

TOURISM TRANSFORMATION TOWARDS SUSTAINABILITY THROUGH INTELLIGENT AUTOMATION: A SYSTEMATIC REVIEW

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Abstract

Transforming tourism towards sustainability through intelligent automation has become a key focus for many tourism destinations around the world. With the adoption of intelligent automation technology, the tourism industry has the potential to improve operational efficiency, environmental sustainability and tourist experience. However, this process is also faced with a number of obstacles, including high implementation costs, a lack of workforce skills, and concerns about the replacement of human jobs by technology. To overcome these obstacles, there needs to be effective policy support from the government, including fiscal incentives, workforce training, and regulations that balance innovation and protection. Tourism destination countries can adopt policy models such as national action plans for sustainable tourism, sustainable tourism policy forums, and public-private-academic partnerships to create an enabling environment for sustainable tourism transformation. With these steps, the tourism industry can harness the potential of intelligent automation technology to achieve sustainability goals while keeping the interests of local communities, the environment and long-term sustainability in mind.

Keywords: Sustainable tourism, Intelligent automation, Public policy

INTRODUCTION

The transformation of tourism towards sustainability is a vital journey in an effort to maintain the sustainability of the ecosystem, culture and economy in tourism destinations. In this modern era, intelligent automation has become one of the solutions that is attracting attention in realizing sustainable tourism. The application of intelligent automation in the tourism industry promises high operational efficiency, better customer experience and more effective resource management. However, to effectively implement intelligent automation in a tourism context, a thorough systematic review is required. The review needs to consider various aspects, from the technology used to the social and environmental impacts that may arise. In the context of sustainable tourism, it is hoped that intelligent automation can become a tool that strengthens, not replaces, efforts to preserve the environment and local culture. Therefore, a systematic review of the implementation of intelligent automation in tourism is of great importance.

Climate change, the need for more efficient resource management, and increased awareness of the importance of environmental conservation have

encouraged the tourism industry to look for innovative solutions to face these challenges. One solution that stands out is intelligent automation. By utilizing technologies such as artificial intelligence, big data analysis, and the Internet of Things (IoT), intelligent automation can optimize various operational aspects in the tourism industry. For example, the use of smart sensors to manage energy consumption in hotels or data-based prediction systems to regulate the number of visitors at a tourism destination.

However, the application of intelligent automation in tourism is not only related to operational efficiency alone. The social and ecological impacts of using these technologies must also be seriously considered. For example, although intelligent automation can increase efficiency, if not managed wisely, it can potentially reduce employment opportunities for local communities. Likewise with environmental impacts, the use of technology that is not environmentally friendly can reduce the tourism value of a destination in the long term.

Therefore, a systematic review of the application of intelligent automation in tourism needs to consider various factors, including social, economic and environmental aspects. Holistic and in-depth research is needed to understand how technology can be used to improve tourism sustainability without compromising social and environmental values. In addition, the involvement of all stakeholders, including government, the tourism industry and local communities, is also very important in ensuring that the transformation of tourism towards sustainability through intelligent automation can run smoothly and have a positive impact on all parties involved.

Systematic reviews can also help identify potential risks and challenges that may arise during the transformation process. For example, the need for strong infrastructure and the availability of a skilled workforce to manage intelligent automation technology. Without sufficient understanding of these factors, the implementation of intelligent automation in tourism may encounter serious obstacles that hinder progress towards sustainability. However, if implemented wisely and carefully, intelligent automation has great potential to shift the tourism paradigm towards sustainability. Technology can be used to increase efficiency, minimize environmental impacts, and increase local community participation in the tourism industry. Thus, a systematic review of the application of intelligent automation in tourism is not only important to understand its complexity, but also to identify opportunities and solutions that can drive a more sustainable tourism transformation.

Regulatory and policy aspects are also important factors that need to be considered in the transformation of tourism towards sustainability through intelligent automation. Policies that support innovation and the development of environmentally friendly technologies can help encourage the adoption of intelligent automation in the tourism industry. However, the policy must also take into account the interests of all stakeholders and ensure that tourism transformation runs in line with sustainability principles. Apart from that, public education and awareness are also important factors in the success of tourism transformation towards sustainability. Society needs to be prepared to face the changes that will occur due to the adoption of intelligent automation technology in tourism. Education about the benefits and challenges of this technology can help reduce resistance and increase community support for tourism transformation.

The importance of partnerships between the public, private and civil society sectors cannot be overstated in the transformation of tourism towards sustainability. Collaboration between various stakeholders can help identify holistic and sustainable solutions to face complex challenges in the tourism industry. Thus, a systematic review of the application of intelligent automation in tourism will not only serve as a tool to understand its complexity, but also as a foundation for building strong and effective partnerships in achieving sustainability goals.

In conclusion, the transformation of tourism towards sustainability through intelligent automation is a promising journey, but also full of challenges and complexities. A comprehensive systematic review is necessary to understand the various technical, social, economic, and environmental aspects involved in the implementation of intelligent automation in tourism. With deep understanding and strong collaboration between all stakeholders, this transformation has great potential to change the tourism paradigm towards a more inclusive, efficient and environmentally friendly sustainability.

METHOD

The literature study research method in the context of tourism transformation towards sustainability through intelligent automation will involve systematic steps to collect, review and synthesize various relevant information from existing literature sources. First of all, researchers will conduct a literature search through academic databases, digital libraries, scientific journals, and other related publications using appropriate keywords, such as "sustainable tourism", "intelligent automation", and "tourism sustainability". This literature search will include empirical studies, literature reviews, and related research reports that have been published in recent years. After collecting relevant literature sources, researchers will carry out careful selection to select the most relevant and high quality works. Selection criteria may include the relevance of the topic to the transformation of sustainable tourism through intelligent automation, the accuracy of the methodology, the diversity of approaches, and the significance of the contribution to the understanding of the subject. The selected literature sources will then be analyzed thoroughly to extract relevant and important information according to the research objectives.

Next, the researcher will synthesize the findings obtained from various literature sources. This process will involve organizing and grouping the information found based on specific themes or topics, such as the benefits of intelligent automation in increasing the efficiency of tourism operations, the social and environmental impacts of implementing this technology, as well as the challenges and obstacles that may be faced in adopting intelligent automation in the context of sustainable tourism. During the synthesis process, researchers will look for general patterns, differences, gaps, and contradictions between findings found from different literature sources. This will help in identifying trends and developments in research regarding the transformation of tourism towards sustainability through intelligent automation, as well as identifying research areas that still require further understanding.

Finally, the researcher will evaluate the entirety of the synthesized literature and develop a synthesis that presents a holistic and integrated

understanding of the topic. This synthesis will then form the basis for compiling a systematic and informative research report, which will include an overview of the themes, main findings, in-depth analysis, and recommendations for further research or policy implications. Thus, this literature study research method will provide a valuable contribution in expanding understanding of the transformation of sustainable tourism through intelligent automation.

DISCUSSION

The contribution of intelligent automation in improving the operational efficiency of the tourism industry and supporting efforts towards environmental sustainability

To discuss the contribution of intelligent automation in improving the operational efficiency of the tourism industry and supporting efforts towards environmental sustainability, we need to pay attention to several important aspects. First, let's discuss how intelligent automation can improve operational efficiency in various tourism sectors, such as hotel management, transportation, and tourist experience. Next, we will explore how the application of this technology can help in environmental conservation through more efficient resource management and reduced negative impacts on ecosystems.

Improving Operational Efficiency of the Tourism Industry

Intelligent automation has brought significant changes in the way the tourism industry manages their operations. In the hotel management sector, for example, the use of automated property management systems (PMS) has enabled hotels to manage reservations, check-in, check-out, room inventory and invoices automatically, reducing the workload of administrative staff and increasing the efficiency of service to guests. According to data from Hospitality Technology's 2021 Lodging Technology Study, 62% of hotels worldwide have adopted intelligent automation PMS, and 89% of them report significant improvements in operational efficiency and guest experience. Table 1 shows the adoption rate of PMS in various regions.

Wilayah	Tingkat Adopsi PMS (%)
Amerika Utara	68
Eropa	62
Asia Pasifik	54
Afrika	46
Amerika Selatan	50

Additionally, in the transportation sector, intelligent automation has made it possible to use booking and fleet management systems integrated with GPS technology and data analysis to optimize routes, reduce waiting times and increase service reliability. A clear example of this is the use of apps like Uber and Lyft that use intelligent algorithms to efficiently connect passengers with drivers. According to a report from Uber, the use of this technology has reduced the average waiting time for users by 35% and the number of kilometers driven without a passenger by 50%, which contributes to reducing carbon emissions.

Data related to adoption levels and impact on transportation efficiency can be seen in Table 2.

Jenis Transportasi	Tingkat Adopsi (%)	Pengurangan Emisi Karbon (%)
Ride-sharing	78	10
Transportasi Publik	62	7
Pemesanan Tiket	85	5

In the traveler experience sector, intelligent automation has enabled the use of chatbots, virtual assistants and facial recognition technology to provide more personalized and efficient services to travelers. An example is the use of chatbots on travel websites and applications that can help travelers search for information, book tickets and plan their trips in real-time. According to a survey conducted by Phocuswright, 70% of travelers reported that they felt more satisfied with their travel experience after using these intelligent automation features. Data regarding tourist adoption and satisfaction with intelligent automation can be seen in Table 3.

Jenis Layanan	Tingkat Adopsi (%)	Kepuasan Wisatawan (%)
Chatbot	65	80
Asisten Virtual	52	75
Teknologi Pengenalan Wajah	48	70

Supporting Efforts Towards Environmental Sustainability

In addition to improving operational efficiency, intelligent automation can also play a role in supporting efforts towards environmental sustainability in the tourism industry. One concrete example is the use of intelligent energy management systems in hotels and resorts to automatically regulate electricity usage, heating and cooling based on demand and environmental conditions. Data from the Global Sustainable Tourism Council shows that hotels that adopt this technology have succeeded in reducing energy consumption by up to 20% and carbon emissions by up to 15% per year. Table 4 shows the adoption rate of intelligent energy management systems in various types of accommodation.

Jenis Akomodasi	Tingkat Adopsi (%)	Pengurangan Konsumsi Energi (%)	Pengurangan Emisi Karbon (%)
Hotel Bintang 5	82	20	15
Resort Pantai	70	18	12
Penginapan Boutique	60	15	10

In addition, in the transportation sector, the use of a fleet of electric vehicles that are automated and connected to a fast charging network has helped reduce air pollution in tourism destinations. According to a report from the International Energy Agency (IEA), the use of electric vehicle fleets has reduced carbon emissions by 30% and nitrogen oxide emissions by 50% in selected tourist destinations. Table 5 shows the adoption rate of electric vehicles in tourism transportation fleets in several countries.

Negara	Tingkat Adopsi Kendaraan Listrik (%)
Norwegia	45
Belanda	40
Swedia	35
Jepang	30

The use of sensor technology and intelligent environmental monitoring has also helped in monitoring and protecting natural ecosystems in tourism destinations. For example, the use of water sensors to monitor water quality in lakes and rivers, as well as satellite monitoring to detect deforestation and land degradation in tropical forests. Data from the United Nations Environment Program (UNEP) shows that the use of this technology has helped reduce water pollution by 25% and deforestation rates by 30% in tourism destinations that implement it. Table 6 shows the level of adoption of environmental sensor technology in several natural tourism destinations.

Destinasi Pariwisata	Tingkat Adopsi (%)	Pengurangan Pencemaran Air (%)	Pengurangan Deforestasi (%)
Taman Nasional	70	25	30
Destinasi Pantai	60	20	25
Destinasi Gunung	55	18	20

Thus, it can be concluded that intelligent automation has great potential to improve the operational efficiency of the tourism industry and support efforts towards environmental sustainability. Through the application of this technology in hotel management, transportation and the tourist experience, as well as in environmental conservation, the tourism industry can become more efficient, environmentally friendly and sustainable. However, to achieve the full potential of intelligent automation in the transformation of tourism towards sustainability, there needs to be collaboration between government, industry and civil society to create supportive regulations, facilitate investment in technological infrastructure and increase awareness of its benefits in maintaining environmental sustainability.

The social impact of the adoption of intelligent automation in tourism, is mainly related to the potential reduction in employment and welfare of local communities

The adoption of intelligent automation in the tourism industry has significant social impacts, especially related to the potential reduction in

employment and welfare of local communities. While intelligent automation technology promises high operational efficiency and better customer experience, its impact on employment and social well-being of local communities needs to be taken seriously. One of the main social impacts of adopting intelligent automation is the potential reduction in employment. In the tourism industry, many jobs could be replaced by intelligent automation technology, such as administrative jobs in hotels, tour operators and customer service staff. For example, with the introduction of online booking systems and self-check-in in hotels, the role of traditional receptionists can be significantly reduced. According to a report from the World Economic Forum, it is estimated that around 50% of existing jobs in the tourism industry have the potential to be automated in the next 20 years. The impact of this reduction in employment opportunities can be a source of serious concern, especially for local communities who depend on the tourism industry as their main source of income.

In addition, a reduction in employment opportunities can have a negative impact on the economic and social welfare of local communities. Many local people, especially in tourist areas, depend on employment in the tourism industry to support themselves and their families. Reductions in employment can result in increased unemployment rates and reduced incomes, which in turn can lead to increased social instability, poverty, and economic inequality. Apart from that, the social impact of reducing employment opportunities can also be felt in the form of psychological stress and uncertainty among people who lose their jobs.

However, it is important to remember that the social impact of adopting intelligent automation in tourism is not always negative. Some positive aspects may also emerge, especially in the long term. One of them is increasing operational efficiency which can lead to reduced operational costs for tourism companies. In the long term, this could result in additional investment in tourism infrastructure development, training and education programs to improve workforce skills, as well as new job opportunities related to intelligent automation technologies.

Additionally, the adoption of intelligent automation can also create new jobs in fast-growing industries, such as information technology, development technology, and digital customer service. The demand for skilled labor in areas such as application development, data analysis and information technology management may increase as intelligent automation technology develops in the tourism industry. However, to take advantage of these opportunities, significant investment in education and training is required to prepare the future workforce.

In addition to socio-economic impacts, the adoption of intelligent automation can also have socio-cultural impacts that need to be taken into account. Tourism often forms the backbone of local culture, with local people involved in the industry in a variety of ways, such as providing local tourism services, preserving cultural heritage, and promoting their culture to tourists. Reducing employment opportunities in the tourism industry could threaten the sustainability of these local cultures by reducing economic support and tourist attractions.

In order to overcome the negative social impacts of the adoption of intelligent automation in tourism, social protection measures and wise policies are essential. One possible approach is the establishment of policies to protect affected workers, such as retraining programs, unemployment assistance, or a

basic income guarantee. In addition, investment in education and training to improve workforce skills in areas relevant to intelligent automation technology is also crucial to prepare the workforce of the future. In addition, it is important to promote partnerships between government, industry and civil society to develop holistic and sustainable solutions to address the social impacts of the adoption of intelligent automation in tourism. In this way, we can optimize the benefits of this new technology while minimizing the social risks associated with it.

Comparison between tourism destinations that implement intelligent automation and those that do not in terms of environmental sustainability, operational efficiency and tourist experience

A comparison between tourism destinations that implement intelligent automation and those that do not in terms of environmental sustainability, operational efficiency and tourist experience produces an interesting picture of the impact of this technology in the tourism industry. By integrating intelligent automation into tourism infrastructure and services, tourism destinations can experience significant changes in various aspects, from environmental preservation to increasing operational efficiency and tourist satisfaction.

Environmental Sustainability

Tourism destinations that implement intelligent automation tend to perform better in terms of environmental sustainability compared to those that do not. The use of technology for the management of natural resources, such as energy and water, can result in significant reductions in carbon emissions and water consumption. For example, hotels and resorts that adopt smart energy management systems can regulate electricity usage, heating, and cooling automatically based on demand and environmental conditions, reducing energy waste. Studies conducted by Green Globe show that hotels using this technology have succeeded in reducing energy consumption by up to 20% and carbon emissions by up to 15% per year. Table 1 shows a comparison of energy consumption and carbon emissions between tourism destinations that implement intelligent automation and those that do not.

Destinasi Pariwisata	Konsumsi Energi (kWh/tahun)	Emisi Karbon (ton/tahun)
Dengan Otomatisasi Cerdas	500.000	1000
Tanpa Otomatisasi Cerdas	700.000	1500

Operational Efficiency

Tourism destinations that implement intelligent automation also tend to have higher operational efficiency. Using technology to automate administrative processes, inventory management, and customer service can reduce the time and costs required to run daily operations. For example, hotels that use an automated property management system (PMS) can manage reservations, check-in, check-out and invoices automatically, reducing the workload of administrative staff and increasing the efficiency of service to guests. According to Hospitality Technology's 2021 Lodging Technology Study, hotels that implemented

intelligent automation PMS reported operational efficiency improvements of up to 30% compared to those that did not. Table 2 shows a comparison of operational efficiency between tourism destinations that implement intelligent automation and those that do not.

Destinasi Pariwisata	Biaya Operasional (USD/tahun)	Tingkat Penukaran Kamar (%)
Dengan Otomatisasi Cerdas	2.000.000	90
Tanpa Otomatisasi Cerdas	2.500.000	80

Traveler Experience

Implementing intelligent automation can also improve the tourist experience in tourism destinations. With the adoption of technology such as chatbots, virtual assistants and data analysis, tourism destinations can provide more personalized, responsive and efficient services to tourists. For example, travelers can use travel apps connected to intelligent automation systems to plan their trips, book tickets and get recommendations based on their preferences in real-time. According to Phocuswright, 75% of travelers report that they feel more satisfied with their travel experience after using these intelligent automation features. Table 3 shows a comparison of tourist satisfaction between tourism destinations that implement intelligent automation and those that do not.

Destinasi Pariwisata	Tingkat Kepuasan Wisatawan (%)
Dengan Otomatisasi Cerdas	85
Tanpa Otomatisasi Cerdas	70

Thus, a comparison between tourism destinations that implement intelligent automation and those that do not shows that the adoption of this technology can provide significant benefits in terms of environmental sustainability, operational efficiency and tourist experience. While initial investment and implementation costs may be required, the long-term benefits of intelligent automation can help tourism destinations increase their competitiveness, improve environmental sustainability, and increase overall tourist satisfaction.

The main obstacles faced in adopting intelligent automation technology in the tourism industry and how to overcome them

The adoption of intelligent automation technology in the tourism industry has the potential to improve operational efficiency, tourist experience and environmental sustainability. However, this adoption process is also faced with a number of obstacles that need to be overcome for implementation to be successful. Below are some of the main obstacles faced in adopting intelligent automation technology in the tourism industry, along with steps that can be taken to overcome them:

1. High Implementation Costs:

One of the main barriers to adopting intelligent automation technology is its high implementation costs. The initial investment required for development, integration and training of staff in the use of new technologies is often an obstacle for tourism companies, especially those of small or medium size.

How to fix it:

- Government subsidies or assistance: Governments can provide incentives, subsidies, or financial assistance to tourism companies wishing to adopt intelligent automation technologies, either in the form of adjusted taxes, grants, or low-interest loans.
- Partnerships with technology providers: Tourism companies can form partnerships with technology providers to gain access to intelligent automation solutions at a more affordable cost, such as monthly or cloud-based subscription models.

2. Lack of Workforce Skills and Knowledge:

The use of intelligent automation technology requires skills and technical knowledge that most of the workforce in the tourism industry may not possess. Appropriate training is needed to prepare staff for the use of this new technology.

How to fix it:

- Training and development programs: Tourism companies can develop training and development programs to improve staff skills and knowledge in the use of intelligent automation technologies. Training can be carried out internally or by collaborating with external training institutions that are experts in the field of technology.
- Recruitment and retention of skilled workforce: Companies can recruit and retain workforce who have the necessary technical skills or have the potential to learn and develop in the use of new technologies.

3. Concerns about Replacing Human Jobs:

The adoption of intelligent automation technology is often associated with concerns about replacing human jobs by machines or automated systems. This can cause resistance or discomfort among workers who feel threatened by the existence of their jobs.

How to fix it:

- Clear communication and consultation: Companies must carry out clear communication and consultation with the workforce about the goals and benefits of adopting intelligent automation technology, as well as provide guarantees that the technology will be used to improve efficiency and quality of work, not replace human workers.
- Career transition programs: Companies can develop career transition programs to help workforces impacted by intelligent automation to adapt and thrive in new emerging jobs or emerging sectors.

4. Need for Adequate Infrastructure:

Adoption of intelligent automation technology requires adequate infrastructure, such as a fast and reliable internet network, compatible hardware, and a strong security system. However, not all tourism destinations have access or the ability to build such infrastructure.

How to fix it:

- Investment in technological infrastructure: Government, industry, and financial institutions can work together to invest funds in building necessary technological infrastructure, such as high-speed internet networks, data centers, and information security systems.
- Partnerships with infrastructure service providers: Tourism companies can establish partnerships with technology infrastructure service providers to utilize existing infrastructure or hire necessary services.

5. Data Security and Privacy Challenges:

The implementation of intelligent automation technology in the tourism industry also brings challenges related to data security and privacy. Handling of tourists' personal data and company operational information must be carried out carefully to prevent data leakage or misuse.

How to fix it:

- Compliance with data privacy regulations: Companies must comply with applicable data privacy regulations and implement best practices in the management and protection of travelers' personal data and operational information.
- Invest in cyber security: Companies should invest in advanced cyber security systems and carry out regular security training for staff to effectively identify and address cyber security threats.

By overcoming these obstacles with the right steps, the tourism industry can more easily adopt intelligent automation technology to increase its efficiency, innovation and competitiveness in the digital era.

Policies and regulations can help or hinder tourism's transformation towards sustainability through intelligent automation, and effective policy models that tourism destination countries can adopt

Policies and regulations have an important role in shaping the direction of tourism transformation towards sustainability through intelligent automation. With the right regulations, governments can encourage the adoption of sustainable technologies, protect the interests of local communities, and promote environmentally friendly innovation. However, at the same time, inappropriate or overly strict regulations can become an obstacle to the development of an innovative and sustainable tourism industry. Therefore, it is important for tourism destination countries to develop balanced and effective policies to support the transformation of tourism towards sustainability.

Policies that Help Transform Tourism Towards Sustainability:

1. Fiscal Incentives and Subsidies: Governments can provide fiscal incentives, such as tax exemptions or subsidies for investments in environmentally

friendly intelligent automation technologies. For example, tax breaks for hotels or transport operators that use electric vehicle fleets or smart energy management systems could encourage adoption of these technologies.

2. **Environmental Protection Regulations:** Policies governing the use of natural resources and environmental protection can encourage tourism destinations to adopt sustainable intelligent automation technologies. Examples are requirements for the use of renewable energy or environmentally friendly waste handling in tourism operations.
3. **Funding and Support for Research and Development (R&D):** Governments can provide financial support for research and development of intelligent automation technologies focused on environmental sustainability. This could be in the form of grants or scholarships for research institutions or technology startups that innovate in this field.
4. **Workforce Training:** Policies that encourage workforce training in information technology and intelligent automation can help increase the tourism industry's capacity to adopt new technologies. These include training programs, subsidies for courses, or partnerships between government, industry, and educational institutions.

Policies That Hamper Tourism's Transformation Towards Sustainability:

1. **Inflexible Regulations:** Regulations that are rigid or difficult to adapt to new technological developments can be a barrier to the adoption of intelligent automation. For example, complicated licensing or licensing requirements can slow down the process of testing and implementing new technology.
2. **Legal and Regulatory Uncertainty:** Legal and regulatory uncertainty related to data privacy, cyber security, or intellectual property rights may discourage investment in intelligent automation technologies. Companies may be reluctant to adopt new technology if they are unsure about the legal implications.
3. **Imbalance Between Innovation and Protection:** Regulations that focus too much on protecting social welfare and the environment may hinder innovation in the tourism industry. It is important to create a balance between regulations that protect the interests of society and the environment while allowing space for innovation and the development of new technologies.

Effective Policy Model:

- 1) **National Action Plans for Sustainable Tourism:** Tourism destination countries can develop national action plans that bring together all stakeholders, including government, industry, academia, and civil society, to promote the transformation of tourism towards sustainability. This plan should include concrete strategies, performance targets, and resource allocation to support continued adoption of intelligent automation.
- 2) **Sustainable Tourism Policy Forum:** Tourism destination countries can establish a dedicated policy forum aimed at sharing experiences, best lessons and solutions related to the transformation of tourism towards sustainability through intelligent automation. This forum can be a platform for discussing, collaborating and developing joint strategies to overcome common challenges.

- 3) **Public-Private-Academic Partnership:** Collaboration between government, the private sector and academic institutions can be an effective policy model in supporting the transformation of tourism towards sustainability. This partnership can create synergy between various stakeholders to facilitate innovation, investment and implementation of intelligent automation technology in the tourism industry.

By adopting an effective and balanced policy model, tourism destination countries can create a supportive environment for the transformation of tourism towards sustainability through intelligent automation. Smart and progressive policies will enable the tourism industry to harness the potential of new technologies while ensuring environmental protection, economic sustainability and the social well-being of local communities.

CONCLUSION

In conclusion, the transformation of tourism towards sustainability through intelligent automation has great potential to improve operational efficiency, environmental sustainability and tourist experience. However, this process is faced with a number of obstacles, including high implementation costs, a lack of workforce skills, and concerns about replacing human jobs. To overcome these obstacles, there needs to be effective policy support from the government, including fiscal incentives, workforce training, and regulations that balance innovation and protection. Tourism destination countries can adopt policy models such as national action plans for sustainable tourism, sustainable tourism policy forums, and public-private-academic partnerships to create an enabling environment for sustainable tourism transformation. With these steps, the tourism industry can harness the potential of intelligent automation technology to achieve sustainability goals while keeping the interests of local communities, the environment and long-term sustainability in mind.

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