Policy Brief

Harnessing the Role of Technology in Promoting Safe Tourism Destinations in CAREC

March 2021

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The project was conceived and led by Dr. Qaisar Abbas, Chief of Research Division at the CAREC Institute, assisted by Ms. Emma Tong, Research Officer, and co-led by Dr. Ghulam Samad, Senior Research Officer at the CAREC Institute. Dr. Iskandar Abdullaev, Deputy Director Two of the CAREC Institute, provided the overall guidance. Colleagues from the ADB provided valuable commentary and suggestions on the policy brief and report, including Ms. Lyaziza Sabyrova, Principal Regional Economist, Central and West Asia Regional Department (CWRD), and Ms. Carmen Garcia Perez, Regional Cooperation Specialist at CWRD of ADB.

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Central Asia Regional Economic Cooperation (CAREC) Institute
No. 376 Nanchang Road, Urumqi, Xinjiang, the PRC
f: +86-991-8891151
LinkedIn
km@carecinstitute.org
www.carecinstitute.org

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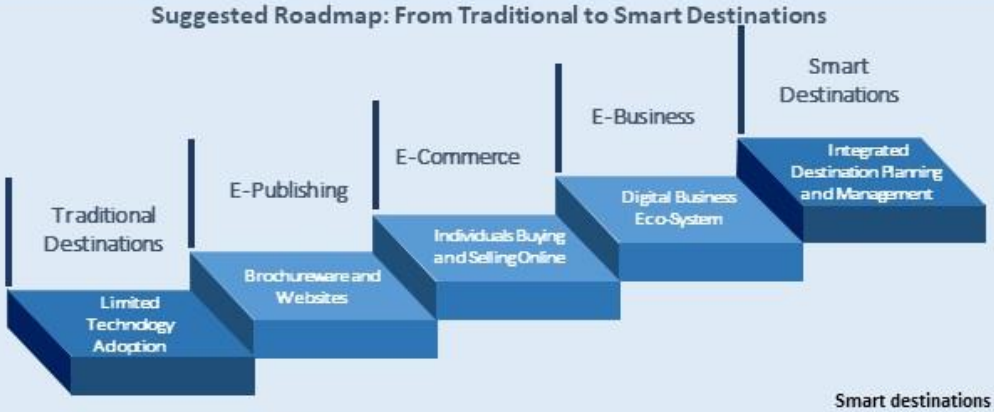
Technology Adoption in the Tourism Industry

01	Use technology to facilitate safe and clean tourism destinations
02	Implement technology to ensure more immersive and customized experience for tourists
03	Build capacities and ICT skills development within the sector
04	Use social media and digital marketing to globally market CAREC destinations and circuits
05	Use technology to improve the sector's performance, resilience, and sustainability

Suggested Roadmap: From Traditional to Smart Destinations



Traditional destinations, with low levels of technology adoption, rely on conventional ways of delivering tourism products and services.

Technology adoption helps in growing interconnectivity, incorporates diverse stakeholders, smooth engagement, and cooperation between B2B, B2C, C2C.

Technology adoption helps in improving internal operations, engaging with tourist more effectively and facilitating digital marketing, online stores.

Technology adoption helps in reducing operational costs, increasing efficiency, and improving quality of services.

Smart destinations SMEs (which dominate the CAREC tourism market) benefit from technology adoption, high level of innovation, real time connections, new tourism products, connections into global value chain.

Opportunities
Expected from adopting technologies

- More immersive tourist experience
- Tailored and customized services
- Increased tourist visitation
- Expand international reach
- Local economic development

Constraints
Expected in adopting technologies

- Lack of finance and other priorities
- Lack of local ICT infrastructure
- Costs and uncertain return on investment
- Lack of trained inhouse workforce
- Lack of 'ready' solutions within budget

Motivations
To adopt technologies

- Local economic growth
- Better destination management
- Stakeholder cooperation and support
- New tourism product development
- Job creation and entrepreneurship

Obstacles
In implementing the technologies

- Multiplicity of agencies
- Limited awareness about ICT benefits
- Financial assistance
- Need for technical assistance
- Political support

Policy Response to promote safe destinations:

- Adopt technology to improve overall tourist experience and also to compensate for reduced human interaction.
- Facilitate social distancing via technologies for crowd management (AI, IOT, Geofencing etc.)
- Ensure regular and automatic disinfection and sanitization (with the use of AI and Robotics)
- Limit the spread of infection via contact tracing technologies.
- Make information regarding COVID pandemic available and accessible (Social media and digital learning platforms)

1. Introduction

The Central Asia Regional Economic Cooperation (CAREC) program is a partnership of 11 countries and development partners working together to promote development through cooperation, leading to accelerated economic growth and shared prosperity. CAREC, a heterogeneous region with diverse characteristics, is home to a wide range of natural, historical, and cultural heritage sites. The region has a rich, unexplored network of cities and natural endowments that traverse national boundaries. It is the individual uniqueness of the countries, combined with the intraregional aspects of the region that makes CAREC a very attractive tourism region. The region attracts tourists from across the world, who come for a variety of reasons. Domestic and regional tourists travel mainly for business purposes and to visit friends and relatives, while international visitors from all over the world travel to CAREC mainly for heritage and religious tourism, also for nature, adventure, and business.

In 2019, the region attracted 424 million domestic tourists, with more than 83% of visitors traveling to two main countries—Uzbekistan (29.9%) and the two provinces of the People's Republic of China (PRC)—Inner Mongolia Autonomous Region and Xinjiang Uygur Autonomous Region (53.4%).[1]

The region sent 70 million outbound tourists but only received 41 million international tourists in the same year. Both inbound and outbound international tourism in the region is highly localized in neighboring countries, particularly in Russia. More than 75% of the 41 million international arrivals were in four countries—Kazakhstan (23.6%), Kyrgyzstan (20.2%), Georgia (18.6%), and Uzbekistan (16.3%). Of the total inbound tourists, 91% come from neighboring countries.

Outbound tourism, largely concentrated in four CAREC countries represents 66% of the total—PRC (23.3%), Uzbekistan (17.9%), Kazakhstan (15.6%), and Azerbaijan (10.2%). Of the total outbound tourists, 83% travelled to neighboring countries, although only half of them went to other CAREC countries. There are, however, some notable differences across countries. For instance, almost all outbound tourists from Uzbekistan travel to other CAREC countries while, in the case of Pakistan, only 4.5% travel within the CAREC region.[2]

The ongoing COVID-19 pandemic has disrupted the tourism industry worldwide, contributing to a decline of 10.3% of global GDP from the travel and tourism industry. UNWTO estimated that the overall reduction in international tourist arrivals worldwide in 2020 ranged between 58% and 78%, depending on the severity of travel restriction. The global travel and tourism industry has been one of the most seriously impacted sectors with export revenues from tourism estimated to fall by $910 billion to $1.2 trillion in 2020, which could reduce global GDP by 1.5% to 2.8%. Almost 100-120 million direct jobs and many more indirect jobs are at serious risk. For instance, the boarding and lodging sector, which is highly labor-intensive, accounts for around 144 million employees worldwide. Small businesses that account for nearly 80% of global tourism are particularly vulnerable. Similarly, women, who make up more than 50% of the tourism workforce, youth, and workers in the informal economy are among the most at-risk categories.

The impact of the COVID-19 pandemic on the tourism sector of the CAREC countries has been no different from the rest of the world. An ADB study[3] conducted in June 2020 estimated that international visitor spend in CAREC will decline by 70% in 2020, resulting in a reduction of about $9 billion compared to 2019.

[1] CAREC Tourism Strategy 2030.

[2] It is to be noted that statistics reflect total visitors including people who may be traveling for employment purposes or other reasons.

[3] Impact of COVID-19 on CAREC Aviation and Tourism, ADB, June 2020.

This study estimates that total travel and tourism contribution to GDP in CAREC will decline by 35% in 2020, resulting in a reduction of about $13.5 billion. More recent estimates can be made from the statistics below:

- In Uzbekistan, the number of international tourists decreased by 60%—that is in January to June 2020, as compared to the same period in 2019.[4]
- According to a National Statistics Office publication in Mongolia, revenues in the tourism and allied hotel business and services had decreased by 43% and 20% respectively, in the first quarter of 2020.
- In Azerbaijan, from January to November 2020, the total number of foreign travelers dropped 3.9 times compared to the same period in 2019.[5]
- In Georgia, analysts estimated the tourism sector losses of about $1.2 billion in 2020, a figure which others estimate to be closer to $3.4 billion.[6]
- In Kazakhstan, according to the Travel Industry Committee of the Ministry of Culture and Sports, the losses owing to the pandemic are estimated to be around 70% to 80%, as compared with last year. In 2019, the volume of export travel services was $2.5 billion.[7]

Long-Standing Issues Facing the Tourism Sector

While the tourism sector has seen a boom in the last few years and many of these players have shown signs of growth, the sector had long been facing some deep-rooted challenges, even before the pandemic. Some of these included: lack of common marketing of destinations (both within each country and across the region), poor destination management and governance, limited tourism product development, safety and security issues, inadequate innovation, and adoption of technology. Constraints specific to the development of the CAREC region, as identified by the ADB Tourism Strategy Report 2030 include:

Connectivity and Infrastructure

There have been limited investments in connectivity and transport infrastructure in the region. Related consequences include high transportation costs, limited air connectivity, cumbersome border crossings, and poor road conditions.

Quality and Standards

The quality of services varies significantly across the region, largely owing to the absence of a common quality standard or regulation, as well as because the bulk of tourism service providers are small or medium-sized enterprises with limited access to the latest technology, best practices, and standards.

Skills development

Tourism is a relatively labor-intensive industry. The human-to-human interaction is a key component of a tourist's experience. The region critically needs a major focus on skills development to raise hospitality standards, utilize and adopt the latest tools, techniques, and business practices, in order to improve the

[4] https://kun.uz/en/news/2020/07/23/number-of-tourists-visiting-uzbekistan-decreased-by-60-percent#:~:text=The%20number%20of%20foreign%20citizens%20who%20visited%20Uzbekistan%20as%20tourists,has%20decreased%20by%2060%20percent

[5] https://menafn.com/1101308434/Azerbaijan-records-sharp-decline-in-inflow-of-foreign-tourists

[6] https://agenda.ge/en/news/2020/1434

[7] https://school.cabar.asia/en/articles/replacing-turkey-this-summer-kazakhstanis-will-go-on-vacation-within-the-country/

sector's efficiency, productivity, and profitability.

Marketing and branding

Global experiences have proven that a mere focus on tourism destination development is futile without adequate promotion of thematic circuits (such as for adventure tourism, pilgrim tourism, and eco-tourism) and the region as a whole. It is important to market, promote, and communicate to the outside world the uniqueness and tourism potential of destination spread across the whole region.

Market intelligence

The tourism industry has been continuously innovating and developing over the years, albeit at a slow pace. Tourism intelligence and knowledge are essential for the development of targeted and innovative tourism products and services. Primary data collection and analysis are important for more targeted marketing and better tailoring of tourism products as per the requirements of each tourism market segment.

Environmental sustainability

While focusing on development, it is important to keep environmental sustainability in mind. A long-term tourism goal can only be accomplished by keeping in mind the need to conserve and protect the region's natural tourism assets.

Digitalization

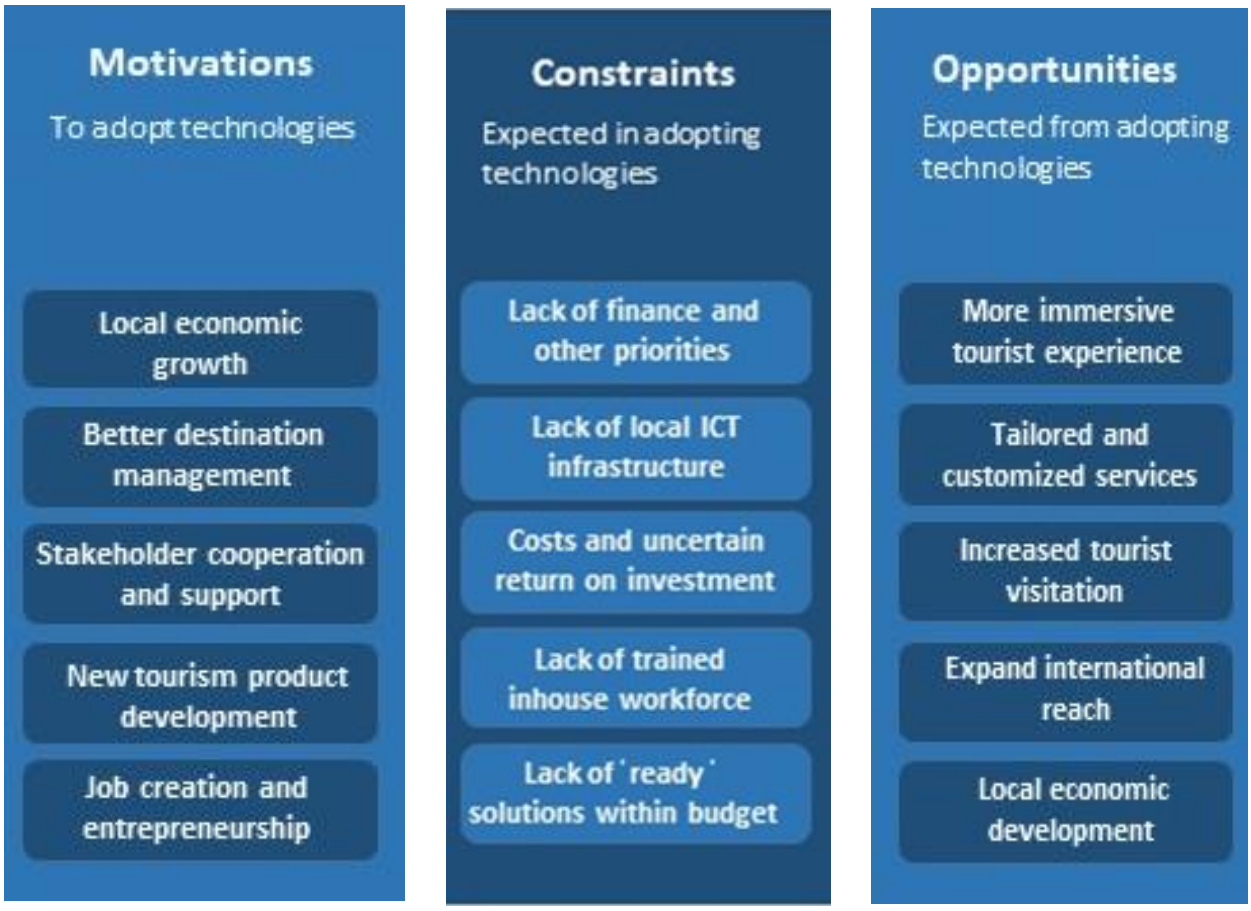
The current levels of investment in information and communications technology (ICT) infrastructure (such as ubiquitous availability of mobile and internet connectivity) in the region have been low and, historically, governments have provided limited impetus and incentives for the development and adoption of ICT, except for a handful of countries from the CAREC region.

2. Importance of Technology for the Tourism Sector

ICT has been transforming the tourism sector all over the world. On the demand side, ICT empowers visitors to identify, customize, and purchase tourism products and services, while on the supply side ICT is playing a critical role in the competitiveness of tourism organizations and destinations and by providing tools for developing, managing, and distributing tourism product offerings globally.

Rapid innovations and enhancements in the capabilities of ICT, combined with the lowering of ICT costs, improvements in reliability, compatibility, and interconnectivity of devices and applications are leading to enormous improvements in the quality and sophistication of the tourism industry's strategy and operations. As the trend towards more independent travel is increasing, it is leading to a higher demand for flexible, personalized options. The richness of information available has radically altered visitor behavior and considerably increased visitor expectations—a consequence of increased ICT use.

Through social media (such as Facebook, Twitter, and blogs) and travel aggregator ratings and reviews, visitors can now access and share information on destination, quality of service in hotels and restaurants, and the local cultural, environmental, and social situation, all from the comfort of home or office. Therefore, access to credible, timely, and relevant information is essential for tourists and tourism sector service providers. The need to reassure visitors about their safety and wellbeing has never been greater than now—indeed it is critical—owing to the pandemic. Without being reasonably well assured that they would be safe at all stages during the trip, visitors will simply not make the trip.



Technologies such as artificial intelligence (AI), internet of things (IoT), cloud computing, and extended reality can play a significant role in containing and mitigating the spread of the COVID-19 pandemic, through technologies designed for minimizing touchpoints, contact tracing, providing virtual healthcare, easing cross-border movements, and helping to implement safety, sanitizing, and safe distancing norms.

For instance, AI can be used to reduce human interface, increase scalability, and provide customized services. AI-enabled chatbots can attend to tourist queries, thus reducing the human-to-human interaction. Similarly, big data analytics can be used to analyze and avail key trends in demand patterns and consequently build aggressive marketing techniques. Cloud computing can be widely adopted by tourism stakeholders to enhance and channel their operations and improve customer satisfaction. IoT can be used to advance interconnection and communication among devices, systems, and services—hence streamlining service provider operations. Robots can ensure contactless services by minimizing human interaction touchpoints, reducing inefficiencies, automating routine tasks, and cutting down some additional costs.

CAREC is a heterogeneous region, both from the point of overall development as well as from the level of technology adoption. There are significant differences in the level of ICT infrastructure and usage between different CAREC countries. At one end of the spectrum are countries like Georgia, Azerbaijan, and Kazakhstan, which have a reasonably well-developed basic ICT infrastructure in place (although still not comparable to more developed countries like Spain, Italy, or France).

At the other end are countries such as Pakistan, Tajikistan, Turkmenistan, and Afghanistan, which have relatively poor ICT infrastructure, especially outside the capital and metro cities, whereas tourism assets are spread across the country, often in rural areas and small cities. Unless reliable and fast mobile and internet connectivity are available, not only are most tourists reluctant to travel there, but service providers, which rely on ICT to communicate, coordinate, and transact with each other, cannot provide a good level of service to tourists.

However, technology solutions can be meaningfully adopted only when all the required components of the technology ecosystem—hardware, software, maintenance, and technical support services—are present. While it is theoretically possible to 'buy' technology from anywhere in the world,

NazzAR in Uzbekistan

NazzAR is an extended reality (ER) innovative app that integrates elements of augmented reality into the objects of the real world. The app is being used in and around Uzbekistan at museums and tourist destinations to enhance the tourist experience and provide more information.

Heydar Aliyev Airport

The Heydar Aliyev International Airport in Baku, Azerbaijan, has become the industry's very first 100% cloud-based airport. All users at the airport will now work from a single view of operations without the need for manual operations, allowing for better allocation of resources. The cloud-based common use system will provide Baku with greater flexibility when it comes to passenger processing, allowing it to check in passengers anywhere with an internet connection, including off-airport.

VR Headsets for the Disabled in Tajikistan

UNICEF Tajikistan organized a virtual reality (VR) experience corner at the International Disabilities Forum in Dushanbe. Through VR headsets, attendees could learn about the everyday difficulties of children with disabilities. Given the presence of the technology and its current use in Tajikistan, the technology can be harnessed to greatly increase the efficiency of tourism services.

business enterprises, even if they have compelling reasons to do so, do not invest in technology upgrades unless the entire supporting ecosystem is available. The good news is that countries that lag in ICT readiness can, given the political will, quickly 'leapfrog' directly to the most advanced technologies, without going through the painful journey of transitioning from outdated and old technologies to newer ones.

3. Challenges in Adoption of Technology

There are reasons why some countries have significantly better ICT usage and technology adoption. There are challenges and constraints both at government as well as private sector levels.

Some of the key challenges for the adoption of technology by government agencies include:

Multiplicity of Agencies

Conflicting interests, priorities, and a lack of coordination pose challenges to the adoption of a common technical protocol. Integrated management and planning are crucial for the development and adoption of technology but given the multiplicity of agencies involved in the tourism industry, such integrated planning and implementation has proven to be a challenge in the region.

Limited Innovation

Owing to the existing limited innovation in the tourism sector *per se*, the adoption of technology becomes even more difficult. Status quo is often the norm, while innovation which is crucial for the development and growth of the tourism Industry, often does not get the focus it deserves.

Limited Budget Availability

Smooth adoption of technology requires significant investments in not only the ICT infrastructure but also in developing the ecosystem of supporting technical services required to sustain and proliferate the adoption of technology. Vision statements and grand plans need to be backed by adequate financial resources and budgetary support, which is often not available.

Limited ICT Awareness

Awareness about the latest technologies, their role, and potential contribution to the tourism industry is often limited, especially among tourism policymakers.

Technological Skill Gaps

The gap between the ever-increasing technological innovations (which require trained users and professional services to maintain the solutions) and the ICT technical skills available within the country often prove to be a constraint to the adoption of technology in the tourism industry.

Balance Regulation with Incentives

Various regulations imposed by the authorities need to be backed by adequate financial incentives for the tourism service providers. A careful balance between regulations and

incentives is essential to provide the growth impetus for the sector.

Focus on Other Priorities

For the government, there are many competing uses for the limited funds available, political considerations to consider, and an overarching need to show quick results to retain electoral support. Therefore, working on the more 'visible' aspects of tourism, such as beautification of sites, often takes precedence over implementing technology solutions, which promise enormous rewards but can be difficult and complex to design and implement and require constant technical and financial support.

Challenges faced by the private sector service providers of the tourism industry in the adoption of technology include:

Limited ICT Infrastructure

One of the major challenges for the adoption of technology in the CAREC region is the underdeveloped ICT infrastructure, especially pertaining to mobile and interconnectivity. Without these, most of the latest technologies, such as AI and cloud computing, simply cannot work.

Lack of Local Support for ICT

ICT requires local maintenance and support services, which are often not available in the non-capital cities in the CAREC region. For instance, even if a hotelier procures the latest hardware and software solutions, unless adequate support is available to install, maintain, and troubleshoot when things go wrong, the solution will not work effectively. However, increasingly solution providers (software developers) sell their software on software as a service (SaaS) model where the software is hosted in the cloud, with the developer responsible for maintenance and support, and the users are simply required to pay a monthly or annual subscription fee. This can largely fill the gap and the need for local technical support.

Rapidly Evolving Technology

The rate of technology improvement is very rapid, and, by way of corollary, the rate of obsolescence is also high. This rapid pace sometimes scares risk-averse potential adopters, while the more dynamic actors see this challenge as an opportunity to be early adopters and reap the rewards to achieve higher efficiency, improve customer service and earn higher returns.

Limited Awareness about the Latest ICT

Awareness about the latest technologies, their role, and potential benefits for the tourism industry is still limited among private sector stakeholders. The pandemic, however, has created a sense of urgency to quickly familiarize and adopt technologies that help to improve tourist safety and comfort.

Technological Skill Gaps

Suitably trained human users are required to use the technology solutions. Small and medium-sized tourism solution providers often struggle to attract such manpower, especially to work outside the big metro cities. Sustained digital literacy programs, at affordable costs, can address this obstacle.

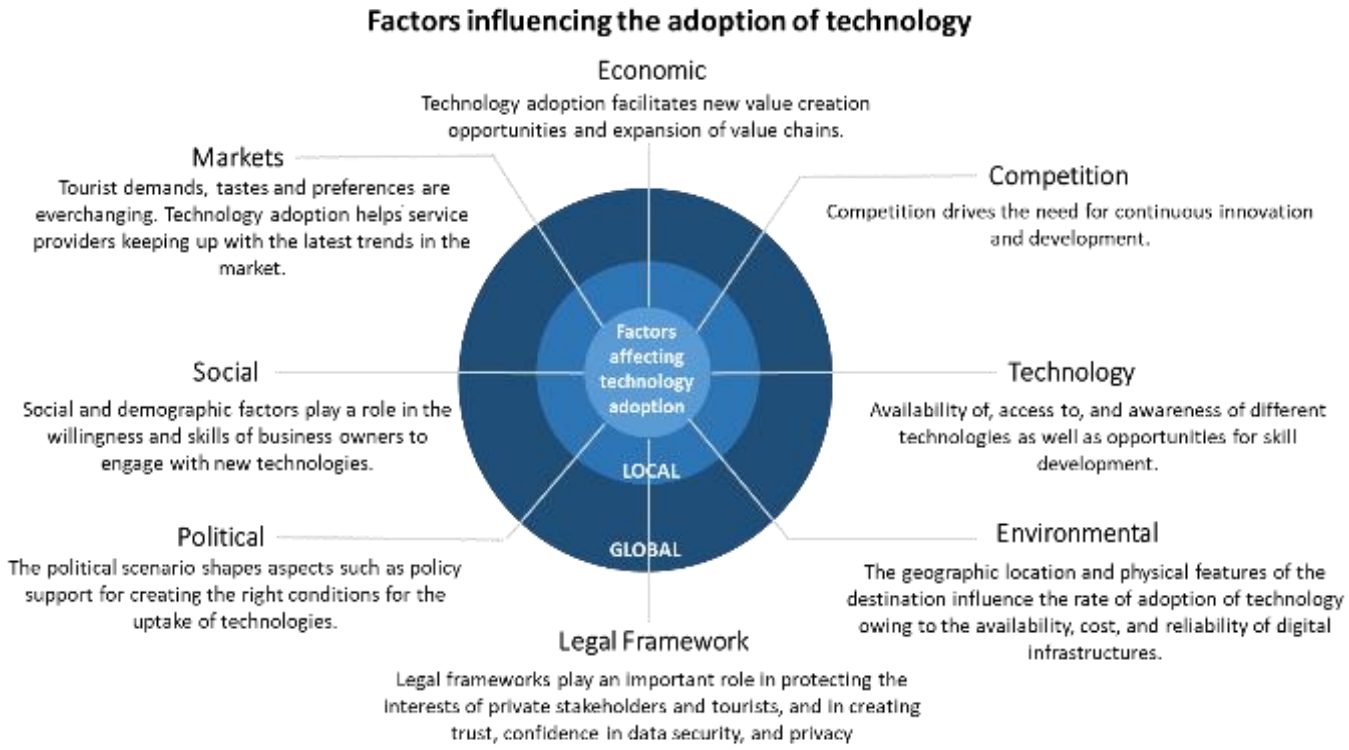
Data Safety and Privacy Concern

Concerns about the security and privacy of sensitive data, such as credit card numbers, financial transactions, and guest histories, prevent many potential technology adopters. Suitable sensitization and training programs conducted by the government can greatly help allay these concerns.

Keeping in mind the overall sectoral challenges as well as technology adoption obstacles, there is a critical need to develop a cohesive strategy and plan to meet both demands:

- The immediate need to promote safe destinations, to provide comfort and confidence to potential travelers to visit the region
- The long-term need to improve the overall sustainability, productivity, and growth of the sector, thereby allowing millions of small tourism service providers to not only survive but thrive in the post-pandemic period.

The existing challenges and those posed by the pandemic provide an opportunity to not only overcome systemic challenges facing the sector through the use of technology but also to usher in tourism reforms to address longstanding constraints and advance toward a more resilient tourism economy in the future.



4. Policy Recommendations

4.1. Technology for Prevention and Mitigation

With suitable contextualization for each country, the recommendations made below can act as broad guidelines for planning and decision-making, to promote the use of technology in the tourism sector in the CAREC region.

With technological assistance, tourism activity can be successfully restarted amid the pandemic, while also ensuring the safety of all tourists. Various technology solutions, ranging from state-of-the-art AI-enabled face recognition systems to simple contactless biometric systems, can be deployed at major tourist places to provide confidence and safety assurance to visitors so that they are willing to travel.

Maximize contactless and digital transactions. Technology can be used to achieve the seemingly contradictory objectives of minimizing physical human touchpoints but still providing a hospitable and 'tailored' service required by visitors. With the use of digital payment platforms, cash payments can be replaced, thus reducing common touchpoints, and limiting the spread of the virus.

Map and control risk of spread. Technology can control the crowd, ensure social distancing practice, and avoid the incursion of the virus in a closed area. The real-time results of all COVID-19 tests when plotted on a digital map to identify pandemic hotspots and mobile alerts will help tourists and residents alike to avoid such areas and lessen tourist anxiety. Crowd control technologies can be used to maintain social distancing and avoid overcrowding at destinations. By deploying contact tracing technologies, the movement of COVID-positive people can be monitored and controlled. Smart public transit smartcards can help trace the visitors who do not have smartphones. Real-time visual alerts make it easy to see if the occupancy is about to exceed the set limit so the staff can respond appropriately.

4.2. Technology for Enhanced Experience

The role of technology in the tourism industry is not limited to reducing costs or increasing efficiency, but also greatly enhancing the overall visitor experience. Thus, technology can greatly help to:

Ensure a more immersive experience. Through technology typically, the richness of the immersive experience during any travel comes from interacting with the local people, listening to local music, and buying the local art and craft. The pandemic poses a huge challenge in how to provide an enriching experience to visitors. Although, no technology interface can act as a substitute for the human interface, technologies such as virtual reality (VR) and augmented reality (AR) combined with human and AI-powered interfaces can help to create a safe, delightful, and immersive experience by blurring the lines between reality and the virtual world. By employing extended reality (XR), service providers can greatly enhance the visitor experience.

Make information ubiquitous. Ensure that up-to-date, reliable, and relevant information is always made available to all visitors, preferably in multilingual and easy-to-access formats. The ubiquitous availability of credible and relevant information generates trust and confidence among visitors and increases their ability to help themselves, without relying on any local

contact or person. Early trends are already showing that visitors are more willing to travel to those destinations where they have easy access to information about the local contagion, security and safety measures, and emergency help. Cloud computing helps to keep critical data safe through secure and encrypted solutions, firewalls, backup recovery, and redundancy. It keeps the data secure and easily accessible at all times.

Digitize and establish a national database for arts and crafts. Technologies such as VR and AR must be promoted to provide a richer experience to visitors while reducing human contact. Creating a spatially referenced national database of arts and crafts and the digitization of arts, crafts, and artefacts are much-needed initiatives in themselves to preserve the rich heritage and culture of local communities and regions.

4.3. Facilitate Smooth Technology Adoption

With technological reforms in place, there is a need to also bring about operational reforms. Without adequate and supportive infrastructure, the adoption of technology would prove to be redundant and lead to a waste of resources.

Rapidly scale up broadband internet connectivity. Virtually all technologies require internet connectivity; most, such as cloud computing, IoT, and VR, simply cannot work without a fast and stable internet connection. Therefore, a fast internet connection, through a combination of optic fiber or mobile 4G/5G, is the single most important need, which governments can address with assistance from private stakeholders. Improving internet availability throughout the country will also have many other positive outcomes: a spur in e-commerce transactions—business to business (B2B), business to consumer (B2C), business to government (B2G); improvements in sector-wide communications and coordination; and, above all, creating a sense among traveling visitors of always being within reach.

Incentivize shrink-wrapped solutions. Certain common services across all tourism stakeholders, such as check-in and check-out or payment services, have certain technologies—both hardware and software—associated with them. The tourism associations or government bodies could invite IT service providers to provide a shrink-wrapped solution catering to these specific needs for a certain price. This would help to reduce cost, time, and making technology accessible to the smallest service providers, who individually may not have the bandwidth to adopt these changes. This could be facilitated at a national, regional, or state level.

Provide incentives for technology adoption. To incentivize and facilitate smooth technological adoption, governments and associations could provide loans at cheaper interest rates, support packages, or design incentives for tourism service providers willing to adopt the technology. These could include duty drawbacks or lower import duty rates on imported technology, priority approvals for bank loans, deferred interest payments, and a fixed duration moratorium on loan repayments.

Incentivize innovative solutions through existing innovation fund(s). Like any other sector, bigger players in the tourism sector have better access to capital, human resources, and technology. It is smaller businesses that have limited resources to access innovative technologies. The government could distribute the existing innovation fund to ICT firms that create affordable, easy-to-implement, and low-maintenance technology solutions. This will not drive innovation in the sector but through

national tourism boards, chambers of commerce, and trade associations this technology can be made easily available to smaller businesses.

Adopt an incremental approach. Technologies such as AI, cloud computing, and IoT can play a significant role in streamlining operations. These technologies work directly in contact with visitors in making the travel experience safer and more comfortable. They can also work indirectly at the back end of tourism sector service providers and help to create a conducive eco-system in which the tourist operates. However, all these technologies cost time, money, and effort and so—except in the case of a handful of global multinationals—they can only be feasibly adopted in a phased and incremental manner to not only allow investments to be spread over time, but also to enable tourism sector staff and manager capacity to be built over time.

4.4. Technology for Marketing Promotion

Within the travel industry, marketing can be demanding, because of the variety of potential travelers who have dissimilar origins and needs. However, technology such as big data can help businesses to pinpoint the main trends, spot the similarities, and target the best marketing opportunities. This can facilitate the planning and strengthening of tourism promotional and marketing efforts based on social media and other data.

Deliver personalized, not standardized services. There is an escalated use of social media platforms for reviewing tourism destinations, providing tourist suggestions, and for digital marketing by the service providers. The bidirectional communication ensures that instead of delivering uniform services to all visitors, today's tourism industry can focus on using technology such as big data to deliver tourism products and services based upon an individual's unique profile, requirements, and preferences. This also proves to be cost-effective in building strong tourism brand marketing opportunities.

Launch targeted social media campaigns. Use social media, such as Facebook, Twitter, and Instagram, to promote safe destinations by building awareness and trust about each country/destination's offering. Social media allows efficient and specific targeting to ensure that only people who match the required profile are sent the posts. The government must create communication campaigns geared towards confidence-building including the safety measures undertaken by the destinations and companies[8].

Legislate data privacy and protection. Cyber laws for individual sensitive and personal digital data, such as biometric identification information, are widely used and become potentially available for malicious use, spamming, or even hacking. It is therefore critical that governments put effective legislation into place to ensure that data can only be captured and used with prior user consent and then strong security mechanisms are put in place to avoid the use of data for unintended use without prior user consent. As digital transactions increase, existing laws need to be amended so that digital transactions do not require paper documentation to be enforced in a court of law, in case of disputes.

Design a comprehensive tourism portal and implement a full tourism satellite account. To digitalize the services, it becomes essential for

[8] https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-05/UNWTO-Priorities-for-Global-Tourism-Recovery.pdf

each stakeholder to develop their websites or other digital services. Such services could be provided jointly to avoid extra costs or unequal development across stakeholders. Thus, governments or tourism bodies should develop a central portal or website where all service providers could provide certain minimum information about their services. Furthermore, they could implement a tourism satellite account (TSA) which can serve as a standard statistical framework and the main tool for the measurement of tourism statistics from a national economic perspective.

Develop a national online register for all international tourists. The development of a digital register of all inbound visitors, along with their local contact details, will greatly assist in tracking, providing relevant information, and collecting information. This can easily be done by issuing smartcard visa cards, issued when a visa is granted/stamped at the time of immigration. The cost of such cards can be recovered from the visitors through a small fee levied along with the visa fee.

4.5. Technology for Regional Cooperation and Regional Visa

The ongoing COVID-19 pandemic outbreak has shifted traveler priorities to closer destinations. Thus, regional tourism could be a more sought-after alternative during the recovery period. Strategies for revival with a regional scope will underpin the development of comprehensive and effective regional tourism programs.

Facilitate air bubbles and cross-border travel. Country governments and CAREC regional forums must use technology to support travel facilitation towards e-visa/visa on arrival/no visa policies and implement contactless immigration check-in procedures to stimulate demand and make travel easier, especially within the CAREC region.

Adopt a regional approach. Having a regional protocol and specifications will make the task easier for supply providers such as IT service vendors to develop new products and instrument services. Adopting common regional support to monitor quality and safety standards through technology can be made stress free. The CAREC countries have been arranged into three clusters based on the existing technological infrastructure in the countries. Such a grouping is based on the country's capacity to adopt these technological changes while conforming as closely as possible to globally accepted standards:

- The PRC, Azerbaijan, Georgia, and Kazakhstan
- Kyrgyzstan, Mongolia, and Uzbekistan
- Pakistan, Tajikistan, Turkmenistan, and Afghanistan

Use technology to smoothly facilitate the proposed Silk Road air pass. The CAREC Institute has proposed a Silk Road air pass that aims to develop a single air pass for the 11 CAREC countries. The air pass will allow a tourist visiting the region to book multiple flights within the CAREC destinations through a single window rather than individually booking for each destination. Given the right technological support, such an air pass would help facilitate smooth travel between these countries, making multi-country Silk Road itineraries more affordable and attractive. It is important to look at new and innovative technological solutions to back the proposed air pass, as traditional methods have been limiting, complex, and expensive. Technology will act as a common ground for the various stakeholders, airlines, tour operators and guides, and accommodation service providers,

to operate effectively and in close coordination with each other.[9]

Technology for enabling vaccine passports. As COVID-19 vaccines are being rolled out globally, the world is slowly progressing towards the pre-pandemic 'normal,' but with adequate precautions and innovative measures in place. With these developments, the tourism industry is also moving towards the recovery path. A 'vaccine passport' may now be required for an average tourist to travel internationally. The document will be proof that a tourist has been vaccinated against the COVID-19 virus and will accordingly be allowed entry, depending on a particular country's border restrictions. Such an arrangement can make use of QR code technology in combination with other technologies to make the administrative process more effective and efficient.[10]

4.6. Technology Support

Adoption of technology is not a one-time process but a gradual one. For the smooth adoption of technology, it is important to train stakeholders on how to adopt and employ technologies.

Use technology to create and sustain jobs. At least 120 million jobs are at risk in the tourism sector, according to UNWTO's latest report. Despite government best efforts, thousands of small businesses will close down. Technology, on the one hand, reduces the number of jobs by automating many manual operations to reduce the need for human interfaces. But, on the other hand, it creates many jobs because of the need to design, implement, and support technology solutions. In the tourism sector, the number of semi-skilled jobs that can be easily replaced by automation will decrease, but there will also be a massive demand for more skilled 'knowledge workers' who are proficient in the use of technology.

Promote skills development. Suitable capacity building and skills development programs need to be designed to bridge the skills gap, especially for the smaller players in the tourism value chain. For the smooth adoption of technology, it is important to train stakeholders on how to adopt and employ technologies.

4.7. Institutional Support for Technology Introduction

Tourism necessarily requires many different private and public sector agencies to work closely together to implement a holistic and credible plan to address visitor health and safety concerns.

Adopt multistakeholder, multidisciplinary approach It is imperative to adopt a multistakeholder approach, with each stakeholder not only performing their role as per safety protocols but also with information-sharing platforms that connect all stakeholders for a cooperative and supportive approach. All private and public sector entities need to come together and be willing to share information. The main idea is to use relevant technology to develop a unified dialog, approach, and agreement to follow common protocols and guidelines.

Establish a national ICT task force to support the tourism sector. Establish a high-level task force comprising representatives from the ICT ministry, the tourism ministry, leading private sector ICT firms working in the tourism sector, and representatives of industry associations to

9. "Silk Road Air Pass: A CAREC Proposal" (CAREC Institute)
10. "What is a 'vaccine passport' and will you need one the next time you travel?" World Economic Forum

finalize the list of technology initiatives to be undertaken to support the tourism sector and develop a detailed action plan for implementation of the same.

4.8. Potential Areas for Financial and Technical Support by ADB and other Multilaterals

Finance ICT infrastructure. All tourist destinations, especially those in cluster C countries, require major investments in ICT infrastructure. This could include mobile and broadband internet connectivity, WiFi in tourist spots, and advanced technologies such as AI for crowd control, tourist screening and tracking, and tourism information systems.

Support skills development. Upgrading skills to promote ICT and digital literacy within the tourism sector, where large skill gaps exist, would pave the way for introducing more technology solutions in the sector. Widescale job-specific training, paid for by the private sector but made cost-effective through multilateral funding, would allow tourism sector stakeholders to visualize and conceive appropriate technology solutions and then to implement them efficiently. Creating skills-based qualifications systems, promoting apprenticeship and on-the-job training programs, and setting up national occupational standards will all help in the growth of the sector.

Line of credit for MSMEs. Lack of finance has been cited as the single biggest roadblock for modernizing the tourism sector and implementing a much-needed technology upgrade. Setting up a skills-based line of credit to provide financing to MSMEs in the tourism and hospitality sector, for the adoption of technology, would greatly expedite the technology adoption. Development banks and other international financial institutions can make available this credit line in cooperation / partnership with existing local national banks, to provide collateral requirement-free loans at capped interest rates.

Set up tourism development zones. Multilateral funding to provide technical and financial assistance for the establishment of dedicated tourism zones, would encourage the much-needed private sector investments and help rejuvenate the local economy in tourism destinations. Set up along the lines of technology parks and export processing zones (EPZs), tourism zones would entail local governments earmarking a large parcel of land, providing basic urban services—such as 24-hour electricity, water, sanitation, and mobile and broadband connectivity—and providing incentives such as tax holidays, single window clearance to attract investments from private sector investors in hotels, restaurants, theme parks, spas, and other tourist facilities. Private investment proposals would be selected based on their ability to bring in cutting-edge technology to improve customer services, to develop and enrich existing tourist attractions, and to create local jobs.

Institutional development. Lack of adequate destination management and institutional capacity have been threatening assets and local communities and have reduced visitor satisfaction and retention. Weak planning and destination management have led to unregulated growth, resulting in the exclusion of the poor from the local economic development. Limited institutional capacities, unclear roles and responsibilities among government agencies, and uncoordinated development efforts in city development, tourism promotion, and local economic development have led to inadequate protection, management, and promotion of assets, and inadequate development of tourist products. Significant investments and a sustained program of capacity building and tourism sector reforms, accompanied by systematic institutional development, will pave the way for meeting the enormous growth potential of tourism in the CAREC region.

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