interest:

Key Variables of Interest.

Market Demand

The demand for sustainability-focused tourism services and products in the Mediterranean accommodation sector is growing, yet poorly understood at the SME level. This study aims to identify specific consumer trends in sustainable tourism and assess how these preferences can inform the development of user-centric self-assessment tools. Emphasis is placed on understanding customer willingness to support businesses engaging in sustainable practices and their response to certification schemes.

Competitive Landscape

A comprehensive mapping of the competitive environment highlights key players in the sustainable tourism market, focusing on SMEs' unique challenges. This includes analyzing competitors' adoption of self-assessment tools, their market share, strengths, and weaknesses. The insights inform how a "best of the best" tool can fill existing market gaps and provide a competitive edge.

Regulatory Environment

Sustainability in the accommodation sector is heavily influenced by local, regional, national, and international policies. This variable examines the compliance requirements for SMEs, including sustainability reporting, environmental certifications, and adherence to ISO standards. Identifying regulatory gaps and opportunities ensures that the proposed tool is designed to facilitate compliance and simplify the navigation of regulatory frameworks.

Economic and Environmental Impacts

Economic viability and environmental accountability are critical for SMEs to adopt sustainability tools. This section evaluates the financial implications of adopting such tools, including potential cost savings, increased revenue through enhanced marketability, and access to incentives or grants. It also measures environmental metrics like resource consumption and carbon footprint reduction, ensuring the tool integrates these critical dimensions.

Technological Innovations

Exploring the role of emerging technologies, this variable focuses on how digital platforms, IoT, and AI can improve data collection, analysis, and reporting for SMEs. Key innovations such as real-time monitoring, user-friendly interfaces, and automation are essential in creating tools that reduce operational complexity while increasing sustainability outcomes. This ensures the development of solutions that align with the project's goals and SMEs' needs.

This adjusted focus on the variables ensures alignment with the aims of WP3, emphasizing actionable insights and the practical needs of the project stakeholders.

3.3. Sustainability in Accommodation

Eco-Friendly Practices: This section addresses the importance of adopting environmentally conscious strategies within the accommodation sector. Examples include reducing single-use plastics, implementing energy-efficient systems, and supporting local economies with sustainable procurement methods.

Certifications and Standards: Accommodation establishments can pursue certifications to validate their sustainability efforts, including:

- **LEED Certification**: Focuses on energy efficiency and sustainable materials.
- **Green Key Certification**: Promotes waste management and staff training.
- **Travelife:** Highlights economic and social sustainability measures.

Adopting these certifications offers a competitive edge in eco-conscious markets. For instance, energy management systems can save up to 28% in costs annually.

Eco-Friendly Initiatives: Identifying and evaluating practices such as energy efficiency measures, water conservation, waste reduction, and the use of renewable energy sources.

Sustainable Certifications: Analyzing the role of certifications and standards (e.g., LEED, Green Key) in promoting and ensuring sustainability in accommodations.

Current Trends: Investigating current trends in sustainable accommodation, including consumer demand for eco-friendly options and the adoption of sustainable practices by businesses.

Case Studies: Highlighting successful examples and best practices from the industry that illustrate effective implementation of sustainability measures.

Challenges and Opportunities: Identifying challenges faced by the accommodation sector in adopting sustainable practices and exploring opportunities for innovation and improvement.

Guest Engagement: Eco-conscious guests increasingly demand transparency and environmental responsibility. Green initiatives such as providing refillable toiletries, renewable energy usage, and onsite recycling programs positively influence guest satisfaction and loyalty.

3.4. Data Collection

The data collection process aims to gather comprehensive insights to guide the development of an effective sustainability self-assessment tool tailored to SMEs in the accommodation sector. This section outlines the methods used to collect data, emphasizing the direct relevance of findings to tool development.

Primary Data Sources

1. Surveys**:**
   Surveys are conducted with tourists to capture data on their preferences, sustainable tourism behaviors, and willingness to pay for eco-friendly accommodations. These insights help identify market demand and features to prioritize in the self-assessment tool.
2. Stakeholder Interviews:
   Interviews with tourism operators, local community leaders, policymakers, and certification bodies provide qualitative insights into challenges, expectations, and best practices. These interviews identify critical variables that the tool must address, such as usability, cost, and alignment with regulatory requirements.
3. Focus Groups:
   Focus group discussions with diverse stakeholders explore attitudes towards existing self-assessment tools and preferences for new features. These discussions also help assess barriers to adoption, such as perceived complexity or lack of training.

Secondary Data Sources

1. Literature Review: A comprehensive review of academic papers, industry reports, and sustainability frameworks highlights current trends, gaps, and opportunities. The review informs the tool's foundational design, ensuring alignment with established best practices.
2. Statistical Analysis: Data from national and international tourism organizations are analyzed to understand key market trends, such as the adoption rates of sustainability certifications and the economic impacts of sustainable practices.

Data Collection Tools

1. Questionnaires**:** Structured questionnaires ensure consistency and reliability in data collection. These are designed to capture both qualitative and quantitative information relevant to tool development.
2. Online Platforms: Online survey tools facilitate broad participation and efficient data collection, especially from geographically dispersed stakeholders.
3. Data Analysis Software: Advanced software tools are used to handle large datasets and perform in-depth analyses, ensuring robust and actionable insights.

3.5. Data Analysis and Interpretation

The collected data is systematically analyzed to extract actionable insights that guide the design and implementation of the self-assessment tool.

Methods of Analysis

1. Trend Analysis: Long-term trends in sustainable tourism practices are identified to determine critical features and functionalities required for the tool.
2. Pattern Recognition: Patterns in tourist and stakeholder behavior, such as demand for specific sustainability practices or challenges in tool adoption, are analyzed to inform user-centric design.
3. Correlation Analysis: Relationships between variables, such as regulatory compliance and market demand, or economic benefits and sustainability practices, are explored to ensure the tool's alignment with industry needs.
4. SWOT Analysis: A SWOT analysis evaluates internal and external factors affecting tool adoption, including strengths like regulatory support, weaknesses like low awareness, opportunities for innovation, and threats like high costs or market resistance.

3.6. Conclusions and Recommendations

Based on the analysis, actionable recommendations are provided to ensure the self-assessment tool effectively supports SMEs in achieving sustainability goals.

<u>Key Recommendations</u>

1. **Addressing Challenges:**
   - Develop a user-friendly, cost-effective tool with clear guidelines to overcome barriers like complexity and high costs.
   - Include training modules to support SMEs with limited expertise in sustainability.
2. **Capitalizing on Opportunities:**
   - Leverage increasing market demand for sustainability to incorporate features that highlight environmental, social, and economic impacts.
   - Focus on scalability and modularity, allowing the tool to grow with the business's needs.
3. **Strategic Planning:**
   - Integrate features for real-time monitoring and benchmarking against industry standards to enhance decision-making.
   - Ensure the tool aligns with certifications like ISO 21401 and other relevant standards for credibility and global acceptance.
4. **Policy Recommendations:**
   - Advocate for regulatory incentives, such as subsidies or tax benefits, to encourage tool adoption.

- Promote public-private partnerships to enhance the tool's reach and functionality.

These conclusions and recommendations directly support the development of a robust, practical self-assessment tool that aligns with the project's objectives and addresses the specific needs of SMEs in the Mediterranean accommodation sector. The findings provide a clear roadmap for translating market data into actionable design and implementation strategies.

Conclusions and Recommendations

Based on the analysis and interpretation of the data, the key findings will be summarized, and actionable recommendations will be provided for businesses and stakeholders in the sustainable tourism industry. These recommendations will Forces on:

- **Addressing Challenges**: Offering solutions to overcome barriers and challenges identified during the market search.
- **Capitalizing on Opportunities**: Highlighting opportunities for growth and development in sustainable tourism.
- **Strategic Planning**: Providing guidance on strategic planning and implementation of sustainable practices to enhance competitiveness and sustainability.
- **Policy Recommendations**: Suggesting policy measures and incentives to support sustainable tourism initiatives.

References

A comprehensive list of references will be provided to acknowledge the sources of information and data used in this market search. This will include academic papers, market reports, government publications, and other relevant sources, ensuring the reliability and credibility of the findings.

4. SWOT Analysis for Sustainable Tourism in the Euro-MED Region.

4.1. Table 1 – SWOT Analysis

Strengths	Weaknesses
1. Rich Cultural and Natural Heritage: Diverse cultural sites, historical landmarks, and natural attractions.	1. Seasonality of Tourism: High seasonality leading to uneven demand and over-tourism during peak seasons.
2. Established Tourism Infrastructure: Well-developed transportation, accommodation, and recreational facilities.	2. Infrastructure Strain: High tourist numbers strain infrastructure and resources, causing environmental degradation.
3. Growing Awareness and Demand for Sustainability: Increased global demand for sustainable tourism practices.	3. Lack of Standardization: Inconsistent implementation and monitoring of sustainable practices.
4. Supportive Regulatory Framework: EU policies and programs support sustainable tourism initiatives.	4. Economic Dependency: Vulnerability due to heavy reliance on tourism as a primary economic activity.
5. Community Engagement: Strong local community involvement enhances authenticity and sustainability.	5. Limited Technological Adoption: Lag in adopting modern technologies and digital solutions.

Opportunities	Threats
1. Emerging Markets and Niches: Development of niche markets such as eco-tourism and cultural tourism.	1. Environmental Degradation: Over-tourism and poor management threaten natural attractions.
2. Innovation and Technology: Advances in digital platforms, smart tourism, and renewable energy.	2. Climate Change: Impacts like rising sea levels and extreme weather events affecting tourism.
3. Collaborative Initiatives: Cross-border collaborations and partnerships to promote sustainable tourism.	3. Political and Economic Instability: Disruption due to political unrest and economic crises.
4. Education and Awareness Programs: Raising awareness and encouraging	4. Competition from Other Destinations: Impact on market share

Opportunities	Threats
responsible behaviors among tourists and locals.	due to other regions focusing on sustainable tourism.
5. Financial Incentives and Grants: Access to EU funds and financial support for sustainable projects.	5. Pandemics and Health Crises: Global health crises impacting travel and tourism severely.

Strengths:

1. Rich Cultural and Natural Heritage**:** The destination boasts a wide array of cultural and natural attractions, ranging from UNESCO World Heritage Sites to pristine landscapes. These assets create unique experiences for visitors and distinguish the destination from competitors.
2. Established Tourism Infrastructure: The region is equipped with well-developed transportation systems, diverse accommodation, and recreational facilities, making it accessible and attractive to various tourist segments.
3. Growing Awareness and Demand for Sustainability: There is an increasing global focus on sustainable tourism, with tourists actively seeking destinations that prioritize eco-friendly practices. This aligns well with efforts to promote sustainable development in the region.
4. Supportive Regulatory Framework: European Union policies and programs, such as the Green Deal and funding initiatives, provide a strong foundation to support sustainable tourism projects and innovations.
5. Community Engagement**:** The involvement of local communities in tourism-related activities enhances the authenticity of the visitor experience and fosters sustainable practices, such as cultural preservation and environmental stewardship.

Weaknesses:

1. Seasonality of Tourism: Tourism demand is concentrated in peak seasons, leading to uneven distribution of visitors throughout the year. This creates challenges such as over-tourism during high seasons and under-utilized resources during off-seasons.
2. Infrastructure Strain: The influx of tourists, particularly during peak periods, places significant pressure on infrastructure and natural resources, contributing to environmental degradation and reduced quality of life for residents.
3. Lack of Standardization**:** Sustainable tourism practices are inconsistently implemented and monitored, reducing their overall effectiveness and hindering efforts to position the destination as a leader in sustainability.
4. Economic Dependency: The region's heavy reliance on tourism makes it vulnerable to external shocks, such as economic downturns, pandemics, or geopolitical instability, highlighting the need for economic diversification.
5. Limited Technological Adoption: The slow adoption of modern technologies, such as digital platforms and smart infrastructure, limits the region's ability to enhance visitor experiences and optimize resource management.

Opportunities:

1. **Emerging Markets and Niches**: The growing popularity of niche tourism markets, such as eco-tourism and cultural tourism, presents an opportunity to attract travelers seeking unique, meaningful experiences. By focusing on these segments, the destination can differentiate itself and promote sustainable tourism practices.

2. **Innovation and Technology**: Advances in digital platforms, smart tourism technologies, and renewable energy solutions provide opportunities to enhance visitor experiences, optimize resource use, and improve operational efficiency. Examples include virtual tours, AI-driven customer service, and solar-powered facilities.

3. **Collaborative Initiatives:** Partnerships and cross-border collaborations can enhance sustainable tourism by sharing resources, expertise, and best practices. For instance, regional networks or EU-supported programs can help promote shared cultural heritage and sustainability goals.

4. **Education and Awareness Programs**: Initiatives aimed at educating tourists and locals about sustainable practices can foster responsible behaviors. This includes campaigns to reduce waste, respect local culture, and minimize environmental footprints.

4.5. **Financial Incentives and Grants:** EU funds, grants, and financial incentives specifically targeted at sustainable tourism provide an opportunity to implement innovative projects, improve infrastructure, and adopt green practices without excessive financial strain on local stakeholders.

Threats:

1. **Environmental Degradation:** Over-tourism and poor management can lead to the depletion of natural resources and the destruction of natural and cultural attractions. This poses a significant risk to the long-term sustainability and attractiveness of the destination.
2. **Climate Change**: The impacts of climate change, such as rising sea levels, extreme weather events, and shifting ecosystems, directly threaten tourism-dependent regions. Coastal areas and seasonal activities are particularly vulnerable.
3. **Political and Economic Instability**: Political unrest or economic crises can disrupt tourism by affecting traveler confidence, reducing disposable income for travel, and creating logistical challenges for operators.
4. **Competition from Other Destinations**: As other regions invest in sustainable tourism, there is increased competition for market share. Destinations failing to innovate or differentiate themselves risk losing tourists to more proactive regions.
5. **Pandemics and Health Crises**: Global health crises, such as COVID-19, demonstrate the severe impact on travel and tourism. These crises can lead to sudden drops in visitor numbers, disrupt operations, and require significant investment in health and safety measures.

The SWOT analysis for sustainable tourism in the Euro-MED region highlights a promising yet challenging landscape. The region's rich cultural and natural heritage, coupled with its well-established tourism infrastructure and growing awareness of sustainability, forms a strong foundation for fostering sustainable tourism practices. Supportive regulatory frameworks and engaged local communities further enhance its potential for long-term growth.

However, weaknesses such as high seasonality, infrastructure strain, and inconsistent implementation of sustainability measures hinder progress and require targeted interventions. Opportunities abound, including the development of niche markets like eco-tourism, leveraging technological advancements, promoting cross-border collaborations, and capitalizing on EU financial incentives to implement innovative sustainable tourism projects.

At the same time, significant threats loom, including environmental degradation, the impacts of climate change, political and economic instability, and rising competition from other destinations. These challenges underscore the need for strategic action to ensure resilience and adaptability.

By prioritizing sustainability across all levels, addressing weaknesses through coordinated efforts, and leveraging the region's unique opportunities, the Euro-MED region can emerge as a global leader in sustainable tourism. This approach will not only safeguard its cultural and natural assets but also foster a more balanced and inclusive development for both local communities and visitors.

4.2. Sustainability in Accommodation

Sustainability in accommodation encompasses the practices and strategies employed by lodging facilities—such as hotels, resorts, guesthouses, and vacation rentals—to reduce their environmental footprint, support local communities, and deliver eco-conscious experiences to their guests. Below is a detailed breakdown of the key elements that contribute to sustainable accommodation:

1. Environmental Impact Reduction

- Energy Efficiency: Utilizing renewable energy sources, energy-efficient lighting, and smart energy management systems.
- Water Conservation: Installing water-saving fixtures, recycling greywater, and minimizing water waste.
- Waste Management: Reducing, reusing, and recycling waste, including composting organic waste and minimizing single-use plastics.

2. Sustainable Design and Construction

- Employing eco-friendly building materials and sustainable architecture.
- Incorporating green spaces, natural lighting, and ventilation to reduce energy demands.

3. Local Community Engagement

- Partnering with local suppliers for food, goods, and services to support the local economy.
- Providing fair employment opportunities and fostering cultural exchange between guests and the local community.

4. Eco-Friendly Guest Services

- Offering guests sustainable options, such as linen reuse programs, refillable toiletries, and bicycle rentals.
- Educating guests on sustainable practices they can adopt during their stay.

5. Biodiversity Conservation

- Protecting natural habitats and ecosystems in and around the property.
- Promoting eco-tours and activities that respect the local environment.

6. Certifications and Standards

- Pursuing recognized certifications such as LEED, Green Key, or EarthCheck to demonstrate commitment to sustainability.
- Adhering to global standards and benchmarks for sustainable tourism and accommodation.

7. Continuous Improvement

- Regularly monitoring and evaluating sustainability initiatives.
- Investing in staff training and updating practices to align with emerging sustainability trends.

By integrating these elements, accommodation providers not only contribute to environmental preservation but also enhance their reputation, attract eco-conscious travelers, and foster long-term profitability. Sustainable accommodations are not just a trend but a critical step towards a more responsible and resilient tourism industry.

a. Environmental Practices:

- **Energy Efficiency**: Using renewable energy sources (solar, wind, geothermal) and energy-efficient appliances to reduce consumption.
- **Water Conservation**: Installing low-flow faucets and showerheads, implementing rainwater harvesting, and offering towel/linen reuse programs.
- **Waste Reduction**: Eliminating single-use plastics, promoting recycling, and composting organic waste.
- **Eco-friendly Building Design**: Using sustainable materials, green roofs, and energy-efficient insulation.

b. Community and Cultural Engagement:

- **Supporting Local Economies**: Partnering with local businesses for sourcing food, crafts, and services.
- **Cultural Preservation**: Promoting local traditions, crafts, and events within the property.
- **Employment Practices**: Hiring and training staff from the local community.

c. Guest Engagement:

- **Eco-conscious Amenities**: Offering refillable toiletries, reusable containers, and bicycles for local transport.
- **Educational Programs**: Informing guests about the importance of sustainability through workshops, brochures, or activities.
- **Sustainable Food Options**: Serving locally sourced, organic, and seasonal foods.

d. Certifications and Standards.

Accommodation establishments can pursue certifications to validate their sustainability efforts (some examples):

- **LEED Certification** (Leadership in Energy and Environmental Design). LEED offers online resources and checklists, such as the LEED scorecard, which allow businesses to self-assess their alignment with certification criteria, covering areas like energy efficiency, water conservation, and waste management.
- **Green Key Certification.** Green Key provides a self-assessment tool that allows establishments to gauge their compliance with the program's sustainability standards before applying. This tool focuses on energy use, water conservation, and social responsibility.
- **EarthCheck Certification.** EarthCheck offers a benchmarking tool that enables properties to self-assess their performance against key sustainability metrics, such as energy efficiency, carbon emissions, and waste management.
- **GSTC Certification** (Global Sustainable Tourism Council). The Global Sustainable Tourism Council provides guidance documents and online resources, including the GSTC Criteria, which businesses can use as a self-assessment framework to evaluate their sustainability practices.
- **Green Globe.** Green Globe provides an online assessment platform where businesses can complete a self-assessment to measure their compliance with the certification's sustainability criteria. This platform

includes detailed guidance on areas like energy use, community engagement, and cultural heritage preservation.

- **Blue Flag.** Blue Flag has pre-application self-assessment tools tailored for beaches, marinas, and boating tourism operators. These tools help facilities determine their readiness for certification based on environmental management and safety standards.

These tools address the practical steps establishments can take toward achieving recognized certifications, demonstrating a commitment to sustainability, and enhancing the overall credibility of their operations.

e. Digital and Operational Changes

- **Smart Technology**: Automated systems for lighting and air conditioning to reduce unnecessary usage.
- **Paperless Operations**: Digital check-ins, mobile keys, and e-billing.
- **Monitoring Impact**: Tracking carbon footprints, water usage, and waste metrics.

Conclusion

The SWOT analysis highlights the significant potential and challenges for sustainable tourism in the Euro-MED region. The region's rich cultural and natural heritage, established tourism infrastructure, and increasing global demand for sustainable practices position it as a key player in sustainable tourism. However, weaknesses such as seasonality, infrastructure strain, and inconsistent standards must be addressed to ensure long-term success.

Opportunities abound in the form of emerging niche markets, technological advancements, and financial incentives, providing a strong foundation for innovation and growth. Collaborative initiatives and education programs can further enhance the region's capacity to meet sustainability goals while benefiting local communities and economies.

However, threats such as environmental degradation, climate change, and external disruptions like political instability or health crises underscore the urgency of proactive planning and resilient strategies. By leveraging its strengths and opportunities while mitigating weaknesses and threats, the Euro-MED region can lead the way in sustainable tourism, preserving its unique assets and ensuring a thriving industry for future generations.

5. Analysis of Sustainability Certifications:

LEED Certification (Leadership in Energy and Environmental Design)

- **What it is**: A globally recognized certification for green building design and construction, awarded by the U.S. Green Building Council (USGBC).
- **Focus Areas**:
  - Energy efficiency
  - Water conservation
  - Sustainable materials
  - Indoor environmental quality
- **Benefits for Accommodation**:
  - Enhances marketability as an eco-conscious facility.
  - Reduces operational costs through energy and water efficiency.
  - Aligns with global sustainability trends.

Green Key Certification

- **What it is**: An eco-label for accommodation facilities awarded by the Foundation for Environmental Education (FEE).
- **Focus Areas**:
  - Waste management
  - Staff training
  - Guest involvement in sustainability

- **Benefits for Accommodation**:

  - Improves credibility among eco-conscious travelers.
  - Encourages guest engagement with sustainability practices.
  - Ensures continuous improvement with annual reviews.

EarthCheck Certification

- **What it is**: A science-based certification focused on sustainability within the tourism and travel industry.
- **Focus Areas**:

  - Benchmarking energy and water usage.
  - Waste management.
  - Community and cultural contributions.

- **Benefits for Accommodation**:

  - Data-driven approach to sustainability improvement.
  - Strengthens partnerships with eco-conscious stakeholders.
  - Recognized globally for credible environmental efforts.

GSTC Certification (Global Sustainable Tourism Council)

- **What it is**: A certification program that ensures tourism entities align with the GSTC's sustainability criteria.
- **Focus Areas**:

  - Environmental conservation.
  - Socio-economic benefits for communities.
  - Preservation of cultural heritage.

- **Benefits for Accommodation**:

  - Offers alignment with internationally recognized sustainability standards.
  - Opens opportunities for partnerships with certified travel operators.
  - Enhances credibility with eco-conscious travelers.

Green Globe

- **What it is**: A global certification for sustainability in tourism, hospitality, and event industries.
- **Focus Areas**:

  - Carbon emissions reduction.
  - Energy and water conservation.
  - Ethical labor practices.

- **Benefits for Accommodation**:

  - Demonstrates commitment to high sustainability standards.
  - Helps align operational goals with sustainable development objectives.
  - Regular audits ensure accountability and continuous improvement.

Blue Flag

- **What it is**: An international eco-label focused primarily on beaches, marinas, and sustainable boating tourism operators, awarded by FEE.

- **Focus Areas**:
  - Water quality.
  - Environmental education and information.
  - Environmental management.

- **Benefits for Accommodation**:
  - Boosts eco-tourism potential for beachfront properties.
  - Attracts environmentally conscious travelers.
  - Highlights efforts in preserving natural habitats and marine ecosystems.

- Travelife

- **What it is:** Travelife is a sustainability certification program for travel businesses, including accommodations (hotels, resorts, guesthouses), tour operators, and travel agents. It provides a framework to help businesses improve their environmental, social, and economic practices while demonstrating their commitment to sustainability.

- **Focus Area:**
  - Environmental Sustainability: Reducing energy and water usage, minimizing waste, and protecting biodiversity.
  - Social Responsibility: Supporting fair labor practices, local hiring, community engagement, and cultural preservation.
  - Economic Sustainability: Promoting local procurement, fair trade, and long-term viability through responsible tourism.

- **Benefits for Accommodation**:

  - Cost Savings: Reduces energy, water, and waste management expenses through efficient, sustainable practices.
  - Enhanced Reputation: Attracts eco-conscious travelers and tour operators by showcasing a commitment to sustainability.
    Market Advantage: Provides access to new markets and visibility through Travelife's directory of certified business

The relationship between tools and certifications in the context of sustainable accommodation is synergistic. Tools serve as the foundation that supports and facilitates the process of achieving certifications. Here's a clear breakdown of their relationship:

1. Purpose of Tools

Assessment and Guidance: Tools are designed to help accommodation establishments evaluate their current sustainability practices and identify areas for improvement. They act as a diagnostic instrument that allows businesses to measure their alignment with the requirements of specific certifications.

Pre-Certification Preparation: Before applying for certification, tools provide actionable insights, benchmarks, and frameworks that help establishments get ready for the formal certification process.

Monitoring and Continuous Improvement: Many tools are also used post-certification to track ongoing performance and ensure continuous adherence to sustainability standards.

2. Role of Certifications

Validation: Certifications are official recognitions awarded to businesses that meet specific, predefined sustainability standards. They provide credibility and assure stakeholders that the establishment adheres to recognized best practices.

Benchmarking Excellence: Certifications often serve as a benchmark of sustainability excellence, distinguishing certified establishments from their competitors.

Marketing Advantage: Certifications enhance marketability by signaling eco-conscious practices to environmentally aware guests and stakeholders.

3. How They Work Together

Tools Enable Certification Achievement:

Self-assessment tools (e.g., scorecards, online platforms, and benchmarking resources) guide businesses in aligning their practices with the criteria of a certification program. For example:

The LEED Certification offers a self-assessment checklist that businesses can use to evaluate their building's energy efficiency and environmental impact before formal submission.

Green Key Certification provides a pre-application self-assessment tool to help businesses gauge readiness for certification.

Tools Monitor Performance Post-Certification:

Tools such as carbon footprint calculators or resource monitoring platforms are often recommended or provided by certification bodies (e.g., EarthCheck Benchmarking) to help certified establishments maintain compliance and demonstrate ongoing improvements

4. Examples of the Relationship

LEED Certification: Uses detailed guidelines and checklists (tools) to help applicants assess and adjust their buildings' environmental performance.

GSTC Certification: Offers a self-assessment framework based on its sustainability criteria, enabling businesses to evaluate readiness before applying for official recognition.

Green Globe: Provides a proprietary tool that helps businesses track energy, water, and waste metrics, both as a preparatory step for certification and for continuous improvement after certification.

Tools and certifications are interconnected and mutually reinforcing. Tools act as enablers and preparatory instruments that guide businesses toward certification, while certifications provide formal validation of sustainability efforts. Together, they ensure a structured, measurable, and credible approach to sustainability in accommodation.

Analysis of Sustainability Certifications: Pros and Cons

TABLE 2

Certification	Pros	Cons
LEED	-Globally recognized for green buildings. -Long-term energy and water savings. -Enhances the property's market value.	- High certification and implementation costs. - Requires specialized expertise and planning.
Green Key	-Annual evaluation ensures continuous improvement. -Focus on waste management and guest engagement. -Simple implementation process.	- Less focused on measurable data. - May seem limited compared to more comprehensive certifications.
EarthCheck	- Data-driven approach with measurable results. -Covers energy and water efficiency. - Supports local communities.	-Complex process for small accommodations. -Requires ongoing investments for improvements.
GSTC Certification	-Globally recognized alignment with international standards. - Focuses on preserving cultural heritage and the environment.	- Less specific on operational measures. - Implementation can be time-consuming.

Green Globe	-Regular audits ensure quality assurance. - Emphasis on reducing carbon footprint. - Suitable for large accommodation chains.	-High participation costs. -Requires strong management commitment.
Blue Flag	-Ideal for coastal and marine accommodations. -Focuses on water quality and environmental education. - Attractive to eco-tourists.	-Mainly limited to coastal or marina properties. - May not be relevant for urban or mountainous accommodations.
Travellife	- Enhanced Marketability. -Cost Efficiency. - Access to Resources: Businesses gain training, tools, and support to improve their sustainability practices.	- High Initial Investment. -Time-Intensive. -Limited Consumer Awareness.

6. Tools for Measuring Environmental Footprint in the Tourism Sector

This chapter examines tools available for measuring the environmental, social, and economic impacts of tourism, with a particular focus on their application in the hospitality sector. Drawing on extensive research and insights from the report "Climate Action in the Tourism Sector – An Overview of Methodologies and Tools to Measure Greenhouse Gas Emissions" (2023b), this chapter provides a comprehensive overview of methodologies and tools used to assess and enhance sustainability across the three pillars of sustainability.

Environmental Impact Measurement

The tools designed to measure environmental impacts in the tourism sector extend beyond energy and carbon footprints to include water usage, waste management, biodiversity protection, and resource efficiency. While energy consumption and carbon emissions are significant factors due to their calculable metrics, other environmental indicators such as water conservation, land use, and pollution levels are equally critical. Certifications like Green Key, EarthCheck, and LEED provide frameworks for tracking these impacts and offer insights into key environmental data collection requirements. For example, Green Key emphasizes waste management and water conservation, while EarthCheck supports biodiversity assessments and sustainable resource management.

Social Impact Measurement

Measuring the social impacts of tourism involves evaluating benefits and challenges related to local communities, including job creation, cultural heritage preservation, and community engagement. Although fewer direct tools exist for social impact measurement, certifications like Travelife and GSTC-aligned programs incorporate social criteria into their frameworks. Travelife, for instance, evaluates fair labor practices, community involvement, and cultural preservation, offering a guide for data collection to assess social sustainability. These certifications highlight the type of social metrics businesses should track, such as local employment rates, training opportunities, and community project participation.

Economic Impact Measurement

Economic sustainability in tourism focuses on the financial viability of businesses, equitable economic benefits for communities, and the efficient allocation of resources. Tools such as Greenview Portal and Travelife help businesses track metrics like revenue generation, cost savings from sustainable practices, and local procurement rates. These tools and certifications emphasize the importance of balancing profitability with long-term sustainability goals, providing a basis for evaluating economic impacts.

Integration of ISO Standards

ISO standards, particularly ISO 21401 for sustainability in tourism, provide a comprehensive framework for measuring environmental, social, and economic impacts. While not tools themselves, ISO standards outline the specific data points businesses should monitor to ensure alignment with global

sustainability practices. This includes environmental indicators like water and energy usage, social metrics such as fair labor practices, and economic measures like cost efficiency and revenue distribution.

Insights for Tool Development

Certifications discussed in earlier sections—such as LEED, Green Key, EarthCheck, and Travelife—offer actionable insights into the types of information that need to be collected for comprehensive sustainability measurement. While these certifications may not provide standalone tools, they emphasize essential criteria for assessing impacts across the three pillars of sustainability. These insights can guide the development of integrated tools that combine environmental, social, and economic metrics to provide a holistic view of sustainability performance in the tourism and hospitality sector.

A thorough understanding of the available tools and frameworks, including those embedded in sustainability certifications, highlights the need for integrated measurement approaches. Effective tools should address not only energy and carbon footprints but also broader environmental impacts, alongside social and economic dimensions. By leveraging insights from existing certifications and aligning with ISO standards, the tourism sector can develop robust mechanisms for evaluating and enhancing sustainability across all three pillars. This holistic approach is essential for creating long-term value and fostering a more sustainable tourism environment.

At this point, a **clarification of the terminology** used is presented to help further understanding of the topic. Each term represents a distinct yet interconnected component of the sustainable tourism ecosystem. Frameworks set the overarching principles, guidance programs provide the knowledge and tools to align with these frameworks, practices represent the actionable steps taken to implement sustainability, and programs are targeted initiatives that operationalize these efforts. Understanding and using these terms accurately ensures clear communication and effective collaboration among stakeholders in the Euro-MED region or any sustainable tourism context.

Sustainable Programs

Definition: Sustainable programs are structured initiatives or projects aimed at promoting sustainability within the tourism and hospitality sector. They often involve multiple stakeholders and focus on specific goals, such as energy efficiency, waste reduction, or community engagement.

Examples:

- **UNWTO Tourism for SDGs Platform:** A program promoting sustainable tourism as a driver for the United Nations Sustainable Development Goals (SDGs).
- **EU Green Deal Tourism Initiatives:** Funding programs that support sustainable practices in European destinations.

Key Characteristics:

- Time-bound and goal-oriented.
- Often include funding, capacity-building, and implementation phases.

2. Frameworks

- **Definition:** Frameworks are comprehensive, high-level guidelines or structures that outline the principles, criteria, or components required for sustainability. They serve as a roadmap for planning, implementing, and evaluating sustainability initiatives.
- **Examples:**
  - **Global Sustainable Tourism Council (GSTC) Criteria:** A framework providing globally recognized standards for sustainable tourism.
  - **ISO 14001 Environmental Management Standard:** A framework for establishing effective environmental management systems.
- **Key Characteristics:**
  - Flexible and adaptable to various contexts.
  - Provide a strategic, overarching view rather than specific action plans.

3. Practices

- **Definition**: Sustainable practices are the specific actions or strategies implemented by tourism and accommodation providers to achieve sustainability goals. These are the tangible, operational measures taken on the ground.
- **Examples:**
  - Installing energy-efficient lighting and appliances.
  - Implementing waste segregation and composting.
  - Sourcing food and materials locally to reduce carbon footprints.
- **Key Characteristics:**
  - Practical, day-to-day actions.
  - Often align with broader frameworks or programs to achieve certification or goals.

4. Guidance Programs

- **Definition:** Guidance programs are educational or advisory initiatives designed to assist tourism businesses and destinations in adopting sustainable practices. They provide knowledge, tools, and support to facilitate the transition to sustainability.
- **Examples:**
  - **Green Key Advisory Program:** Offers resources to help establishments meet certification criteria.
  - **EU Smart Tourism Initiatives:** Guidance for adopting smart technologies to improve sustainability.
- **Key Characteristics:**
  - Focus on capacity-building and knowledge-sharing.
  - Include workshops, manuals, online tools, and expert consultations.

Differences and Relationships.

TABLE 3

Term	Focus	Purpose	Scope
Programs	Specific initiatives or projects.	Drive action toward specific sustainability goals.	Narrower and action-oriented.
Frameworks	Broad principles and criteria.	Provide strategic direction and structure.	High-level and adaptable.
Practices	Concrete, operational actions.	Implement sustainability in day-to-day operations.	Practical and specific.
Guidance Programs	Educational and advisory resources.	Support stakeholders in implementing sustainable practices.	Focused on support and capacity-building.

6.1. General tools and standards:

This chapter provides an overview of tools and programs specifically relevant for SMEs in the hospitality sector to measure and manage sustainability impacts. These tools and programs are categorized based on their ability to guide SMEs on what to measure and how to comply with sustainability standards.

Tools for Measuring Sustainability

1. **Con-Serve**
   - Purpose: A platform designed for resource monitoring and data management in hospitality.
   - Features: Tracks energy, water, and waste metrics to help accommodations monitor resource efficiency.
   - Relevance: Provides SMEs with actionable insights to reduce operational inefficiencies.
2. **EcoHotel Plus**
   - Purpose: A tool for small and medium-sized accommodations to assess and improve environmental performance.
   - Features: Simple, accessible metrics to monitor sustainability practices.
   - Relevance: Tailored to SMEs, addressing their unique needs with a low barrier to entry.
3. **Greenview Portal**
   - Purpose: A platform for hotel sustainability data management, tracking, and reporting.
   - Features: Facilitates benchmarking and monitoring of environmental and social metrics.
   - Relevance: Helps SMEs measure sustainability impacts and compare performance to industry standards.
4. **Greenview Hotel Footprinting Tool**
   - Purpose: A database providing carbon and energy footprint data for hotels.
   - Features: Assists accommodations in estimating their carbon emissions.
   - Relevance: Simplifies carbon footprint calculations for SMEs.
5. **Hotel Carbon Measurement Initiative (HCMI)**
   - Purpose: Provides consistent standards for measuring carbon emissions in hotels.
   - Features: Standardized calculation methodology for carbon footprint.
   - Relevance: Offers a straightforward approach for SMEs to meet carbon reporting requirements.

6. **Hotel GHG Mitigation Tool (GACMO)**
   - Purpose: Calculates greenhouse gas emission reductions through energy efficiency measures.
   - Features: Tailored strategies for emission mitigation.
   - Relevance: Supports SMEs in planning and quantifying their emission reduction efforts.

Programs for Guiding Sustainability Practices

1. **ISO 21401-2018**
   - **Purpose**: A hospitality-specific standard for measuring and managing sustainability impacts.
   - **Features:** Covers environmental, social, and economic dimensions.
   - **Relevance:** Provides SMEs with a structured framework for assessing overall sustainability.
2. **Green Key**
   - **Purpose:** An environmental certification program focused on sustainability in hotels and meeting halls.
   - **Features:** Assesses energy and water conservation, waste management, and community outreach.
   - **Relevance:** Offers SMEs a clear framework for measuring and improving their sustainability practices.
3. **EarthCheck**
   - **Purpose:** A benchmarking and certification program tailored for tourism businesses.
   - **Features:** Evaluates energy efficiency, air quality, land use, and social responsibility.
   - **Relevance:** Provides insights into what SMEs should measure to achieve sustainability goals.
4. **Ecolabel (EU)**
   - **Purpose:** Promotes the use of sustainable and eco-friendly products.
   - **Features:** Encourages compliance with environmental standards through product labeling.
   - **Relevance:** Guides SMEs on aligning their practices with EU sustainability goals.
5. **Travelife**
   - **Purpose:** A certification program assessing environmental, social, and economic sustainability.
   - **Features:** Includes criteria for fair labor practices, community engagement, and environmental conservation.
   - **Relevance:** Helps SMEs measure and improve their overall sustainability impact.

6. **WEEVa (Water, Energy, Emissions, and Waste Value Assessment)**
   - **Purpose:** WEEVa is a data-driven sustainability management tool designed to assist tourism businesses, particularly small and medium-sized enterprises (SMEs), in monitoring, assessing, and reducing their environmental impact.
   - **Features :** The tool focuses on four critical areas of resource consumption: water, energy, emissions, and waste, making it especially valuable for SMEs looking to align with sustainability standards and improve operational efficiency. WEEVa integrates with IoT devices to collect real-time data on resource usage. This simplifies the monitoring process by providing clear insights into inefficiencies and high-impact areas, enabling businesses to make informed decisions.

- **Customized Recommendations:** Based on collected data, WEEVa offers tailored strategies to reduce water and energy consumption, minimize waste, and lower greenhouse gas emissions. These localized solutions make the tool particularly suitable for small and remote tourism businesses.
- **Relevance :** WEEVa addresses the specific needs of SMEs by offering a practical, scalable solution for tracking and managing environmental impacts. By combining real-time data collection with actionable recommendations and benchmarking capabilities, it empowers SMEs to achieve measurable progress toward sustainability goals. Additionally, its reporting features support transparency and compliance with established sustainability standards.

Insights for Tool and Program Integration

The tools and programs discussed above provide SMEs with a dual benefit:

1. **Measurement Tools:** Help SMEs quantify their sustainability impacts across environmental, social, and economic dimensions.
2. **Guidance Programs:** Offer frameworks and criteria for compliance with internationally recognized sustainability standards.

By combining tools that measure impacts with programs that define what to measure and comply with, SMEs can adopt a comprehensive approach to sustainability. This integrated strategy supports data-driven decision-making while aligning with global sustainability goals.

6.2. Assessment of Tools for Measuring Environmental Impact in Accommodation Sector

Table 4

COMPARISON CRITERIA	Free download and use:		Available online:		Managed by:		Refers to:		Applicable to:		Based on International Acknowledged Prototypes:		Calculates CO2 footprint:		Evaluates CSR:		Refers to:		Outputs:		Advise for improvem-ents:		Review every:	
TOOLS	Yes	No	Yes	No	Public authority	Private entity	Accomm-odation only	Wider Tourism sector	All internal sectors,	Specific internal sectors,	Yes	No	Yes	No	Yes	No	Infrastru-cture	Products &/or Services	Single-level	Multi-level	Yes	No	<2years	>2years
Green Key		x	x			x		x	x		x		x		x		x	x		x		x	x	
EU Ecolabel		x	x		x			x	x		x		x					x		x	x			x
Travelife		x	x			x		x	x		x		x		x		x	x		x	x		x	
EarthCheck		x	x			x		x	x		x		x		x		x	x		x	x			x
Con-Serve		x	x			x	x			x	x		x			x	x		x		x			x
EcoHotel Plus		x	x			x	x		x		x		x			x		x		x	x		x	
HCMI	x		x		x		x		x		x		x			x	x	x	x			x		x
GACMO	x		x		x			x	x		x		x			x	x	x	x			x		x
Greenview Portal		x	x			x	x		x		x		x		x			x		x	x		x	
Greenview Hotel Footprinting Tool		x	x			x	x			x	x		x			x	x		x			x	x	
WEEVa		x	x			x		x	x		x		x		x		x	x		x	x		x	
LEED		x	x			x		x	x		x		x		x		x		x			x		x

6.3. Table 3 analysis:

The above table provides a comparative analysis of various sustainability and environmental tools, evaluating them against specific criteria to assess their features, accessibility, and usability. The tools under examination range from Green Key to LEED, and they are designed to address sustainability within the tourism, hospitality, and related sectors. The comparison criteria consider aspects such as: cost-free availability, online accessibility, management structure, scope of application, alignment with international standards, ability to calculate CO2 footprints, CSR evaluation, level of outputs and review frequency.

One of the key criteria in the table is the availability of tools for free download and use. Tools like Green Key, Greenview Portal, and the Greenview Hotel Footprinting Tool are available for free, which makes them particularly attractive for stakeholders operating with limited resources. On the other hand, some tools such as EU Ecolabel, Travelife, and EarthCheck are not freely available, indicating that these are premium offerings likely to include advanced features or functionalities for a cost.

Most of the tools analyzed, such as Green Key, Travelife, and Greenview Portal, are accessible online, reflecting the growing emphasis on digital accessibility in modern industries. However, a few tools, like WEEVa, are offline-only, which might limit their adaptability in a predominantly digital world. This distinction is important for organizations prioritizing tools that can be seamlessly integrated into their online workflows.

The management of these tools varies significantly. Some, such as EU Ecolabel and HCMI, are managed by public authorities, indicating a regulatory or governmental backing that often assures standardization and compliance with established frameworks. On the other hand, tools like EarthCheck, Greenview Portal, and LEED are managed by private entities, suggesting an industry-focused approach that may bring innovation and customization to specific needs.

In terms of their scope, tools such as Green Key and Travelife are specifically focused on accommodations, while EarthCheck and Con-Serve target the broader tourism sector, demonstrating their versatility. Some tools, like HCMI and GACMO, are designed for application across all internal sectors, showing their adaptability for use in a wide range of industries.

Another critical evaluation criterion is whether the tools are based on internationally acknowledged prototypes or standards. Tools like Green Key, EU Ecolabel, and LEED are aligned with these standards, providing reliability and global credibility. However, others, like WEEVa, lack such international alignment, potentially limiting their acceptance in broader contexts.

A notable feature among the tools is the ability to calculate CO2 footprints, an increasingly important requirement for organizations aiming to monitor and reduce their carbon emissions. Tools such as HCMI, GACMO, and Greenview Hotel Footprinting Tool excel in this area. Additionally, tools like Travelife and EarthCheck focus on evaluating Corporate Social Responsibility (CSR), emphasizing their commitment to fostering ethical and socially responsible practices.

The tools differ in their focus areas as well. Most, such as LEED and EarthCheck, address infrastructure and services comprehensively. Some tools, like HCMI and WEEVa, offer single-level outputs, making them suitable for straightforward analyses. In contrast, others, like Greenview Portal and LEED, provide multi-level outputs, catering to more complex and nuanced evaluations.

A unique aspect of certain tools, such as Green Key and Travelife, is their provision of advice for improvement, helping organizations actively work towards better sustainability practices. Additionally, the repetition of the inspection for these tools varies, with some like EU Ecolabel and Green Key undergoing inspections every two years to stay current. Meanwhile, others, such as LEED and WEEVa, have longer inspection and review cycles of over two years, which may be better suited for long-term strategies but might not respond as quickly to evolving industry challenges.

In terms of individual tool analysis, Green Key stands out as an accessible and online tool focused on accommodations, with multi-level outputs and a two-year review cycle ensuring up-to-date compliance. EU Ecolabel, managed by public authorities, aligns with international standards and offers multi-level outputs applicable to infrastructure and services. Travelife emphasizes CSR and provides advice for improvement, making it a practical choice for fostering sustainability in the tourism sector. EarthCheck is versatile, aligning with international standards and catering to the broader tourism sector. HCMI and GACMO, on the other hand, specialize in CO2 footprint calculations and are adaptable across sectors, though their single-level outputs suggest a more straightforward approach.

Greenview Portal stands out for its detailed analyses with multi-level outputs, while LEED is widely recognized for its comprehensive application across sectors, adherence to international standards, and its emphasis on infrastructure and services. Each tool offers unique strengths, and their varied functionalities and focus areas ensure that they can cater to diverse organizational goals and priorities.

This detailed analysis highlights the strengths and limitations of the tools, providing insights into their applicability in different contexts.

Analysis of Tools and Programs

This section evaluates existing tools and programs relevant to sustainability in the hospitality sector, particularly their accessibility, functionality, and alignment with ISO standards. The analysis provides a foundation for developing a comprehensive self-assessment tool tailored to the needs of SMEs, addressing the aims of WP3 in the context of the MAST project.

Current Tools and Their Accessibility

1. Green Key**:**
    - Accessibility**:** Green Key is widely accessible as an online tool, making it suitable for SMEs across various regions.
    - Functionality**:** It offers a graduated rating system (1-5 keys) with multi-level outputs, providing guidance for improving compliance after initial certification.
    - ISO Alignment**:** While not ISO-certified, its criteria align closely with environmental and social sustainability practices outlined in ISO 21401.
2. EU Ecolabel**:**
    - Accessibility**:** Managed by public authorities, it is designed for businesses within the EU, focusing on eco-friendly infrastructure and services.
    - Functionality: Offers multi-level outputs, ensuring alignment with international environmental standards.
    - ISO Alignment: Adheres to environmental requirements similar to ISO 14001, supporting resource efficiency and waste reduction.
3. Travelife**:**
    - Accessibility**:** Travelife is practical and cost-effective, making it accessible for SMEs with limited budgets.
    - Functionality**:** Focuses on corporate social responsibility (CSR) and provides actionable advice for improvement, fostering a step-by-step approach to sustainability.
    - ISO Alignment**:** Emphasizes social responsibility, aligning with ISO 26000 and partially covering ISO 21401's broader sustainability goals.
4. EarthCheck**:**
    - Accessibility**:** Versatile and applicable to various tourism businesses globally, though it may require more investment compared to other tools.
    - Functionality**:** Provides comprehensive multi-level outputs, addressing energy efficiency, air quality, waste management, and cultural impacts.
    - ISO Alignment**:** Its framework aligns with ISO 14001 and ISO 21401, supporting a holistic approach to sustainability.

5. HCMI and GACMO**:**
    - Accessibility**:** Both tools are highly specialized, offering simple and adaptable methods for calculating CO2 footprints.
    - Functionality**:** Focuses solely on carbon metrics, providing single-level outputs for straightforward application.
    - ISO Alignment**:** These tools align with the energy and emissions-focused elements of ISO 14001 but lack broader environmental or social metrics.

6. Greenview Portal**:**
    - Accessibility**:** Designed for comprehensive data management, it may require technical expertise, making it better suited for SMEs with advanced capabilities.
    - Functionality**:** Offers detailed analyses with multi-level outputs, supporting benchmarking and reporting.
    - ISO Alignment**:** Aligns with ISO 21401's focus on comprehensive sustainability metrics, including environmental, social, and economic impacts.
7. LEED**:**
    - Accessibility**:** Widely recognized and applicable globally, but primarily relevant for businesses undertaking new builds or major renovations.
    - Functionality**:** Focuses on infrastructure and services, offering four levels of certification based on compliance.
    - ISO Alignment**:** Its emphasis on green building practices aligns with ISO 14001, though its scope may not fully encompass broader sustainability requirements of ISO 21401.

Informing the Development of the Self-Assessment Tool

The tools and programs analyzed above highlight a variety of functionalities and accessibility levels, providing insights into what is currently available and what gaps remain:

1. Accessibility: Tools like Green Key, Travelife, and EU Ecolabel are accessible and cost-effective, making them practical for SMEs. However, there is a need for tools that are affordable, user-friendly, and specifically tailored to the unique challenges faced by small and remote accommodations.
2. Functionality: Tools offering multi-level outputs (e.g., Greenview Portal, EarthCheck) demonstrate the importance of providing actionable guidance and benchmarks. Single-level tools like HCMI are useful for focused metrics but lack holistic sustainability assessments.
3. ISO Alignment: While many tools align partially with ISO 14001 (environmental) and ISO 26000 (social responsibility), fewer tools address the comprehensive requirements of ISO 21401, which incorporates environmental, social, and economic dimensions.

Based on this analysis, the self-assessment tool that will be developed should integrate:

1. Comprehensive Metrics: Covering environmental, social, and economic impacts, aligned with ISO 21401 standards.
2. User-Friendly Design: Ensuring accessibility for SMEs with varying technical expertise.
3. Cost-Effectiveness: Offering scalable pricing or other practices to accommodate SMEs' financial constraints.
4. Guidance and Benchmarking: Providing step-by-step recommendations and comparative performance data to drive continuous improvement.

By addressing these gaps and building on the strengths of existing tools, the self-assessment tool can serve as a practical, impactful solution for SMEs striving for sustainability in the tourism sector.

7. Conclusions - Research Findings and Market Gap Identification

This research focuses on sustainability self-assessment tools in the tourism sector and highlights the conclusions that emerged from the market analysis. At the same time, gaps and opportunities for improvement and development of new solutions that will meet the needs of the sector are identified. Tourism, climate change and other factors have already significantly impacted the environment. For example, in 1998, Seychelles lost 90% of its coral reefs in a major coral bleaching event as a result of rising sea temperatures. As tourism has affected parts of the environment of tourism destinations, the need to protect the environment before it is too late emerging more urgently than ever. (https://www.bbc.com/travel/article/20220315-africas-global-biodiversity-hotspot).

Tourism is responsible for 8% of global CO2 emissions annually and by 2030 it is estimated to be an increase of 25% in CO2 emissions compared to 2016. UNWTO report for, climate changes caused by human activity, argues that the responsibility of the global tourism industry is expected to reach 7% by the year 2050, tourist transportation, accommodation and other related activities caused by carbon dioxide emissions 1%〜3% of total emissions, and accounts for about 5%〜14% percent of man-made global warming (https://www.e-unwto.org/doi/10.18111/9789284423927).

There is no doubt that the current situation of transition towards a comeback of tourism to pre-Covid levels is the best moment to prepare local authorities, the business community, residents and stakeholders to reduce the impact of tourism on the environment with innovative measures and long-term strategies. For the realization of sustainable development is of great significance to ensure the coordinated development of the environment and tourism (Jing Zhao, Shu-Min Li, 2018). The goal of sustainability is depicted as a development that includes a social and economic system which must be incorporated with the environmental concerns (Griffin & Prakash, 2010; Kinoti, 2011; Saadatian, Haw, Mat, & Sopian, 2012). Swarbrooke (1999), argues that hotels are the major part of the hospitality industry that contributes the maximum profit share. Still, at the same time, there is an inevitable link between hotels and environmental issues.

7.1. Research conclusions, emerging trends and demand in sustainable tourism

1. The Rising Importance of Sustainability in Tourism

Global awareness of sustainability is reshaping demand in the tourism sector. Travelers increasingly seek accommodations that integrate sustainable practices, such as energy conservation, waste reduction, and support for local communities. Tourism businesses are responding by adopting tools and certifications designed to measure and enhance their environmental performance.

Sustainability has transitioned from being an optional consideration to an essential component of competitive tourism. Modern travelers are often willing to pay premium prices for experiences that align with their values, offering businesses a unique opportunity to enhance their competitiveness. However, achieving environmental gains is not without challenges, as implementing sustainable practices often requires significant planning, investment, and effort.

Sustainable tourism development must incorporate environmental dimensions into Integrated Action Plans and local tourism strategies. This includes balancing the attractiveness of destinations with mitigating tourism's impact on public spaces, water resources, and city services, as noted by Sabrina Bruzzone (2021). The construction of tourism-related facilities, while necessary, can disrupt original landscapes and harm local environments (Fan, Z.Y., Zhong, S., Zhang, W. 2012).

2. Environmental Impact of the Hospitality Sector

The hospitality industry has a pronounced environmental footprint due to high energy consumption, extensive use of disposable plastic products, poor waste management, and the significant use of natural resources like water. These issues, coupled with the sector's large carbon footprint, contrast sharply with the UNWTO's definition of sustainable tourism, which emphasizes balancing economic, social, environmental, and cultural impacts to meet the needs of all stakeholders, including visitors, the industry, and host communities.

International sustainability standards and certifications, such as ISO 14001, EMAS, Green Key, and ECEAT, attempt to address these four dimensions of sustainability. However, the integration of these dimensions and their impact on service quality varies widely among certifications. Only a few explicitly highlight the relationship between sustainability and service quality, despite widespread acknowledgment of their close interconnection (Publications of the Ministry of Economic Affairs and Employment of Finland, 2017).

3. Post-COVID Challenges and Opportunities

In the post-COVID era, destination managers, policymakers, and investors face the challenge of promoting sustainable and resilient tourism. Digitalization has emerged as a key strategy, with regions like the European Union accelerating the digital transformation of the tourism

industry. Restructuring and optimizing operations, particularly by phasing out unsustainable and environmentally harmful infrastructure, is crucial. Sustainable hotel projects in both urban and rural areas not only align with long-term environmental goals but also offer cost efficiencies for owners over time (Vasja Roblek et al, 2021).

4. The Role of Economic Performance in Sustainable Tourism

Economic performance is a vital factor influencing sustainable behavior within the tourism industry. Adopting sustainable practices can lead to long-term cost savings, making economic sustainability a cornerstone of broader environmental and social goals. This highlights the importance of integrating financial viability into sustainable tourism initiatives to ensure widespread adoption and effectiveness.

Sustainability and quality are inextricably linked, and the transition to sustainable tourism offers significant opportunities for the industry. By addressing environmental challenges and leveraging international sustainability certifications, tourism stakeholders can create value for travelers while minimizing negative impacts. As the industry adapts to new post-pandemic realities, a focus on digitalization, resilience, and environmentally responsible practices will be critical for long-term success.

7.2. Challenges, Opportunities, and Pathways to Sustainability in Tourism SMEs

Main Problems and Gaps

Despite the availability of numerous tools, businesses in the tourism sector face significant challenges that hinder the effective implementation of sustainable practices. One of the primary issues is the lack of standardization, which makes it difficult to adopt uniform sustainability practices across different geographical areas and regulatory frameworks. This inconsistency creates barriers, especially for SMEs, in aligning with global sustainability goals.

Another major challenge is the low adoption of innovations, particularly among smaller accommodations. Limited financial resources and the high costs of modern technologies often deter SMEs from investing in tools and practices that promote sustainability. Additionally, limited awareness among accommodation owners about the importance of sustainability further hampers progress. Without sufficient knowledge or access to educational resources, many businesses fail to understand the value of integrating sustainability into their operations.

Opportunities

The research highlights several opportunities to address these challenges and promote sustainability within the tourism sector. One significant opportunity is the development of specialized tools tailored for SMEs. These tools should emphasize simplicity, cost-effectiveness, and user-friendly interfaces to ensure accessibility for small businesses. Strengthening collaborations through the creation of networks for the exchange of knowledge and best practices is another avenue for improvement. Such collaborations can foster community-driven sustainability efforts and encourage the sharing of innovative solutions.

Moreover, leveraging funding programs like Interreg Euro-MED provides financial support for businesses aiming to adopt sustainable practices. These programs can help bridge the gap between limited resources and the need for investment in sustainability.

Identifying Gaps in the Market

The existing market reveals several critical gaps that need to be addressed to better support SMEs in the tourism sector. Lack of tailored tools remains a significant issue, as most available tools are designed for larger businesses and require substantial investments in both time and money. This often leaves smaller accommodations unable to effectively use these tools to meet their sustainability goals.

Additionally, there is an insufficient focus on training and support. Many platforms lack interactive and educational resources that guide users in implementing sustainable practices. Without proper training, businesses are left to rely on their own initiative, resulting in inconsistent or incomplete adoption of sustainability measures.

Finally, there is an absence of an integrated sustainability strategy that bridges the gap between theoretical frameworks, such as ISO 21401:2018, and practical implementation. Certifications and standards often do not provide the actionable strategies businesses need to incorporate sustainability into their daily operations, creating a disconnect between compliance and meaningful impact.

Addressing these gaps and leveraging identified opportunities can drive the development of a comprehensive and practical self-assessment tool tailored to the needs of SMEs in the tourism sector, supporting their journey toward sustainability.

7.3. List of Main Tools and Certifications examined

Hotel Eco-Certifications Global

- **LEED.** LEED is a program that recognizes properties built from the ground up with sustainable practices. Given that it only applies to new properties, this won't be relevant for everyone. However, if you are in the middle of the significant rebuild, it's worthwhile to look at the LEED certification standards to see if it's worth qualifying. It's a great credential that highlights your green bonafides to sustainability-minded travelers! LEED offers four levels of certification. The number of points determines the level. Certified 40-49 points, Silver 50-59, Gold 60-79, and Platinum 80+ points. LEED certification is recognized across the globe as the premier mark of achievement in green building. This interactive LEED discovery tool will guide you through the decision making process. And, while it's a program based in the United States, any property can pursue certification: 44% of square footage pursuing LEED certification is outside the US.
- **Green Globe.** The Green Globe Certification not only measures the environmental, social and economic sustainability of the business itself but also its supply chain partners. Using 44 core criteria and 380+ compliance indicators, this holistic 360 degree assessment makes Green Globe one of the most thorough eco certifications for green hotels worldwide. The Green Globe Certification also has three certification levels; so even if your hotel is at the earliest stages of its sustainability journey, you can still participate in the program. Green Globe uses third-party auditors to conduct a fair analysis on your property. Green Globe offers certification as well as training to help properties be as environmentally friendly as possible.
- **TripAdvisor Green Leaders.** GreenLeaders was created to recognize green hotels and B&Bs with environmentally-friendly practices. The benefit is in a special callout on your property's profile: A GreenLeader logo is displayed prominently to showcase your commitment to the environment.The program considers things like linen reuse programs, energy usage tracking, recycling, energy efficiency light fixtures, wastewater treatment, electric charging stations and more. The Green Leaders badge appears on qualifying properties' profiles, adding an easy marketing boost among a key group of guests.
- **Green Key Global.** Green Key Global is an environmental certification body designed for both hotels and meetings. As more corporations consider their carbon footprint and environmental impact, the certification is ideally suited for hotels with a strong meetings business. With a strong focus in North and South America, Green Key uses an "Eco-Rating" to grade hotels. This graduated rating system awards 1-5 keys based on their level of compliance with the program. 5 keys is the highest rating. After an initial award is given, the property will receive guidance on how to maintain and improve their key level. Assessment is based on sustainable practices

throughout the operation, including: energy and water conservation, waste and environmental management, indoor air quality, community outreach, building infrastructure and land use.

- **Green Tourism Active.** GTA Global, which has been recognized by the GSTC, offers on-site verifications for its certification. These assessments cover sustainable practices around energy usage, water conservation, sustainable procurement, cultural conservation, staff practices and others. GTA has four levels of certification, Green Initiate (35% pass rate), Green Leader (60% pass rate), Green Champion (80% pass rate) and Green Champion with Distinction (90% pass rate). The organization is not-for-profit, so its certifications are often more accessible to smaller properties and independents.
- **Audubon Green Lodging Program.** Audubon International, a global non-profit focused on environmental education and sustainable management of natural resources, also certifies hospitality properties. The Audubon Green Lodging Program provides third-party verification hotel properties meet a specific set of environmental standards, with a strong focus on water quality, resource conservation, waste minimization and energy efficiency. The certification has four stages: Self-Evaluation, where you learn best practices and submit an official application; Assessment, where staff reviews and verifies your application; Verification, when an independent auditor assesses your property; Eco-Rating, where you get your certification and suggestions for continued improvement. Annual fees are based on the number of rooms and years in the program starting at $250 for properties with up to 50 rooms.
- **Green Seal.** Green Seal is a nonprofit organization that uses science-based programs to empower consumers, purchasers, and companies to create a more sustainable world. Green Seal Certification is a rigorous process that includes annual compliance monitoring and a commitment to continuous improvement. Hotels and Lodging certification includes three levels: bronze, silver and gold. The assessment evaluates performance around waste minimization, energy conservation and water management, preventing pollution and environmentally sensitive purchasing. The fee for bronze certification starts at $1,950 and increases per tier (bronze, silver, gold) and room size.
- **EarthCheck.** In operation since 1987, EarthCheck is a massive global organization that provides a basket of consulting, software and certification services. Becoming EarthCheck-certified is a rigorous process covering all types of accommodations, from small lodges and serviced apartments to the largest resorts. The assessment includes a broad array of criteria, from energy efficiency, land use planning, air quality protection, waste management, greenhouse gas emissions, and social and cultural management. To see one hotel chain's experience, check out this case study from EarthCheck-certified Melia Hotels International. Certification also comes with an in-built marketing advantage from the EarthCheck name: journalists use it as a filter to identify truly sustainable hotels. EarthCheck's reach is truly global, certifying organizations in over 70 countries.

- **Travelife.** Travelife is an international sustainability certification scheme and has been approved by the Global Sustainable Tourism Council. The award is based on an evaluation of sustainability management systems, environmental Management, labor and human rights, and community integration from both a supplier and customer perspective. The full criteria list can be found here. All Travelife certified hotels and accommodations must undertake an independent on-site audit to receive the award. Properties can receive one of two awards either Travelife Gold award or Travelife Award of Excellence, and must be audited every two years to maintain their award.

European Hotel eco-certifications

Green Tourism (United Kingdom). Green Tourism has certified over 2,000 members in the UK, Ireland and Canada. The criteria are divided into ten areas, which then expand into 150 different criteria.

Ecotourism Ireland Certification Programme (Ireland). The Sustainable Travel Ireland certification complies with the GSTC standards and External Auditors and an assessment committee to award certification. There are three levels of certification, from bronze to gold.

European Ecotourism Labeling Standard (EETLS)

- **Ecolabel or Eco Flower (EU).** The Ecolabel program identifies products that are sustainable and eco-friendly. While this is not directly a certification for hotels, it is something to look for for properties based in the European Union. By using products with this label, you'll more easily align with other certification standards.

American Hotel eco-certifications

- **Energy Star (United States).** Energy Star aims to create environmental benefits and financial value through exceptional energy efficiency. Energy Star rates businesses based on a score of 1-100. The Portfolio Manager tracking tool helps businesses (like hotels) to benchmark their performance to others. It's free to all users and is a great way to identify a property's energy effectiveness.
- **Certification for Sustainable Tourism (Central America).** Initially created in Costa Rica to manage tourism in a more sustainable fashion, this certification has become more broadly adopted across Central America. Learn more about the CST here (in Spanish).
- **GREAT Green Deal Certification Program (Central America)** – One of the top 20 certification programs in the world, the Great Deal certification is designed for every hospitality property size and type, as well as travel companies such as tour operators, transport providers, restaurants, etc. More information here (in Spanish).

- **Sistema de Distinción en Turismo Sustenatable (Chile).** The Chilean government has created this standard for sustainable tourism in its country. The certification orients around economic, social cultural and environmental standards, which are broken down into 57 evaluation criteria. Qualifying accommodations can earn three different levels of distinction.
- **Hoteles + Verdes (Argentina).** With the "Hoteles Más Verdes" certification, which complies with Global Sustainable Tourism Council standards, Argentinian hotels can earn three different levels of certification, bronze silver or gold.

Hotel eco-certifications in Africa

- **Fair Trade Tourism (Southern Africa).** This nonprofit organization certifies businesses in South Africa, Madagascar, Mozambique and Zimbabwe. It also has reciprocal relationships with certification programs in Namibia, Seychelles, Botswana, Kenya and Tanzania. Benchmark criteria include fair wages and working conditions, fair purchasing and operations, equitable distribution of benefits and respect for human rights, culture and the environment.
- **Ecotourism Kenya.** The goal of the certification is to promote tourism practices that preserve cultural heritage and conserve natural resources. Its Eco-rating Certification assesses performance against criteria around environmental, economic and social cultural benchmarks.
- **Green Star Hotel (Egypt).** Created by the Egyptian hotel association, with the support of the Egyptian Ministry of Tourism, the Green Star Hotel Certificate monitors members environmental management practices, as well as how it operates its food and beverage, features, and guest experience.

Hotel eco-certifications in APAC

- **Eco Certification (Australia).** The Eco Certification program certifies tours, accommodations and attractions that focus on nature. There are three levels of certification: nature tourism, ecotourism, and advanced ecotourism. For Australian businesses considering the certification, there's also a handy assessment tool to see how close your business already is certification.
- **Asian Eco-tourism Standard for Accommodations.** The AESA was formally recognized by the GSTC accreditation panel in 2019 and focuses on eco lodges, eco resorts and nature-based lodges in the APAC region. There's a free self-assessment tool to see if your property qualifies.

ANNEXES

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Sitography

1. **Blue Flag**: https://www.blueflag.global
2. **EarthCheck**: https://earthcheck.org
3. **Green Globe**: https://www.greenglobe.com
4. **Green Key**: https://www.greenkey.global
5. **GSTC Certification**: https://www.gstcouncil.org
6. **Hotel Carbon Measurement Initiative (HCMI)**: https://sustainablehospitalityalliance.org
7. **LEED Certification**: https://www.usgbc.org/leed
8. **Travelife**: https://www.travelife.info
9. **WEEVa**: https://www.weeva.earth

2. Systematic Review and Evaluation of Sustainability Self-Assessment Tools for SMEs

In the absence of direct field research or primary survey data, the research team conducted an extensive, systematic evaluation of self-assessment tools tailored to the needs of SMEs in the hospitality sector. This analysis focused on understanding how these tools address key challenges, such as usability, affordability, and alignment with industry standards.

Selection of Tools
The research team identified and selected tools based on their relevance to SMEs, focusing on:

- Tools frequently cited in industry literature and sustainability reports.
- Tools recommended by well-established certifications and programs (e.g., LEED, Green Key, GSTC).
- Tools covering diverse sustainability dimensions, such as environmental, social, and economic impacts.

The selected tools for analysis include:

1. **Green Key Self-Assessment Tool**
2. **Hotel Carbon Measurement Initiative (HCMI)**
3. **Travelife for Hotels and Accommodations**
4. **WEEVa Sustainability Tool**
5. **EarthCheck Benchmarking Tool**

Evaluation Criteria
The research team employed a consistent framework to evaluate these tools against the following criteria:

1. **Accessibility**: Ease of access and availability for SMEs, including language support and geographical adaptability.
2. **Usability**: User-friendliness, including interface design, training materials, and step-by-step guidance.
3. **Cost**: Affordability for SMEs, including upfront costs, recurring fees, and hidden expenses.
4. **Scope**: Coverage of sustainability dimensions (e.g., environmental, social, and economic impacts).
5. **Alignment with Standards**: Consistency with recognized certifications (e.g., GSTC, LEED) and global benchmarks (e.g., ISO 21401).
6. **Actionability**: The ability of the tool to provide practical, actionable recommendations for SMEs.

Detailed Findings
Each tool was analyzed in detail, with findings documented to highlight their strengths, limitations, and applicability to SMEs in the accommodation sector. Below is a summary of key insights:

1. **Green Key Self-Assessment Tool**
    - **Strengths**: Simple and intuitive interface; focuses on practical areas like waste management, water conservation, and guest engagement.
    - **Weaknesses**: Limited integration with real-time monitoring technologies; primarily focused on environmental metrics.
    - **Ideal For**: SMEs seeking an affordable and basic sustainability tool.
2. **Hotel Carbon Measurement Initiative (HCMI)**
    - **Strengths**: Offers standardized methodologies for calculating carbon footprints, making it suitable for benchmarking against industry norms.
    - **Weaknesses**: Focused only on carbon emissions; lacks coverage of social and cultural sustainability metrics.
    - **Ideal For**: SMEs prioritizing greenhouse gas reduction and carbon reporting.
3. **Travelife for Hotels and Accommodations**
    - **Strengths**: Provides embedded training modules and certification pathways; covers social, economic, and environmental dimensions.

   - **Weaknesses**: Requires a moderate investment of time and resources to implement.
   - **Ideal For**: SMEs aiming for comprehensive sustainability improvements with certification benefits.
4. **WEEVa Sustainability Tool**
   - **Strengths**: Incorporates IoT integration for real-time monitoring of water, energy, emissions, and waste. Tailored recommendations make it actionable for SMEs.
   - **Weaknesses**: Slightly higher cost and learning curve for initial setup.
   - **Ideal For**: Tech-savvy SMEs looking for real-time insights into resource management.
5. **EarthCheck Benchmarking Tool**
   - **Strengths**: Offers detailed benchmarking and data-driven insights; globally recognized for credibility.
   - **Weaknesses**: High implementation cost; complex setup processes that may deter smaller SMEs.
   - **Ideal For**: Larger SMEs or those with dedicated sustainability teams.

Conclusions from Analysis
The analysis revealed that while several tools are available, many are designed with larger establishments in mind, leaving SMEs to struggle with:

- High costs.
- Lack of training or support.
- Tools too complex for smaller operations.

This underscores the need for tailored, affordable, and user-friendly tools that align with the unique needs of SMEs. Real-time monitoring capabilities, embedded training, and adaptability to diverse contexts emerged as critical features for success.

This annex is designed to provide readers with a clear understanding of how the content of the main report is structured and the underlying approach adopted by the writing team. It offers insight into the systematic methodology used to select, analyze, and present information on sustainability self-assessment tools for SMEs in the hospitality sector.

By explaining the rationale behind the organization of the report, the annex highlights the team's focus on addressing the unique challenges faced by SMEs, such as cost, usability, and practicality. The writing team aimed to ensure that each section builds upon the other, creating a cohesive narrative that emphasizes actionable insights and relevance to the target audience. This annex, therefore, not only supports the clarity of the main document but also reflects the strategic and analytical thought process that guided its development.

For transparency and reference, the detailed descriptions and evaluations of the tools analyzed have been included in the bibliography and sitography annexes.