The Prospects of 4IR Development in the Tourism Sector of Ajara

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Abstract

In the article we discus about The Fourth Industrial Revolution (4IR), which is expected to drive rapid economic development, with AI replacing labour and new professions emerging in Ajara. Georgia, a country with limited global economic growth trends, should try to identify primary development directions and create business incubator spaces for effective model functioning in the tourism sector, particularly in Adjara. Adjara, a popular tourist destination, can capitalize on this trend by implementing 4IR technologies. AI can provide personalized travel suggestions, automate customer care, and identify scams. Big data analytics can analyse tourist movements, find new market opportunities, and create successful marketing efforts. Bots can provide tourist information and services, and IoT can develop smart tourism destinations with features like real-time traffic information and smart parking. In this term, we think that the collaboration between public and commercial sectors, forward-thinking policies, and significant human resource expenditures are essential for achieving the full potential of 4IR in Adjara's tourism sector. The article aims to evaluate the potential impact of 4IR technologies on the Adjara tourism industry, identify opportunities and challenges, and provide recommendations for sustainable growth.

Keywords: Tourism Sector, Artificial Intelligence (AI), The Fourth Industrial Revolution (4IR)

Introduction

In anticipation of the Fourth Industrial Revolution (4IR), world-renowned research institutions expect exceptionally rapid rates of economic development. It is expected that artificial intelligence (AI) will replace a part of the labour and new professions are predicted to arise. Updating skills will be especially important for employment that will exist in the future.

There is no question that a nation like Georgia cannot predict the trends in global economic growth, and it is especially difficult to choose the appropriate development vector in the conditions. Considering this, we believe that, in conjunction with other prospects, the primary directions of Georgia's economic growth should be identified. To introduce innovations, gain a new niche in international markets, and become an economic leader in the region, we think it is necessary to create business incubator spaces for effective model functioning in Georgian regions, particularly in the tourism sector in Adjara.

The Fourth Industrial Revolution is a period of technological innovation that is revolutionizing the way individuals live, function, and interact with the world. The 4IR differs in that it combines digital, physical, and biological systems and the speed with which fresh and emerging technologies, particularly when it comes to the AI, big data, robots, and The Internet of Things, are emerging. The Fourth Industrial Revolution is influencing the tourist sector on a massive scale, as well as Adjara that is well-equipped to harness the power of this revolution. In addition to the proper infrastructure, the region has the proper infrastructure, including natural attractions, cultural heritage, and history. However, the industry is still mostly traditional but has the potential to be further improved through the implementation of 4IR technological advancements.

4IR may be used in the following ways to enhance the tourist industry in Adjara: 4IR technology may be used to enhance the tourist business in Adjara. The most common examples would be using AI to give clients tailored travel recommendations, to streamline customer service tasks, and detect and prevent fraud, and so on. Big data tools might also involve targeting tourists' activities and interests and identifying new market opportunities to develop better marketing campaigns. It is possible to make bots call and provide tourist with information and services; as well as take away some routine tasks like check-in and check-out. IoT may also be applied to create smart tourist destinations which incorporate services such as traffic updates, smart parking, and smart energy grid systems.

The goal of the article "The 4IR (Fourth Industrial Revolution) development prospects in the tourism sector of Adjara" is to analyse how the adoption of various 4IR technologies may potentially affect the tourism sector in the Adjara region of Georgia, to identify opportunities and threats that this change brings to the tourism industry, and to offer recommendations for sustainable development and growth of the sector.

The aim of this research is to determine opportunities and threats concerning 4IR and its implementation and how it can support sustainable growth in tourism sector of Adjara region.

The chosen research strategy is quantitative and qualitative one that includes the literature review, survey, primary and secondary data analysis, and consultation with stakeholders to reach the stated aim and goal.

Literature review

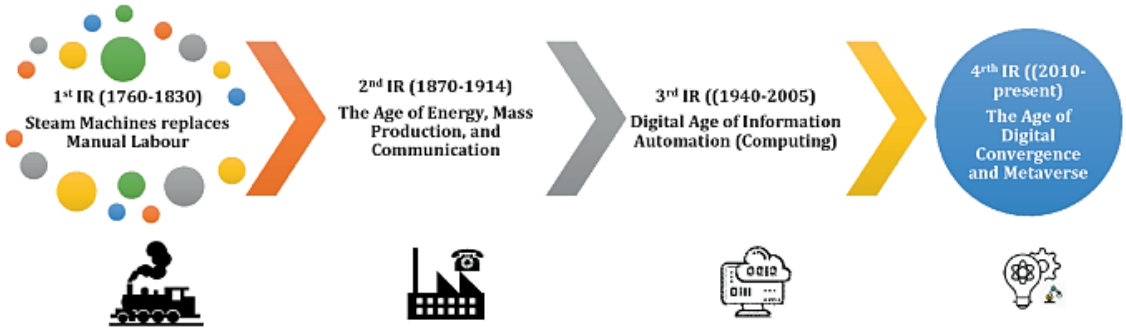
The twenty-first century is now being repackaged as a post-COVID-19 globalisation and innovation tale. But our story starts long ago – over three centuries. It is one of the most inspiring tales of transformation and creativity. It is now possible to ascertain that we are living

in the 4IR. It is called 4IR because we have experienced four discrete, disjointed editions of Industrial Revolution (IR).

These are the broad timelines of industrial revolutions development.

The **First Industrial Revolution** occurred between 1760 and 1830.The First Industrial Revolution was associated with a massive transformation of technological and economic systems away from agrarian and craft-based economy to one that involved industrial and machine- based production. Other key discoveries and inventions during this period include Mechanization, Steam Power, Factory System, Canals and Railways, Urbanization, Social and Economic Changes, Innovation and Capitalism. These changes provided the basis for further industrial revolutions and have transformed economies, societies, and life and work of the population.[1]

Figure 1: The Road to 4IR (4th Industrial Revolution) [2]



Source: *SpringerLink. Global Technology Management 2022*

The **Second Industrial Revolution:** From 1870 to 1914 the First Industrial Revolution developed the economic and technological basis of modern life. Some of the prominent characteristics of the Second Industrial Revolution are aligned below – Electrification; Chemical and Steel Industries; Internal Combustion Engine; Communication and Mass Media; Mass Production and Assembly Line; Globalization; Urbanization.

The Second Industrial Revolution featured both furious rates of creation and evolution of technologies as well as rates of economic growth that created the foundations of the modern industrial world. It also had other new negative impacts such as concerns over labour standards, environmental protection, and the governance of industrialization.[3]

The third Industrial Revolution also known as Kondratieff third industrial revolution is a period between 1940 and 2005 in which there was growth in electronics and information technology and automation. Some of the traits of this age include Computers & Electronics,

Digital Age, Information Age, IT Revolution, Communications, Telecommunications, Media, Internet, Automation, Robotics, Space, Biotechnology, Globalization and Environment.

The Third Industrial Revolution is the revolution that revolutionized our society, our economy and our communication that paved way for the digital age as well as the 4IR. It facilitated enormous development and resulted in some issues, such as the digital divide, and data protection and security. The diffusion of radical technologies as well as steam power, electricity, combustion engine, biotechnology and microelectronics has transformed contemporary capitalism. Theorists of economics have postulated three significant technical shifts: the first industrial revolution of the eighteenth century-the internal combustion engine and the electric motor – and the third industrial revolution today – focused on nano technology and global web.[4]

The **Fourth Industrial Revolution coined** as 4IR commenced in circa 2010s to the present and is typified by the integration of digital, physical, and biological technology. Some of the main areas of the Fourth Industrial Revolution include Digital Technologies; AI; IoT and connectivity; Blockchain; Biotechnology; Renewable energy; Autonomous vehicles; 3D Printing and Sustainability.

The Fourth Industrial Revolution is characterized as the era of great complexity wherein the physical, digital, and biological domains are no longer isolated from one another, creating significant opportunities and threats. It is characterized by speed in dissemination of innovation and transformation in various sectors that have impacts on employees, their ethics, and associated norms of society. In the era of a globalized and ratified world, this ongoing shift is altering the human experience and ways of life and labour. Top of Form

The coming fourth technological transformation is expected to significantly impact their lives, work, and interactions with a fourth transformation of a kind and complex move. For a responsive reaction to take place and be successful it has to be holistically responded to and this should involve and reach out to all stakeholders in the whole wide world especially the governmental sector and the business sector as well as the academics and all of civil society.[5,6]

Although further research is required to minimise the impact of COVID-19 on the tourist business, it can be stated that the virus has an impact on the tourist business and positively contributes to the future of the sector during future pandemics. The fact that the sector is a human service and exposure to the sector requires socially distancing makes it important to discuss the implications for the future. As per some of the academicians the tourist sector was

not prepared well as to face the hard times especially in case of e-tourism. An inquiry on how newly developed technology could support the sector in times of need is necessary.

The COVID-19 pandemic has hit the tourist industry hard as the viral infection has spread across the world and has had severe consequences on health. He also notes that nearly sixty million people have been affected and over one million have died due to the pandemic. The USA and EU were the first countries to report the events with the least number of cases occurring in the west of the globe. as per the World Tourism Organisation 2020, within the 2nd quarterly of 2020, all locations across the world have had restrictions placed on travel, therefore bringing an end to global tourism. It therefore weakened the growth of tourism and disrupted global businesses. Further studies are required to counter the negative impacts and ensure the sector continues in the future in particular concerning e-tourism and how newly emerged technologies might help the industry to respond and develop during crisis situations. The sustainability of the tourism industry is crucial and further research needs to be carried out to measure the impact of the pandemic on the future growth of sectors.

COVID-19 also had significant impacts on the global sport industry including airline and hotel cancelations negatively impacting the airline and hotel industries. Data released by UN World Tourism Barometer indicate that international visitor arrivals declined to 700 million from January to October 2020 a 72% drop in visitor arrivals. Aviation faced by 80% of the decline in flights compared to the same period last year. To avoid the spread of the virus, travel restrictions came into place, with super spreader events being cancelled.

The 4IR revolution has been progressively embraced in tourism, particularly during and post the pandemic. The innovation of professional companies employing technical structure has had a significant impact in the sector. Some of the mileage that hotels have attained in hospitality and tourism is inclusion of the hotel's keys to the Apple Wallet. Adoption of these technologies is increasing especially concerning the novel SARS-COV-2 which can impair the productive capabilities of the tourist industries. Even before the world encountered "stay at home, social distance," 4IR technologies were substitute for physical travel.

Virtual reality in tourism refers to the use of 3D technology to depict a users' perspective on real world objects; thus, negating mobility and allowing customers to benefit from places or objects without having to travel to those places. Jobs like Guangzhou are applied in the hotel industry for the service of rooms, delivering the cleaning amenities, and delivering the masks and sanitisers for hands. During the global pandemic, 5G and AI hotel industry applications transformed the sector by utilizing quick face recognition check-in and payment as well as non-

contact body temperature assessment to lessen the possibilities of infection and enhance the traffic rate.[7]

Various governments around the world coupled with the well-established digital structure are employing the 4IR technologies to mitigate and manage the inefficient technologies in the countries such as Belgium, China, France, Germany, Honduras, Italy, Jordan, Kuwait, Poland, Saudi, Singapore, Spain, South Korea, UAE, UK, the US, etc. Each of these nations is embracing 4IR technologies in their tourism industries in its own way and with its own area of emphasis; some are even at the forefront in the adoption.[8] Hence, here are some examples:

- Iceland is the example of sustainable tourism because it applies to the 4IR technologies in the sphere, including in smart energy management and data and AI-based solutions. One of such practices is the ION Adventure Hotel in Selfoss which has an environmentally sustainable approach.[9]
- Smart tourism is being implemented in Spain with 4IR technologies in cities of both Madrid and Barcelona with the purpose of enhancing the tourist experience and destination management with the implementation of the Internet of Things (IoT) sensors for supervision of traffic and control of parking and with the application of AI-powered chatbots for multiple languages of assistance and personalization of the visit.[10]
- Among the areas where Singapore takes the lead in 4IR technology is tourism where Artificial intelligence, as well as big data and Internet of Things, are employed to offer a tailored tour package. Changi Airport of Singapore uses AI-based face identification for border control, and smart hotels/IPOs and attractions offer personalization.[11]
- Japan is transitioning into 4IR techniques to better tourist products like using bots in hotels and airports or virtual/augmented reality to produce lifelike experiences, publicize cultural assets and facilities, provide better services related to tourism. The Fourth Industrial Revolution (4IR) will not lead to smart machines taking human jobs from people, Japan and the World Economic Forum say. Instead, they anticipate a 4IR that give rise to a compassionate, high-tech, human-cantered society.[12]
- After integrating 4IR technologies into its tourist sector, Estonia has become one of the digital champions in electronics and offers easy access. The country's online bookings, e-visas, e-residencies options are driven by e-Estonia technologies with AI-powered chatbots for global support and individualized recommendations. Countries that give attention to developing technology regulations have a higher probability of becoming global leaders and competitive players in various technology industries.[13]

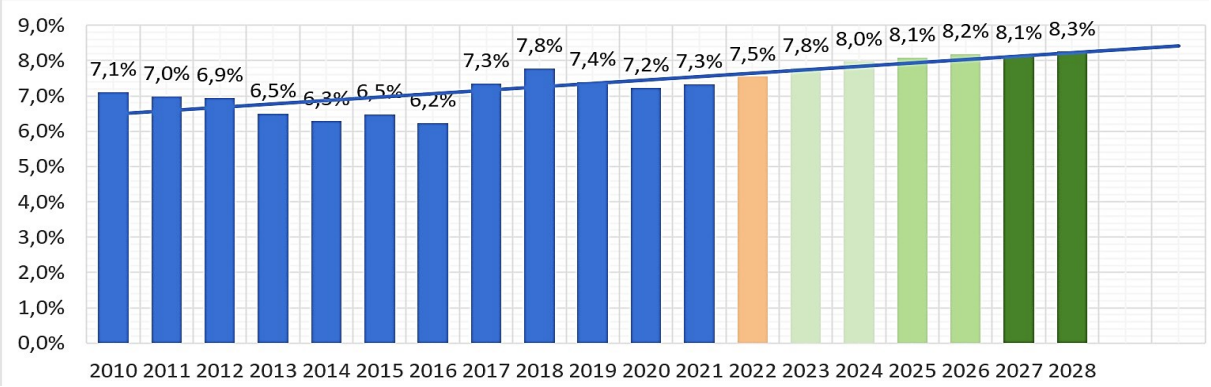
- Such 4IR technologies as artificial intelligence powered chatbots for customer support designed for the United States, personalized travel advice, and blockchain- based travel marketplaces are leading inventions in the global tourism industry. These advancements satisfy the individual's preferences, thus increasing customer satisfaction.[14]

To meet their own needs, resources, and cultural backgrounds, states such as the United States of America are beginning to use these technologies. Travel and destination management will, therefore, be influenced by the development of 4IR technologies.

After independence, tourism has been hindered by the socio-economic and political situation in the country. No systematic approach to tourism has been made; this has resulted in low efficiency. Nevertheless, the field has made big progress in recent years. The study and research of these potential uses and development is significant, as Georgia's diverse tourism potential, including mining, marine, bar, protected areas, and unique ecosystems, is of utmost importance. The state's focus on the tourism sector has resulted in positive factors for its development. Tourist infrastructure has improved, with an increase in international and local visitors. This has created favourable conditions for businesses, employment, and involvement, with a record high of 150,000 people employed. Tourism revenues and state financial revenues have also increased. Georgia's tourism potential has become more attractive, with government support from other countries and significant interest from international organizations, donor organizations, and charitable organizations.[15]

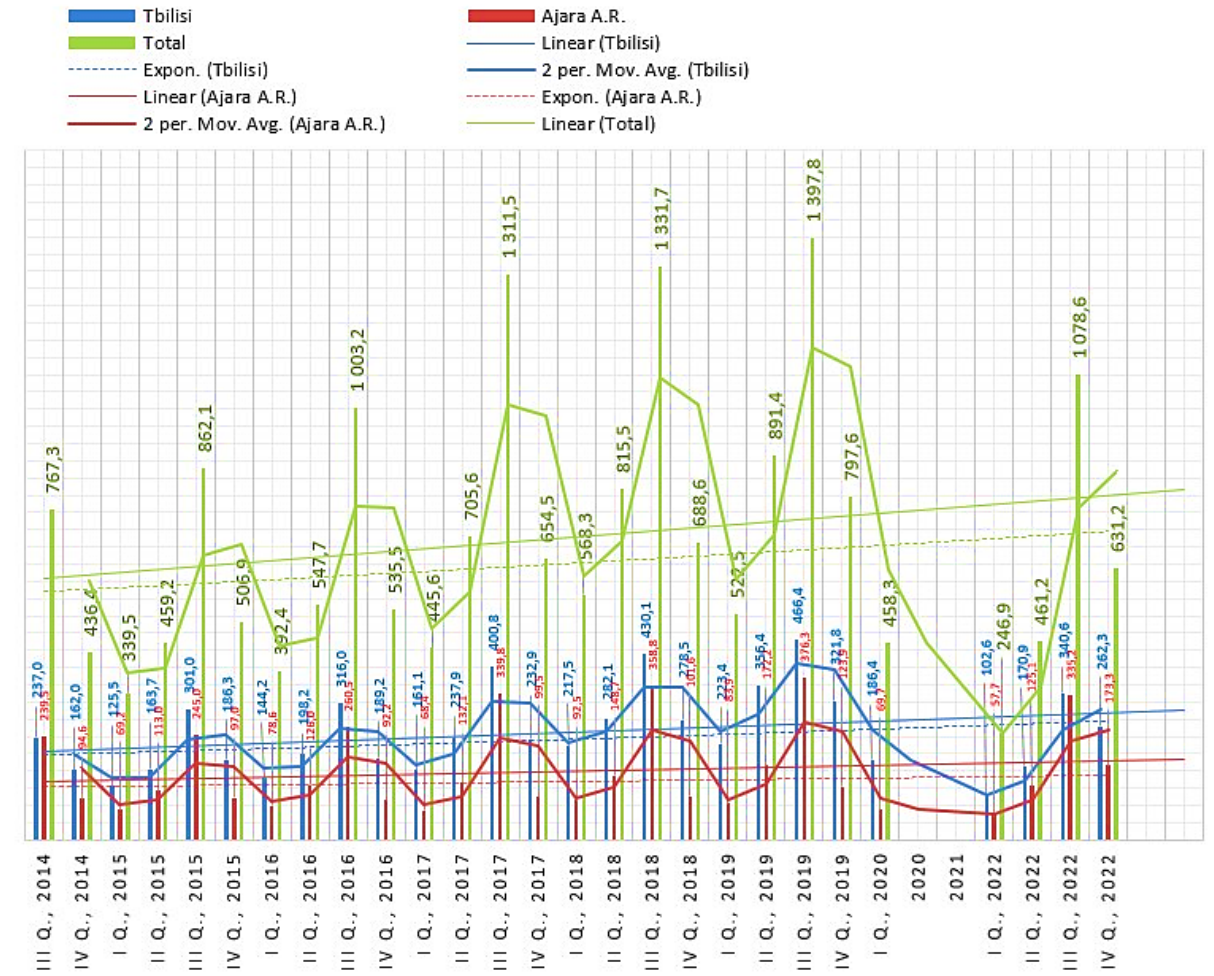
The estimate for the Tourist Sector of Georgia, precisely Tbilisi-Batumi, is taken from data by Georgia's National Statistics Office and Adjara Tourist Department for 2019-2021. The analysis assumes "status quo" conditions, which means there was not a COVID-19 pandemic in the industry. Tourism contributes to 8.3% of Georgia's GDP, compared to Forbes' prediction of 10.5% from 2018 to 2028. The data, having a 1.5% margin of error, shows a positive trend signalling future betterment in Georgia's tourism sector. (Chart N1).[16]

Chart N1: Tourism shares in GDP (ml. GEL)



Source: *National Statistic Office of Georgia (2022)*

Chart N2. Breakdown of an average quarterly number of visits to Georgia by visitors from other countries aged fifteen and older by region visited



Source: *National Statistic Office of Georgia (2023)*

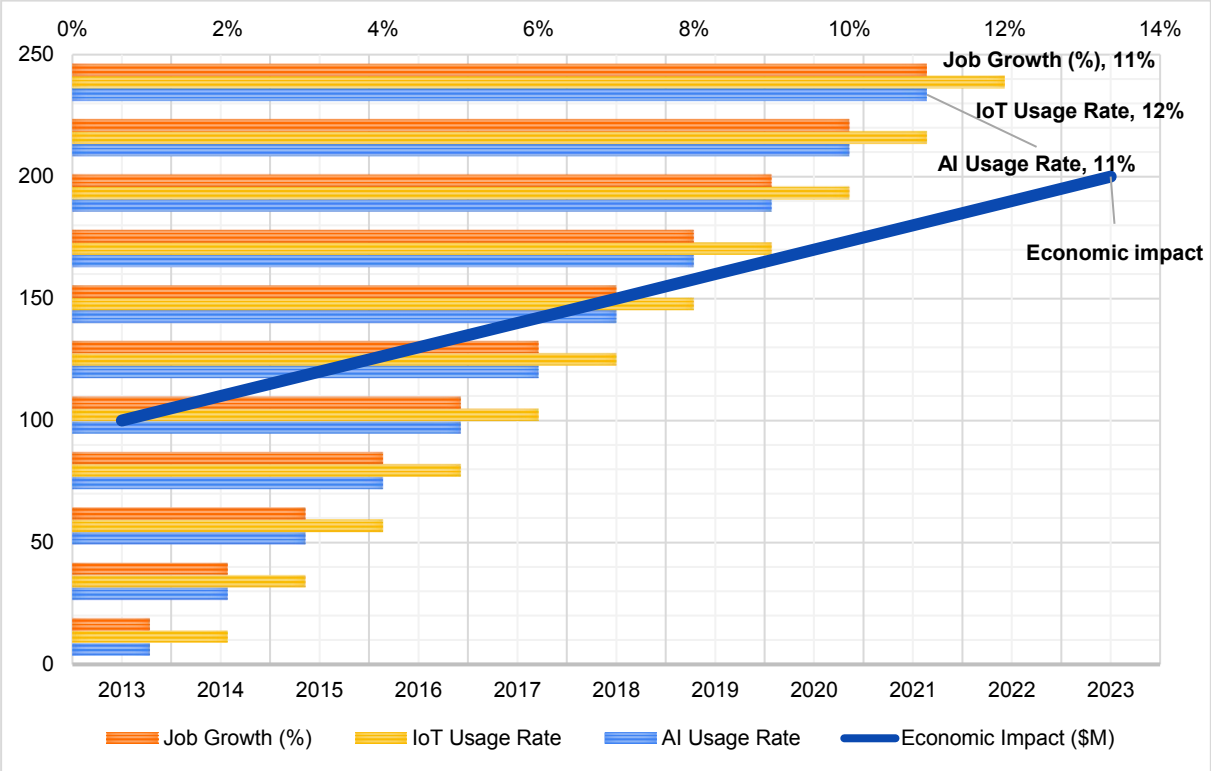
Generally, research results show an overall interest in tourism. Marine tourism, cruise tourism, and extreme tourism are the three priority types. The emerging one is wildlife tourism, which is close to extreme tourism. These types share similar activities, allowing for extreme tourism enthusiasts to meet their needs using the region's wildlife resources.

Technology usage rate in Adjara tourism sector

According to the Adjara Tourism Development Agency, technology utilization within the tourism sector is high, and 80% of the firms use at least one type of technology. The most used technologies are social media, used by 90% of the firms; booking systems, used by 85% of them; and customer relationship management systems, used by 70%. Other important technologies are the development of websites, electronic tools for marketing, and advertisement platforms. Among a wide array of advantages that the use of technology gives to the tourist

industry are. Here are a few concrete instances of how technology is being used in the Adjara tourist sector:

- Hotels: Many hotels in Adjara are using reservation platforms for easy booking procedures. CRM systems are also being applied in the measurement of interactions with clients and management of relationships with customers.
- Restaurants: To make it easy for consumers to purchase their meals, many Adjara cafes use internet ordering services. Companies use an online platform to advertise their company and attract more consumers.
- Tour operators: Many tour operators in Adjara use web development tools to create professionally looking webpages. They also make use of social networking sites to advertise the trips and to attract more people.
- Tourist spots: To make it faster for tourists to buy tickets, some tourist spots in Adjara use an e-ticketing platform. They are also promoting their tourist spots on social networking sites to appeal to more people.



Source: *National Statistic Office of Georgia (2023)*

Conclusions

The Fourth Industrial Revolution (4IR) is a new era of technological innovation that is having a major impact on the tourism sector. The development of 4IR technologies in the

tourism sector of Adjara has the potential to create several benefits, such as increased tourism revenue, improved tourist satisfaction, increased job creation, and reduced impact on the environment. The result is that the tourist sector of Adjara, in the ever-changing environment, is on the verge of considerable development. This study analysed the possible development options of the technologies of the 4IR in the Adjara tourist business, giving an insight into the opportunities and issues it confronts in this new era of innovation and digitization.

Engagement of stakeholders is important in realizing the full potential of 4IR within the tourist sector of Adjara. The collaboration between public and commercial sectors, the development of forward-thinking policies, and huge expenditures in human resources are some of the efforts it must entail. The key focus areas for such a strategy would need to be: infrastructure development, education, and training; research and development, and regulatory framework. The combination of these qualities will foster innovation and growth, ensuring that Adjara remains a competitive and sustainable tourism destination.

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