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NEXT Black Sea Basin

ASSESSING COUNTRY AND REGION-SPECIFIC NEEDS: SUSTAINABILITY AND BLUE GROWTH PERSPECTIVES

LOW INNOVATION ABSORPTION

AS A CHALLENGE TO BLUE GROWTH FOR BLACK SEA TOURISM

This material was developed by the research team of İstanbul Development Agency (Türkiye). The primary research data was also contributed by the teams of Varna University of Management (Bulgaria), International Hellenic University (Greece), and Moldova State University (Moldova).

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Executive Summary

This Needs Assessment Report examines the sustainability challenges, specifically focusing on low innovation absorption, for tourism and related services in the Black Sea Basin. Conducted within the INTERSMARTS project, the report utilizes a common methodology including desk research, general survey, focus groups, and in-depth interviews across Bulgaria, Greece, Moldova, and Türkiye. Its aim is to identify actionable solutions and articulate policy recommendations at micro, macro, and regional levels to foster blue growth.

Low innovation absorption significantly hinders the long-term sustainability of tourism in the Black Sea region, limiting the sector's ability to adapt to evolving market demands, optimize resource efficiency, and drive sustainable development. This challenge leads to diminished competitiveness and reduced resilience against economic and environmental pressures, often resulting in an over-reliance on traditional, resource-intensive tourism models. Across the INTERSMARTS countries, common obstacles include high costs and limited funding, insufficient knowledge and skills, and a general lack of awareness regarding the benefits of new technologies. Country-specific challenges vary: Bulgaria faces issues with low consumer awareness and cultural resistance to innovation despite recognizing the need for technological advancements. Greece struggles with high investment costs, weak policy enforcement, and bureaucratic hurdles that slow technology adoption. Moldova contends with limited research and development budgets, a shortage of qualified specialists, and legislative barriers hindering sustainable practices. In Türkiye, businesses face mandatory sustainability certifications without adequate financial incentives, coupled with infrastructure deficiencies especially in the less developed regions, and a preference for short-term gains over long-term innovation.

Despite these challenges, the region demonstrates various good practices and innovative approaches. Larger businesses and urban areas generally lead in adopting smart technologies such as photovoltaic panels, AI-powered booking systems, and automated climate control. Examples include Bulgaria's Albena Resort, which features extensive green infrastructure and a "green fund" for sustainability projects, and Greece's Tilos Project, a pioneering zero-waste and renewable energy model. Moldova showcases sustainable guesthouses integrating solar panels and waste recycling, often driven by private sector and NGO initiatives. Türkiye has established structured support systems like the TourisTech Hub, fostering tourism-specific startups that develop smart solutions for efficiency and sustainability. Furthermore, initiatives like Türkiye's "TR-I Sustainability Certification" promote eco-friendly standards at the national level.

To enhance policy effectiveness, stronger coordination and enforcement mechanisms are essential across the region. Surveys and interviews indicate a widespread perception of insufficient innovation use, highlighting the need for increased investment and strategic implementation. While governments are widely identified as primary drivers of change, a lack of coherent national frameworks and rigid bureaucratic processes often hinder effective policy implementation. Improving multi-stakeholder collaboration among public

authorities, businesses, NGOs, and academia is crucial to align strategies and overcome fragmentation.

To foster a more resilient, dynamic, and sustainable tourism model in the Black Sea Basin, a multi-level strategic approach is recommended. First, at the microeconomic level, targeted financial and technical support, including low-interest loans and grants, should be provided to SMEs to facilitate the adoption of smart and green technologies. Second, at the macroeconomic/national level, governments should enforce sustainability certification criteria and implement green taxation systems, invest in smart and green infrastructures, and streamline bureaucratic processes for sustainable tourism investments. Third, expanding public-private partnerships and replicating successful startup acceleration programs like Türkiye's TourisTech Hub are crucial for fostering university-industry cooperation. Finally, at the transnational level, establishing a Black Sea Sustainable Tourism Forum and a Regional Smart Tourism Observatory (as a digital platform) can promote knowledge-sharing and harmonize sustainability certification programs across the region. These actions, combined with integrated sustainability and innovation into tourism education and awareness campaigns, are critical for transitioning towards a more competitive and environmentally responsible tourism ecosystem.

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Abbreviations

BSB: Black Sea Basin

BSO: Business Support Organisation

EU: European Union

GDP: Gross Domestic Product

GII: Global Innovation Index

HEI: Higher Education Institutions

INTERSMARTS: Interdisciplinary Solutions for Smart Sustainable Tourism and Services for Blue Growth in the BSB

NAR: Needs Assessment Report

NGO: Non-Governmental Organisation

R&D: Research and Development

SME: Small and Medium Sized Enterprise

TTDI: Travel & Tourism Development Index

Introduction

The Black Sea region is a dynamic and diverse area with rich cultural heritage, unique ecosystems, and strategic geopolitical importance. As a vital economic sector, tourism plays a key role in shaping the region's development. However, ensuring the sustainability of tourism remains a complex challenge due to a range of environmental, economic, and infrastructural pressures.

One of the most significant opportunities for the region lies in its potential for blue economy and blue growth, particularly in the tourism sector. However, the long-term sustainability of tourism is undermined by several challenges, with low innovation absorption being one of the most pressing issues. The limited adoption of innovative solutions in tourism services, infrastructure, and business models restricts the sector's ability to respond to shifting market demands, optimize resource efficiency, and drive sustainable development. This lack of innovation not only weakens competitiveness but also reduces the industry's resilience against economic fluctuations and environmental pressures. Bridging this gap is essential for fostering a more adaptive, dynamic, and future-proof tourism ecosystem in the Black Sea region.

Innovation, however, often faces limitations due to the region's capacity to absorb and implement new technologies and practices. Low innovation absorption poses a significant threat to the sustainability of tourism. Without effective adoption of innovations, the tourism industry may struggle to keep up with global sustainability trends, such as the demand for eco-friendly accommodations, digital tools enhancing visitor experience, and resilient infrastructure to cope with climate-related disruptions. In regions with low innovation absorption, tourism enterprises may miss opportunities to differentiate themselves in the global market by offering unique and sustainable experiences. This results in an over-reliance on traditional, resource-intensive tourism models that are less adaptable to the changing needs of tourists and the environment. Furthermore, without innovation, local communities may fail to fully benefit from the socio-economic opportunities sustainable tourism offers, such as job creation, skills development, and empowerment for women and youth.

As the tourism industry evolves, innovative approaches are necessary to develop more sustainable practices that can mitigate the impact on natural resources, create new opportunities for local communities, and improve the overall visitor experience. Hence, this perspective is adopted in the applied research practices of the project INTERSMARTS: Interdisciplinary Solutions for Smart Sustainable Tourism and Services for Blue Growth in the Black Sea Basin (BSB), supported by the NEXT Black Sea Basin Programme.

As one of the INTERSMARTS project's main activities, a needs assessment was performed using a common methodology (detailed in the next chapter). This covered four countries in the BSB area: Bulgaria, Greece, Moldova, and Türkiye. These countries were evaluated on four main themes as challenges to tourism and blue growth in the region: overdevelopment, seasonality, pollution and waste, and low innovation absorption.

This needs assessment report examines the challenges to sustainability and blue growth caused by low innovation absorption from the perspectives of different stakeholders in the tourism and services sectors. After providing a general overview of tourism sector in the BSB at the beginning, the specific objectives of this report are

- to present the insights from the general survey, focus group meetings, and in-depth interviews in all four countries on low innovation absorption,
- and articulate policy recommendations at the micro, macro and regional level based on these findings.

By consolidating current knowledge from different actors, this report provides a foundation for understanding the broader context of the low innovation absorption. However, it is suggested to read this needs assessment report together with the ones prepared by other INTERSMARTS partners for gaining a more comprehensive understanding of the challenges and future needs of the tourism sector in the region.

I. METHODOLOGY

Needs assessment is a critical planning tool used to identify problems and develop effective, goal-oriented solutions to improve policies and coordinated actions. By clearly defining challenges, it ensures that resources are effectively directed toward feasible interventions that enhance performance and desired outcomes. In the INTERSMARTS project, needs assessments focus on four key sustainability challenges that are studied by the project partners based on their research interests and complementary expertise, defined also as a task-force domains of the INTERSMARTS Network, and namely:

(i) overdevelopment – by the Moldova State University;
(ii) seasonality – by the Varna University of Management,
(iii) pollution and waste – by the International Hellenic University, and
(iv) low innovation absorption – by the İstanbul Development Agency.

The resulting Needs Assessment Reports are to propose state-of art strategies for addressing these challenges, leveraging state-of-the-art research from project partners and empirical data collected with civic researchers, all aimed at fostering blue growth.

The needs methodology in INTERSMARTS comprises three key phases that were implemented continuously and in parallel on all four sustainability challenges identified by the project: (1) literature review and desk research, (2) field research, and (3) development of a needs assessment report. The process integrates collaborative contributions from all partners, focusing on sustainability in blue tourism, coastal/riverside resource management, and innovation promotion.

The literature review was aimed to review how the project problem issues are explored in academic research, strategies, and policies related to blue tourism sustainability at international, national, and regional levels. The main policy-related determinants of the needs assessment, including six research perspectives or lens for field research, namely the current state, challenges, adopted solutions in business and communities, effectiveness of policies and regulations, local communities' perspective, and future needs were outlined based on the literature review and desk research. Accordingly, field research questionnaires for focus groups, in-depth interviews and general survey of the public opinion were elaborated. The literature review was completed simultaneously in the period October 1st to 31st, 2024 by all INTERSMARTS partner institutions.

The field research gathered primary data from the INTERSMARTS project target groups, including higher education institutions, SMEs, public authorities, NGOs, and other relevant interest groups. It was necessary to explore the local context, practical insights, and interpretation of the project problems. In addition, it gave out valuable interpretations and independent comments that add to the quality of the project analyses

and recommendations. The field research included three types of activities – an online general survey, focus groups, and in-depth interviews.

The general survey was performed by the distribution of an online questionnaire (please see Annex 1) with 20 closed questions (5 per theme) in parallel in all project countries from November 1st, 2024, to January 15th, 2025. It was completed by a total of 323 persons in Bulgaria, Greece, Moldova, and Türkiye. The survey respondents in Bulgaria included persons from Ukraine, the respondents in Moldova from Romania, and the respondents in Greece from Bulgaria. The general survey in Türkiye included only national residents. This cross-border profile of some of the general survey participants allows a more holistic regional perception of the problems that were reviewed in this need assessment (please see Annex 2 for respondent profiles).

The focus groups were organized on a national basis – one event per project partner country – and presented guided discussions with the interested participants on 12 main (through the lens challenges, adopted solutions and effectiveness) and 8 optional (through the lens future needs and local communities) or on sets of 3 main and 2 optional questions (please see Annex 1) per challenge. The focus groups were held on 12.12.2024 at the Moldova State University with 10 participants, on 18.12.2024 at the Varna University of Management with 15 participants, on 26.12.2024 at the İstanbul Development Agency with 13 participants, and on 13.02.2025 at the International Hellenic University with 8 participants (please see Annex 2).

The in-depth interviews gathered the insights of established experts from academia and practice on all four project problems and along the six research dimensions following a 24-question template including 6 for low innovation absorption (please see Annex 1). The interviews were conducted in parallel in all project countries from November 1st, 2024, to January 15th, 2025. In Bulgaria, 17 experts were interviewed, including 1 representative of the academia, 1 public-authority representative, 2 NGO representatives, and 13 representatives of hotels, restaurants, guesthouses, and special-interest attractions. In Greece, 19 persons were interviewed, including 16 business representatives, an NGO representative, a local authority representative, and a ministry representative. In Moldova, 15 experts were interviewed, including 3 public-authority representatives, 3 NGO representatives, 2 BSO representatives, and 7 business representatives. In Türkiye, 16 experts were interviewed, including 7 representatives of the public administration, 2 representatives of the academia, 4 business representatives, and 3 NGO representatives. (please see Annex 2)

The approach and reporting process on the survey data collection included that each partner conducted surveys on four key themes within their country, summarized the results, and shared their findings. All partners ensured a diverse representation of target

groups without strict proportional adherence to avoid bias. Next, task force leaders consolidated the data for their respective themes into specialized Needs Assessment Reports (NARs), which included summarized findings from literature reviews, focus groups, interviews, and surveys. Finally, the final reports underwent a collaborative review by all partners to validate the accuracy and completeness of the information.

As a task-force leader on low innovation absorption (See INTERSMARTS Network Portfolio, https://intersmarts.eu/aims-and-structure), İstanbul Development Agency performed needs analysis on innovation absorption capacity as a challenge to tourism and blue growth in the BSB.

II. GENERAL OVERVIEW of Tourism and Related Services in the Black Sea Basin and INTERSMARTS Countries

The tourism landscape of Black Sea countries including Türkiye, Greece, Bulgaria, Romania, and Georgia and Moldova by the end of 2023 is summarized below:

These countries have diverse tourism sectors, each contributing to regional and international tourism in different ways. Tourism is a major industry and contributor to economies for those countries having boundaries with Black Sea and Mediterranean Sea. Türkiye and Greece are in the list of the most visited countries in 2023 with the ranking of 5th and 9th spot, consecutively (1).

Türkiye is the largest tourism player among the Black Sea countries, with its tourism primarily concentrated along the Mediterranean and Aegean coasts. However, its Black Sea region has also seen a growing interest, especially from domestic and neighboring country travelers. The Turkish Black Sea coast offers natural landscapes, cultural experiences, and historical sites in cities like Trabzon, Amasra, and Rize. Türkiye's tourism rebounded strongly in 2023 after the pandemic with 57 million visitors (2). However, a relatively smaller portion of these tourists visited the Black Sea region compared to the southern and western coastal areas.

Greece is not typically considered a Black Sea country in the traditional sense, but it has a small section of coastline in Eastern Thrace (near Alexandroupolis) that is geographically close to the Black Sea. However, Greece's major tourism draw comes from the Aegean and Ionian seas. Alexandroupolis and its surrounding areas have some tourism linked to Black Sea trade and visitors. Greece saw around 33 million tourists in 2023 (3), though the majority visited the Aegean and Ionian coasts. The impact of Black Sea tourism in Greece is minimal compared to other regions.

Bulgaria's Black Sea coast is vital to its tourism economy, with cities like Varna, Burgas, and resorts like Sunny Beach, being significant tourist draws. Bulgaria’s Black Sea coast is known for its affordable beach resorts, attracting mainly European tourists, especially from Romania, Germany, the UK, and Poland. After a recovery from the pandemic, Bulgaria saw significant growth in 2024, with around 13 million tourists (4). A substantial share of this tourism is focused on the Black Sea, particularly in the summer months.

Romania’s Black Sea coast, although smaller, plays an important role in its tourism sector. The most popular destination is the resort town of Mamaia, near Constanța. Constanța and its surrounding resorts are the focal points for seaside tourism, though the country also promotes cultural and eco-tourism inland. Romania saw modest growth in tourism

in 2023, with around 13,65 million tourists, (5) a portion of which visited the Black Sea, especially during the summer.

Georgia's Black Sea coastline, particularly the city of Batumi, is a growing hub for tourism. Batumi offers a mix of beach tourism and cultural experiences. Batumi is a major attraction, known for its modern architecture, casinos, and vibrant nightlife. Other coastal areas, like Kobuleti, are also drawing more attention. Georgia experienced a significant rise in tourism in 2023, especially from regional tourists. The country saw around 5,1 million visitors (6), with Batumi being a major draw for international visitors.

Moldova does not have a coastline but is close to the Black Sea, and many Moldovan tourists visit neighboring countries like Romania, Ukraine, and Bulgaria for seaside vacations. Additionally, Moldova is promoting wine tourism and cultural experiences to attract visitors from the Black Sea region. Moldova saw about 43.597 tourists in 2023 (7), with a focus on cultural, historical, and wine tourism. While its Black Sea impact is indirect, Moldovans contribute to tourism in nearby Black Sea countries.

In terms of share of tourism in economy, Türkiye leads Black Sea countries, followed by Greece, Romania and Bulgaria with Georgia also making notable contributions, particularly in their coastal regions.

Tourism also plays a crucial role in the employment markets of the Black Sea countries, contributing significantly to job creation, particularly in coastal areas. The tourism sector often encompasses direct employment in hospitality, travel, and leisure services, as well as indirect employment in sectors like agriculture, construction, and transportation.

Türkiye's tourism sector is one of the country's largest employers. In 2023, tourism contributed to around 12-13% of total employment, with millions of jobs depending on the industry. In regions along the Black Sea coast, however, the impact is smaller compared to Türkiye's Mediterranean and Aegean regions. Employment in tourism is often seasonal in the Black Sea region, with peaks in summer months, leading to seasonal unemployment challenges in less-visited months (8).

Greece's tourism sector overall is a massive part of its economy, contributing around 20% of total employment in 2023, but this is primarily driven by its Mediterranean and Aegean regions. In 2023, the travel and tourism industry in Greece generated approximately 810,000 jobs, encompassing direct, indirect, and induced employment. The northeastern part of Greece near the Black Sea contributes marginally to this figure. The northeastern part of Greece is not as developed as a tourism hub compared to the rest of the country, which limits its potential for creating a high volume of tourism-related jobs (9).

Tourism is a key sector for Bulgaria's economy, particularly along its Black Sea coast. In 2023, tourism accounted for about 10% of the country's total employment. Jobs in the

sector are concentrated in coastal areas like Varna and Burgas, where tourism has a more direct influence on the local economy. The seasonality of tourism creates a cyclical employment pattern, with many workers employed only during the summer peak season. This leads to temporary job creation rather than long-term employment security for some workers (10).

Tourism's contribution to Romania's employment is moderate but important, especially in coastal areas. In 2023, the tourism industry slightly contributed to total employment. The Black Sea coast is a major source of tourism-related employment during the summer months, especially in Constanța and Mamaia. Like Bulgaria, the seasonality of coastal tourism results in fluctuating employment rates throughout the year, with peak periods offering more job opportunities in summer.

Tourism is an increasingly vital part of Georgia's economy, particularly in Batumi and along the Black Sea coast. In 2023, tourism contributed remarkably to total employment. The rise of Batumi as a popular international destination has driven demand for tourism-related services, creating a growing number of jobs. Despite strong growth, employment in tourism in Georgia is still somewhat seasonal, though Batumi is working to become a year-round destination. The workforce also faces challenges in terms of skills development, as service quality is crucial to long-term tourism growth.

Moldova, though not a direct Black Sea country, experiences some indirect employment effects from regional tourism. Tourism contributes a relatively small portion to Moldova's overall employment, but there is potential for growth in niche areas like wine and cultural tourism. Tourism's impact on Moldova's employment market remains limited due to infrastructure constraints, political challenges, and the country's lack of coastal attractions, though it benefits from its proximity to other Black Sea countries.

Tourism's impact on the employment market in these countries is most significant in Türkiye, Greece, Bulgaria, and Georgia, where it creates a substantial number of jobs, directly and indirectly. However, seasonal employment remains a challenge, especially in coastal regions where tourism is highly concentrated in summer months.

Tourism is a major source of income and revenue for countries around the Black Sea, driving foreign exchange earnings, contributing to national GDP, and supporting local economies through the spending of international and domestic tourists.

Türkiye's tourism sector is one of the largest contributors to its national income. In 2023, the tourism industry generated an estimated $50-55 billion in revenue, with the bulk coming from international tourists. In 2023, tourism accounted for around 10-12% of Türkiye's GDP (11).

Tourism is one of the pillars of Greece's economy, with the sector generating an estimated $42 billion in 2023. However, the northeastern region near the Black Sea, particularly in Thrace and Alexandroupolis, contributes only a small portion of this income. Tourism contributes about 20% of Greece's GDP overall, but the Black Sea region's share is a tiny fraction of this, with most of the revenue coming from other parts of the country (12).

In conclusion, tourism plays a vital role in the income and revenue generation of these countries, with Türkiye, Bulgaria, and Georgia seeing substantial contributions from their Black Sea coasts. Romania and Greece's coastal regions contribute but are less dominant in national tourism revenue compared to other areas. Meanwhile, Moldova's tourism sector, while small, is focused on niche markets that indirectly tie into the Black Sea region.

III. NEEDS ASSESSMENT

The Role of Innovation in Sustainable Tourism

Innovation is increasingly recognized as a fundamental driver of sustainable tourism, which aims to balance economic growth with environmental conservation and social equity. In the context of the Black Sea Basin, where tourism plays a significant role in the regional economy, fostering innovation is essential to address challenges such as environmental degradation, seasonality, and the need for community empowerment. As the tourism industry evolves, innovative approaches are necessary to develop more sustainable practices that can mitigate the impact on natural resources, create new opportunities for local communities, and improve the overall visitor experience.

Innovation in sustainable tourism can manifest in various forms, such as the use of digital technologies to promote eco-friendly travel, the development of new business models that support local entrepreneurship, or the adoption of circular economy principles to reduce waste and increase resource efficiency. These innovations are crucial to addressing the complex and interconnected issues that the tourism industry faces today, including climate change, overtourism, and the need for inclusive growth.

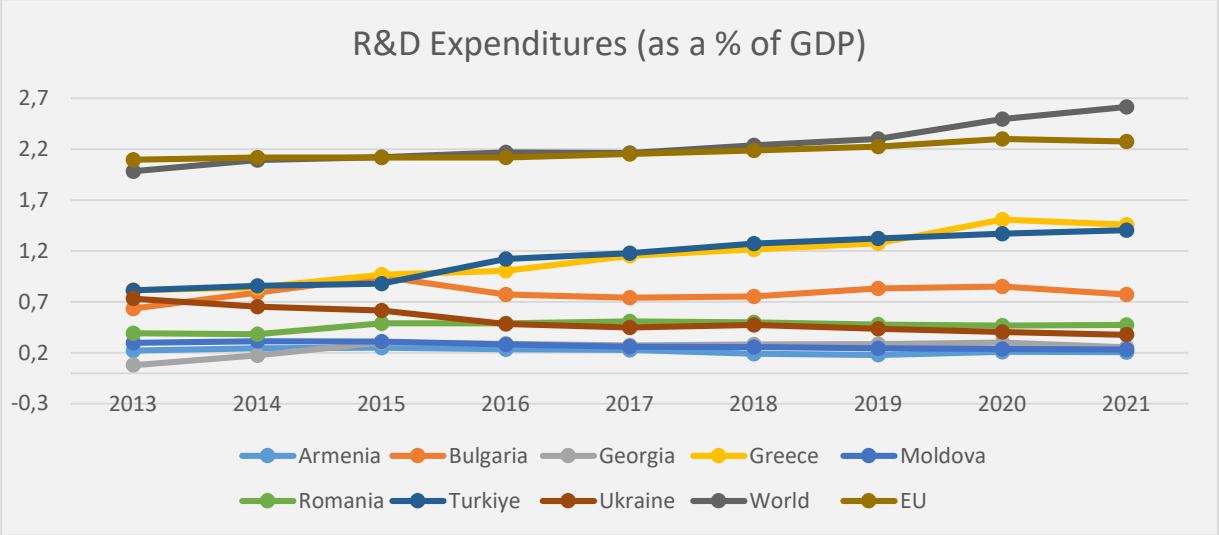
For instance, digital platforms can help optimize resource use by providing tourists with real-time information on sustainable practices, guiding them toward responsible consumption patterns. At the same time, technological advancements in renewable energy can reduce the carbon footprint of tourism infrastructure, while innovations in waste management and water conservation can minimize the ecological impact of tourist activities. Social innovations, such as community-based tourism initiatives, can also play a crucial role in ensuring that tourism benefits are shared equitably, particularly among marginalized groups.

However, the benefits of innovation are often limited by a region's ability to absorb and implement new technologies and practices. Low innovation absorption, or the inability of a region or industry to effectively adopt and implement new technologies and practices, poses a significant threat to the sustainability of tourism. When innovation absorption is weak, the tourism industry may struggle to keep pace with global trends in sustainability, such as the increasing demand for eco-friendly accommodations, the use of digital tools for enhancing visitor experiences, and the need for resilient infrastructure to cope with climate-related disruptions. In regions with low innovation absorption, tourism enterprises may fail to capitalize on opportunities to differentiate themselves in the global market by offering unique, sustainable experiences. This can result in an over-reliance on traditional, resource-intensive tourism models that are less adaptable to the changing needs of both tourists and the environment. Moreover, without innovation, local communities may miss out on the socio-economic benefits that sustainable tourism can bring, such as job creation, skills development, and the empowerment of women and youth.

To understand the relationship between innovation and sustainable tourism, it is important to examine the research and development (R&D) investments (13) and Global Innovation Index (GII) scores of Black Sea Basin countries (14).

R&D expenditure is a key indicator of a country's innovation potential, as it reflects the financial resources dedicated to developing new technologies and processes. The data on R&D expenditures as a percentage of GDP across the Black Sea countries (Graph 1) from 2013 to 2021 reveals notable differences in investment levels. Greece consistently demonstrates the highest commitment to R&D, reaching 1.45% of GDP in 2021, followed by Türkiye, which also shows a steady increase over the years, climbing to 1.4% in 2021. Countries like Romania and Bulgaria have also experienced modest but noticeable growth, with Romania reaching 0.47% and Bulgaria peaking at 0.77% in 2021. Meanwhile, Georgia, Moldova, and Armenia maintain relatively lower R&D spending levels, with Armenia's expenditures remaining just above 0.2%, and Georgia fluctuating around 0.25%. Ukraine's R&D spending has steadily decreased, with the country's investment falling from 0.73% in 2013 to 0.37% in 2021, reflecting both the economic challenges it has faced and its limited capacity for innovation-driven development during this period.

Graph 1: R&D Expenditures (as a % of GDP)



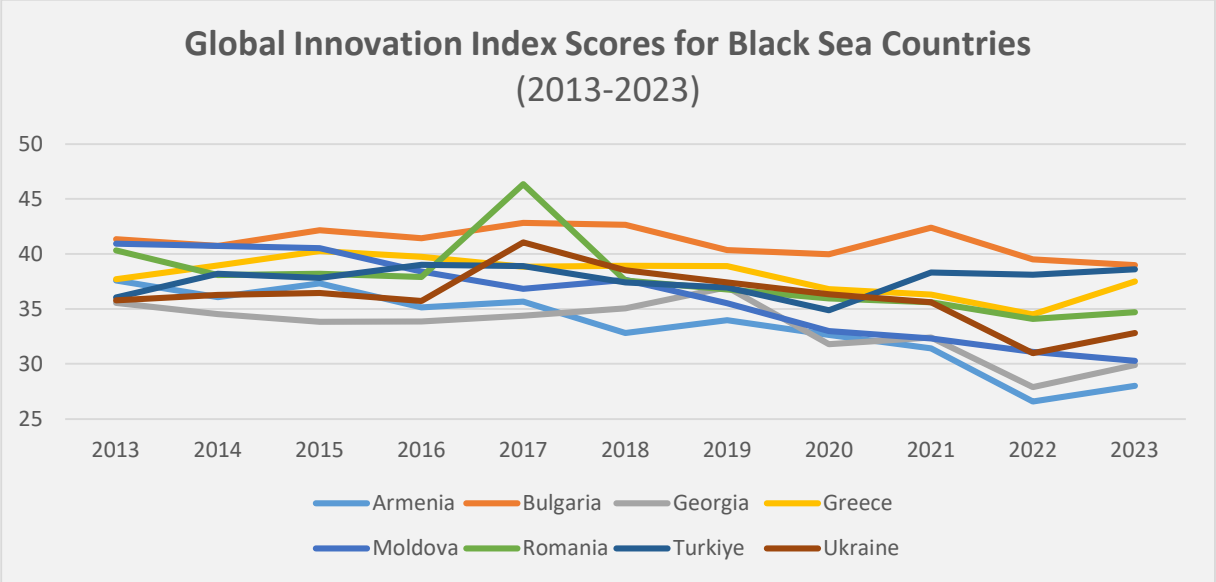
Source: World Bank

Despite incremental improvements in some countries, R&D expenditures in the Black Sea region remain below global and European Union averages. The global average in 2021 stood at 2.61%, while the EU average was 2.27%, placing most Black Sea countries far behind in terms of research and development investments. Although Greece and Türkiye have made progress, their R&D spending is still below the EU and global benchmarks, indicating that the region needs further investment to boost its innovation capacity. These disparities highlight the challenge for Black Sea countries to reach a level of R&D investment that would significantly enhance their technological and innovation

capabilities, which are critical for driving sustainable economic growth and competitiveness in global markets.

The GII, on the other hand, provides a comprehensive measure of a country's innovation performance by evaluating factors such as institutions, human capital, market sophistication, and knowledge creation. From 2013 to 2023, most countries in Graph 2, exhibit fluctuations in their GII scores. Bulgaria consistently ranks higher compared to its peers, maintaining a score of above 40 for much of the period. In contrast, countries like Armenia and Georgia show a notable decline, particularly in the later years. For example, Armenia's score dropped significantly from 37.59 in 2013 to 28 in 2023, indicating challenges in maintaining innovation momentum. Similarly, Georgia saw a decline from 35.56 in 2013 to 29.9 in 2023. Meanwhile, Türkiye's GII scores have remained relatively stable, fluctuating between 36.03 in 2013 and 38.6 in 2023, indicating a modest but steady improvement in its innovation performance.

Graph 2: Global Innovation Index Scores for Black Sea Countries (2013-2023)



Source: World Intellectual Property Organization

The data also highlights some notable drops in specific years, such as the sharp decline in Armenia and Georgia in 2021 and 2022. This could be reflective of broader regional or global disruptions, potentially influenced by economic or political factors. Overall, the trends underscore the importance of sustained efforts in innovation policies and investments to maintain or enhance competitiveness, particularly in a rapidly evolving global landscape.

The GII data highlights notable differences in innovation performance among the Black Sea Basin countries, which, as indicated, have direct implications for their tourism competitiveness. Countries with higher GII scores, such as Bulgaria and Türkiye, demonstrate a relatively stronger innovation ecosystem, which can support sustainable tourism practices through the development of new technologies and business models. In contrast, countries like Armenia and Georgia, which have experienced declines in their GII scores, may face challenges in fostering innovation in tourism, particularly in adopting eco-friendly technologies or improving tourism infrastructure. The disparities in innovation capacity underscore the need for tailored strategies to boost tourism sector competitiveness across the region.

Besides, The World Economic Forum's Travel & Tourism Development Index (TTDI) is a useful tool to help identify countries' T&T strengths, challenges, and opportunities for improvement (Table 1) (15). The index benchmarks and measures the factors and policies that enable the sustainable and resilient development of T&T. The index looks at factors that help tourism grow sustainably and strongly, covering 119 countries. It is composed of 17 pillars based on 102 indicators, with each pillar representing an important enabler of T&T development. The index is comprised of 5 dimensions. Each country is rated across several categories, such as Enabling Environment, T&T Policy and Enabling Conditions, Infrastructure and Services, T&T Resources, and T&T Sustainability, with color codes representing performance levels (green for high performance and red for low performance).

Greece (ranked 21st) demonstrates strong performance in areas such as Health and Hygiene and T&T Sustainability, particularly excelling in environmental and socioeconomic sustainability. Türkiye (ranked 29th) performs well in Price Competitiveness, T&T Policy, Natural Resources, and Cultural Resources but shows room for improvement in Business Environment and Ground and Port Infrastructure. Bulgaria (ranked 40th) and Romania (ranked 43rd) exhibit relatively similar performance, with strengths in Environmental Sustainability and Human Resources and Labor Market. Georgia (ranked 45th) scores high in Safety and Security but underperforms in Natural and Cultural Resources. Armenia (ranked 72nd) and Moldova (ranked 88th) demonstrate weaker performances, particularly in Cultural Resources, Tourist Services, and Infrastructure, highlighting the need for improvement in these areas.

Table 1: Travel & Tourism Development Index (TTDI)

		Enabling Environment					T&T Policy and Enabling Conditions			Infrastructure and Services			T&T Resources			T&T Sustainability		
Economy	TTDI rank	Business Environment	Safety and Security	Health and Hygiene	Human Resources and Labour Market	ICT Readiness	Prioritization of T&T	Openness to T&T	Price Competitiveness	Air Transport Infrastructure	Ground and Port Infrastructure	Tourist Services and Infrastructure	Natural Resources	Cultural Resources	Non-Leisure Resources	Environmental Sustainability	T&T Socioeconomic Impact	T&T Demand Sustainability
Greece	21	4.47	5.30	6.34	4.32	5.85	5.43	4.80	3.16	5.52	3.73	5.95	3.03	3.01	3.33	5.23	4.29	3.00
Türkiye	29	3.55	4.96	4.85	3.52	5.29	6.12	4.16	5.19	5.50	3.72	3.40	3.50	4.96	4.23	4.18	4.32	3.10
Bulgaria	40	4.53	5.73	6.43	4.59	5.70	4.52	4.73	5.22	3.53	3.54	3.38	2.82	2.10	1.84	5.44	4.80	3.27
Romania	43	4.49	5.70	6.01	4.15	5.41	3.70	4.81	5.13	3.43	3.50	4.37	2.58	2.17	2.16	5.18	5.32	3.11
Georgia	45	4.94	6.17	5.49	4.85	5.51	4.68	4.50	5.47	3.35	3.92	3.53	2.05	1.81	1.56	4.50	4.03	3.99
Armenia	72	3.95	5.62	5.82	4.44	5.04	4.77	3.33	5.58	3.05	2.81	2.31	1.48	1.50	1.39	3.90	3.81	4.65
Moldova	88	3.56	5.80	5.85	4.15	5.02	3.50	3.57	5.38	2.60	2.95	1.84	1.36	1.25	1.24	4.48	3.99	3.58

Source: World Economic Forum

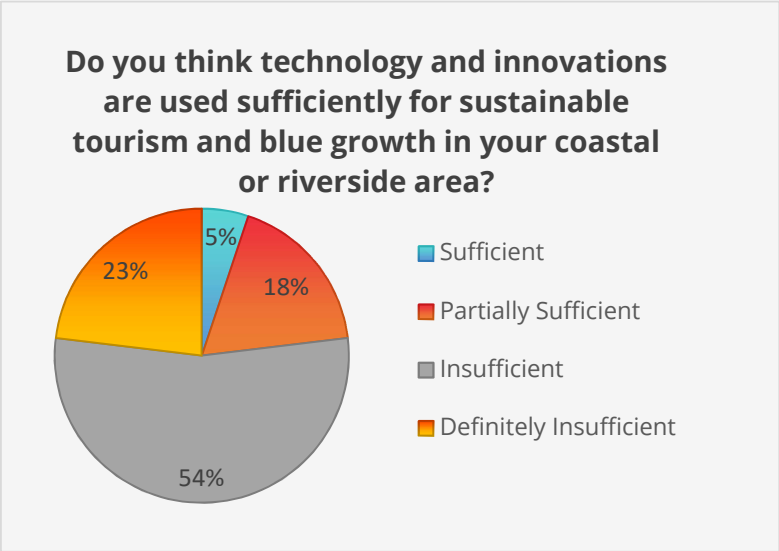
Indexes like the TTDI are invaluable for identifying weaknesses at the country level. The gaps revealed by such indices highlight areas where governments and stakeholders can focus their efforts. Addressing these shortcomings requires increasing R&D investments, fostering startup ecosystems, and promoting innovation in sustainable tourism. By supporting technological advancements, digital platforms, and eco-friendly tourism solutions, countries in the Black Sea Basin can enhance their competitiveness in the global tourism market. Fostering innovation ecosystems will not only help these countries climb higher in global rankings but also ensure that their tourism sectors contribute to long-term socio-economic development and environmental conservation.

Innovation, therefore, is not just a driver of competitiveness but a critical factor in achieving sustainable tourism. By prioritizing R&D and supporting startups, countries can create more resilient, dynamic tourism sectors aligned with sustainability goals. This will ultimately benefit not just the industry, but local communities and the environment as well.

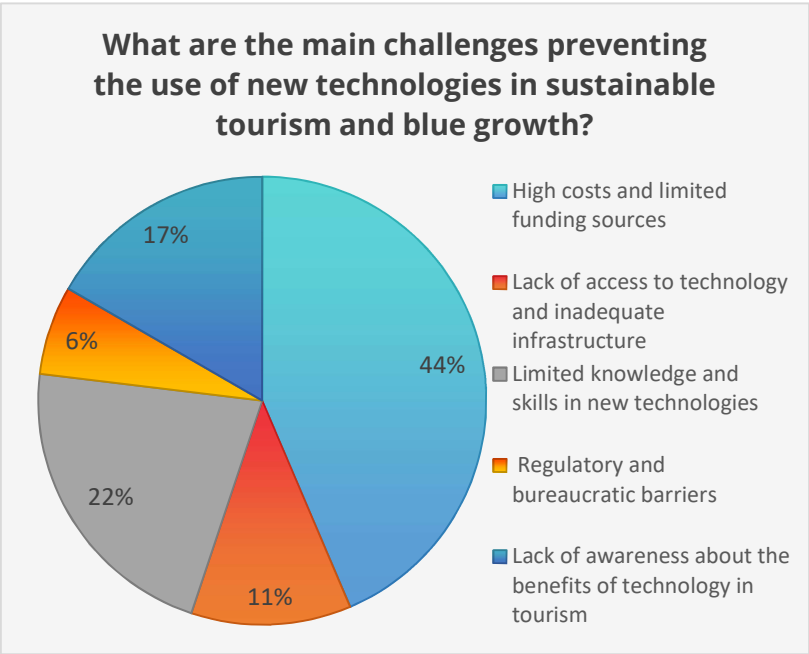
Effects of Low Innovation Absorption on the Sustainability of Tourism in the INTERSMARTS Countries

A. Insights From General Survey

Bulgaria

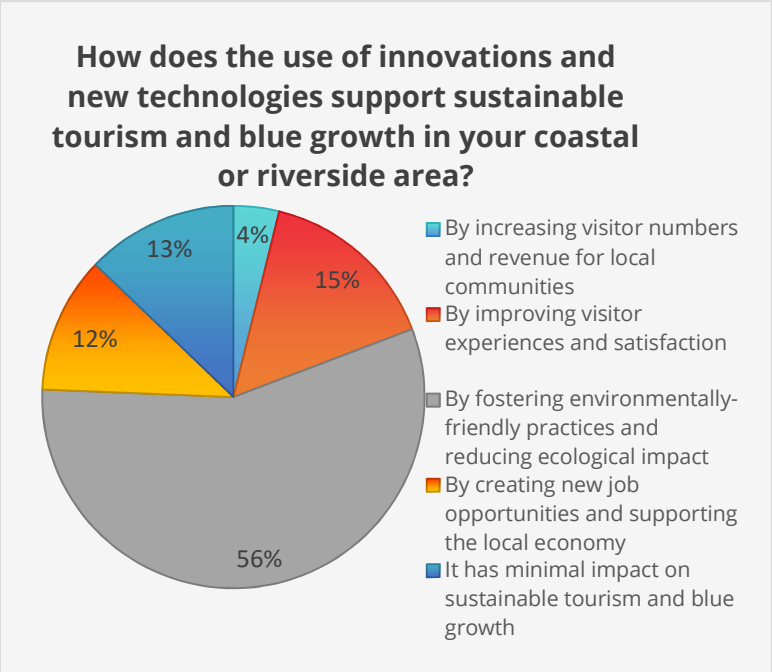


The survey results indicated that most respondents (**54%**) considered technology and innovation in sustainable tourism and blue growth to be **insufficient**, while an additional **23%** believed it to be **definitely insufficient**. Meanwhile, **18%** considered it **partially sufficient**, and only 5% perceived it as sufficient. These findings suggested a widespread perception of inadequacy in the implementation of technology and innovations in Bulgaria's coastal and riverside tourism sectors. The lack of satisfaction with current status highlighted an urgent need for targeted investments and policy interventions.

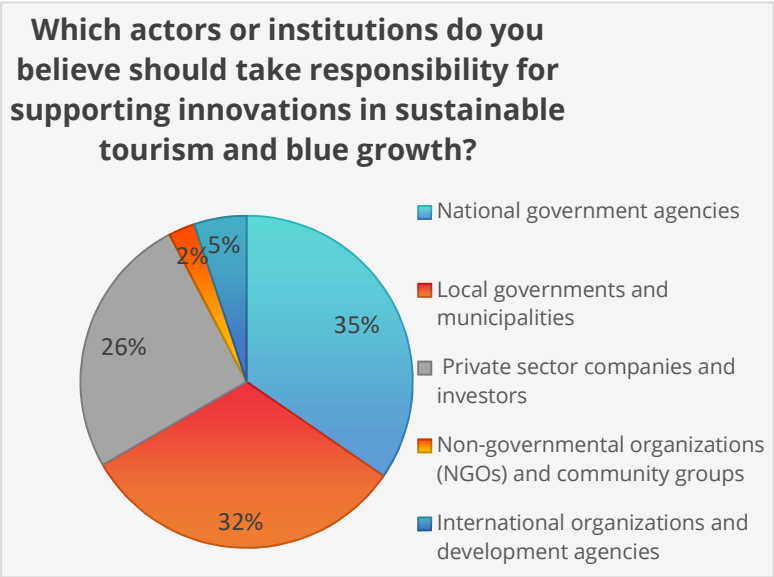


When identifying the main barriers to adopting new technologies in sustainable tourism and blue growth, **44%** of respondents cited **high costs and limited funding sources** as the most significant obstacle. **22%** pointed to **limited knowledge and skills in new technologies**. And, **17%** of participants mentioned a **lack of awareness about the benefits of technology in tourism.** Additionally, 11% reported lack of access to technology and inadequate

infrastructure, while 6% highlighted regulatory and bureaucratic barriers as a hindrance. These results suggested that financial constraints, knowledge and awareness gaps, and poor infrastructures were major limiting factors in technological adoption, necessitating multi-stakeholder efforts to bridge these gaps.



Regarding the benefits of integrating innovations and new technologies into sustainable tourism and blue growth, the most recognized impact (**56%**) was **fostering environmentally friendly practices and reducing ecological impact**, reinforcing the importance of sustainability focused technological solutions. Additionally, **15%** of respondents believed technology enhanced **visitor experiences and satisfaction**, while **13%** recognized its ability to **increase visitor numbers and revenue for local communities**. Another 12% saw it as a means to create new job opportunities and support the local economy, whereas 4% felt that innovations had minimal impact on sustainability efforts. These insights highlighted the crucial role of technology in promoting sustainable tourism while also supporting economic and social benefits.

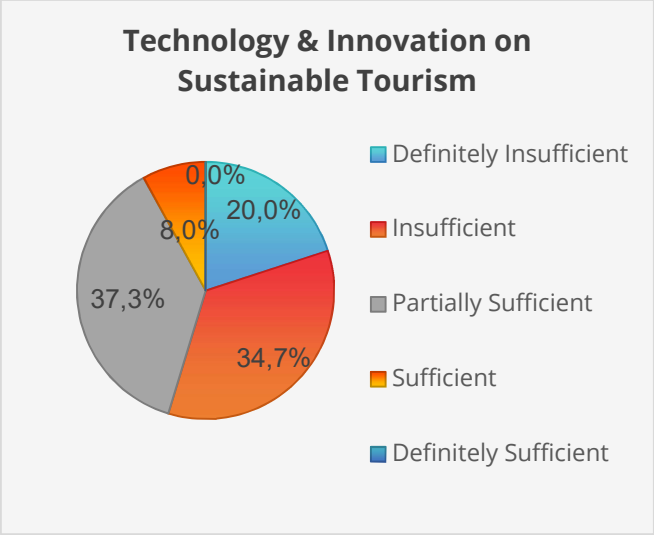


When asked which actors should take responsibility for driving innovation in sustainable tourism and blue growth, **35% of respondents identified national government agencies**, followed closely by **32% favoring local governments and municipalities**. Additionally, **26% pointed to private sector companies and investors**, underlining the importance of

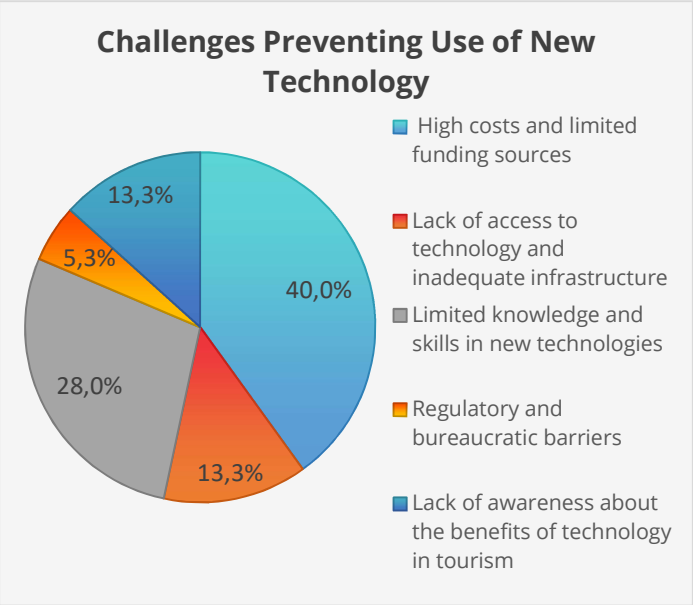
business involvement in fostering technological adoption. Smaller percentages of respondents supported the role of NGOs and community groups (5%), as well as international organizations and development agencies (2%). These findings highlighted the need for a collaborative approach, where government institutions took the lead in formulating policies and providing funding, while the private sector and local organizations played key roles in implementation and awareness-building.

The findings from Bulgaria indicated a clear recognition of the need for greater investment and support for technological advancements in sustainable tourism and blue growth. The primary obstacles—financial constraints, knowledge gaps, and lack of adequate infrastructures—highlighted the necessity of government and private sector collaboration to bridge the technological divide. While respondents acknowledged the environmental and economic benefits of innovation, the lack of widespread adoption suggested that immediate action was required to enhance funding opportunities, accessibility, and awareness to enable a more sustainable and technologically advanced tourism sector.

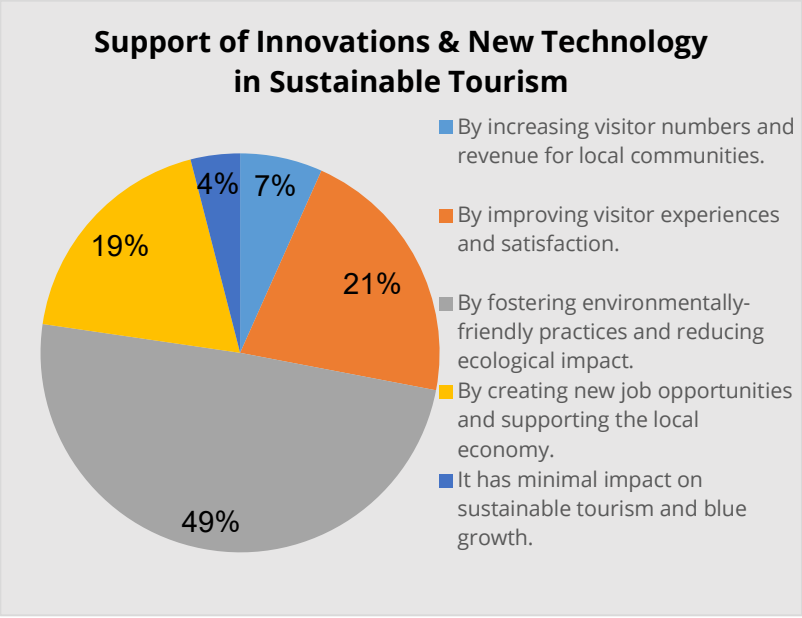
Greece



The survey results indicated that **34.7%** of respondents considered technology and innovation in sustainable tourism to be **insufficient**, while an additional **20%** perceived it as **definitely insufficient**. Meanwhile**,** 37.3% believed it was partially sufficient, showing a mix of both optimism and concern. Only 8% found it sufficient, and 0% stated it was definitely sufficient. These findings suggested that, while some progress had been made, the majority of participants still felt that the technological advancements in sustainable tourism were inadequate. This highlighted the need for further development and investments to improve technological integration in the sector.

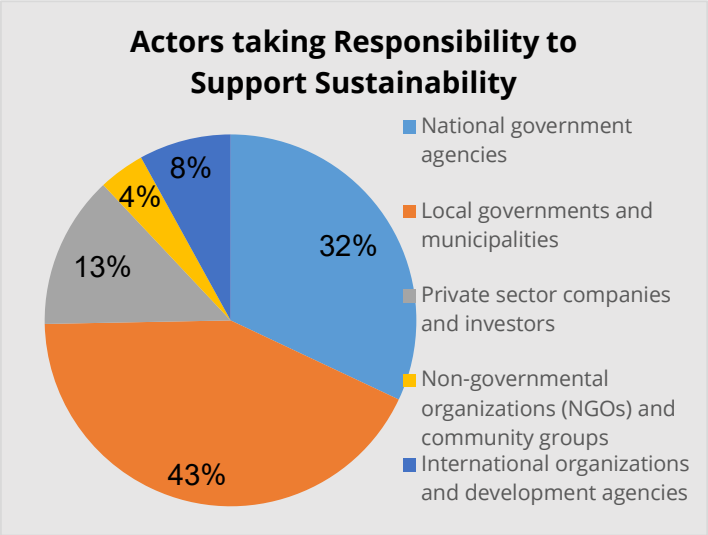


When asked about the obstacles preventing the adoption of new technologies in sustainable tourism, **40%** of respondents identified **high costs and limited funding sources**, making it the most significant barrier. **28%** pointed to **limited knowledge and skills in new technologies**, highlighting the need for more education and training initiatives. Additionally, **13.3%** mentioned **lack of access to technology and inadequate infrastructure**, while another **13.3%** of respondents cited a **lack of awareness about the benefits of technology** in tourism. Lastly, 5.3% stated that regulatory and bureaucratic barriers posed challenges. These results suggested that financial constraints, knowledge gaps, and lack of awareness remained key barriers that needed to be addressed to improve technological adoption.



Survey respondents were asked about the benefits of integrating innovations and new technologies into sustainable tourism. The most recognized impact **(49%)** was **fostering environmentally friendly practices and reducing ecological impact**, indicating that sustainability remained a primary concern. Besides, **21%** of respondents believed that technology **improved visitor experiences and satisfaction**, while **19%** stated that technological advancements **created new job opportunities and supported the local economy**. Moreover, 7% recognized its role in increasing visitor numbers and revenue for local communities. 4% believed that such innovations had minimal impact on sustainable tourism and blue growth. These findings suggested that most respondents

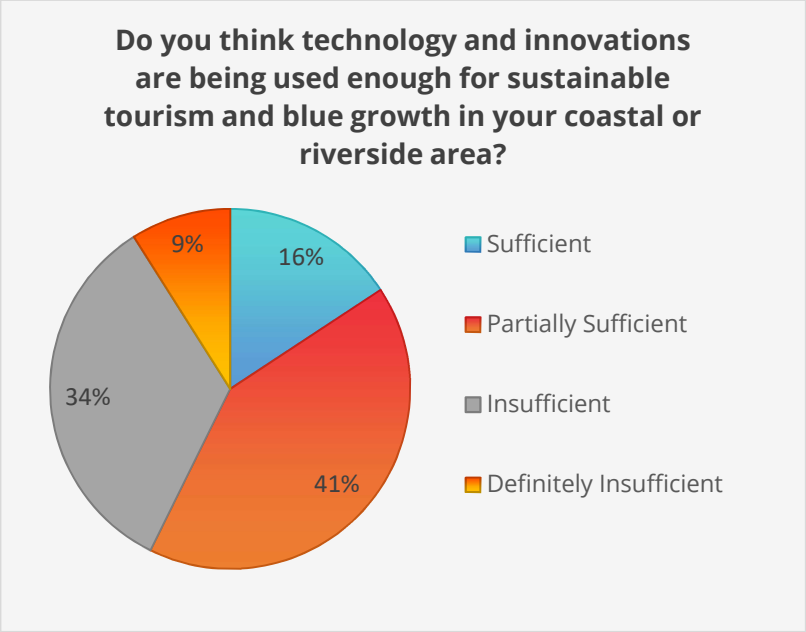
viewed technological advancements as beneficial for environmental sustainability and economic development.



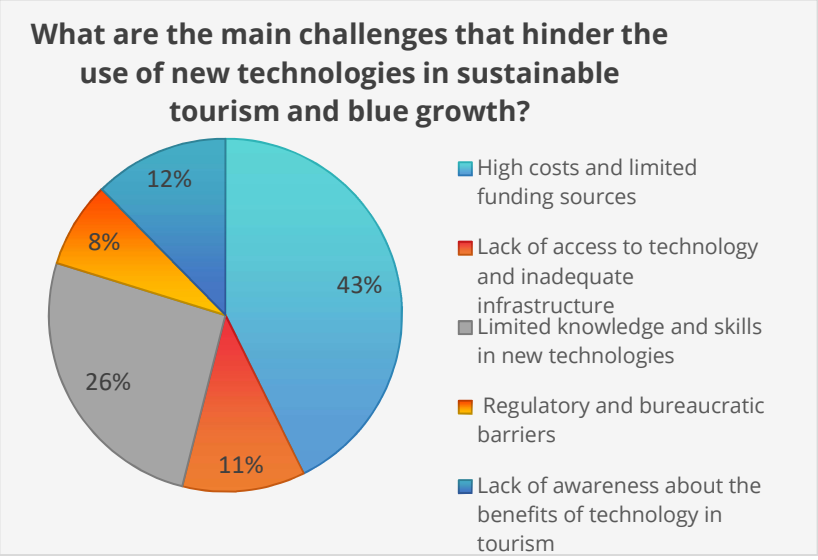
When asked which actors should take responsibility for promoting innovation in sustainable tourism, **43%** of respondents identified **local governments and municipalities**, followed by **32%** who pointed to **national government agencies**. Additionally, **13% emphasized** the role of **private sector companies and investors**, underlining the importance of business involvement in technological adoption. 8% of respondents supported the role of international organizations and development agencies, while 4% believed non-governmental organizations (NGOs) and community groups should take the lead. These results suggested that local and national governments were expected to take the most significant role, with private investors and international organizations providing additional support.

The findings from Greece suggested that while some progress had been made in adopting technology and innovation in sustainable tourism, many respondents still found it insufficient. The key barriers—financial limitations, lack of knowledge, limited awareness, and poor infrastructure—highlighted the need for stronger funding initiatives, training programs, and policy interventions. Additionally, local and national governments were seen as the primary drivers of change, while private investors and international organizations were expected to provide additional support. Addressing these challenges would require a coordinated effort between policymakers, businesses, and NGOs to foster a more sustainable, technologically advanced, and economically beneficial tourism sector in Greece.

Moldova

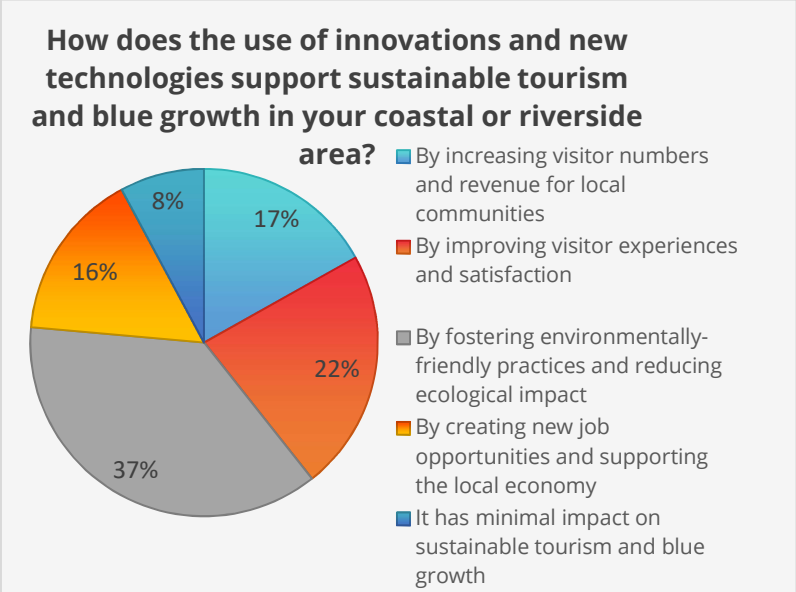


The survey results indicated that most respondents **(41%)** considered technology and innovation in sustainable tourism and blue growth to be **partially sufficient**, while **34%** believed they were **insufficient**. Meanwhile, 16% of respondents perceived them as sufficient, and 9% stated they were definitely insufficient. These findings suggested that although some advancements in technology and innovation were present in Moldova's coastal and riverside tourism sectors, a significant portion of participants still felt that these developments were inadequate. This emphasized the need for further investments and improvements to ensure the effective integration of technology and innovations in sustainable tourism.

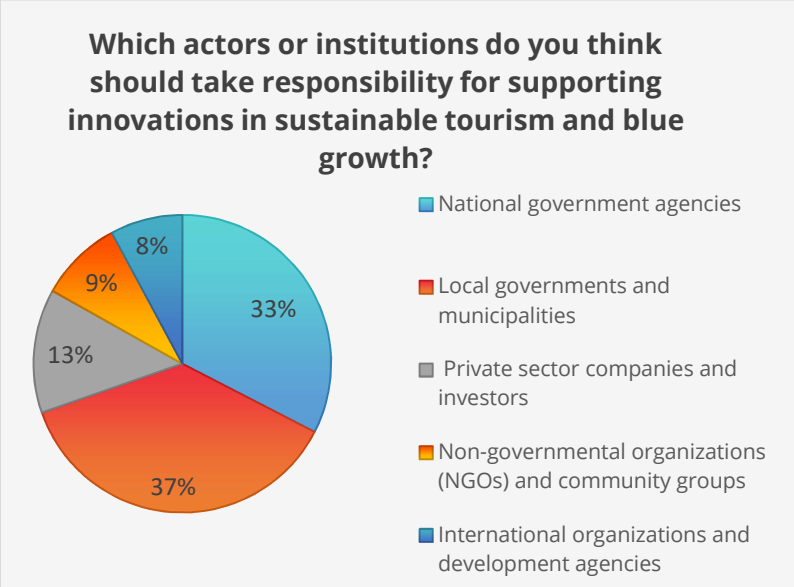


When identifying the main obstacles to adopting new technologies in sustainable tourism and blue growth, **43%** of respondents pointed to **high costs and limited funding sources**, making it the most significant barrier. **26%** of participants cited **limited knowledge and skills in new technologies**, indicating a need for better education and training. Additionally, **12%** of respondents stated that a **lack of awareness about the benefits of technology in tourism** hindered its adoption. Besides, 11% mentioned a lack of access to technology and inadequate infrastructure, while 8% highlighted regulatory and bureaucratic barriers. These results

suggested that financial constraints, lack of expertise, and insufficient awareness remained major barriers to technological progress in Moldova's tourism industry.



Concerning the benefits of integrating innovations and new technologies into sustainable tourism, the most recognized impact **(37%)** was **fostering environmentally friendly practices and reducing ecological impact**, demonstrating that sustainability remained a key priority for stakeholders. Additionally, **22%** of respondents believed that **technology improved visitor experiences and satisfaction**, while 16% recognized its role in creating new job opportunities and supporting the local economy. Another **17%** stated that technological innovations **increased visitor numbers and revenue for local communities**, while 8% felt that such advancements had minimal impact on sustainable tourism and blue growth. These insights highlighted the crucial role of technology in enhancing sustainability and economic opportunities in Moldova's tourism sector.

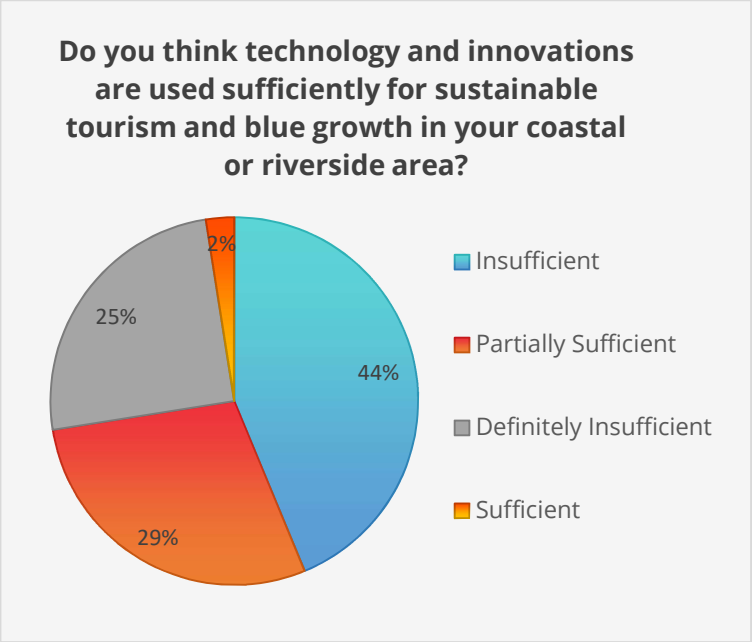


When asked which actors should take responsibility for supporting innovation in sustainable tourism and blue growth, **37%** of respondents identified **local governments and municipalities**, followed by **33%** who pointed to **national government agencies**. Additionally, **13%** highlighted the role of **private sector companies and investors**, emphasizing the need for businesses to contribute to technological advancements in tourism. 9% of participants believed that non-governmental organizations (NGOs) and community groups should

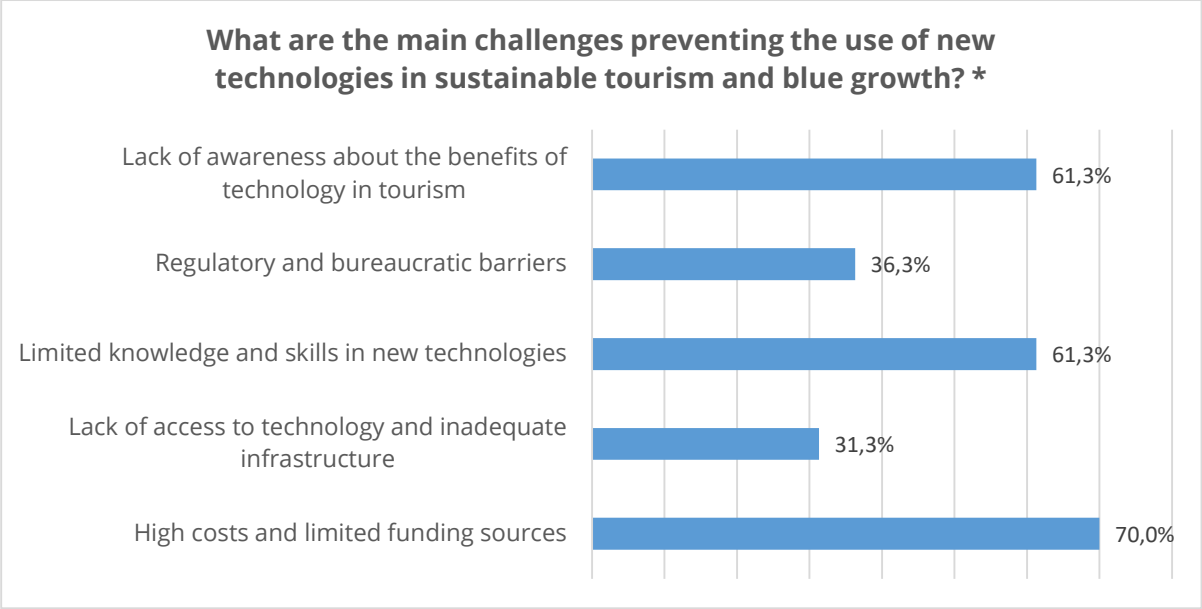
take a leading role, while 8% supported the involvement of international organizations and development agencies. These findings suggested that government institutions were expected to play the most significant role, with supplementary efforts from private stakeholders and civil society organizations.

The findings from Moldova indicated that while technology and innovation had some presence in sustainable tourism and blue growth, a significant portion of respondents still perceived them as insufficient or only partially effective. The primary challenges—financial constraints, lack of expertise, and low awareness—underscored the need for targeted funding initiatives, training programs, and awareness campaigns. Additionally, government agencies, both local and national, were seen as the primary actors responsible for driving innovation, with support from private investors and NGOs. Addressing these challenges would require a coordinated effort between policymakers, industry stakeholders, and technology providers to foster a more sustainable and technologically advanced tourism sector in Moldova.

Türkiye

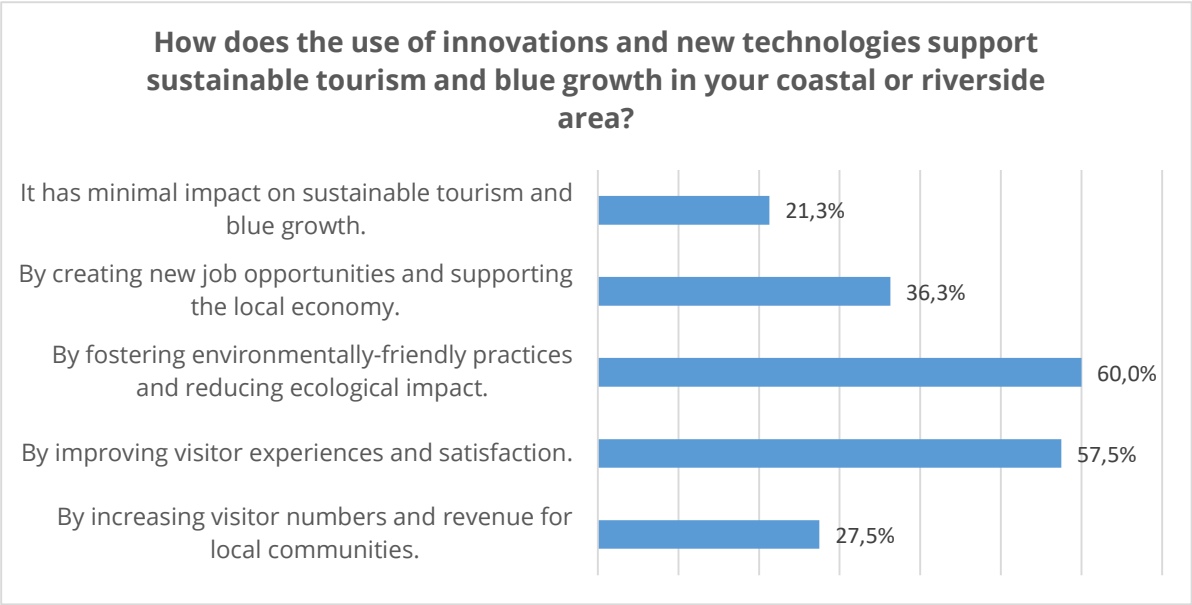


The survey results indicated that **44%** of respondents believed use of technology and innovation in sustainable tourism and blue growth were **insufficient**, while an additional **25%** stated they were **definitely insufficient**. Meanwhile, 29% of participants considered them partially sufficient, and only 2% found them sufficient. These findings suggested that the majority of respondents were dissatisfied with the level of technology and innovation adoption in Türkiye's coastal and riverside tourism sectors. The data highlighted an urgent need for increased investment and strategic implementation of technology to improve sustainable tourism outcomes.

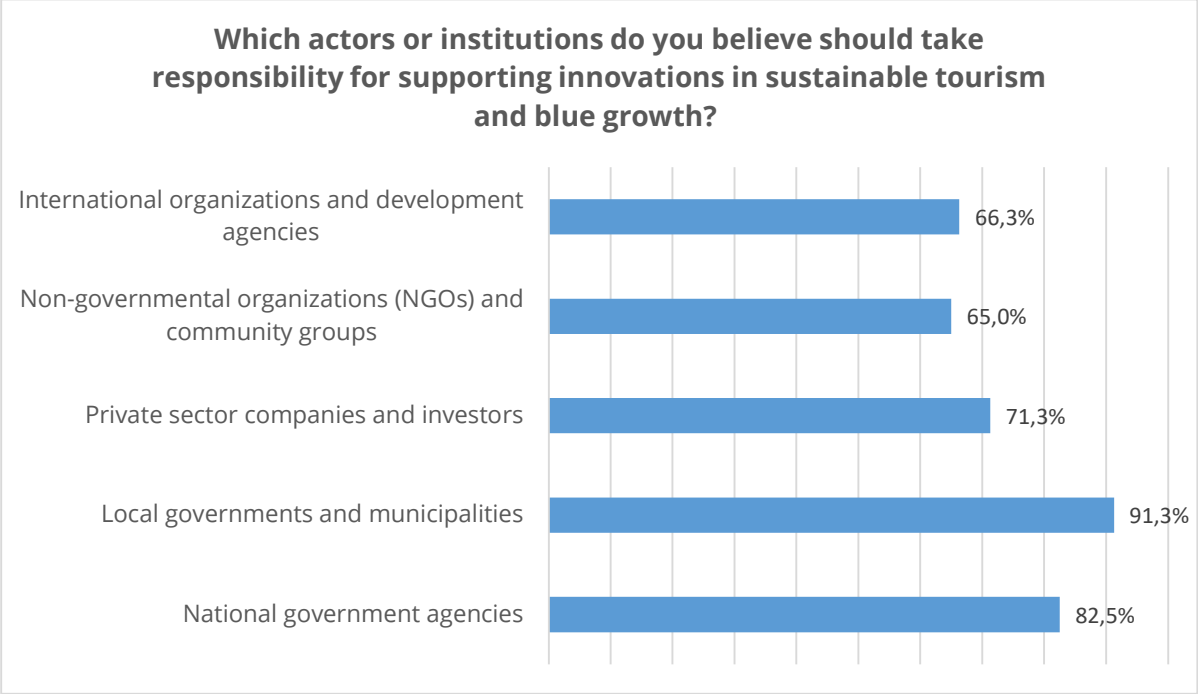


* This and following questions in the survey allowed for multiple answer selections in Türkiye.

When asked about the barriers to adopting new technologies in sustainable tourism, **70%** of respondents pointed to **high costs and limited funding sources**, making it the most significant challenge. **61,3%** cited **lack of awareness about the benefits of technology**, indicating a gap in information and training. **61,3%** mentioned **limited knowledge and skills in new technologies**, highlighting the need for capacity-building initiatives. Additionally, 36,3% of participants noted regulatory and bureaucratic barriers, while 31,3% pointed to lack of access to technology and inadequate infrastructure. These findings suggested that financial constraints, knowledge gaps, and lack of awareness were major obstacles hindering the widespread adoption of technological innovations in sustainable tourism.



Regarding the benefits of integrating innovations and new technologies into sustainable tourism, the most recognized impact **(60%)** was **fostering environmentally friendly practices and reducing ecological impact**, demonstrating the importance of sustainability-oriented innovations. Additionally, **57,5%** of respondents stated that technology **improved visitor experiences and satisfaction**, while **36,3% e**mphasized its role in **creating new job opportunities and supporting the local economy**. Another 27,5% noted that technological advancements increased visitor numbers and revenue for local communities, whereas 21,3% believed that innovations had minimal impact on sustainable tourism and blue growth. These insights suggested that technology was seen as a key driver for sustainability and economic development.



When asked which actors should take responsibility for promoting innovation in sustainable tourism, **91,3%** of respondents identified **local governments and municipalities**, followed by **82,5%** who pointed to **national government agencies**. Additionally, **71,3%** believed **private sector companies and investors** should play a role, underscoring the importance of business involvement in technological adoption. Besides, 66,3% of participants supported the involvement of international organizations and regional development agencies. Furthermore, 65% emphasized the role of non-governmental organizations (NGOs) and community groups. These findings suggested that government institutions at national, regional and local levels together with private sector were expected to take the lead.

The findings from Türkiye indicated that while some progress had been made in the adoption of technology and innovation in sustainable tourism, majority of respondents

still found it insufficient. The primary barriers—financial limitations, lack of awareness, and limited knowledge— emphasized the need for stronger funding mechanisms, education and awareness programs, and policy interventions to accelerate technological advancements. Additionally, the distribution of responsibility for supporting innovation and sustainability reflected a strong expectation for government-led initiatives. Addressing these challenges would require coordinated efforts between policymakers, international bodies, and civil society organizations to create a more technologically advanced, and sustainable tourism ecosystem in Türkiye.

Table 2: Cross-Country Comparison of General Survey Results

	Bulgaria	Greece	Moldova	Türkiye*
1. **Use** of innovations & technologies	• Insufficient (54%) • Definitely insufficient (23%)	• Insufficient (34.7%) • Partially sufficient (37.3%)	• Partially sufficient (41%) • Insufficient (34%)	• Insufficient (44%) • Definitely insufficient (25%)
2. **Challenges** in the adopting innovations & technologies	• High costs & limited funding (44%) • Limited knowledge & skills (22%)	• High costs & limited funding (40%) • Limited knowledge & skills (28%)	• High costs & limited funding (43%) • Limited knowledge & skills (26%)	• High costs & limited funding (70%) • Limited knowledge & skills (61.3%) • Lack of awareness (61.3%)
3. **Impact** of innovations & technologies	• Fostering eco-friendly practices (56%) • Improving visitor experience (15%)	• Fostering eco-friendly practices (49%) • Improving visitor experience (21%)	• Fostering eco-friendly practices (37%) • Improving visitor experience (22%)	• Fostering eco-friendly practices (60%) • Improving visitor experience (57.5%)
4. **Actors** responsible for promoting innovations & technologies	• National government agencies (35%) • Local governments & municipalities (32%)	• Local governments & municipalities (43%) • National government agencies (32%)	• Local governments & municipalities (37%) • National government agencies (33%)	• Local governments & municipalities (91.3%) • National government agencies (82.5%)

* Questions in the survey (2, 3 and 4) allowed for multiple answer selections in Türkiye.

B. Insights From Focus Groups

Based on 5 questions/topics (please see Annex 1), discussions held in the INTERSMARTS focus group meetings held in all four countries are analyzed below:

1. Effectiveness of Innovation Practices

Common Trends

Innovation and sustainability are deeply interconnected, with innovation serving as a key driver for achieving environmental, social, and economic sustainability. Across the Black Sea region, all countries have **unique approaches to integrating innovation** into their tourism sectors, while all recognize the **importance of innovation**, the role of **government support** and **cooperation** between key stakeholders in achieving sustainability in tourism.

Despite distinct national strategies, several common themes emerge:

- **Technological Integration:** Smart technologies, renewable energy, and waste management innovations are widely embraced.
- **Government and Institutional Support:** Policies, incentives, and regulatory frameworks are crucial in fostering sustainable tourism.
- **Public-Private Collaboration:** Partnerships between governments, businesses, and NGOs enhance the effectiveness of innovation adoption.
- **Educational and Training Initiatives:** Raising awareness and equipping stakeholders with knowledge fosters innovation absorption.

Country-Specific Approaches

Bulgaria

Bulgaria prioritizes smart technologies and community awareness but faces challenges in adoption:

- **Smart Hotels and Optimization Technologies:** Energy-efficient solutions aim to reduce environmental impact.
- **Lack of Consumer Awareness:** Limited understanding and interest in adopting sustainable tourism innovations hinder progress.
- **Collaborative Efforts:** Strong emphasis on cooperation between businesses, local authorities, and communities is underlined to promote sustainability.

Greece

Greece employs a technology-driven approach to sustainability in tourism:

- **Smart Resource Management:** IoT-based energy and water monitoring systems improve efficiency.

- **Renewable Energy Integration:** Solar panels and hybrid energy systems reduce reliance on fossil fuels.
- **Big Data and AI Applications:** Analytics optimize transportation and waste management, reducing emissions.
- **Challenges in Adoption:** High costs and limited funding mechanisms slow down widespread implementation.

Moldova

Moldova focuses on technological solutions and active participation in sustainability initiatives:

- **Technical Innovations:** Treatment plants, alternative energy resources, and water reuse technologies are key sustainability solutions.
- **Support for Economic Agents:** Government facilitation of grants and funding is emphasized for encouraging sustainable practices.
- **Educational Programs:** Involvement in sustainability initiatives like InnoVillage and ANTRIM training programs raises awareness and encourages best practices.

Türkiye

Türkiye has a structured, government-driven approach to sustainability innovation:

- **Regulatory Frameworks:** Government-mandated programs like the "Green Star," "Greening Hotels," and "Türkiye Sustainable Tourism Program" (TR-I) ensure compliance with global sustainability standards.
- **Compulsory Certification:** Türkiye became the first country to implement a mandatory national sustainability program (TR-I) in close collaboration with the Global Sustainable Tourism Council (GSTC).
- **Sectoral NGO Involvement:** Organizations like TUROB (The Hotel Association of Türkiye) and Sustainability Academy actively contribute to fostering sustainability awareness and compliance.

Key Differences

- **Bulgaria:** Emphasizes community-driven awareness and smart technologies but struggles with consumer adoption.
- **Greece:** Highlights technology-intensive strategies, including AI and big data, but high costs limit accessibility.
- **Moldova:** Focuses on technical solutions and state-supported funding for innovation.
- **Türkiye:** Adopts a regulatory-driven approach with compulsory sustainability certification.

Recommendations

While each country in the Black Sea Basin has distinct strategies for sustainable tourism innovation, they all emphasize technological advancements, collaboration, and government support. To enhance innovation adoption, the following measures are recommended:

- **Incentivizing Innovation:** Financial support and subsidies can facilitate the transition to sustainable practices.
- **Strengthening Cross-Border Cooperation:** Sharing best practices through regional platforms can accelerate innovation diffusion.
- **Expanding Training Programs:** Increasing digital literacy and sustainability education will improve stakeholder engagement.
- **Promoting Public Awareness Campaigns:** Raising consumer awareness will encourage greater adoption of innovative sustainability measures.

By integrating these strategies, countries in the Black Sea Basin can strengthen their sustainable tourism initiatives, ensuring long-term environmental and economic benefits.

2. Challenges Before Adopting Innovations for Sustainability

Adopting innovative practices in sustainable tourism presents numerous challenges across different countries in the Black Sea Basin. While **financial constraints, regulatory barriers**, and **lack of awareness are common** issues, each country faces unique difficulties based on its economic, cultural, and policy frameworks.

Common Challenges

- **Financial Barriers:** High initial investment costs for sustainable technologies, such as solar energy systems and smart waste management, are a significant obstacle, especially for SMEs. Limited access to financial incentives and support further exacerbates this issue. For example, in Türkiye, the high costs of GSTC certification and the lack of financial incentives make it difficult for small and medium-sized enterprises to comply with sustainability standards. Similarly, in Bulgaria, the high initial costs of implementing innovative technologies, coupled with a lack of sufficient funding or subsidies, often deter businesses from taking steps toward sustainability.
- **Lack of Awareness and Training:** Many tourism businesses lack the necessary knowledge and skills to implement sustainable practices. In Bulgaria, for instance, the lack of knowledge and skills among business owners and staff regarding the application of sustainable practices limits the ability to adopt new technologies and methods. Similarly, in Moldova, the lack of qualified specialists in planning and designing innovations is a major obstacle to the success of sustainable initiatives.
- **Regulatory and Bureaucratic Barriers:** Slow or unfavorable government responses, rigid bureaucratic processes, and a lack of strategic policies on

sustainability hinder the adoption of innovative practices. For example, in Türkiye, the complexity of renewable energy production permits discourages investment, while in Moldova, legislative barriers limit the use of natural resources like reed for sustainable purposes. In Greece, bureaucracy in obtaining permits for technological investments creates further obstacles.

- **Lack of Collaboration:** Effective collaboration between businesses, public bodies, and local communities is often lacking, which prevents the development of a holistic approach to sustainability. In Bulgaria, for instance, the lack of coordination between local authorities and businesses slows down the implementation of innovative practices. Similarly, in Moldova, the rigidity of bureaucratic processes makes it difficult to adapt legislation to local needs, further hindering collaboration.
- **Cultural and Behavioral Challenges:** Low consumer demand for sustainable services, resistance to change, and a preference for short-term profitability over long-term sustainability are among key barriers to the adoption of sustainability practices.
- **Infrastructure Limitations:** Lack of supporting infrastructure, such as recycling facilities or energy grid capacities, reduces the effectiveness of sustainable innovations.

Country-Specific Challenges

Bulgaria

Bulgaria encounters financial, cultural, and market-driven obstacles in adopting sustainable tourism innovations:

- **High Initial Investment Costs:** SMEs struggle with funding innovative technologies due to the lack of financial support.
- **Low Market Demand:** Tourists are not highly aware of sustainability benefits, reducing pressure on businesses to implement green initiatives.
- **Cultural Resistance:** The regional culture does not always prioritize sustainability, discouraging businesses from adopting eco-friendly practices.
- **Limited Awareness Among Business Owners:** Many tourism operators lack knowledge about sustainable technologies, and staff training is insufficient.
- **Need for Coordinated Efforts:** Government, business, and community partnerships are necessary to create a culture of sustainability.

Greece

Greece struggles with financial, regulatory, and structural challenges in sustainability and innovation:

- **High Initial Investment Costs:** Technologies such as solar energy and AI-driven resource management require significant upfront funding, which SMEs find difficult to afford.
- **Lack of Awareness and Training:** Many businesses are unaware of sustainable solutions or lack the expertise to implement them.
- **Resistance to Change:** Business owners worry that sustainability measures may inconvenience tourists or increase operational costs.
- **Weak Policy Enforcement:** Although sustainability policies exist, they are not strictly enforced, leading to weak compliance.
- **Limited Government Incentives:** A lack of financial motivation discourages businesses from adopting green technologies.

Moldova

Moldova's challenges primarily revolve around financial constraints, lack of expertise, and legislative barriers:

- **Limited R&D Budgets:** Insufficient funding for research leads to incomplete projects and less durable sustainability solutions.
- **Lack of Qualified Specialists:** The tourism sector struggles with a shortage of experts in planning and designing sustainable innovations.
- **Legislative Barriers:** Laws restricting the reuse of natural resources (e.g., reed from the Nistru and Prut rivers) prevent their integration into sustainable practices.
- **Rigid Bureaucracy:** Bureaucratic processes slow down adaptation efforts, making it difficult to implement new policies efficiently.
- **Need for Stronger Partnerships:** Stakeholder collaboration is weak, hindering the efficient implementation of innovative practices.

Türkiye

Türkiye faces structural, financial, and regulatory challenges in sustainable tourism innovation:

- **Compulsory Certification without Incentives:** GSTC certification is mandatory, but no financial support (e.g., tax incentives, grants) is provided to businesses, making compliance difficult. especially for SMEs.
- **Global Economic Instability:** Recent economic downturns around the globe and the pandemic have made financial sustainability a priority over environmental sustainability.
- **Lack of Training in Education:** Innovation and sustainability are insufficiently addressed in vocational and higher education curricula.

- **Consumer Preferences:** Guests often favor unsustainable tourism practices such as all-inclusive travel, disposable products, and frequent linen changes, making it difficult to implement sustainable alternatives.
- **Regulatory and Bureaucratic Barriers:** Restrictions on digital platforms like Booking and Uber degrade customer experience, while complex licensing requirements deter investments in renewable energy.
- **Insufficient Infrastructure:** There is a need for more investments (like regional recycling systems or new energy grid investments) especially in the less developed regions.

Key Differences

- **Bulgaria:** Encounters cultural resistance, lack of market demand, and insufficient awareness among tourism stakeholders.
- **Greece:** Burdened by high investment costs, weak policy enforcement, and reluctance to shift from traditional business models.
- **Moldova:** Faces financial limitations in research, a shortage of qualified specialists, and bureaucratic hurdles in legislative adaptation.
- **Türkiye:** Struggles with government-mandated sustainability requirements without financial support, highlights the need for investments in infrastructure (e.g., ICT, transport, energy) and education (universities and vocational schools). The country also points out the lack of regional data and strategies for climate change mitigation.

While financial constraints, regulatory barriers, and cultural attitudes present major challenges across all four countries, tailored solutions (those suggested in the next chapter) can help overcome these issues. By addressing these challenges through targeted initiatives, the Black Sea Basin countries can enhance their ability to adopt and implement innovative sustainable tourism practices, ensuring long-term environmental and economic benefits.

3. Adopting Smart Technologies and Innovation for Sustainability

The adoption of smart technologies and innovations is essential for advancing sustainable tourism and blue growth in the Black Sea Basin. While all countries recognize the importance of financial incentives, education, infrastructure investments, and partnerships, each nation focuses on specific priorities and approaches to achieving sustainability.

Common Recommendations

- **Financial Incentives & Support Mechanisms:** Providing financial incentives such as grants, tax relief, and subsidies is essential to encourage tourism enterprises, especially SMEs, to adopt smart technologies and innovations. For example, in

Türkiye, the TourisTech Incubation Hub provides mentorship and funding opportunities for tourism entrepreneurs, facilitating the adoption of innovative practices. Similarly, in Moldova, the creation of funds dedicated to research and development in the field of sustainable technologies is seen as a priority measure.

- **Improved Education and Training:** Strengthening sustainability curricula at vocational schools and higher education institutions and offering training programs for businesses can bridge knowledge gaps in the tourism industry.
- **Awareness Raising Campaigns:** All countries recognize the need for qualified human resources and awareness at the managerial level regarding sustainable approaches in tourism sector. Besides, increasing consumer awareness of sustainability benefits can drive demand for eco-friendly tourism services. In Bulgaria, for instance, organizing conferences, seminars, and awareness campaigns is seen as a key measure to increase knowledge of the benefits of sustainable approaches and blue growth among businesses and the public alike.
- **Infrastructure Investments:** Investments in waste management facilities, charging stations, better internet infrastructure, and electricity grids are crucial, particularly in less developed regions. In Türkiye, for example, investments in carbon-neutral transport systems and waste management networks are seen as essential for achieving sustainability goals.
- **Public-Private Partnerships:** Collaboration between businesses, governments, NGOs, and academia can create a more comprehensive approach to sustainable tourism. A shared vision and understanding among stakeholders are necessary to drive innovation. In Greece, for instance, the creation of a multi-stakeholder task force is seen as a key measure to facilitate knowledge-sharing and joint investments in sustainable tourism technology.
- **Policy Reforms and Simplification:** Reducing bureaucratic complexity and adapting regulations to support sustainable practices will facilitate innovation.
- **Encouraging Cross-Border and Global Collaboration:** Sharing best practices and establishing regional/global partnerships can accelerate technology adoption and sustainability efforts.

Country-Specific Initiatives and Priorities

Bulgaria

Bulgaria highlights the integration of local communities into sustainable initiatives and the importance of ecotourism:

- **Community Engagement:** Encouraging local participation in sustainable tourism initiatives can help preserve ecosystems and cultural heritage.
- **Financial Support for SMEs:** Targeted grants and tax incentives should be introduced to help small businesses invest in smart technologies.

- **Smart Tourism Infrastructure:** Investments in digital tourism platforms, waste management solutions, and green energy should be prioritized.
- **Ecotourism Development:** Sustainable tourism policies should emphasize protecting natural landscapes while promoting eco-friendly travel experiences.

Greece

Greece focuses on digital transformation, blue growth strategies, and regional cooperation:

- **Financial Support for Smart Technologies:** Governments should offer dedicated grants for projects in renewable energy, waste management, and water conservation.
- **Regional Smart Tourism & AI Integration:** Regional digital strategies to optimize visitor management and resource usage through real-time data analytics should be implemented.
- **University-Innovation Collaborations:** Innovation hubs to support research and business development should be established for sustainable tourism.
- **Marine Conservation Investments:** Allocating blue growth funds for technology-driven marine conservation initiatives is critical for the future of the tourism sector.

Moldova

Moldova emphasizes research and development funding, public-private partnerships, and community involvement:

- **Research & Development Funding:** Dedicated funds are needed to support innovations in sustainable tourism and blue growth.
- **Public-Private Collaboration:** Stronger partnerships among government agencies, businesses, and academic institutions are required to develop and implement sustainable solutions.
- **Training for Tourism Enterprises:** Courses and training sessions should be organized to help businesses adopt green technologies and innovations.
- **Community Awareness Campaigns:** Engaging local communities and tourists through awareness programs will promote sustainable tourism practices.

Türkiye

Türkiye emphasizes a structured and regulatory-driven approach, focusing on innovation hubs, legal frameworks, and holistic sustainability strategies:

- **TourisTech Incubation Hub:** The first specialized tourism technologies incubation program in Türkiye, facilitates collaboration between startups and the tourism industry.
- **Legal Framework & Financial Support:** While new regulations promote sustainability, the absence of financial incentives for SMEs remains a challenge.

- **Education Reform:** Vocational and higher education curricula need to be revised to incorporate more innovation and sustainability perspectives.
- **Infrastructure & Technology Investments:** Governments should invest more in infrastructures like carbon-neutral transport, energy grids, and waste management networks.
- **Extending Sustainability Certification:** Türkiye calls for sustainability programs to include not only accommodation facilities but also destinations, tour operators, and event tourism venues.

Key Differences

- **Bulgaria** highlights the importance of **integrating local communities** into sustainable initiatives and promoting **ecotourism** to preserve local ecosystems and cultural heritage.
- **Greece** advocates for **cross-border collaboration**, **marine conservation strategies**, and the use of **AI-powered platforms** for sustainable tourism management.
- **Moldova** stresses the need for **dedicated R&D funding** for sustainability innovations and the importance of training programs for economic agents.
- **Türkiye** emphasizes the role of **structured interfaces** like the **TourisTech Incubation Hub**, which encourages startups to collaborate with the tourism industry. Türkiye also underlines the importance of regulatory compliance, and broad **sustainability certification beyond accommodation facilities**.

While all countries recognize the necessity of financial incentives, importance of education and training, awareness raising, community involvement and infrastructure improvements, their approaches to innovation adoption differ based on national priorities.

*The following **two questions** were **optional** and* not elaborated in all focus group meetings.

4. Future Needs and Policy Development

Common Perspectives

Across all countries, key areas of focus for future sustainability policies include:

- **Governmental Role:** All countries agree that national governments must play a more active role in policymaking and support for sustainable innovation. This includes creating favorable regulatory environments, providing financial incentives, and investing in infrastructure and education. In Türkiye, for example, the government has taken a leading role in implementing compulsory sustainability programs, but it needs to be supported by financial instruments.

- **Stakeholder Collaboration:** Improved coordination between authorities, the private sector, NGOs and academia is essential. Platforms and interfaces that facilitate mutual communication and understanding should be established. In Bulgaria, for instance, the need for coordinated efforts between businesses, local authorities, and the community is strongly emphasized.
- **Investment in R&D:** There is a consensus that funding research and innovation is crucial for advancing sustainability in tourism. In Greece, for example, the allocation of blue growth funds to develop and implement marine conservation technologies is seen as a key measure to support sustainable tourism.

Country-Specific Policy Priorities and Challenges

Greece

Greece highlights the need for a structured policy approach involving government, academia, and industry collaboration:

- **Government-Led Funding & Policy Support:** The government should take a stronger role in financing sustainability initiatives and ensuring the effective implementation of policies.
- **Regional Authorities as Implementers:** Local administrations must ensure that national sustainability strategies are applied effectively at the regional level.
- **Academic Research & Training:** Universities should focus on research in smart tourism technologies, climate adaptation, and resource-efficient tourism.
- **Industry Leadership in Innovation:** Hotels, tour operators, and tourism associations must take an active role in implementing smart sustainability practices.
- **Creation of Innovation Hubs:** Governments should fund collaborative platforms where researchers, businesses, and policymakers can test and implement new sustainability technologies.

Moldova

Moldova faces institutional capacity constraints, bureaucratic inefficiencies, and a lack of funding for sustainability research:

- **Weak Institutional Support:** Public institutions struggle with excessive bureaucracy and a lack of qualified personnel, limiting effective policy implementation.
- **Need for Stronger Communication:** Authorities, private enterprises, and academia must establish more structured communication channels to align sustainability strategies.
- **Insufficient Research Funding:** Limited resources for scientific research on sustainable tourism prevent the development of long-term solutions.

- **Bureaucratic Barriers:** Lengthy approval processes discourage the implementation of innovative sustainability initiatives.

Türkiye

Türkiye emphasizes the role of regional administrations, infrastructure development, and local universities in advancing sustainable tourism:

- **Government as a Central Player:** Beyond establishing legal frameworks, the government must invest in infrastructure (e.g., waste management, carbon-neutral transport) and support businesses in complying with sustainability standards.
- **Local Administration Involvement:** Municipalities should complement private sector innovation efforts with regional sustainability projects.
- **Sectoral NGOs as Awareness Leaders:** NGOs play a crucial role in training programs, sustainability advocacy, and connecting stakeholders.
- **University-Industry Collaboration:** Local universities should engage with tourism businesses to conduct regional needs assessments, generate sustainability data, and provide lifelong learning opportunities tailored to industry needs.

Recommendations

To ensure the long-term success of sustainable tourism in the Black Sea Basin, the following policy measures should be considered:

- **Strengthening Government Support:** Governments should not only set regulations but also provide financial assistance and infrastructure investments to facilitate sustainability innovation.
- **Enhancing Multi-Stakeholder Collaboration:** Establishing dedicated platforms for dialogue and cooperation among public authorities, businesses, and academia will drive more effective innovation policies.
- **Increasing Research & Development Funding:** Allocating resources for research on smart tourism, climate adaptation, and resource-efficient practices will support evidence-based policymaking.
- **Addressing Bureaucratic Challenges:** Simplifying administrative processes and ensuring regulatory frameworks align with global best practices will enable smoother implementation of sustainable solutions.
- **Developing Regional Strategies:** Tailoring sustainability policies to regional needs will maximize their effectiveness in supporting local tourism industries.

5. Local Communities

Local communities play a crucial role in the success of sustainable tourism initiatives. Their active participation in decision-making processes, awareness of sustainability

practices, and direct engagement with tourists contribute to environmentally responsible tourism. While all countries agree on the importance of community involvement, their approaches and challenges differ.

Common Observations on Local Community Engagement

- **Need for Greater Involvement:** Direct involvement of local communities in decision-making processes is essential for the success of sustainable tourism initiatives. In Moldova, for example, the active involvement of local communities in the decision-making process is seen as crucial for ensuring sustainable management of natural resources and promoting tourism development.
- **Awareness and Education Programs:** Increasing public awareness through education and training programs is crucial to engage residents in sustainable practices. In Bulgaria, for instance, the need for education and training for stakeholders is strongly emphasized, with a focus on fostering a culture of openness to new ideas.
- **Balancing Local Needs and Tourism Growth:** Finding a balance between the needs of local communities and tourism development is critical to avoid conflicts and ensure long-term benefits.

Country-Specific Community Involvement Approaches

Greece

Greece emphasizes digital platforms, sustainability certification for local businesses, and community-based tourism initiatives:

- **Digital Community Participation:** Platforms should allow locals to contribute ideas, report environmental concerns, and engage in decision-making.
- **Sustainability Certification for Local Businesses:** A labelling system for businesses meeting sustainability criteria would help tourists identify and support eco-friendly enterprises.
- **University-Tourism Sector Collaboration:** Hands-on training courses should be developed for local entrepreneurs to adopt sustainable tourism models.
- **Community-Based Tourism Networks:** Establishing regional tourism initiatives and promoting them through a shared online platform can enhance visibility and participation.

Moldova

Moldova highlights the need for balancing local and tourism sector needs while addressing challenges in citizen participation:

- **Importance of Community Engagement in Decision-Making:** Local communities must be involved in planning and destination management to ensure tourism benefits all stakeholders.

- **Barriers to Involvement:** Lead to limited participation due to a lack of communication and consultation with local businesses and entrepreneurs.
- **Infrastructure Challenges from Tourism Growth:** Examples like Butuceni highlight the pressure on local infrastructure and the environment due to increased tourism, necessitating solutions such as pedestrian zones and alternative traffic management.
- **International Best Practices:** Like Poland's approach to sustainable tourism (designating parking zones outside protected areas to encourage walking and minimize environmental impact) may inspire others.

Türkiye

Türkiye focuses on leveraging digital platforms and promoting local engagement through shared mobility and hospitality services:

- **Integrating Digital Platforms:** Apps like Airbnb, Blablacar, and Martı encourage local communities to participate in tourism while promoting sustainable practices (e.g., electric vehicles, cycling, renewable energy in accommodations).
- **Raising Awareness on Sustainability Practices:** Educating local communities on recycling, carbon-neutral transportation, and eco-friendly hospitality is essential for destination-wide sustainability.
- **Shared Economy as a Driver of Sustainability:** Locals are positioned as service providers in tourism, making them active participants in sustainable tourism practices.

Recommendations

- **Community Engagement:** Local communities should be actively involved in the planning and development of tourism destinations.
- **Awareness Campaigns:** Awareness campaigns to educate residents and tourists about the benefits of sustainable tourism should be launched.
- **Digital Platforms:** Should be utilized for promoting sustainable practices and engaging local communities in tourism initiatives.
- **Certification Programs:** Certification programs should be introduced for local businesses that meet sustainability criteria, encouraging tourists to support eco-friendly options.

Table 3: Cross-Country Comparison of Focus Group Meetings

	Commonalities	Bulgaria	Greece	Moldova	Türkiye
1. Most **common innovative practices**	• Utilization of smart technologies, renewable energy, and waste management innovations are common. • Strong governmental support and cross-sector collaboration are key to success.	• Emphasizes smart hotels and optimization technologies. • Highlights the role of collaborative efforts.	• Focuses on IoT for resource management, renewable energy integration (solar/hybrid), • and Big Data/AI for optimizing transportation/waste management.	• Highlights technical innovations like treatment plants, and water reuse. • Emphasizes the importance of education, recommending involvement in sustainability initiatives like InnoVillage, and Antrim training programs.	• Emphasizes regulatory frameworks like TR-I (the mandatory national sustainability certification program) • and the role of NGOs in fostering sustainability awareness and practices.
2. The main **challenges** to adopting innovative practices	• High costs and limited funding • Lack of awareness and training • Regulatory and bureaucratic barriers • Insufficient collaboration • Infrastructure deficiencies	• Faces challenges with low consumer demand, • cultural resistance, • and limited awareness among business owners for sustainable innovations.	• Barriers include high initial investment costs, • weak policy enforcement, • and resistance to change from businesses.	• Faces financial limitations in research funding, • a shortage of qualified specialists for innovation initiatives, • and specific legislative barriers (e.g., restricting natural resource reuse).	• Faces the burden of compulsory certification without financial incentives • and impact of global economic instability leading to prioritisation of financial sustainability. • Highlights the need for more investments in infrastructure and education.
3. **Measures** to promote innovative practices	• Financial incentives (especially for SMEs) • Improved education and training • Awareness campaigns • Infrastructure investments • Public-private partnerships • Policy reforms and cross-border cooperation	• Emphasizes local community engagement in sustainability initiatives, • and promotion of ecotourism.	• Focuses on AI powered digital transformation on a regional basis, • investing in marine conservation, • and fostering university-innovation collaborations.	• Stresses dedicated R&D funding for sustainable innovations, • and emphasizes public-private collaboration along with training for enterprises.	• Highlights the role of structured interfaces like TourisTech Incubation Hub, • and underlines broader sustainability certification beyond hotels. • Recommends broader involvement of innovation and sustainability into education, • and more investments in less developed regions.

4. **Actors & Cooperation**	• Consensus on increased governmental role (policymaking, financial incentives, investment in infrastructure & education), • stronger multi-stakeholder collaboration (among authorities, private sector, NGOs, academia), • and increased funding for R&D are key for future sustainability policies.	• *	• Highlights the need for a structured policy approach with government-led funding, • regional authorities as implementers, • and academic research/training for smart tourism. • Emphasizes creation of innovation hubs.	• Faces unique challenges with weak institutional support (excessive bureaucracy, lack of qualified personnel), • and insufficient research funding for long-term solutions. • Stresses need for stronger communication channels among stakeholders for aligning sustainability strategies.	• Government is seen as key investor in infrastructure. • Emphasizes regional administrations supplementing private efforts, • NGOs as awareness leaders/trainers, • and university-industry collaboration for local needs assessments and lifelong learning.
5. **Local Communities**	• Direct involvement of local communities in decision-making, • increased public awareness through education and training programs, • and balancing local needs with tourism growth is crucial to avoid conflicts.	• *	• Emphasizes digital platforms for community participation, • sustainability certification for local businesses, • university-tourism sector collaboration for training entrepreneurs, • and establishing community-based tourism networks.	• Highlights balancing local and tourism sector needs, • challenges with limited citizen participation due to lack of communication, • and infrastructure challenges from tourism growth (e.g., Butuceni). • Also mentions learning from international best practices.	• Focuses on leveraging digital platforms and apps for local participation, • raising awareness on sustainability practices, • and promoting the shared economy to position locals as service providers.

* Questions 4 and 5 were optional; empty cells denote no country-specific findings.

C. *Insights From In-Depth Interviews*

Based on 6 questions/topics (please see Annex 1), opinions expressed in the in-depth interviews in all four INTERSMARTS countries are analyzed below:

1. The Level of Absorption of Technological and Managerial Innovations

The adoption of technological and managerial innovations in the tourism sector is a crucial factor in advancing sustainability and improving operational efficiency. However, the level of absorption varies significantly depending on factors such as business size, financial capacity, regional infrastructure, and government support.

Common Observations on Innovation Absorption

Across all four countries, several shared trends emerge:

- **Larger Businesses Lead in Innovation:** International hotel chains and major resorts are at the forefront of adopting smart energy systems, digitalization, and automation, while small and medium-sized enterprises (SMEs) struggle due to financial limitations.
- **Urban and Coastal Areas Are More Advanced:** Tourism enterprises in well-developed coastal and urban regions are more likely to implement technological innovations, whereas rural businesses face barriers such as inadequate infrastructure and limited expertise.
- **Technological Innovations Are More Prevalent Than Managerial Innovations:** While smart solutions such as photovoltaic panels, water-saving systems, and digital booking platforms are widely used, management innovations—such as restructuring business operations for sustainability—remain underdeveloped.

Country-Specific Insights and Examples

Bulgaria

Bulgaria presents strong examples of large-scale resort-driven sustainability innovations:

- **Albena Resort as a Model for Green Innovation:**
  - Over 3,000 square meters of photovoltaic panels supply clean energy.
  - Smart waste management includes composting organic waste and producing biogas.
  - Electric transportation, including buses, bicycles, and escalators, minimizes carbon emissions.
  - A green fund reinvests €1 from each overnight stay into sustainability projects.

- **Innovative Cultural and Ecotourism Developments:**
  - The Burgas Municipality transformed St. Anastasia Island and Chengene Skele Fishermen's Village into eco-friendly tourist destinations.
  - The "Vaya" Ecopark for Biodiversity integrates conservation efforts with alternative tourism models.
- **Glamping and Sustainable Hospitality Innovations:**
  - The "Glamping Divoto" initiative in Kavarna Municipality offers eco-luxury accommodations that minimize environmental impact.
  - Resorts like Topola Skies adopt seasonal zoning strategies to reduce resource consumption during low-demand periods.

Greece

Greece highlights the importance of financial capacity and government-business cooperation in driving innovation:

- **Large Hotel Chains Drive Technology Adoption:** In popular destinations like Halkidiki and the coastal resorts of Macedonia, big resorts invest in:
  - Smart energy solutions (photovoltaic panels, automated air conditioning and lighting systems).
  - Digital booking and smart hospitality management platforms.
- **Struggles of Small Businesses:** Family-owned hotels and guesthouses find it difficult to adopt new technologies due to financial constraints and a lack of expertise.
- **Lack of Strategic Waste and Energy Management:** Poor waste control and excessive water consumption in certain coastal areas hinder sustainability progress.
- **Need for Governmental Support:** Respondents emphasize the necessity of government-led subsidies, training programs, and coordinated business-environmental group partnerships to boost innovation absorption.

Moldova

Moldova faces significant regional discrepancies and relies heavily on NGO and private sector-led innovation efforts:

- **Private Sector and NGOs as Innovation Drivers:** Tourism innovation is primarily led by private enterprises and non-governmental organizations (e.g., AO Moștenitorii and the National Association for Inbound Tourism).
- **Uneven Technological Adoption:** While some businesses in Vadul lui Vodă and Dniester-adjacent villages have integrated solar panels and online booking systems, many others lack financial resources to do so.

- **Public Institutions' Limited Role:** City councils and local governments acknowledge the importance of technology but lack the expertise and strategies to support its widespread implementation.
- **Successful Local Initiatives:** Examples such as the VIA Cahul Tourism Cluster demonstrate the potential for integrating advanced technologies into regional tourism but require stronger policy support and funding.

Türkiye

Türkiye demonstrates a dual approach where large-scale enterprises rapidly absorb technology, but SMEs remain cautious:

- **Innovation Leadership Among Large Enterprises:** International hotel chains and major tourism operators adopt digital reservation systems, AI-powered customer service, and smart resource management (e.g., energy-efficient lighting, automated climate control).
- **SME Hesitation in Innovation Adoption:** Due to cost concerns, lack of technical knowledge, and focus on short-term profitability, smaller businesses are more reluctant to invest in new technologies.
- **Regional Disparities in Innovation:** Hotels in metropolitan areas have better access to advanced technologies, while rural tourism enterprises struggle due to limited infrastructure and technical expertise.
- **Lower Absorption of Managerial Innovations:** While technological improvements are increasing, many businesses resist structural changes in management practices, preferring traditional approaches.

Key Differences in Innovation Absorption

- **Bulgaria:** Large-scale resorts like Albena drive innovation through sustainability-focused investments, with notable initiatives in ecotourism and green hospitality.
- **Greece:** The adoption of smart technologies is dependent on financial resources, with large enterprises investing heavily while SMEs face barriers.
- **Moldova:** NGOs and private sector initiatives push technological advancements, but public sector involvement and funding remain insufficient.
- **Türkiye:** Large businesses lead in technological adoption, but managerial innovation lags. Regional disparities and SME struggles are significant challenges.

Recommendations

To enhance innovation absorption across the BSB, the following measures should be considered:

- **Incentivizing SME Innovation:** Financial aid programs, grants, and technical training should be expanded to support small and medium-sized tourism enterprises.
- **Strengthening Public-Private Partnerships:** Governments should collaborate with businesses, NGOs, and research institutions to facilitate technology transfer and sustainability adoption.
- **Improving Regional Infrastructure:** Investments in electricity grids, waste management systems, and digital infrastructure will enable rural tourism operators to integrate smart solutions.
- **Encouraging Managerial Innovation:** Beyond technological upgrades, businesses should be supported in adopting modern management frameworks that promote sustainability.
- **Expanding Ecotourism and Green Hospitality Models:** Learning from Bulgaria's Albena resort and ecotourism developments, other countries should explore similar sustainable tourism approaches.

2. The Main Challenges in Adopting New Technologies and Innovative Practices

The adoption of new technologies and innovative practices in tourism is a critical driver for sustainability, efficiency, and competitiveness. However, businesses across the Black Sea Basin face numerous challenges in integrating these advancements. While common obstacles such as high costs, lack of financial incentives, and limited training exist across all countries, each nation experiences unique barriers based on its economic landscape, regulatory environment, and business mindset.

Common Challenges in Technology Adoption

Despite differences in economic and policy structures, several shared barriers hinder innovation adoption across all four countries:

- **High Costs and Limited Financial Support:** The high costs of purchasing, implementing, and maintaining new technologies are major obstacles, especially for SMEs.
- **Lack of Financial Incentives:** The absence of government-backed subsidies, tax reductions, and investment programs discourages businesses from adopting innovative solutions.
- **Short-Term Profitability Concerns:** Many businesses prioritize immediate financial stability over long-term sustainability investments, slowing innovation adoption.

- **Skills Shortages and Limited Training Opportunities:** The lack of qualified personnel and insufficient training programs reduce the ability of businesses to implement and manage new technologies effectively.

Country-Specific Challenges and Examples

Bulgaria

Bulgaria faces a combination of financial, cultural, and knowledge-sharing barriers to technology adoption:

- **Underdeveloped Innovation Lending System:** Businesses struggle to access financial resources for investing in renewable energy and smart technologies.
- **Lack of Publicly Available Data on Successful Models:** Businesses are hesitant to invest due to insufficient knowledge-sharing about innovation best practices and economic efficiency.
- **Psychological Barriers and Resistance to Change:** Many tourism professionals lack the mindset to adopt new technologies, making implementation difficult.
- **Limited IT and Cultural Competence:** The absence of highly trained personnel capable of working with advanced technology is a major barrier.
- **Need for Specialized Education in Tourism Innovation:** There is a strong need to integrate innovation management, sustainability practices, and IT training into educational curricula for tourism students.

Greece

Greece faces financial, bureaucratic, and expertise-related obstacles in tourism innovation:

- **High Investment Costs:** Smart management applications, energy-efficient systems, and renewable energy projects require significant capital, which SMEs struggle to afford.
- **Lack of Financial Instruments and Subsidies:** Without access to financial aid, small and family-owned businesses are unable to invest in modernization efforts.
- **Bureaucratic Barriers:** Complex and slow administrative processes for obtaining permits for technological investments create major roadblocks.
- **Skills Gap and Training Deficiency:** Many companies lack skilled personnel to implement and maintain new technologies, with limited training opportunities available.
- **Need for Public-Private Cooperation:** Respondents emphasize the necessity of collaboration between government institutions and private enterprises to accelerate innovation adoption.

Moldova

Moldova faces deep-rooted challenges related to financial constraints, poor infrastructure, and rigid regulations:

- **Limited Financial Resources and Lack of Tax Incentives:** Businesses struggle to adopt digitalization and sustainability technologies due to high costs and the absence of fiscal benefits.
- **Underdeveloped Technological Infrastructure:** Many rural areas lack high-speed internet, and adequate waste management, making it difficult to implement smart tourism solutions.
- **Low Technical Knowledge and Awareness:** Many stakeholders, including tourism businesses and public institutions, lack an understanding of key concepts like bio-economy and circular economy.
- **Lack of Effective Coordination:** Weak collaboration between public, private, and research sectors hinders the development of a strong innovation ecosystem.
- **Rigid Regulations and Slow Policy Adaptation:** Legislative inefficiencies prevent quick responses to technological advancements, discouraging businesses from taking risks on innovation.
- **Successful Local Initiatives Exist but Remain Isolated:** Some villages, such as Floresti and Lalova, have successfully integrated photovoltaic panels and digital platforms into tourism, but these efforts are not widely replicated.

Türkiye

Türkiye faces financial, infrastructural, and strategic challenges in adopting technological innovations:

- **High Costs and Access to Finance:** SMEs struggle with the financial burden of acquiring, installing, and maintaining new technologies due to a lack of subsidies and incentives.
- **Short-Term Thinking in SMEs:** Many small businesses focus on immediate survival rather than long-term sustainability, making them reluctant to invest in innovation.
- **Lack of Awareness and Skilled Personnel:** The tourism sector faces high staff turnover and a shortage of technical experts, particularly in rural areas.
- **Insufficient Research and Development (R&D) and Proof-of-Concept (PoC) Studies:** Many businesses adopt innovations without thorough feasibility assessments, leading to inefficiencies.
- **Weak Internal and External Collaboration:** Businesses often fail to work with technology developers, research centers, and consultants to optimize innovation adoption.

- **Infrastructure and Regulatory Deficiencies:** Poor internet access in some regions and the absence of legal frameworks that incentivize new technology adoption reduce business motivation.

Key Differences in Innovation Challenges

- **Bulgaria:** Businesses struggle with limited financial resources, lack of knowledge-sharing, and resistance to change.
- **Greece:** Bureaucracy and lack of financial instruments make it difficult for businesses to invest in innovation.
- **Moldova:** Poor infrastructure, weak coordination among stakeholders, and rigid regulations hinder widespread technology adoption.
- **Türkiye:** SMEs lack financial support, R&D-driven feasibility studies, and strategic collaboration needed to integrate new technologies efficiently.

Recommendations

To address these challenges and accelerate innovation adoption, the following recommendations should be considered:

- **Expand Financial Incentives and Support Programs:** Governments should introduce grants, tax deductions, and low-interest loans to encourage tourism businesses to invest in sustainable and digital technologies.
- **Develop Targeted Training and Education Programs:** Universities, industry associations, and governments should collaborate to provide specialized training in tourism innovation and technology management.
- **Improve Public-Private Collaboration:** Governments, businesses, NGOs, and research institutions should strengthen partnerships to facilitate knowledge-sharing and innovation scaling.
- **Enhance Infrastructure Development:** Expanding high-speed internet, improving water and energy supply, and upgrading transport systems will create a more favorable environment for technological integration.
- **Simplify Bureaucratic Processes:** Reducing administrative barriers will encourage businesses to invest in innovation without excessive delays.
- **Promote R&D and Proof-of-Concept Studies:** Governments and industry leaders should support pilot projects and feasibility studies before full-scale implementation to ensure efficiency and effectiveness.

3. The Contributions of the Start-Up Ecosystem to the Development of Sustainable Tourism

The start-up ecosystem plays a crucial role in driving sustainable tourism and blue growth through innovative technologies, smart resource management solutions, and digital applications. While all four countries in the Black Sea Basin recognize the potential of start-ups, the level of engagement, support mechanisms, and integration with the tourism sector vary significantly.

Common Contributions of Start-Ups to Sustainable Tourism

Start-ups contribute to sustainable tourism and blue growth in several ways:

- **Development of Eco-Friendly Technologies:** Innovations such as smart waste management, renewable energy solutions, and energy-efficient technologies reduce the tourism sector's environmental footprint.
- **Digital Applications and AI Integration:** AI-powered booking systems, smart itinerary planners, and digital platforms for sustainable tourism enhance user experiences while promoting responsible travel.
- **Raising Awareness Through Gamification and Digital Tools:** Digital games and applications educate tourists about environmental sustainability and encourage eco-friendly behavior.
- **Need for Financial Support and Investment Programs:** Start-ups require accelerator programs, government incentives, and investment opportunities to scale their solutions effectively.

Country-Specific Contributions and Challenges

Bulgaria

Bulgaria's start-up ecosystem focuses on environmental monitoring, blue growth initiatives, and personalized tourism experiences:

- **Eco-Technologies for Sustainable Tourism:** Start-ups develop applications for shared transportation, waste management, and energy optimization in hotels.
- **Blue Growth Innovations:** Technologies such as marine waste management systems, fishery monitoring platforms, and aquaculture solutions support the conservation of marine biodiversity.
- **Smart Tourism Applications:**
    - Platforms that connect tourists with local eco-hotels, sustainable activities, and green tourism operators.
    - Digital tools providing real-time data on destinations, including best travel times and attractions.

- **Software for Tourism Business Management:** Start-ups create resource control and efficiency solutions for tourism enterprises, optimizing costs and sustainability metrics.
- **Social Media Innovations for Tourism Promotion:** Entrepreneurs leverage digital marketing to promote sustainable tourism products and destinations.

Greece

Greece highlights the role of start-ups in digital transformation and alternative tourism while struggling with weak connections between start-ups and the tourism industry:

- **Smart Resource Management in Hospitality:** Start-ups develop energy and water-saving systems, digitalized tourism experiences, and eco-friendly travel platforms.
- **Blue Economy Innovations:** Technologies for marine waste management, energy-efficient ports, and renewable energy solutions in coastal accommodations are crucial.
- **Limited Integration Between Start-Ups and Tourism Stakeholders:**
    - Lack of collaboration between start-ups, tourism operators, and local authorities slows down adoption.
    - The absence of funding programs and strategic incentives delays implementation of sustainable technologies.
- **Need for Financial Incentives:** Respondents emphasize the necessity of public and private support, including subsidies, tax breaks, and investment programs.

Moldova

Moldova's start-up ecosystem contributes to sustainable tourism by integrating the circular economy, local entrepreneurship, and digital platforms:

- **Private Sector-Led Sustainability Initiatives:**
    - Onixblack SRL (Blach House Costești) and Casa Sobarului in Molovata focus on attracting tourists through environmentally friendly practices.
    - Hanul lui Hanganu and Riverside incorporate waste reduction and resource efficiency.
- **Public Sector Emphasis on Youth Engagement and Policy Support:**
    - City Hall of Riscani and Soroca Rayon Council advocate for more start-up policies and financial support programs.
    - The Orhei Environmental Protection Inspectorate promotes balancing tourism access with environmental preservation.
- **NGOs and Research Centers as Key Drivers:**
    - Organizations like AO "Moștenitorii" and VIA Cahul Tourism Cluster push for sustainable funding and policy alignment.

- The E-CIRCULAR Training Centre and National Association for Inbound Tourism promote digital platforms for sustainable tourism management.

- **Importance of Cross-Sector Partnerships:** Stronger collaboration between start-ups, government agencies, and the private sector is essential for scaling innovation.

Türkiye

Türkiye has a structured start-up ecosystem with established support mechanisms like TourisTech to foster innovation in sustainable tourism:

- **Development of Smart Technologies for Sustainability:**
  - Start-ups create energy- and water-saving devices, digital travel planning tools, and AI-powered sustainability assessment platforms.
  - Carbon footprint-reducing travel applications and eco-friendly accommodation platforms help promote responsible tourism.
- **Advancing Digitalization in Tourism:**
  - AI-powered booking systems and smart itinerary planning optimize resource use and enhance tourist experiences.
  - Data analytics drive more efficient hotel and business management.
- **Strong Institutional Support for Start-Ups:**
  - TourisTech provides mentorship, funding, and acceleration programs for tourism entrepreneurs.
  - Government incentives and interface organizations encourage collaboration between start-ups and tourism businesses.
- **Need for More Accelerator Programs and Interface Organizations:** Further expansion of start-up incubators and stronger collaboration between public-private sectors can enhance the impact of innovations in tourism.

Key Differences in Start-Up Contributions

- **Bulgaria:** Focuses on blue growth technologies, environmental monitoring, and smart tourism applications.
- **Greece:** Highlights smart resource management and alternative tourism but lacks strong start-up-industry collaborations.
- **Moldova:** Emphasizes the role of start-ups in local tourism promotion and circular economy practices but struggles with financial support and policy alignment.
- **Türkiye:** Has structured start-up support programs like TourisTech but needs broader accelerator initiatives and stronger collaboration mechanisms.

Recommendations

To maximize the impact of start-ups on sustainable tourism, the following measures should be considered:

- **Expand Financial Incentives and Investment Programs:** Governments should offer grants, tax incentives, and low-interest loans for tourism start-ups.
- **Strengthen Start-Up-Tourism Industry Collaboration:** Public-private partnerships should be developed to integrate start-ups into mainstream tourism businesses.
- **Improve Access to Training and Mentorship Programs:** Start-ups should receive tailored education on sustainable tourism trends and technology management.
- **Promote Blue Growth Innovation Initiatives:** Countries should encourage the development of marine sustainability solutions through dedicated start-up incubators.
- **Enhance Digitalization and AI Integration in Tourism:** Governments should support AI-driven applications that optimize energy use, waste management, and eco-friendly travel planning.

4. Successful Examples of Innovations or Technologies That Promote Sustainable Tourism

Innovative technologies and sustainable practices are shaping the future of tourism by minimizing environmental impact and enhancing operational efficiency. Across the Black Sea Basin, different countries have implemented various technological and managerial innovations aimed at promoting sustainable tourism.

Common Trends in Sustainable Tourism Innovations

- **Integration of Renewable Energy and Smart Technologies:** Many destinations focus on photovoltaic panels, hybrid yachts, and energy-efficient hotel systems to reduce their carbon footprint.
- **Waste Reduction and Circular Economy Practices:** Sustainable tourism initiatives promote zero-waste models, recycling programs, and responsible waste management.
- **Digitalization and Smart Tourism Solutions:** AI-powered applications, smart route systems, and automated service technologies enhance visitor experiences while optimizing resource management.
- **Public-Private Collaborations and Certification Systems:** Many innovations are driven by government-backed projects, research institutions, and corporate partnerships.

Country-Specific Innovations and Success Stories

Bulgaria

Bulgaria has developed various sustainable tourism initiatives, particularly in marine tourism, smart hotels, and eco-tourism:

- **Sustainable Marine Yachting Technologies:**
  - Use of **electric and hybrid yachts** to reduce emissions and noise pollution.
  - Adoption of **biodegradable materials** for yacht equipment and accessories.
  - **Onboard wastewater treatment systems** to minimize marine pollution.
  - **Smart anchoring systems** to protect seabed biodiversity.
- **Smart Hotels and Hospitality Innovations:**
  - **Smart Hotel "Introvert" (Sofia), The Emporium Hotel (Plovdiv), and iHot@l (Sunny Beach)** feature AI-driven automation, voice-controlled lighting and climate systems, and contactless guest services.
  - Robot assistants, including robot waiters and AI-powered guest information providers, improve efficiency in the hospitality sector.
- **Zero-Emission Cruise Projects:**
  - Solar-powered catamarans transport tourists between Burgas and St. Anastasia Island, reducing reliance on fossil fuels.
- **Alternative Tourism Models:**
  - Development of hiking and cycling routes to promote low-carbon travel.
  - Eco-tourism initiatives that integrate agriculture and local traditions into the tourist experience.

Greece

Greece has established itself as a leader in sustainable tourism innovations, particularly in waste reduction, renewable energy, and green mobility:

- **The Tilos Project – A Zero-Waste Model:**
  - The island of **Tilos** is the first in Greece to implement a fully renewable energy system and circular waste management model.
- **The "Green Key" Certification Program:**
  - A digital certification system for **eco-friendly hotels and sustainable tourism businesses** that guides travelers towards responsible tourism choices.
- **Sustainable Transport and Green Ports:**

- **Astypalaia's electric vehicle initiative** aims to replace conventional transportation with green mobility solutions.
- **Waste reuse programs in the Cyclades** focus on recycling and sustainable resource management.
- **Green port infrastructure in Santorini** supports marine biodiversity protection and reduces pollution.

Moldova

Moldova's sustainable tourism innovations focus on integrating green technologies into rural tourism and promoting eco-friendly hospitality:

- **Sustainable Guesthouses and Rural Tourism:**
  - **"Hanul lui Hanganu" and "MUZE Guesthouse"** have implemented photovoltaic panels, selective waste collection, and water recycling for agricultural purposes.
- **Inter-Institutional Collaboration through ANTRIM:**
  - The **National Association for Inbound Tourism** fosters cooperation between public and private entities to promote eco-friendly tourism practices.
- **NGO and Private Sector Initiatives:**
  - The **E-CIRCULAR Training Center and the "Moștenitorii" Association** integrate environmental education with green technologies, including solar energy and water treatment systems.
- **Sustainable Agriculture Technologies:**
  - Implementation of **no-till and mini-till farming techniques** reduces soil degradation and supports long-term sustainability.
- **Rainwater Harvesting and Eco-Responsible Initiatives:**
  - The **Regional Center for Social Initiatives** promotes sustainable water management solutions and IT-driven environmental monitoring.

Türkiye

Türkiye has developed structured incubation programs and public-private collaborations that drive sustainable tourism innovations:

- **TourisTech Hub – A Tourism-Specific Incubation Center:**
  - Established in 2023 at **Antalya Bilim University**, this initiative supports start-ups in the tourism sector through:
    - **300+ hours of mentorship and 25 hours of training** for tourism-focused start-ups.
    - Investment evaluation by **five major venture capital funds**.

- **Innovative Mobile Application for Employee Satisfaction:**
  - Developed through **TourisTech**, this app enables anonymous feedback from tourism facility employees, improving workplace efficiency and employee satisfaction.
- **Sustainable Green Destinations Project (Sentrum):**
  - A collaboration between **UNDP, Enerjisa Enerji, and Sabancı University**, aimed at transforming small-scale destinations into GSTC-compliant green tourism hubs.
  - Successfully implemented in **Küçükköy (Ayvalık),** with planned expansion to **Birgi (İzmir)**.
- **The Smart Route System** Developed through Sentrum:
  - A **QR code-based sustainable tourism guide** that provides personalized travel routes based on age, mobility, and interests.
  - Features an **audio guide function** for enhancing visitor experiences while promoting low-impact travel.

Key Differences in Sustainable Tourism Innovations

- **Bulgaria:** Focuses on marine tourism innovations, smart hotel technologies, and eco-tourism development.
- **Greece:** Leads in waste reduction, green transportation, and circular economy initiatives on island destinations.
- **Moldova:** Highlights the integration of renewable energy in rural tourism and the role of NGOs in promoting sustainability.
- **Türkiye:** Pioneers start-up incubation, digital tourism solutions, and structured green destination programs.

Recommendations

To further enhance the adoption of sustainable tourism innovations, the following measures should be prioritized:

- **Expanding Renewable Energy Integration:** Encouraging more widespread adoption of photovoltaic panels, wind energy, and hybrid marine solutions.
- **Strengthening Smart and Digital Tourism Solutions:** Governments should support AI-driven applications for itinerary planning, waste management, and energy efficiency.
- **Scaling Up Green Certification Programs:** Countries should expand eco-labeling systems like Greece's "Green Key" initiative to encourage sustainable business practices.

- **Increasing Public-Private Partnerships:** Successful models such as Türkiye's **TourisTech Hub** should be replicated to connect start-ups with tourism enterprises.
- **Enhancing Sustainable Transport Infrastructure:** The expansion of electric vehicle networks, green ports, and low-carbon travel alternatives should be a priority.
- **Encouraging Community-Based Sustainability Initiatives:** Community-driven projects, such as Moldova's eco-friendly guesthouses and Greece's waste reuse programs, should be scaled up across regions.

5. Measures Required to Stimulate the Adoption of Innovations

The adoption of innovative technologies and sustainable practices in tourism is crucial for ensuring long-term environmental and economic viability. However, for businesses to integrate these innovations effectively, supportive policies, financial incentives, and collaborative efforts are necessary.

Common Policy Needs for Innovation Adoption

- **Financial Incentives and Subsidies:**

  Tax breaks, grants, low-interest loans, and direct subsidies for businesses investing in renewable energy, waste management, and sustainable infrastructure are key to success.

- **Stronger Regulatory Frameworks:**

  Sustainability requirements for tourism enterprises, including mandatory energy and water conservation measures and waste management programs should be enforced.

- **Public-Private Partnerships:**

  Collaboration between governments, private enterprises, and research institutions to facilitate large-scale innovation adoption and infrastructure development should be encouraged.

Country-Specific Policy Measures and Challenges

Bulgaria

Bulgaria emphasizes the need for financial incentives, youth entrepreneurship programs, and legislative reforms to stimulate innovation:

- **Financial Support Mechanisms:**
  - **Targeted subsidies and grants** for businesses implementing sustainable tourism technologies need to be introduced.

- **Tax incentives for** enterprises using **renewable energy** sources and green technologies need to be launched.

- **Encouraging Young Entrepreneurs:**
  - **Startup incubators** focused on sustainable tourism and blue growth should be established.
  - **Training programs** to enhance entrepreneurship skills in eco-tourism should be launched.
- **Public-Private Cooperation for Innovation:**
  - Strengthening **partnerships between local governments and tourism businesses** to improve modern tourism infrastructure is vital.
- **Legislative Reforms:**
  - Updating **tax and customs laws** to include provisions for tourism innovation and sustainable practices is a necessity.
  - **Sustainability criteria** in the tourism sector needs to be standardized for protecting both the consumers and the environment.

Greece

Greece highlights financial support, streamlined bureaucratic procedures, and strict sustainability regulations as key priorities:

- **Green Tax System to Fund Sustainable Tourism:**
  - **Green tax policy**, where environmental tax revenues are allocated to eco-tourism projects should be established.
  - **Investment in circular economy solutions** and green technology adoption are required.
- **Regulatory Reforms for Licensing Procedures:**
  - **Bureaucracy** to expedite investment in sustainable tourism infrastructure should **be simplified**.
  - Administrative delays for hotel renovations and green energy integration need to be reduced.
- **Mandatory Sustainability Standards:**
  - **Certification programs** such as **Green Key and EU Ecolabel** for hotels, marinas, and tourism businesses should be expanded.
- **Education and Awareness Initiatives:**
  - Integration of **sustainability-focused curricula** in tourism schools is important.
  - **Awareness campaigns promoting responsible travel choices** among tourists should be launched.

Moldova

Moldova faces challenges due to fragmented sectoral priorities, highlighting the need for financial aid, stronger regulations, and cross-sectoral cooperation:

- **Divergent Priorities Among Stakeholders:**
  - **NGOs advocate for better legislation and cooperation**, focusing on environmental protection and policy reforms.
  - **Private sector demands financial incentives**, emphasizing subsidies, tax holidays, and startup funding.
- **Legislative and Institutional Barriers:**
  - Lack of expertise within **local governments** limits the ability to implement sustainable tourism initiatives.
  - The absence of a **coherent national framework** to coordinate sustainability efforts across different regions hinders adoption.
- **Financial and Fiscal Support for Innovation:**
  - Calls for **transparent allocation of funding** to tourism operators investing in eco-friendly projects.
  - Proposals for **government-backed grants** to support sustainable technology adoption.
- **Education and Public Engagement:**
  - Integration of **environmental sustainability courses** in school curricula is a necessity.
  - **National awareness campaigns** to inform businesses and tourists about green tourism benefits should be launched.

Türkiye

Türkiye prioritizes financial investment, public-private collaboration, and sector-specific acceleration programs to drive innovation in sustainable tourism:

- **Expanding Financial Resources for Sustainability:**
  - Increased access to **government funding and international investment opportunities** is one of the key subjects.
  - **Subsidies and low-interest loans** for businesses adopting energy-efficient and waste-reduction technologies should be provided.
- **Legal and Policy Frameworks to Mandate Sustainable Practices:**
  - **Regulations should call for** water and energy conservation systems, waste recycling programs, and carbon reduction strategies in tourism enterprises.
  - **Sector-specific sustainability standards** for different types of tourism businesses should be launched.

- **Start-Up Acceleration and Investment Programs:**
  - **Tourism and CleanTech acceleration programs** should be expanded to support innovation in tourism.
  - Visibility and funding opportunities for **green tourism start-ups** are important in attracting investors.
- **Education and Data-Driven Sustainability Strategies:**
  - Workforce training programs should be available on **eco-friendly tourism management and digital transformation**.
  - **Data analytics and AI-driven platforms** to measure and improve sustainability initiatives in tourism should be used.

Key Differences in Policy Approaches

- **Bulgaria:** Advocates for **youth entrepreneurship initiatives** and innovation-focused tax policies.
- **Greece:** Proposes a **green tax system**, stricter sustainability certifications, and streamlined regulatory processes.
- **Moldova:** Highlights **disparities between public and private sector priorities**, requiring better legislation and financial incentives.
- **Türkiye:** Calls for **sector-specific acceleration programs**, stronger financial investment in innovation, and structured sustainability mandates.

Recommendations

To effectively stimulate the adoption of innovation in sustainable tourism, the following measures should be prioritized:

- **Enhancing Financial Incentives:** Governments should implement **tax breaks, direct grants, and low-interest loans** to support sustainability-focused businesses.
- **Strengthening Regulatory Frameworks:** Sustainability standards should be **mandatory**, with certifications such as Green Key and EU Ecolabel made essential for all tourism enterprises.
- **Facilitating Public-Private Collaboration:** Stronger **partnerships between governments, private sector, and NGOs** can drive systemic innovation adoption.
- **Expanding Start-Up and Accelerator Programs:** Countries should establish **dedicated tourism and environmental technology accelerators** to foster innovation.

- **Investing in Education and Awareness:** Training programs, school curricula integration, and nationwide campaigns should raise awareness about sustainability best practices.
- **Utilizing Data and AI for Sustainable Decision-Making:** AI-driven platforms should be adopted to monitor and optimize sustainability initiatives in tourism enterprises.

6. The Main Barriers to Adopting Innovations and Required Support

The adoption of innovations in sustainable tourism and blue growth faces several challenges across the Black Sea Basin. Despite the growing recognition of sustainability's importance, financial constraints, regulatory gaps, and limited technical expertise hinder the widespread adoption of innovative practices.

Common Barriers to Innovation Adoption

- **Financial Constraints:**
  - High initial costs prevent small and medium-sized enterprises (SMEs) from investing in sustainable technologies such as **renewable energy, smart energy systems, and circular economy practices**.
  - Limited access to government grants, international funding, and low-interest loans restricts financial flexibility for innovation.
- **Lack of Skilled Labor and Training:**
  - Tourism businesses struggle with a shortage of **qualified personnel capable of implementing and managing sustainable technologies**.
  - Limited educational programs on sustainability and innovation in tourism reduce awareness among both businesses and consumers.
- **Weak Regulatory Enforcement:**
  - Absence of **mandatory sustainability standards and certification programs** results in slow adoption of green initiatives.
  - Bureaucratic obstacles, particularly in **permits for eco-friendly infrastructure projects**, delay the implementation of innovations.

Country-Specific Barriers and Support Needs

Bulgaria

Bulgaria highlights the need for **financial support mechanisms, information accessibility, and a mindset shift toward innovation**:

- **Lack of Financial Resources:**

  - High costs of **green buildings, renewable energy systems, and smart infrastructure** limit adoption.
  - Difficulty accessing **bank loans for sustainability-focused projects** due to long return-on-investment periods.
- **Insufficient Information and Awareness:**
  - Tourism businesses lack **data on the costs, benefits, and success rates of sustainable innovations**.
  - **Public databases of innovation models** and best practices should be established to inform businesses.
- **Slow Digitalization and Modernization:**
  - The tourism sector's slow adoption of **online booking systems, digital marketing, and smart tourism tools** restricts competitiveness.
  - Need for **stronger connections between tourism businesses and research institutions** to foster digital transformation.
- **Proposed Solutions:**
  - **Subsidies and grants** to assist SMEs in adopting sustainable practices.
  - Incentivizing **cultural tourism, eco-tourism, and spa tourism** to reduce dependence on mass beach tourism.
  - Universities should introduce **innovation-focused curricula** for tourism students to develop entrepreneurial skills.

Greece

Greece identifies **financial limitations, bureaucratic inefficiencies, and lack of specialized knowledge** as key barriers:

- **High Costs and Limited Financing Options:**
  - SMEs struggle with **funding smart energy solutions, waste management, and circular economy initiatives**.
  - **Targeted subsidies and preferential loan programs** should be introduced to alleviate financial burdens.
- **Bureaucratic Complexity and Delayed Approvals:**
  - Long processing times for **permits related to hybrid energy systems, sustainable marinas, and eco-hospitality projects** discourage businesses.
  - Streamlining **approval processes for sustainable tourism investments** would accelerate adoption.
- **Lack of Advisory and Training Services:**

- Businesses lack access to **specialized knowledge on sustainable practices and funding opportunities**.
- **Workshops, advisory services, and educational programs** should be implemented to guide tourism businesses.

- **Proposed Solutions:**
  - Simplifying **licensing procedures** for eco-friendly tourism investments.
  - Implementing **mandatory sustainability certifications** (e.g., **Green Key, EU Ecolabel**).
  - Enhancing **tourism education programs** to integrate sustainability awareness and innovation.

Moldova

Moldova faces barriers in **funding, infrastructure, and cross-sector collaboration**, with significant gaps between public and private sector priorities:

- **Lack of Strategic Vision for Innovation:**
  - **No clear roadmap** or national action plan for sustainable tourism development.
  - Public and private sectors operate in silos, leading to **fragmented sustainability efforts.**
- **Financial and Regulatory Barriers:**
  - **High costs of green technologies** make them inaccessible for SMEs.
  - **Limited access to EU funding and tax incentives** compared to other European countries is a challenge.
- **Technological Infrastructure and Skills Shortage:**
  - **Better digital infrastructure and training programs** to support technology-driven tourism solutions are crucial.
- **Reluctance to Change and Seasonal Fluctuations:**
  - **Cultural conservatism and seasonal business models** reduce incentives for long-term innovation investments.
- **Proposed Solutions:**
  - Establishing a **national tourism innovation framework** to align public and private sector efforts.
  - Increasing **public-private partnerships** to facilitate green investments.
  - Creating **education programs and training initiatives** for sustainable tourism management.

Türkiye

Türkiye underscores the importance of **financial incentives, regulatory frameworks, and regional sustainability policies**:

- **High Costs and Limited Access to Funding:**
  - SMEs struggle with the **upfront costs of water-saving devices, smart energy systems, and waste management technologies**.
  - **Low-interest loan programs and government grants** should be expanded to support eco-friendly investments.
- **Lack of Awareness and Expertise:**
  - Many businesses **prioritize short-term profits** over long-term sustainability benefits.
  - Training programs are necessary to educate **tourism professionals on sustainability's economic and environmental value**.
- **Infrastructure Deficiencies and Weak Policy Enforcement:**
  - There is a need for improvements in **internet and energy infrastructure in rural areas** to support sustainable tourism growth.
  - Establishing **mandatory sustainability certification programs** can accelerate adoption.
- **Proposed Solutions:**
  - **Public-private partnerships** to fund green technology adoption should be strengthened.
  - **Collaboration between startups and tourism businesses** to drive digital and sustainable transformation should be encouraged.
  - **Regional sustainability initiatives** to tailor solutions based on local environmental and economic conditions should be expanded.

Key Differences in Barriers and Support Needs

- **Bulgaria:** Emphasizes **mindset change, access to innovation data, and stronger links between academia and tourism businesses**.
- **Greece:** Focuses on **simplifying bureaucracy, providing advisory services, and implementing stricter sustainability standards**.
- **Moldova:** Highlights **strategic vision gaps, financial limitations, and the need for public-private cooperation**.
- **Türkiye:** Stresses **regional sustainability policies, financial investment in green infrastructure, and collaboration with the startup ecosystem**.

Recommendations

To overcome barriers to innovation adoption in sustainable tourism, the following key actions should be implemented:

- **Expand Financial Incentives and Investment Support:**
  - Governments should introduce **subsidies, low-interest loans, and tax relief programs** for sustainable tourism investments.
- **Strengthen Regulatory Frameworks and Enforce Compliance:**
  - Sustainability certifications such as **Green Key, GSTC, and EU Ecolabel** should become **mandatory** for tourism businesses.
- **Facilitate Public-Private Collaboration:**
  - Governments should work with **private sector actors, startups, and academic institutions** to accelerate sustainable innovations.
- **Enhance Digitalization and AI Integration:**
  - Investment in **AI-driven platforms for sustainable tourism management** can optimize energy use, waste reduction, and eco-tourism strategies.
- **Increase Training and Awareness Campaigns:**
  - Tourism professionals and policymakers should receive **specialized training** on implementing and benefiting from sustainability practices.

Table 4: Cross-Country Comparison of In-Depth Interviews

	Commonalities	Bulgaria	Greece	Moldova	Türkiye
1. **Current state**	• Larger businesses (international chains, major resorts) lead in adopting innovations like smart energy systems, digitalization, and automation. • Urban/coastal areas are more advanced. • Technological innovations (photovoltaic panels, digital booking) are more prevalent than managerial innovations.	• Emphasizes large-scale resort-driven initiatives like Albena Resort (its green fund reinvests earnings into new eco-projects.), • innovative cultural and ecotourism developments like transformation of St. Anastasia Island, • and innovations like Glamping Divoto as eco-luxury and seasonal zoning in Topolo Skies.	• Large hotel chains drive technology adoption (smart energy, digital booking). • Small businesses struggle with adoption due to financial and expertise limitations. • The need for government support and strategic management for waste and energy are crucial in adopting sustainability.	• Innovation primarily led by private enterprises and NGOs like AO Moştenitorii. • There is uneven technological adoption: some businesses use solar panels and online booking, many lack resources. • Public institutions have limited role and lack expertise/strategies. • Successful local initiatives like VIA Cahul Tourism Cluster show potential.	• Large enterprises (like international chains) rapidly absorb tech innovations. • SMEs are hesitant due to cost, lack of technical knowledge, short term profit focus. • Regional disparities exist: urban hotels have better access, rural struggle. • Many businesses resist in absorbing managerial innovations.
2. The main **challenges**	• High costs of adopting innovation (especially for SMEs) prevent large-scale implementation. • Lack of financial incentives and government support discourages investment. • Short-term thinking hinders innovation adoption. • Low levels of training, expertise, and skilled staff are among main barriers.	• Underdeveloped innovation lending system. • Lack of publicly available data on successful models. • Psychological barriers and resistance to change. • Limited IT and cultural competence. • Need for specialized education in tourism innovation.	• High investment costs. • Lack of financial instruments and subsidies. • Bureaucratic barriers (complex, slow administrative processes). • Skills gap and training deficiency. • Need for public-private cooperation.	• Limited financial resources and lack of tax incentives. • Underdeveloped technological infrastructure (e.g., high-speed internet, waste management). • Low technical knowledge and awareness. • Lack of effective coordination. • Rigid regulations and slow policy adaptation. • Isolated successful local initiatives.	• High costs and limited access to finance. • Short-term thinking in SMEs. • Lack of awareness and skilled personnel (high staff turnover). • Insufficient R&D and Proof of Concept studies. • Weak internal and external collaboration. • Infrastructure and regulatory deficiencies.

3.**Contributions** of the start-up ecosystem	• Development of eco-friendly technologies (like waste management). • Digital applications & platforms, and AI integration (booking, itinerary planners, sustainable platforms). • Raising awareness through gamification and digital tools.	• Highlights blue growth innovations (marine waste management, fishery monitoring, and aquaculture), • and social media as a marketing innovation.	• Points out limited link between start-ups, tourism stakeholders. • Highlights blue economy innovations like energy efficient ports.	• Emphasizes private sector-led sustainability initiatives, • and NGOs and Research Centers as key drivers. • Highlights youth engagement for increasing startup numbers, • and cross-sector partnerships for scaling innovations.	• Underlines strong institutional support (structured startup initiatives such as TourisTech, providing mentorship and funding), • and need for more accelerator programs and interface organizations.
4. Successful **examples**	• Integration of renewable energy and smart technologies. • Waste reduction and circular economy practices. • Digitalization and smart tourism solutions. • Public-private collaborations and certification systems.	• Sustainable marine yachting technologies (electric/hybrid yachts, biodegradable materials, wastewater treatment, smart anchoring). • Smart Hotels (Introvert, Emporium, iHot@l with AI automation, voice control, contactless services, robots). • Zero-emission cruise projects (solar catamarans). • Alternative tourism models (hiking, cycling, eco-tourism).	• The Tilos Project (zero-waste, renewable energy, circular waste management). • "Green Key" certification program. • Sustainable transport and Green Ports (Astypalaia's EV initiative, waste reuse in Cyclades, green port in Santorini).	• Sustainable Guesthouses (Hanul lui Hanganu, MUZE Guesthouse with photovoltaic, selective waste, water recycling). • Inter-Institutional Collaboration through ANTRIM. • NGO and Private Sector Initiatives (E-CIRCULAR, Moștenitorii for environmental education, solar energy, water treatment). • Sustainable agriculture technologies (no-till, mini-till). • Rainwater harvesting and eco-responsible initiatives (Regional Center for Social Initiatives).	• A mobile app with an aim to improve employee satisfaction and operational efficiency in tourism facilities (developed under the TourisTech). • The Smart Route System, a QR code-based sustainable tourism guide developed in the Sustainable Green Destinations Project (SENTRUM, a community-based socio-economic development project).

5. **Policies** and regulations	• Need for financial incentives (subsidies, tax breaks, low-interest loans) to support businesses investing in sustainability. • Stronger regulatory frameworks to enforce sustainability requirements. • Public-private partnerships to enhance innovation adoption, including infrastructure investments.	• Financial support mechanisms. • Encouraging young entrepreneurs (start-up incubators, training programmes). • Public-private cooperation for innovation (local government/business partnerships). • Legislative reforms (updating tax/customs for tourism innovation, standardizing sustainability criteria).	• Green tax system to fund eco-tourism projects. • Regulatory reforms for licensing procedures (simplifying bureaucracy). • Mandatory sustainability standards (expanding certification programs). • Education and awareness initiatives (sustainability curricula, awareness campaigns).	• Divergent priorities among stakeholders (NGOs for legislation/cooperation vs. private for financial support). • Legislative and institutional barriers (lack of expertise, no coherent national framework). • Financial/fiscal support (transparent funding allocation, government-backed grants). • Education and public engagement (sustainability courses, national campaigns).	• Expanding financial resources for sustainability (access to government/international funding, subsidies, low-interest loans). • Legal and policy frameworks to mandate sustainable practices (regulations for water/energy conservation, waste recycling, carbon reduction, sector-specific standards). • Start-Up Acceleration and Investment Programs. • Education and Data-Driven Sustainability Strategies.
6. Future Needs	• Expand financial incentives and investment support (subsidies, low-interest loans, tax relief). • Strengthen regulatory frameworks and enforce compliance (mandatory certifications). • Facilitate public-private collaboration. • Enhance digitalization and AI integration. • Increase training and awareness campaigns.	• Provide subsidies and grants to assist SMEs. • Incentivize cultural/eco/spa tourism. • Introduce innovation-focused university curricula. • Establish public databases of innovation models. • Build stronger connections between tourism businesses and research institutions.	• Simplify licensing procedures. • Implement mandatory sustainability certifications like Green Key, EU Ecolabel. • Enhance tourism education programs to integrate sustainability and innovation. • Launch targeted subsidies and preferential loan programs. • Launch workshops, advisory services, and educational programs.	• Establish a national tourism innovation framework. • Increase public-private partnerships for green investments. • Provide education programs and training initiatives for sustainable tourism management. • Increase access to EU funding and tax incentives. • Provide better digital infrastructures.	• Introduce financial incentives. • Strengthen public-private partnerships to fund adoption. • Encourage collaboration between startups and tourism businesses. • Launch regional sustainability initiatives. • Improve internet and energy infrastructure in rural areas.

IV. POLICY RECOMMENDATIONS

1. Microeconomic Level: Solutions for Individual Companies and SMEs

At the company level, businesses—especially SMEs—face financial, technical, and structural barriers to adopting innovations in sustainable tourism and blue growth. The following actions are recommended to enhance their ability to implement smart, green technologies:

1.1. Financial and Technical Support for SMEs

- **Introduce Low-Interest Loan Programs and Innovation Grants:** Governments should provide special financing mechanisms for tourism businesses adopting sustainable and smart technologies. A "Green Tourism Fund" could offer tax reductions or zero-interest loans for companies investing in energy-efficient systems.
- **Subsidies for Smart Technologies and Sustainability Initiatives:** SMEs should receive targeted subsidies to integrate renewable energy, waste management solutions, and AI-driven efficiency tools.
- **Micro-Investment Platforms for Sustainable Startups:** Crowdfunding or co-financing platforms for SMEs should be facilitated to engage in blue economy and sustainable tourism initiatives.

1.2. Strengthening Digitalization and AI-Driven Smart Solutions

- **Develop AI-Powered Booking and Management Systems:** To improve operational efficiency, SMEs should be encouraged to use AI-driven pricing models, dynamic customer service tools, and data-driven resource optimization.
- **Adopt Smart Water and Energy Management Systems:** Automated monitoring of energy and water consumption can reduce operational costs and enhance sustainability.
- **Enhance Digital Tourism Platforms:** Businesses should invest in augmented reality (AR), mobile apps, and smart route planning tools that guide tourists towards sustainable travel experiences.

1.3. Training, Capacity Building, and Entrepreneurial Development

- **Expand Business Training on Sustainable Practices:** Industry-specific training modules should be developed to educate SMEs on waste reduction, circular economy strategies, and digitalization.

- **Launch Incubation and Acceleration Programs for Tourism Startups:** Initiatives like the **TourisTech Hub in Türkiye** should be replicated across the Black Sea Basin to support young entrepreneurs in the tourism sector.
- **Encourage Knowledge Sharing on Sustainable Business Models:** A **regional network for sustainable tourism entrepreneurs** should be established to share success stories, innovation trends, and best practices.

1.4. Overcoming Psychological and Organizational Resistance

- **Promote Cultural and Managerial Innovation:** SMEs should be encouraged to rethink their business models to integrate long-term sustainability strategies rather than short-term profit motives.
- **Certification and Recognition Programs: "Sustainable Tourism Champion" certification** should be launched to reward businesses actively implementing green and digital innovations.

2. Macroeconomic/National Level: Local and Regional Policy Actions

Governments and regional administrations play a crucial role in **setting regulatory frameworks, incentivizing sustainability, and investing in infrastructure** to support innovation in tourism and blue growth.

2.1. Strengthening Financial Incentives and Policy Mechanisms

- **Implement a Green Taxation System:** Inspired by Greece's proposal, governments should introduce eco-tax policies where tourism businesses that adopt sustainability measures benefit from tax relief.
- **Establish Regional Innovation Funds for Tourism:** These funds should **co-finance innovation projects** in coastal and rural tourism areas to enhance local sustainability.
- **Provide Financial Incentives for Sustainability Certifications:** A **subsidy-based model** should be introduced to encourage SMEs to obtain global sustainability labels such as **Green Key, EU Ecolabel, and GSTC Certification.**

2.2. Improving Infrastructure to Support Innovation

- **Invest in Smart and Green Infrastructure:** Governments should allocate funds for **renewable energy integration, digital connectivity, and sustainable waste management solutions** in tourism-intensive areas.
- **Develop Sustainable Transport Networks:** Countries should invest in **electric vehicle infrastructure, smart bike-sharing systems, and green maritime transport** to reduce tourism's carbon footprint.

- **Upgrade Digital Infrastructure in Rural Tourism Areas:** High-speed internet and IoT-based tourism services should be expanded to enhance smart tourism applications.

2.3. Enhancing Regulatory and Governance Systems

- **Simplify Bureaucratic Processes for Sustainable Tourism Investments:** Greece's experience highlights that **long approval processes for eco-tourism projects** discourage innovation. Governments should establish **fast-track regulatory frameworks** for tourism businesses adopting green solutions.
- **Create Regional Sustainability Standards:** Inspired by Türkiye's **TR-I Sustainability Certification**, countries should introduce **mandatory sustainability policies** in tourism development projects.
- **Develop Cross-Sectoral Blue Growth Strategies:** Governments should collaborate with the **private sector, academia, and NGOs** to create **blue economy policies** tailored to their tourism sectors.

2.4. Expanding Public-Private Partnerships (PPPs)

- **Support Startups through Sector-Specific Acceleration Programs:** Following Türkiye's **TourisTech Incubation Hub**, similar initiatives should be established in Greece, Bulgaria, and Moldova to connect startups with tourism operators.
- **Encourage Industry-Academic Cooperation for Smart Tourism Development:** Universities should develop **joint research projects with tourism enterprises** to create AI-driven visitor management tools and smart tourism infrastructure.
- **Strengthen NGO Involvement in Sustainable Tourism Awareness Campaigns:** NGOs should be actively involved in **training local communities** and **monitoring sustainability compliance.**

2.5. Education and Workforce Development

- **Integrate Sustainability and Innovation into Tourism Education:** Tourism curricula at vocational schools and universities should **include modules on smart tourism, digital tools, and sustainability strategies**.
- **Launch Government-Supported Training Programs for SMEs:** National tourism boards should provide **free training programs** on **AI-driven sustainability monitoring, digital marketing, and circular economy practices**.

3. Transnational Level: Cross-Border and Global Actions

A **regional and international approach** is required to ensure knowledge-sharing, best-practice dissemination, and policy harmonization in sustainable tourism across the Black Sea Basin.

3.1. Creating a Transnational Smart Tourism and Blue Growth Network

- **Establish a Black Sea Sustainable Tourism Forum:** A **biannual event** should be created where tourism businesses, startups, policymakers, and researchers share best practices on sustainable tourism innovation.
- **Develop a Regional Smart Tourism Observatory: A digital platform** should be launched to monitor the adoption of sustainability innovations and provide open-access data for businesses and policymakers.

3.2. Standardizing Sustainable Tourism and Blue Growth Policies

- **Harmonize Sustainability Certification Programs:** Inspired by Türkiye's **TR-I Sustainability Certification**, Black Sea Basin countries should develop a **region-wide certification system** for tourism sustainability.
- **Align Blue Growth Strategies with EU and Global Standards:** Countries should adapt their tourism sustainability policies to meet **EU Green Deal objectives** and **UN Sustainable Development Goals (SDGs).**

3.3. Cross-Border Innovation Projects

- **Develop Joint R&D Programs on Smart Tourism Technologies:** Countries should collaborate on research projects focused on **AI-driven sustainability monitoring, marine conservation technologies, and circular economy solutions** in tourism.
- **Create a Transnational Investment Fund for Sustainable Tourism Startups:** A **jointly funded innovation accelerator** should support early-stage tourism startups developing **smart mobility, zero-carbon tourism services, and AI-powered visitor experience platforms.**
- **Enhance Regional Transport and Connectivity for Sustainable Tourism:** Transnational infrastructure projects should focus on **green ports, electric ferry systems, and cross-border sustainable transport links.**

Conclusion: Towards a Resilient and Innovative Tourism Model

A sustainable and innovation-driven tourism sector in the **Black Sea Basin** requires **a multi-level strategy** that integrates **financial incentives, digitalization, regulatory reform, cross-sector collaboration, and transnational cooperation.**

By adopting these recommendations at **company, national, and transnational levels**, the region can transition towards **a more resilient, environmentally friendly, and economically vibrant** tourism industry—**where sustainability is not just an option, but a core driver of competitiveness and long-term growth.**

ANNEX 1: Survey Questions

Questions For the General Survey

Section "Low Innovation Absorption"

1. Do you think technology and innovations are used sufficiently for sustainable tourism and blue growth in your coastal or riverside area? (Current Practices/State)
    a. Definitely Insufficient
    b. Insufficient
    c. Partially Sufficient
    d. Sufficient
    e. Definitely Sufficient

2. What are the main challenges preventing the use of new technologies in sustainable tourism and blue growth? (Challenges)
    a. High costs and limited funding sources
    b. Lack of access to technology and inadequate infrastructure
    c. Limited knowledge and skills in new technologies
    d. Regulatory and bureaucratic barriers
    e. Lack of awareness about the benefits of technology in tourism

3. How does the use of innovations and new technologies support sustainable tourism and blue growth in your coastal or riverside area? (Solutions)
    a. By increasing visitor numbers and revenue for local communities.
    b. By improving visitor experiences and satisfaction.
    c. By fostering environmentally-friendly practices and reducing ecological impact.
    d. By creating new job opportunities and supporting the local economy.
    e. It has minimal impact on sustainable tourism and blue growth.

4. Which actors or institutions do you believe should take responsibility for supporting innovations in sustainable tourism and blue growth? (Policies and Regulations)
    a. National government agencies
    b. Local governments and municipalities
    c. Private sector companies and investors
    d. Non-governmental organizations (NGOs) and community groups
    e. International organizations and development agencies

Questions For the Focus Group

Section "Low Innovation Absorption"

1. Effectiveness of innovation practices:

Which are the most common innovative practices for improving the sustainability of tourism in the Black Sea Basin? What additional insights or recommendations would you like to share regarding enhancing innovation absorption in sustainable tourism?

2. Challenges before adopting innovations for sustainability:

What do you believe are the main barriers to adopting innovative practices in sustainable tourism?

3. Adopting Smart Technologies and Innovation for sustainability:

What initiatives or measures should be taken to promote the use of innovation and technology for sustainable tourism and blue growth?

Extra questions

4. Future Needs and Policy Development:

Which institutions should play a more active role in supporting innovation in sustainable tourism? In your opinion, how can collaboration among stakeholders be improved to foster innovation?

5. Local Communities:

How do you think local communities could be more effectively engaged in promoting sustainable tourism and blue growth through innovative practices?

Questions For the In-Depth Interview

Section "Low Innovation Absorption"

1. How do you assess the level of absorption of technological and management innovations in the tourism sector in your coastal or riverside area? (Current Practices/State)

2. What are the main challenges organizations in tourism face in adopting new technologies and innovative practices? (Challenges)

3. What contributions may the start-up ecosystem make to the development of sustainable tourism and blue growth? (Managerial Solutions)

4. Do you have successful examples of innovations or technologies that promote sustainable tourism and blue growth? (Technological Solutions)

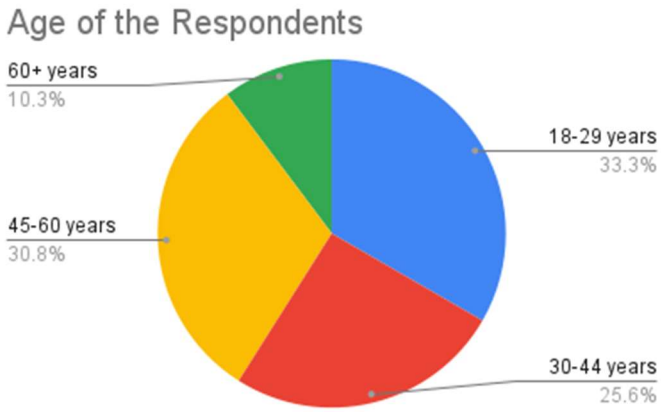
5. What measures do you think could be implemented to stimulate the adoption of innovations for sustainable tourism and blue growth? What revisions of polices and regulations would you recommend in this regard (Policies and Regulations)

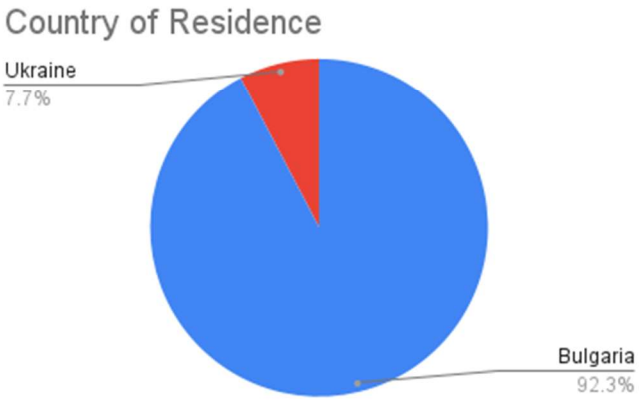
6. What are the main barriers to adopting innovations for sustainable tourism and blue growth? What specific support is needed in this regard? (Future needs)

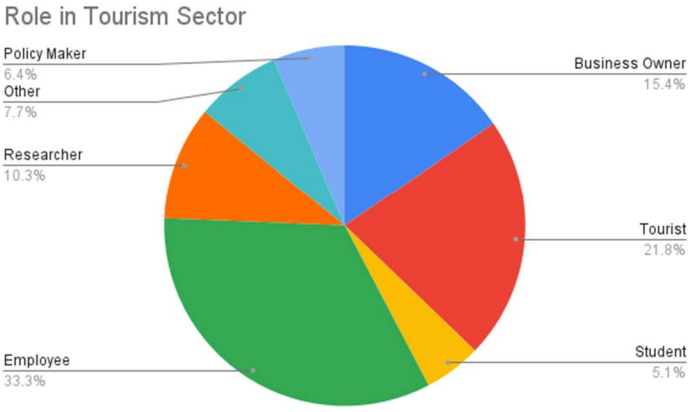
ANNEX 2: Respondents' Profiles

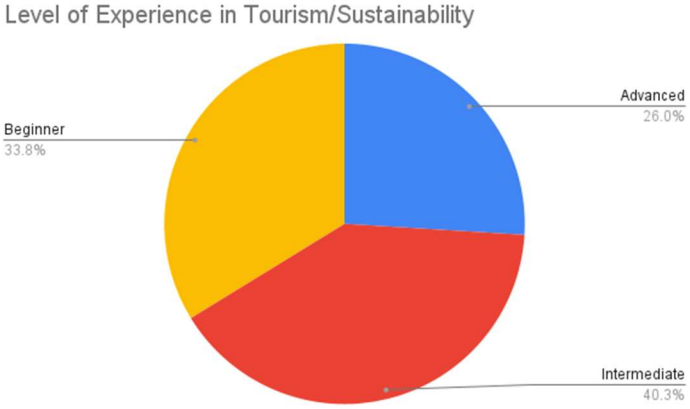
General Survey

Bulgaria

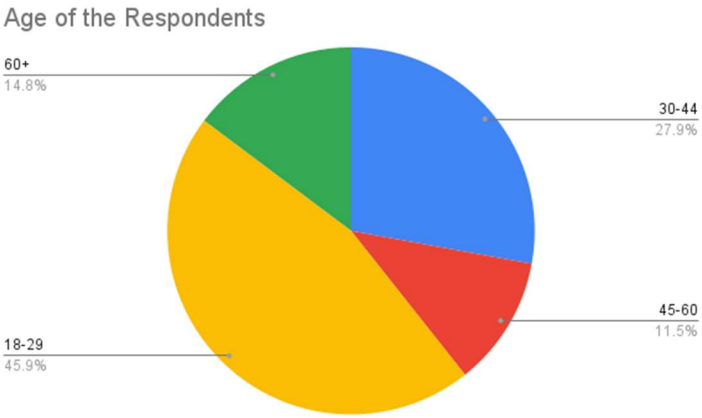


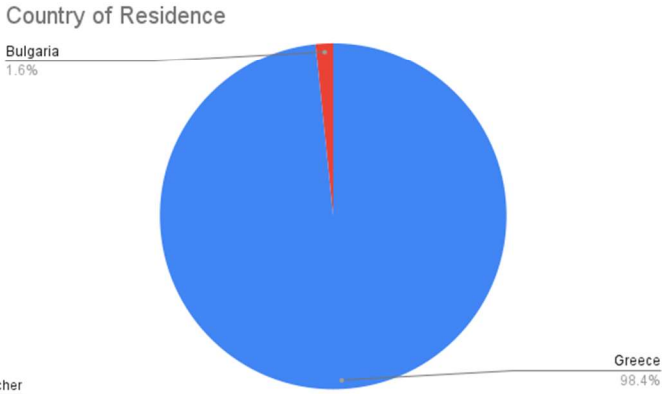


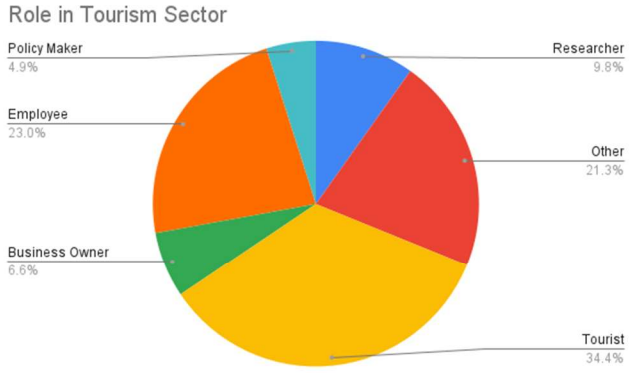


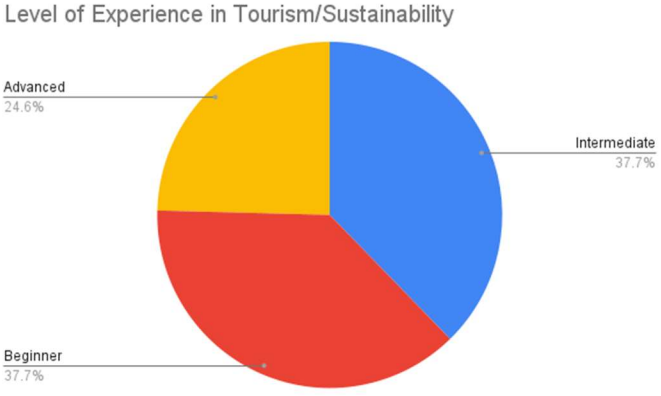


Greece

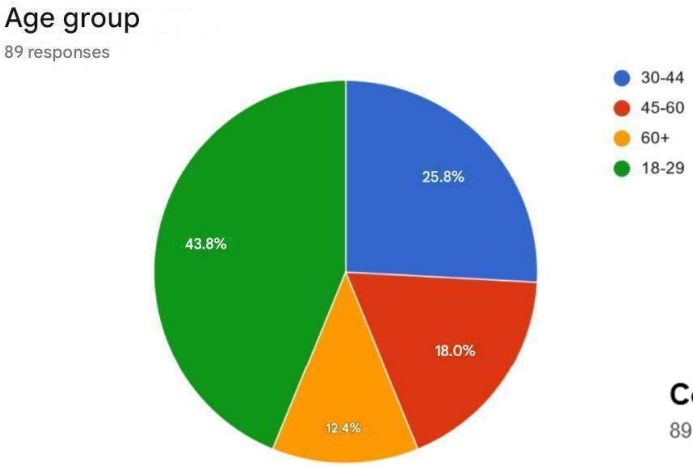

Age of the Respondents
60+
14.8%
30-44
27.9%
45-60
11.5%
18-29
45.9%

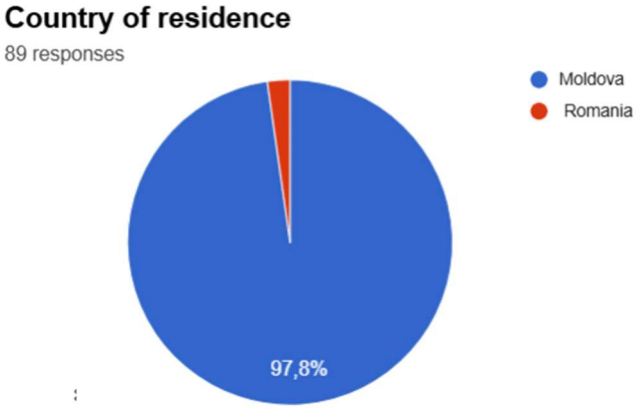

Country of Residence
Bulgaria
1.6%
Greece
98.4%

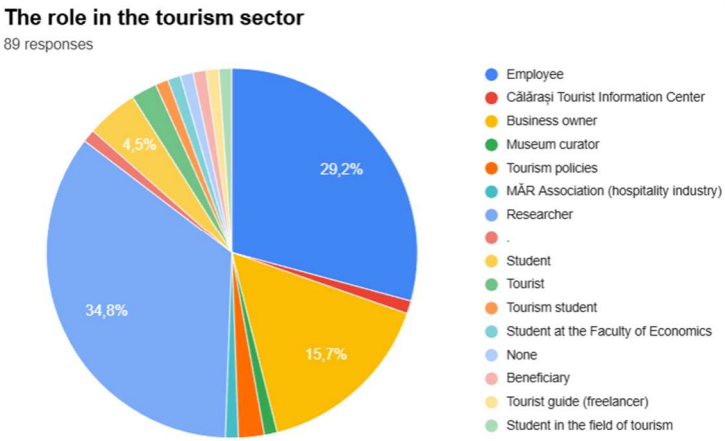

Role in Tourism Sector
Policy Maker
4.9%
Researcher
9.8%
Employee
23.0%
Other
21.3%
Business Owner
6.6%
Tourist
34.4%

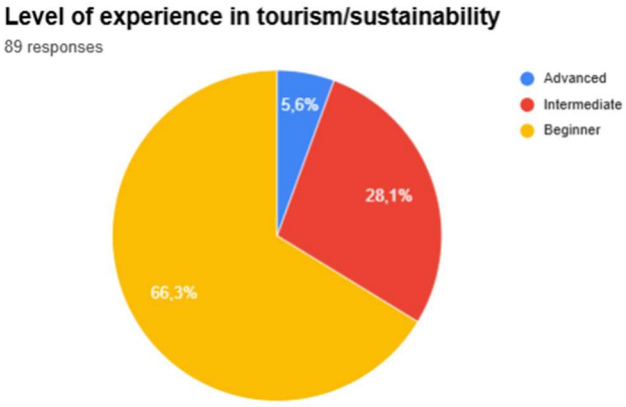

Level of Experience in Tourism/Sustainability
Advanced
24.6%
Intermediate
37.7%
Beginner
37.7%

Moldova

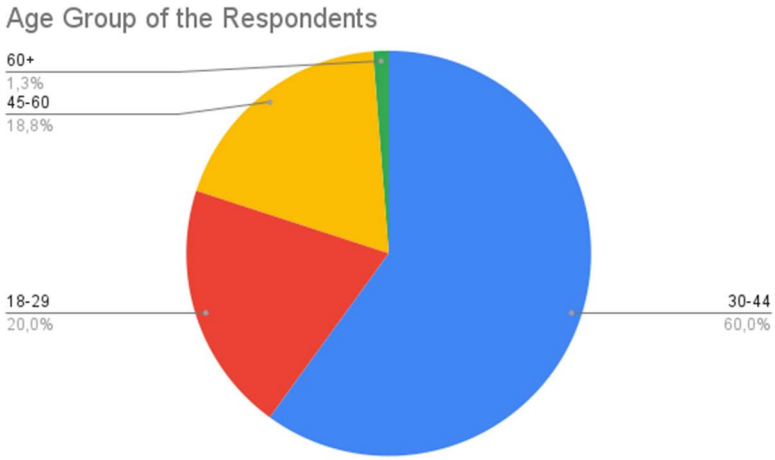

Age group
89 responses
30-44
45-60
60+
18-29
25.8%
18.0%
12.4%
43.8%

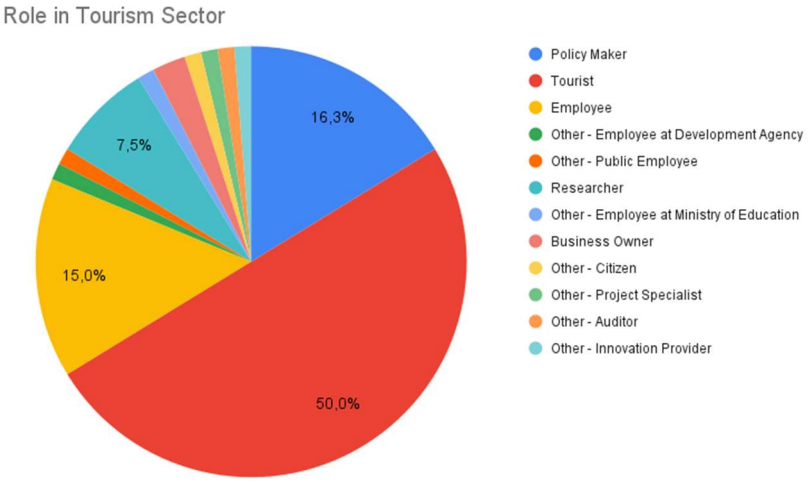

Country of residence
89 responses
Moldova
Romania
97,8%

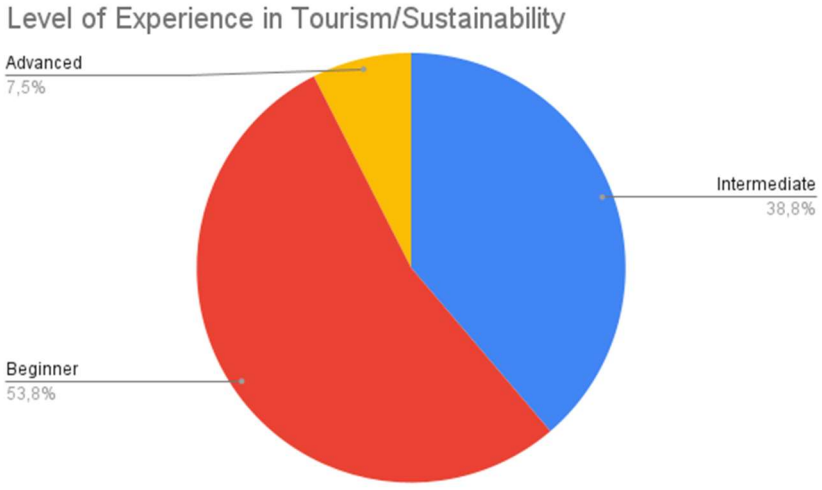

The role in the tourism sector
89 responses
Employee
Călărași Tourist Information Center
Business owner
Museum curator
Tourism policies
MĂR Association (hospitality industry)
Researcher
.
Student
Tourist
Tourism student
Student at the Faculty of Economics
None
Beneficiary
Tourist guide (freelancer)
Student in the field of tourism
29,2%
15,7%
34,8%
4,5%


Level of experience in tourism/sustainability
89 responses
Advanced
Intermediate
Beginner
5,6%
28,1%
66,3%

Türkiye


Age Group of the Respondents
60+
1,3%
45-60
18,8%
18-29
20,0%
30-44
60,0%


Role in Tourism Sector
16,3%
7,5%
15,0%
50,0%
Policy Maker
Tourist
Employee
Other - Employee at Development Agency
Other - Public Employee
Researcher
Other - Employee at Ministry of Education
Business Owner
Other - Citizen
Other - Project Specialist
Other - Auditor
Other - Innovation Provider


Level of Experience in Tourism/Sustainability
Advanced
7,5%
Intermediate
38,8%
Beginner
53,8%

Focus Groups

Bulgaria

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	Tour Agent	Manager	Business/SME	>10
2	Tour Agent	Expert	Business/SME	>10
3	Hotel 2*	Expert	Business/SME	>10
4	Restaurant	Manager	Business/SME	>10
5	Hotel and Restaurant Complex	Manager	Business/SME	>10
6	Facility Company	Owner	Business/SME	>10
7	Association	Chair	NGO	>10
8	University	Researcher/educator	HEI and research	>10
9	University	Researcher/educator	HEI and research	>10
10	University	Researcher/educator	HEI and research	>10
11	University	Researcher/educator	HEI and research	>10
12	University	Researcher/educator	HEI and research	>10
13	University	Expert	HEI and research	>5
14	University	Expert	HEI and research	>5
15	University	Expert	HEI and research	>3

Greece

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	Association of Tour Guides	Member	NGO	>10
2	Hotel 3*	Manager	Business/SME	>10
3	Hotel 3*	Manger	Business/SME	>10
4	Hotel 3*	Manager	Business/SME	>10
5	Hotel 4*	Manager	Business/SME	>10
6	Hotel 5*	Manager	Business/SME	>10
7	Travel Agent	Owner	Business/SME	>10
8	Tour Operator	Manager	Business/SME	>10

Moldova

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	Ministry	Secretary General	National public authority	>10
2	Cluster	Expert	NGO	>10
3	Tourism Complex	Administrator	Business/SME	>10
4	Tourism Complex	Specialist	Business/SME	>10
5	Environmental NGO	President	NGO	>10
6	Local Initiative Group	Director	NGO	>10
7	International NGO	Coordinator	NGO	>10
8	Research Institute	Scientific research coordinator	HEI and research	>10
9	Government Agency	Head of directorates	National public authority	>10
10	Environmental Enterprise	Expert	Business/SME	>10

Türkiye

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	Provincial Directorate of a Ministry	Expert	Regional Public Authority	>10
2	Municipality	Expert	Local Public Authority	>10
	Municipality	Expert	Local Public Authority	>10
3	Hotel Association	Expert	Business Support Organisation	>10
4	Chamber	Expert	Business Support Organisation	>10
5	University	Researcher/Educator	HEI and Research	>10
6	University	Researcher/Educator	HEI and Research	>10
7	University	Researcher/Educator	HEI and Research	>10
8	Development Agency	Expert	Business Support Organisation	>10
9	Development Agency	Expert	Business Support Organisation	>10
10	Development Agency	Expert	Business Support Organisation	>10
11	Development Agency	Expert	Business Support Organisation	>10
12	Development Agency	Expert	Business Support Organisation	>10
13	Development Agency	Expert	Business Support Organisation	>10

In-Depth Interviews

Bulgaria

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	ApartHotel	Manager	Business/SME	>10
2	Tourist Attraction	Manager	Local Public Authority	>10
3	Eco-complex	Expert	Business/SME	6-10
4	Eco-park	Manager	Business/SME	3-5
5	Tour Agent	Manager	Business/SME	>10
6	Hotel***	Manager	Business/SME	>10
7	Guest House	Owner	Business/SME	>10
8	University	Researcher/educator	HEI and research	>10
9	Tourist Attraction	Expert	Business/SME	>10
10	Hotel	Manager	Business/SME	>10
11	Restaurant	Manager	Business/SME	6-10
12	Eco and spa resort complex	Manager	Business/SME	>10
13	Eco-village	Manager	Business/SME	>10
14	Glamping Association	Member	Business Support Organisation/NGO	>10
15	Regional Cluster	Board member	Business Support Organisation/NGO	>10
16	Guest House	Administrator	Business/SME	<3
17	Guest House	Administrator	Business/SME	6-10

Greece

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	Ministry	Expert	National public authority	>10
2	Municipality	Expert	Local Public Authority	<3
3	Hostel	Expert	Business/SME	>10
4	Association of Tour Guides	Expert	NGO	>10
5	Hotel 3*	Owner	Business/SME	>10
6	Hotel 3*	Expert	Business/SME	>10
7	Hotel 3*	Expert	Business/SME	>10
8	Hotel 3*	Expert	Business/SME	>10
9	Hotel 3*	Expert	Business/SME	>10
10	Hotel 4*	Expert	Business/SME	>10
11	Hotel 4*	Expert	Business/SME	>10
12	Hotel 5*	Expert	Business/SME	>10
13	Hotel 5*	Expert	Business/SME	>10
14	Travel Agent	Expert	Business/SME	>10
15	Travel Agent	Expert	Business/SME	>10
16	Tour Operator	Manager	Business/SME	>10
17	Tour Operator	Manager	Business/SME	>10
18	Airlines	Manager	Business/SME	>10
19	Shipping Company	Manager	Business/SME	<3

Moldova

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	Guest House	Expert	Business/SME	<3
2	Municipality	Deputy Mayor	Local Public Authority	>10
3	Cluster	Development consultant	Business Support Organisation	<3
4	District Council	Head of Directorate	Regional Public Authority	<3
5	Stakeholder NGO	Director	NGO	>10
6	Training Centre	Director	NGO	>10
7	Cluster	Director	Business Support Organisation	6-10
8	Guest House	Administrator	Business/SME	<3
9	Environmental Protection Inspectorate	Inspector	Regional Public Authority	3-5
10	Guest House	Owner	Business/SME	>10
11	Tour Agent	Expert	Business/SME	>10
12	Guest House	Administrator	Business/SME	3-5
13	Resort Complex	Manager	Business/SME	>10
14	National Association	Consultant	Business Support Organisation	>10
15	Social Initiative Centre	Administrator	NGO	6-10

Türkiye

	Organization /Institution	*Position*	*Sector and target group*	*Experience (Years)*
1	Budgeting Authority	Expert	National public authority	> 10
2	Ministry	Expert	National public authority	6-10
3	Tour Operator	General Manager	Business/SME	> 10
4	Tour Operator		Business/SME	
5	International Organization	Project Manager	NGO	> 10
6	Municipal Department for Waste Management	Senior Environmental Engineer	Local Public Authority	3-5
7	Tour Guides Chamber	Board Member	NGO	> 10
8	Tour Operator	Expert	Business/SME	< 3
9	Scientific and Technological Council	Researcher	HEI and research	> 10
10	Provincial Directorate	Vice Director	Regional public authority	> 10
11	Municipal Unit	Expert	Local Public Authority	> 10
12	Municipal Unit for Climate Change	Regional Planner	Local Public Authority	> 10
13	Association of Travel Agencies	Expert	Business Support Organisation	> 10
14	Development Agency	Expert	Business Support Organisation	> 10
15	University	Researcher/educator	HEI and research	6-10
16	Tech Company	Founder	Business/SME	> 10

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Interreg NEXT Black Sea Basin

Co-funded by the European Union

INTERSMARTS

Interdisciplinary Solutions for Smart Sustainable Tourism and Services for Blue Growth in the Black Sea Basin

Project No BSB00332

The **INTERSMARTS** project is a transnational initiative aimed at enhancing sustainability and fostering **Blue Growth** by improving the innovation capacities of the tourism sector in the **Black Sea Region.**

intersmarts.eu projects_research@vum.bg Intersmarts INTERSMARTS (group)

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VITAE DISCIMUS

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