

Safe and seamless travel and improved traveller experience

OECD Report to G20
Tourism Working Group



G20 

OECD Tourism Papers

Safe and seamless travel and improved traveller experience

OECD Report to G20 Tourism Working Group



Note by the OECD Secretariat

The paper represents the final report on “Safe and seamless travel and improved traveller experience”, which has been prepared by the OECD Secretariat for the G20 Tourism Working Group.

The outline of this report was reviewed and welcomed by the 1st G20 Tourism Working Group (TWG) on 6-7 April 2020, while a first draft of the report was well received by the 2nd G20 TWG on 2-3 July 2020. The final report incorporates feedback received from countries throughout the process, including late responses to the G20 Survey on Seamless Travel and Improved Traveller Experience, from Germany, Jordan, Korea, the United Kingdom.

The report benefitted from significant contributions, feedback and guidance from policy makers of OECD, G20, and G20 guest countries, and peer review by the World Tourism Organization (UNWTO), the World Travel and Tourism Council (WTTC) and the World Bank Group.

The report was drafted by Richard Denman (The Tourism Company), with significant inputs from the OECD Secretariat. It was co-ordinated and edited by Peter Haxton, Policy Analyst (CFE), under the supervision of Alain Dupeyras, Head of the Regional Development and Tourism Division (CFE), and Jane Stacey, Head of the Tourism Unit (CFE), and with the support of Anna Bolengo, Junior Policy Analyst (CFE). Monserrat Fonbonnat, Assistant (CFE), provided administrative support.

The report was presented at the G20 Tourism Ministers’ Meeting on 7 October 2020.

COVID-19 and seamless travel

Seamless travel was identified as a pillar within the tourism agenda for the G20 at the start of 2020. During the year the dramatic impact of the COVID-19 pandemic on the travel and tourism sector has become apparent.

The principles and practice of seamless travel remain relevant over time, in ensuring that tourism can deliver on its potential as a major force for sustainable economic development.

This report has assimilated and integrated the implications of COVID-19 into its consideration of seamless travel, pointing out where particular approaches and actions are relevant in times of pandemic and other crises, now and in the future.

This document is a preliminary version. The final version will be published shortly in the OECD Tourism Papers series available: oe.cd/il/tourism

© OECD 2020

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgement of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org.

Table of contents

Executive summary	5
1 Introduction	8
2 Seamless travel in the context of sustainable development	10
A working definition of seamless travel	10
Seamless travel, the SDGs and the G20 agenda	10
Megatrends affecting the importance and shape of seamless travel	12
Policy aims and objectives	13
3 Concepts, aspirations and challenges for seamless travel	15
Concepts and models	15
Global perspectives on seamless travel issues	16
National policy perspectives on seamless travel	19
Key issues, challenges and opportunities	20
4 Traveller identity and security	22
Visa requirements and acquisition	22
Digital traveller identity and biometrics	27
5 Connectivity and visitor management	35
Multi-modal transport and connectivity	35
Visitor handling, information and management	40
6 Conclusions and guidelines for action	46
Key conclusions	46
Guidelines for Action on Safe and Seamless Travel	49

Annex A. Visa, identity and biometric programmes in the United States	51
Annex B. Stakeholder engagement in biometric identity – Aruba, Kingdom of the Netherlands	53
Annex C. Digital identity applications by tourism service providers	55
Annex D. Integrated seamless and touchless traveller services in Singapore	56
Annex E. Data driven smart information for seamless travel in Helsinki, Finland	58
Annex F. Multimodal connectivity – a key offer for tourism in Switzerland	60
Annex G. Use of data to monitor visitor flows – Japan and Italy	62
Annex H. Seamless visitor handling at airports in the United Arab Emirates	64
Annex I. Digital solutions for future baggage handling	66

Boxes

Box 1. G20 country survey: Key points on visa requirements and acquisition processes	23
Box 2. IATA Resolution on One-ID, June 2019	29
Box 3. G20 country survey: Key points on digital identity and biometrics	30
Box 4. G20 country survey: Key points on multi-modal transport and connectivity	37
Box 5. G20 country survey: Key points on visitor handling, information and management	40

Executive summary

The promotion of good practice in seamless travel and improved traveller experience was identified as one of two pillars for the tourism agenda for the G20 in 2020, under the Presidency of Saudi Arabia. The subject was seen as highly important in enabling future growth in tourism while delivering various other benefits. During the year, the advent of the COVID-19 pandemic has further underlined the importance of the concept of seamless travel for economic recovery and global wellbeing.

For the purposes of this report, seamless travel is defined as:

The provision of a smooth, efficient, safe, secure and enjoyable travel experience from a traveller's point of origin to a destination, within the destination, and back again.

The enhancement of seamless travel can be shown to be directly contributing to or strongly influenced by around half of the Sustainable Development Goals. It also contributes to a number of the G20 2020 priorities. Within this context, objectives for seamless travel and enhanced traveller experience, are to:

- enable sustainable growth by handling travellers more efficiently
- strengthen safety and security for travellers and recipient communities
- support regional and local economies and job creation, through improved connectivity
- improve sustainability by managing visitor flows and promoting alternative travel modes

Aspects of seamless travel have been the subject of various recent studies and initiatives, some supported by industry bodies and international organisations, which provide helpful and practical input. A survey of G20 countries was also undertaken to gain an insight of views, policies, actions, challenges and future intentions in this area. The survey revealed that seamless travel is likely to be given a higher priority in future tourism policies, for growth and management reasons.

The assessment of the context and opportunities related to seamless travel has led to four topics being identified as key areas for policy action. The relevance and importance of each of these topics was reaffirmed by the survey of G20 countries. The topics are mutually related and the contribution of each to seamless travel is significantly enhanced by the application of new technology. References to good practice throughout the report and in a set of more detailed case studies illustrate how the topics are being addressed in practice and provide pointers to future needs and opportunities. The four topics are:

- **Visa requirements and acquisition.** Much has been done to streamline visa requirements and make the application process simpler, while still maintaining a focus on security. Resultant increases in visitation have been demonstrated. Opportunities exist to further benefit seamless travel, through expanded visa waiver, wider use of technology, improved communications and further agreements and collaboration between countries.
- **Digital traveller identity and biometrics.** This is seen as a key area for global progress, with significant benefits for security and enhanced traveller experience, informed by a number of international initiatives. There is a strong call for an integrated framework of interoperable systems, requiring government engagement, co-ordination and backing.

- **Multimodal transport and connectivity.** Improving linkages between different transport modes within the traveller journey, including first and last mile connectivity, is an important aspect of seamless travel. Various examples exist, including transport hubs, comprehensive mobility programmes, joint payment schemes, and linked travel offers, with opportunities for further focus on low emissions, universal design and new technologies. Close integration is required between policy areas and amongst service providers.
- **Visitor handling, information and management.** Direct provision of information and other assistance to travellers can significantly influence their activity and improve their experience, as well as providing other management benefits. There are many examples of good practice involving imaginative use of new technology as well as more traditional forms of communication.

Across all these areas common challenges can be identified, some of which have a global dimension and require coordinated intervention from governments. Particular issues include the need for more data openness and sharing, while respecting data privacy, and the setting of agreed standards for certain services, systems and technology. All countries should also consider the contribution and needs of seamless travel in times of crisis, such as the COVID-19 pandemic, and the importance of future crisis preparedness and management.

In order to meet the objectives for safe and seamless travel and gain the benefits that it can bring, the following guidelines for action have been identified from the evidence gathered by the OECD in the *Safe and seamless travel and improved traveller experience* report for action by G20 members. They call on governments, in collaboration with the industry, individually and collectively to:

- **Recognise the importance of facilitating seamless travel**, in the long-term and as part of the recovery from the COVID-19 pandemic, as an enabler and driver of economic growth, enhanced safety and security, and an improved traveller experience, as well as enhanced local development, greater sustainability, and better visitor management.
- **Ensure that the perspectives of the travel and tourism sector are reflected in policies and actions affecting travel** to and within a country, requiring strong liaison between ministries responsible for tourism, national security, and transportation, together with other ministries, such as health, whose policies and actions may significantly affect the sector.
- **Co-operate at the international level through appropriate fora to explore standards for the collection, sharing and use of data on travellers**, for identity checking, tracing and management purposes, in line with agreed principles on data privacy acknowledging the need to abide by requirements developed by the relevant international institutions on passenger data.
- **Work with relevant authorities to streamline travel and visa processes**, while maintaining security, including through online processes, and bilateral and multilateral agreements, as public health conditions allow and subject to each government's policy priorities.
- **Seek to promote the use of digital traveller identity and biometrics while respecting data privacy based on agreed international standards and principles**, for example through global cooperation between governments and international bodies and enabling recognition and interoperability between different systems.
- **Coordinate transport and tourism planning and operations** in the provision of seamless links between different modes of transport, thereby benefitting visitors and residents, and improving destination connectivity and sustainability.
- **Encourage and support the provision of real-time information and other assistance to travellers**, including those with special needs, to facilitate their journeys and enhance their experience, through the creative use of new technology, while also maintaining traditional customer care.

- **Establish, regularly revise, and when necessary implement crisis management strategies for travel and tourism**, which require clear and effective communication with travellers on safety issues and seek coordination between governments and with industry on appropriate traveller safety standards and procedures.
- **Support, in coordination with other relevant authorities, capacity building and investment for seamless travel**, including full broadband and extensive Wi-Fi coverage, inclusive training programs in digital skills, communication and customer care, and relevant research programs to guide policies and actions in this area.
- **Recognise the key role played by the private sector**, including technology companies as well as transport and service providers, in enabling safe and seamless travel, and seek to encourage and define their involvement through appropriate policy and regulatory settings and the formation of public-private partnerships (PPPs).

1 Introduction

This report addresses the facilitation of travel and tourism. It draws on recent concepts and initiatives to make the traveller journey more seamless, improving visitor flows, enabling greater economic benefit and enhancing the traveller experience, while also increasing security. This approach is important for the long-term growth and performance of the sector. It is also highly relevant to the serious challenges presented by the COVID-19 pandemic and the path to recovery, providing a range of processes and technology that can enhance traveller safety, awareness and confidence in times of uncertainty.

The travel and tourism sector is a major driver of the world's economy, accounting for some 7% of global exports in 2019¹. In the OECD countries, it contributes directly around 4.4% of GDP and 6.9% of employment². Further estimates suggest that if indirect impacts are included travel and tourism contributed an estimated 10.3% of global GDP in 2019 and supported one in ten jobs worldwide³

Recent years have seen a strong and steady growth in international tourism arrivals, increasing from 0.95 billion in 2010 to 1.46 billion by 2019⁴. At the end of 2019 it was anticipated that by 2030 the forecast of 1.8 billion arrivals would have already been exceeded⁵. Estimates of the impact of this growth suggested that it could result in the contribution of travel and tourism rising to 11.5% of GDP, with the sector supporting one in every four new jobs created⁶.

In 2020, the COVID-19 pandemic has had an immediate and immense impact on travel and tourism. Many firms across the entire sector are in a fight for survival. Tourism will experience a drastic decline in 2020, with eventual impacts depending not only on the length of the pandemic, but also potential long-term changes in travel behaviour. Revised OECD estimates point to 60% decline in the international tourism economy in 2020. This could rise to 80% if recovery is delayed until December. International tourism within specific geographic-regions (e.g. in the European Union) is expected to rebound first. Domestic tourism, which accounted for 71.3% of total spend in 2019⁷, is expected to play an even more important role in many countries during the recovery phase. More than ever, there is a crucial need for tourism policy to be formed and implemented through an integrated governmental approach, in close collaboration with the private sector.

In this context, many issues related to seamless travel are and will be of critical importance for the recovery of the sector following the COVID-19 crisis. This includes for instance: i) the importance of all forms of travel facilitation for the recovery of the sector and the global economy; ii) the need to provide reassurance and confidence to travellers, through the provision of accurate, helpful and up-to-date information on public health conditions and tourism services and activities; and iii) the need to manage carefully any introduction of additional health-related controls and checks on travellers, to meet agreed international requirements and standards and minimise disruption to travel. The principles and practice of seamless travel will remain very relevant over time, in ensuring that tourism can deliver on its potential as a major force for sustainable economic development. This report has been prepared while the impacts of COVID-19 are unfolding. However, it is based on the presumption that the sector will return to growth in the medium to long-term.

¹ International Tourism Highlights, UNWTO 2019

² OECD Tourism Trends and Policies 2020, OECD, 2020

³ WTTC Economic Impact Research 2020

⁴ World Tourism Barometer, UNWTO 2020

⁵ OECD, 2020 *op. cit.*

⁶ WTTC Economic Impact Research 2020

⁷ WTTC Economic Impact Research 2020

Even in the years before 2020, the major contribution of travel and tourism to the global economy could not be taken for granted, notwithstanding sudden shocks such as health crises. Fundamentally, it depends on an unimpeded flow of travellers, domestically and across international boundaries, which provides the lifeblood of the sector. This in turn requires a desire and willingness to visit new and familiar destinations, which is heavily influenced by the expectations, ease and practicalities of the journey and the quality of the experience received.

In this context, the need to deliver a seamless traveller journey across international borders and within countries, through the removal of barriers and pain points along the way, has been recognised by many leading industry bodies. This can be considerably helped through the use of new technology, supported by digital and other relevant skills. At the same time, this facilitated travel and the growth that it enables should be planned and managed in ways that take account of tourism impacts and wider policy agendas.

The topic of seamless travel and an improved traveller experience has been identified as one of two pillars of the tourism agenda for the G20 in 2020, under the overarching theme of tourism as a means of sustainable socioeconomic development.

The purpose of this report, which has been prepared by the OECD for the G20 Tourism Working Group, is to:

- raise awareness of policy issues related to seamless travel, including challenges and opportunities for action;
- facilitate and encourage the sharing of experiences and good practice; and
- provide policy recommendations benefitting national governments in the implementation and use of seamless travel to enhance the traveller experience.

The report has been prepared for tourism ministers and tourism-related ministries of the G20 countries, but it is also relevant to other countries, including OECD countries and less developed economies. While the focus is on implications for tourism policy, the report covers important topics that may require action by other ministries⁸ and interests, needing a whole of government approach, inter-agency co-operation and engagement with the private sector.

Many aspects of the delivery of seamless travel are led by or involve the private sector, which is taking the lead in the development and implementation of new technologies. Nevertheless, governments have an important role to play in promoting awareness, investing in and applying good practices and providing a regulatory framework where needed, for example to protect traveller privacy while encouraging the use of new technologies and approaches. Many travel-related functions, including the planning and provision of transport infrastructure and services and the operation of security systems are also led by government, at a national or subnational level. Key benefits for governments in addition to a better management of tourism flows include increased security and better use of existing infrastructure.

The preparation of the report has been informed by recent initiatives on seamless travel and consultation with G20 countries. The first draft of the report was reviewed by the World Tourism Organization (UNWTO), the World Travel and Tourism Council (WTTC), and the World Bank Group, who have also provided specific input from their experience of the topics covered.

⁸ Notably those responsible for transport, border control and national security

2 Seamless travel in the context of sustainable development

An international dialogue on seamless travel should be based on a common understanding of its various components, how it relates to international policy on sustainable development, and how it will be affected by certain megatrends in the tourism sector.

A working definition of seamless travel

There is no official or single definition of seamless travel. Therefore, the following simple description is proposed as a working definition for the purposes of this report:

The provision of a smooth, efficient, safe, secure and enjoyable travel experience from a traveller's point of origin to a destination, within the destination, and back again.

The actions taken or supported by government in this area, and the overall desired outcome, could be described as: the responsible facilitation and management of travel to make it more seamless, so that it can deliver more benefit to a wide range of destinations, thereby contributing to their sustainable development.

Elaborating on the above, policy aims for seamless travel should not only be concerned with overall economic development but also with the distribution of benefits to more destinations and communities, addressing sustainability, improving the traveller experience in its own right and maintaining and enhancing safety and security from a national and personal perspective. Enabling and facilitating seamless travel requires sufficient and smooth transport connectivity between origin and destination as well as barrier free processes and efficient handling of travellers.

The definition covers all forms of travel, including business and leisure, and involves all forms of transport including aviation, maritime, rail and coach travel.

The definition has been kept relatively generic and has been written in a way which does not contradict a number of more specific uses of the terminology⁹ which may be placing emphasis on specific aspects, such as traveller identity and the crossing of international borders.

The definition has been the subject of consultation with the G20 and guest countries and peer reviewers and has been refined to include reference to 'safe', in response to feedback.

Seamless travel, the SDGs and the G20 agenda

As a key facilitator of tourism-led growth and sustainable development, actions to promote and enable seamless travel can contribute directly to the following Sustainable Development Goals (SDGs)¹⁰. The

⁹ For example, WTTC refers to "Solutions enabling the secure, frictionless and efficient movement of legitimate travellers across international borders and throughout their journeys; whilst enhancing the traveller experience".

¹⁰ [Tourism in the 2030 Agenda](#), UNWTO (accessed 30 August 2020)

summary description below each of them draws on some of the wording of the official targets for each goal, to help show the link to seamless travel.

- **SDG 1 No poverty**
Facilitating the growth of tourism and connectivity to a range of destinations, in turn increasing income earning opportunities, including in less accessible and marginalised communities.
- **SDG 8 Decent work and economic growth**
Helping to support sustainable tourism development and job creation, through the use of new technology and promoting creativity and entrepreneurship.
- **SDG 9 Industry, innovation and infrastructure**
Developing sustainable and resilient infrastructure, including transborder, to support economic development and wellbeing, access to markets and use of information technology.
- **SDG 11 Sustainable cities and communities**
Providing safe, affordable, accessible and sustainable transport systems for all, and strengthening links between urban and rural areas.

Policy on seamless travel also needs to take account of the implications for other SDGs, notably:

- **SDG 3 Health and wellbeing**
Managing global health risks and reducing transport-related accidents.
- **SDG 12 Sustainable consumption and production patterns**
Spreading information and awareness on sustainable development and lifestyles and using technological capacity to move to more sustainable patterns of consumption and production
- **SDG 13 Climate action**
Integrating measures to address climate change into strategies and planning.
- **SDG 17 Partnerships for the goals**
Promoting partnership, market access and the sharing of expertise and technology.

Seamless travel is directly relevant to the purposes and priorities of the G20, as a contributor to the development of global trade, sustainable growth and multilateral collaboration between countries.

By facilitating travel and its outreach, while considering sustainability and management issues, the promotion of seamless travel can contribute to various stated priorities of the G20 2020 agenda in all three of its overarching aims (Empowering People, Safeguarding the Planet, and Shaping New Frontiers). More specifically within the agenda, it must clearly seek to support the stated tourism policy aim, namely:

- ***Tourism as a Means of Sustainable Socioeconomic Development:*** supporting economic growth, creating jobs, reaching the SDGs, notably through innovative technological solutions – with a focus on the social, economic and environmental impact of tourism.

It should also take note of other relevant stated G20 2020 priorities¹¹, including:

- ***Scaling up Efforts for Sustainable Development*** (includes promoting regional connectivity to facilitate employment growth¹²);
- ***Managing Emissions for Sustainable Development*** (includes advancing efforts to manage emissions in all sectors);

¹¹ Overview of Saudi Arabia's 2020 G20 Presidency, December 2019

¹² The need and potential for tourism to act as a catalyst for sustainable regional development, including for communities in remote and rural areas, is recognised as an opportunity which can be assisted through seamless travel and enhanced connectivity. This links to Pillar 1 of the tourism agenda for the Saudi hosted G20.

- **Enabling the Digital Economy** (includes questions for labour markets, business models and institutions);
- **Developing Smart Cities** (includes harnessing new technologies to maintain equity in mobility provision and offer digitally enabled mobility solutions).

While contributing to the SDGs and G20 2020 priorities, seamless travel will in turn be helped by structural and capacity building measures, including:

- Strengthening intra and inter-governmental collaboration
- Encouraging and supporting public-private partnership
- Developing relevant skills within the sector, notably in digital technology, customer care and other soft skills, which should be fully gender inclusive.

Megatrends affecting the importance and shape of seamless travel

The importance of seamless travel is in part evident from its relationship to the above policy issues, which should inform the way it is developed and addressed. This is further affected by several megatrends in tourism. These megatrends not only underline the importance of seamless travel but also have strong implications for how it is shaped and managed. They include, amongst others:

- **Growing visitor volumes in recent years**

In the last ten years the number of international tourist arrivals has been growing at an average annual rate of 5.1% resulting in 1.46 billion arrivals globally in 2019¹³. This trend, coupled with a previous forecast of growth in arrivals to around 1.8 billion arrivals by 2030 and a doubling in aviation passenger traffic by 2037¹⁴ pointed to a clear need to increase efficiency in traveller processing and handling, to avoid bottlenecks and to enable the economic benefit of such growth to be realised. While the COVID-19 pandemic has radically changed the situation in 2020, there may be a return to high volumes and fast growth in the medium to long term. This growth has contributed to over-crowding in some destinations and at certain times, requiring policies and actions to manage visitor flows – a challenge identified in the Japan G20 Presidency 2019.

- **Incidence of terrorism, natural disasters and health related crises**

Global and more localised crises have had a significant impact on tourism. Although this impact has often been short lived, some crises may affect travel psychology over a longer period and lead to greater awareness of the security and safety of travellers and recipient communities. This has implications for traveller identity and the nature of scrutiny at borders, as well as ensuring visitor safety through aspects of visitor handling and information. The dramatic impact of COVID-19 on world travel has taken this to an unprecedented level, with far reaching implications for travel facilitation and meeting visitor and host safety requirements, with a need to restore traveller confidence to enable the recovery of the sector. It has also underlined the need for crisis preparedness to strengthen the resilience of the sector.

- **Rapidly evolving digital technologies**

New technologies and their increased use by travellers and the sector have made huge changes to how journeys are planned, booked and experienced and this is continually evolving. They also provide new approaches and solutions to the handling of visitor volumes. There has been a significant but uncoordinated growth in the use of digital technology in traveller identity, border controls, visitor management and information and other handling processes. A further aspect of this is an increasing

¹³ UNWTO Tourism Dashboard 2020

¹⁴ IATA Air Passenger Forecast 2018

expectation amongst travellers to be able to use digital applications to facilitate their journeys, including contactless technologies that reduce the spread of pathogens. Expanding and evolving application of technologies in health management, including in tracking infection, will have significant implications for travel and tourism.

- **Climate change and environmental concerns**

The need to take more concerted action to address the climate emergency, including the setting of global and national targets to reduce carbon emissions, has become a priority in policies for sustainable development. It is of special importance to tourism, as recent research demonstrates, that transport-related emissions from tourism are expected to increase by 25% from 2016 to 2030, if carbon emissions targets are not more ambitious¹⁵. It is also having a greater influence on consumer attitudes and choices. This has significant implications for travel and transport planning and development, as it requires the provision, identification and greater relative use of resource efficient and sustainable travel options. It will need to be reflected in policies and actions to promote seamless travel. In turn, the need for a seamless experience should be seen as an important issue in the development of policies and actions to promote alternative and multi-modal transportation.

- **Demographic changes and new market profiles**

Visitor market trends will have a number of influences on demand for types of seamless travel. Demographic changes point to a higher proportion of more elderly travellers, with those aged over 60 predicted to total 1.7 billion by 2040, up 89% on 2015¹⁶ (OECD, 2018). This has implications for improving accessibility for people with limited mobility. Other trends affecting the shape of travel and how it is delivered include a growth in travel by Millennials and Generation Z, who are increasingly digitally expectant and demanding, and in the proportion of independent travellers seeking authentic experiences. An increase in solo travellers, including women, underlines the need to provide an experience which feels and is safe and secure.

Policy aims and objectives

The above consideration of the policy context leads to the identification of five key policy aims and objectives for seamless travel for sustainable development, which will benefit local destinations, businesses and communities as well as travellers:

- ***To enable sustainable growth by handling travellers more efficiently***

In the face of anticipated significant long-term expansion in demand, together with infrastructure constraints, making travel more seamless will enable larger numbers of travellers to be effectively managed and processed more quickly and efficiently, so securing the economic growth that this will bring.

- ***To strengthen safety and security for travellers and recipient communities***

Seamless travel should seek to enhance traveller safety, in its own right and as a critical requirement to enable and encourage travel. Processes and technology to deliver seamless travel should also ensure that they strengthen and do not compromise the security of nations and communities.

¹⁵ UNWTO/ITF, Transport-related CO2 Emissions of the Tourism Sector – Modelling Results, UNWTO, Madrid, 2019, <https://www.e-unwto.org/doi/pdf/10.18111/9789284416660>

¹⁶ Analysing Megatrends to Better Shape the Future of Tourism, OECD, 2018

- ***To support regional and local economies and job creation, through improved connectivity***
The provision, facilitation and promotion of seamless intermodal connectivity should stimulate tourism spending, development and employment in an increasing range of destinations, including those less visited and seeking sustainable growth.
- ***To improve sustainability by managing visitor flows and promoting alternative travel modes***
The planning and execution of seamless travel should take account of its environmental and social impacts, encouraging and enabling the use of more sustainable means of transport and managing the timing and distribution of visitor flows to avoid congestion.
- ***To significantly enhance the traveller experience***
Making travel more seamless should make it easier and more enjoyable for travellers, who will be able to plan and complete their journeys with more confidence and fewer impediments.

3 Concepts, aspirations and challenges for seamless travel

Having identified the policy context and aims for seamless travel, it is important to consider the current level of awareness and knowledge of the topic, in order to inform future planning. This includes the identification of relevant concepts, initiatives and research, which can provide an insight into challenges, opportunities and potential benefits and help to shape a framework of areas for action.

Concepts and models

Generic concepts and models which relate to seamless travel include:

- **The end-to-end traveller journey**

This draws on the concept of 'end-to-end' in business management, meaning a fully comprehensive approach, linking processes to deliver a successful outcome. Neatly, it also can be taken to convey the physical concept of a whole journey from leaving home (or point of origin) to arriving in the destination and then returning. Application of the concept involves identifying all the various stages of the journey, including: inspiration, pre-travel preparation, authorisation (e.g. visas), booking, transport from home, transit through airport (or other main transport hub), border clearance, arrival and immigration, and transport to and within the destination. The enhancement of seamless travel requires identification of the main 'traveller pain points' at the various stages, with action taken to address them.

- **First and last mile connectivity**

This concept is frequently used in transport planning and delivery. First mile includes journey preparation and transfer from home. Last mile addresses the links between the main point of arrival (e.g. port or airport) and a final destination. Frequently, the weakness of this 'last mile' link (in reality or perception) may be a key factor in limiting traveller choice and the geographic spread of tourism benefit.

- **Smart destinations**

The promotion of seamless travel and enhanced traveller experiences should go beyond concern about travel to a destination and also address what happens within it. A 'smart destination' (e.g. smart city or other area) has recently been defined as one that embraces five pillars: innovation, technology, accessibility, sustainability and governance¹⁷. While this concept is relatively broad, the importance given to accessibility (including mobility), innovation and the use of technology, while meeting the requirements of sustainability, links well to concepts of seamless travel. Recognised smart destinations provide a useful source of good practice.

¹⁷ 2nd UNWTO World Conference on Smart Destinations, 2018

Global perspectives on seamless travel issues

Based on the above concepts, it is necessary to consider further the notion of seamless travel and the key issues and challenges that need to be addressed in order to enable its development. This requires closer reflection on the end-to-end journey, including the points along it where the traveller is most likely to be impeded and the types of intervention that can address this. It also requires further consideration of the needs of travellers in being able to reach, and travel within, their destination smoothly and how this can be facilitated.

Research studies and initiatives in this field can assist in this. A number of organisations in the travel and tourism sector have taken a leading role in recent years in the development of seamless travel initiatives. These have primarily focussed on the pain points during a journey that involve the checking of a traveller's identity and the application of technology to address this, but they also relate to other aspects. Some primary examples include the following:

- **International Civil Aviation Organization (ICAO): Traveller Identification Programme Strategy and related applications**

This ongoing strategy, initiated in 2013, seeks to deliver a holistic approach to traveller identification management. It is aimed at improving security and traveller facilitation and engages with stakeholders through a range of events, studies and initiatives. ICAO is the lead authority in setting standards and co-ordinating processes for traveller identity documents and digital applications. One example is the Public Key Directory (PKD), which holds data required for the authentication of e-passports. It has set Standards and Recommended Practices (SARPS) for maximum efficiency and security at border clearance. Currently, ICAO is developing Digital Travel Credentials (DTC) as an alternative to passports.

- **International Air Transport Association (IATA): One-ID strategy**

This concept, articulated in 2018, is focussed primarily on air travel with the vision of “an end-to-end passenger experience that is seamless, efficient and secure, which aims at offering passengers a frictionless airport process allowing the possibility to walk through the airport without breaking stride”. It allows an individual to assert his or her identity on-line or in person at every step in the process, while maintaining the privacy of personal data. The objective of One-ID is to bring industry and government stakeholders together to establish a common vision and pursue the development and adoption of standards and recommended practices. At their AGM in 2019 IATA adopted a resolution to back One-ID and called on governments, airlines and airports to collaborate on the sharing of identity information, interoperable and innovative solutions and the application of biometric recognition.

- **The World Economic Forum (WEF): The Known Traveller Digital Identity (KTDI) Project**

This project, initiated in 2017, seeks to deliver a vision of seamless travel which allows passengers to travel without showing their travel documents unless required. Known Traveller Digital Identity (KTDI) seeks to both: equip government and private sector entities with a traveller's verifiable identity data in order to improve decision-making and risk assessment related to authorizing travel and border crossing; and empower travellers to facilitate the sharing of their data with security and border screening, or private sector authorities if they choose to do so. Based on research amongst travellers and engagement with governments and businesses it identified five key pain points in a journey (visa application, booking, security screening, departure control, and arrival border security) amongst sixteen identified steps. It continues to explore methodologies for building digitally enabled traveller identities which are universally recognised but whose use is self-selected by the traveller. The WEF sees the KTDI concept as applying to a range of applications including visa acquisition, booking and various stages in the traveller journey. The project is using a pilot

between Canada and the Netherlands to demonstrate proof of concept and underlines the need for a supportive policy framework encouraging adherence to global standards and collaboration.

- **IATA and Airports Council International (ACI): NEXTT(New Experience Travel Technologies)**

The vision and goal of the NEXTT initiative is “to ensure the transport of passengers, baggage and cargo benefits from the latest technology developments to improve customer experience, reliability and efficiency”. The initiative promotes the use of digital traveller identity, but its interests are wider than this and include various issues of connectivity and visitor handling, such as city-centre entry gates linked to airports, baggage handling technology and personalised and real time traveller communication. The initiative is being taken forward through various topic work streams.

- **World Travel and Tourism Council (WTTC): Seamless Traveller Journey (STJ) initiative**

WTTC has identified the significant economic benefits of enabling more seamless travel. The vision of its STJ programme, launched in 2018, is “to align the industry around models which allow biometrics to be captured following recommended processes at the early stages of travel and shared across industry and government entities as necessary, to ensure a seamless end-to-end journey which enhances security and improves the traveller experience.” WTTC recognises the weakness of fragmentation and is committed to work with existing initiatives and enhance public-private co-operation and ensure global standards. It has initiated a range of research studies, including the identification of three alternative models for the application of a digital traveller identity. It is also exploring issues of data, identity and privacy.

A feature of the STJ programme is the application of traveller identity and biometrics through the end-to-end journey, such as in accessing hotels, cruise, vehicle rental and other services. Recently, and due to COVID-19, WTTC incorporated the health component to the traveller journey checkpoints to ensure the safety of the traveller and the reduction of the spread of pathogens by a co-ordinated approach which includes Testing, Contact Tracing and Electronic health certificates.

In addition to the activity of industry-wide bodies, a number of specific projects on digital identity aspects of seamless travel have been undertaken by airlines, authorities, tourism businesses and technology companies. Some of these are considered later in the report.

While the above recent initiatives which explicitly promote and address concepts of seamless travel tend to focus on issues of digital traveller identity, various other international organisations have been engaged in studies and research which throw light on other aspects of seamless travel as defined in this report.

- **Visa facilitation**

Many organisations have underlined the advantages for countries’ economies and their travel and tourism sector from minimising the requirement for travellers to obtain a visa, while maintaining or enhancing security. The UNWTO analyses visa policies regularly and has published facilitation reports on this since 2012.¹⁸ Where visas are still required, the procedures can be made much clearer, easier to follow and more efficient. In 2019, the WTTC undertook a study titled *Visa Facilitation – Enabling travel and job creation through secure and seamless cross border travel*. The OECD Tourism Committee has a long standing and active interest in travel facilitation and visa issues and considers visa policies as part of travel facilitation in its regular assessment of tourism trends and policies¹⁹.

¹⁸ Full overview on reports <https://www.unwto.org/sustainable-development/travel-facilitation>

¹⁹ See in particular: "Travel facilitation, tourism and growth", in OECD Tourism Trends and Policies, 2014

- **Seamless transport and connectivity**

Transport planning and provision is a major policy area in its own right. The promotion of seamless travel from a tourism perspective relates to only one part of this but has been addressed in some relevant initiatives and studies. In 2016 the OECD published a report on Intermodal Connectivity for Destinations, which looked at multimodal linkages in the traveller journey, with a section on ‘Seamless transport to enhance the visitor experience’, considering a range of topics from infrastructure to networking and information. The International Transport Forum (ITF), an autonomous body linked to the OECD, has addressed seamless transport issues in a wider context than tourism. Other recent research studies provide data and insights on aspects of tourism related transport relevant to shaping seamless travel (e.g. UNWTO and ITF work in 2019 on transport related carbon emissions of the tourism sector).

- **New technology and smart tourism**

In 2017 the World Economic Forum’s paper on Digital Transformation in the Aviation, Travel and Tourism Industry showed how digitalisation has revolutionised all aspects of the sector. Creative use of new technology is central to delivering seamless travel, although the latter forms just one aspect of initiatives to promote digital applications in tourism. International bodies, destination and stakeholder networks as well as the private sector have been active in this field. For example, in 2019-20 the World Tourism Cities Federation studied and reported on Smart Tourism, including applications that support seamless travel. The European Capital of Smart Tourism initiative recognises good accessibility, digitalisation and sustainability.

In addition to these subject specific studies and initiatives, the OECD has been able to form a cross-cutting perspective on policies and actions that support seamless travel through its biennial Tourism Trends and Policies reports.

In 2020 the COVID-19 pandemic has led many industry bodies and international organisations to focus on issues of **health-related restrictions to travel, traveller safety and building consumer confidence**, which are all related to seamless travel. This has resulted in a number of initiatives in the area of travel facilitation and visitor handling. Examples include: *Global Guidelines to Restart Tourism*²⁰, prepared by UNWTO with contributions from other bodies, which provides checklists of actions to ‘make travel safe and seamless for all’; and WTTC’s *Safe Travels* initiative which has produced *Global Protocols for The New Normal*²¹, setting out operational and health protocols and guidelines for eight industry sectors. The pandemic has led to more attention being paid to **risk and crisis management** for tourism destinations, which is a topic covered by a number of recent studies and advisory documents²².

All of the material identified above has informed this report, including the overall assessment of key issues and approaches and the consideration of good practice.

²⁰ [UNWTO Global Guidelines to Restart Tourism](#), May, 2020

²¹ *Leading Global Protocols for the New Normal*, WTTC, May 2020

²² E.g. *Crisis Readiness*, WTTC and Global Rescue, 2019

National policy perspectives on seamless travel

While global studies and initiatives provide the basis for understanding, developing and promoting the concept of seamless travel, a critical consideration for its delivery is the priority given to it by individual countries at a national level.

An initial overview of 51 national tourism policies, as summarised by OECD²³, provides the following broad picture regarding the attention paid to enabling more seamless travel and to policy areas potentially affecting or affected by it:

- Policies recognise and seek to strengthen tourism's contribution to national economies, including encouraging further growth in incoming and domestic visitor spending. There is also an emphasis on business growth, entrepreneurship, employment and skills.
- Many countries are seeking to promote the regional spread and outreach of tourism as a boost to local economies and communities.
- Tourism policies place an increasingly high priority on sustainability issues, including mitigation and adaptation to climate change and managing visitor flows to reduce and avoid negative social and environmental impacts.
- There is widespread recognition of digitalisation in the tourism sector and the opportunities this brings, with support for innovation and the application of new technologies.
- A few countries explicitly recognise in their tourism policies the need to enhance and maintain openness, with some actions to streamline visa requirements.
- Some countries have recognised the need or desire to improve international connectivity, with action to encourage this, and some attention also paid to domestic transport linkages, but this is infrequently identified as a priority.
- The need to promote seamless transport and to facilitate the traveller journey into and within the country is seldom referred to explicitly in tourism policies.

The above general assessment would suggest that while the tourism policies of many countries align with actions to strengthen seamless travel and the traveller experience, this tends not to be articulated specifically in policies and the linkage is not made.

Specific information on the coverage of seamless travel in national policies was sought through a survey of G20 countries (including guest countries in 2020)²⁴. The results are summarised below:

Q. Is provision of a seamless travel experience addressed in your country's tourism policies?

Almost two-thirds (63%) indicated that it is addressed directly and specifically, with a further 23% indicating that it is addressed indirectly. Some countries referred to this being part of general tourism policy, while others pointed to policies relating to specific issues such as visas, transport and visitor information.

Q. Is it envisaged that the provision of seamless travel will become a more significant priority in the country's tourism policy in the next five years?

Over half of respondents (52%) indicated that it would have a significantly higher priority in future, with a further 43% indicating that this would happen to some extent. The reasons given for the increase in priority were partly to meet rising traveller expectations and partly to address a recognised need to

²³ OECD *Tourism Trends and Policies 2020*, OECD, 2020

²⁴ In the remainder of the report, where G20 countries are referred to with respect to the survey results, it should be noted that the survey also included 2020 guest countries. Responses were received from the following G20 countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom, United States. Guest country responses: Jordan, Rwanda, Singapore, Spain, Switzerland, United Arab Emirates.

improve connectivity and infrastructure and spread economic development. Management and sustainability issues were also mentioned.

Q. To what extent are tourism needs and opportunities taken into account in other areas of government policy affecting seamless travel?: Transport policy; Safety and security policy (e.g. visa and border control); Other relevant policy areas.

Responses to this question revealed a significant level of engagement between tourism and other policy areas, with close liaison between the respective government departments and agencies involved. Comments suggested that this has tended to increase rather than decrease over time.

For example, in Korea, the Ministry of Culture, Sports and Tourism (MCST) and the Ministry of Land, Infrastructure and Transport (MLIT) signed an MOU on tourism and transportation co-operation, on 12 December 2019, to improve the traveller experience throughout the entire journey by establishing tourism infrastructure that contributes to seamless travel.

In the United Kingdom, the development of the 2025 UK Border Strategy involves a cross-departmental approach and stakeholder consultation, with one consideration being the attractiveness of the country as a place to visit. The need for a user-centric and smooth experience is recognised, as is the impact of COVID-19, which points to the need for a resilient border that can respond to changing trends, threats and emergencies, with lessons being learnt about maintaining controls while using digital solutions.

Key issues, challenges and opportunities

The research, studies and initiatives identified earlier provide an initial insight into what might be the main pain points in a traveller's journey and the provision of efficient connectivity to destinations.

The survey of G20 countries also sought opinion on the main barriers to seamless travel, through an open-ended question:

Q. What do you consider to be the main barriers or pain points facing international travellers in their journey between their home and their final destination within your country?

Amongst the answers to this open-ended question, two topics, visas and transport, stood out above all others. Both topics were mentioned by half the responding countries. Specific comments on visas tended to relate to internal issues concerning visa requirements, procedures and processing capacity, but some were external matters including traveller perceptions and problems with fraudulent visa agencies. Barriers identified in the area of transportation were quite varied, including general issues of cost and availability as well as specific matters of inter-modal connectivity and the limitations of ground-based infrastructure.

A third type of barrier identified concerned the broad area of visitor information and communications. A number of countries identified problems with Wi-Fi coverage. Other specific topics included language barriers, for example in signage, and insufficient data sharing inhibiting potential visitor tracking and management.

Based on the contextual analysis, the key issues, challenges and opportunities for seamless travel can be grouped into four main topic areas:

- Visa requirements and acquisition
- Digital traveller identity, biometrics and security
- Multi-modal transport and connectivity
- Visitor handling, information and management.

The survey of G20 countries sought a comparative reaction to these topics, by asking countries to:

Please indicate the relative importance you would place on the (above) areas for action in improving seamless travel to destinations in your country. The results are tabled below:

	Very important	Quite important	Limited importance	Not important	Don't know
Visa requirements and acquisition	83%	13%	0	0	4%
Digital traveller identity, biometrics and security	70%	26%	4%	0	0
Multi-modal transport and connectivity	61%	35%	0	0	4%
Visitor handling, information and management	55%	32%	9%	0	4%

The findings support the view that all four of these topics are important as areas for action for improving seamless travel, although there was some variation between them in terms of their perceived levels of importance.

It is interesting to note the relatively high percentage of countries that considered digital traveller identity, biometrics and security to be a very important area for action, even though this topic was barely mentioned when countries were asked, unprompted, to identify the main barriers to seamless travel. This suggests that, while it may not be considered to be a fundamental issue, the opportunity that it presents for improvement is well recognised and supported. In addition to the four pre-identified areas of action shown in the table, countries were asked to write down and score other possible areas for action. Hardly any did so and no significant new areas were identified that related to seamless travel.

More specific feedback on these topics was sought from the G20 countries, including guest countries, through the survey. The results are summarised in boxes in the chapters that follow and are reflected in the analysis and conclusions.

The four topic areas provide the framework for the next two chapters of the report, which will consider the needs and opportunities in more detail, including the identification of good practice.

4 Traveller identity and security

This chapter considers issues and opportunities for the reduction of barriers relating to travel authorisation, verification of traveller identity and security clearance, in the crossing of borders but also in gaining access to a range of services. It focuses on two key and related areas: visa policy and facilitation and the development and application of a digital traveller identity. Consideration is given not only to how travel can be facilitated through improved processes and the use of new technology, but also to how this in turn can benefit traveller safety and security.

Visa requirements and acquisition

Recognising the relationship between visas and tourism

The need to acquire a visa and the process involved in doing so can constitute an initial deterrent towards visiting certain countries and a perceived or actual pain point in the traveller journey before it has begun. Aspects of the deterrent have been identified as:

- the length of time involved (especially given the recent trend towards late bookings);
- uncertainty over requirements, procedures and outcomes;
- cost (including visa charge, agents fees and communication costs); and
- an overall perception of lack of openness and welcome.

The sovereign right of all countries to control access across its borders should be fully respected. The reasons for requiring travellers to obtain a visa have been identified as: to ensure security; to control immigration and limit the entry, duration of stay, or activities of travellers; to generate revenue and apply measures of reciprocity; and to ensure a destination's carrying capacity and control tourism demand.²⁵

The above purposes of visas need to be considered alongside their disadvantages, including the potential loss of income from tourism as well as other benefits from trade and cultural exchange. Countries therefore need to strike a balance in their policies, maintaining necessary levels of control and security while minimising the deterrent effect of visas on legitimate and desired visitors. In practice, this is about streamlining visa requirements where feasible while maintaining security, and making the process as swift and painless as possible.

The importance for tourism of visa policies and procedures has been recognised for some time. In 2012 it formed the focus of the Declaration by G20 Ministers of Tourism and Heads of Delegation, including various international organisations, following their meeting in Merida, Mexico. This declaration stated that "Member States will further work to ensure fast, transparent and effective travel facilitation and visa programmes based upon existing international commitments, for the purpose of increasing travel and tourism and job creation". The call was endorsed by the subsequent G20 Leaders Declaration as follows: "We recognise the role of travel and tourism as a vehicle for job creation, economic growth and development, and, while recognising the sovereign right of states to control the entry of foreign nationals,

²⁵ Visa Openness Report, UNWTO, 2019.

we will work towards developing travel facilitation initiatives in support of job creation, quality work, poverty reduction and global growth”²⁶.

Considerable action has been taken in the past ten years to streamline visa requirements and increase levels of openness, notably through a growth in use of e-visas, multiple entry visas and visa-on-arrival. The proportion of the world’s population required to obtain a traditional visa has dropped by 22 percentage points from 77% in 2008 to 53% in 2018²⁷. However, despite this change, the latter figure is still high and should be reduced further.

Box 1 presents a summary of actions and views on visa issues in the context of seamless travel, from the survey of G20 countries.

Box 1. G20 country survey: Key points on visa requirements and acquisition processes

- Almost all countries have taken some action in recent years to extend visa waiver and exemptions
- Most have increased the use of online procedures and e-visas
- Some have increased visa free access for transit travellers, extended availability of multi-entry visas or lengthened the period of visa validity
- The private sector is important in communicating industry needs. Outsourcing of certain operations to the private sector occurs in some countries (e.g. Turkey). Australia and Canada use Service Delivery Partners for visa application handling but not in the decision-making process.
- A principle challenge, frequently mentioned, is the need to achieve the right balance between facilitating tourism and minimizing security risk. The latter can change over time and remains of particular concern to many countries.
- Lack of human and other resources has produced bottlenecks in processing applications, sometimes seasonally, pointing to the need to increase the use of technology where possible
- Most countries intend to further minimise and simplify visa requirements and application processes
- Further co-ordination and collaboration between countries would generally be welcomed, notably in the exchange and sharing of information and good practice.
- Some countries are interested in further bilateral and multilateral agreements, on mutual visa waiver or third-party leverage arrangements.

Source: OECD/G20 Survey on Seamless Travel and Improved Traveller Experience (2020)

Visa facilitation and outcomes achieved

In 2012 the G20 Declaration was informed by a study²⁸ on the economic benefits that could be obtained from reducing a country’s requirements for obtaining a visa and simplifying the procedures. This concluded that the process of visa facilitation has historically increased international tourist arrivals from the affected markets by 5-25%, depending on the actions taken and the characteristics of the markets.

²⁶ G20 Leaders Declaration 2012, as referenced in OECD Tourism Trends and Policies, 2014

²⁷ UNWTO, 2019 (*op. cit.*), The percentage quoted is based on a calculation for each country of the proportion of the global population that would require a traditional visa to visit that country. This is then averaged between all countries, weighted by their own population size.

²⁸The impact of Visa Facilitation on Job Creation in the G20 Economies, UNWTO and WTTC, 2012

UNWTO's Visa Openness Report of 2018 highlighted that world openness reached its highest level ever, with an openness index rating of 37 points. The Openness Index ranges from 0 – 100 and is calculated by summing the percentage of the world population affected by no visa weighted by 1, visa on arrival weighted by 0.7, eVisa by 0.5 and traditional visa weighted by 0²⁹.

In 2019 WTTC analysed the average impact on the growth in international arrivals associated with different policy changes and actions on visas³⁰. The research found that the greatest impact resulted from a shift to visa-free travel (16.6% average growth in travel demand) followed by moving from traditional visas to new types of visa (8.1% growth), with simply introducing better practices enabling a not insignificant 4.3% growth.

In 2018 an estimate was made for five countries³¹ of the uplift in international arrivals and creation of jobs arising from specific visa facilitation actions, assessing how this differed from what would have been expected simply from market developments. The results showed significant impacts. In Mexico, for example, a combination of visa waiver, third-part leverage and on-line visa provision delivered an estimated 17% growth in arrivals from 2011 to 2018, supporting 190,000 jobs.

A recent example is provided by Brazil, which has significantly opened its visa regime. In June 2019 a visa waiver was launched for citizens of Japan, USA, Canada, and Australia. This was followed by a 15% growth in arrivals from Australia, 32% growth in arrivals from Canada, 21% growth in arrivals from the United States, and a slight decline of 2% in arrivals from Japan in 2019. Prior to the visa exemption policy, the e-Visa, or electronic visa, proved to be a successful policy, which led to a 34.5% increase in the demand for tourist visas in 2018. In a further example, from Africa, Rwanda has pursued a policy of increased openness each year since 2013, through single visa arrangements with neighbouring countries, visa on arrival, visa waivers and the removal of fees, contributing to a 50% increase in cross border movements during this period and the stimulation of investment, trade and skills.

Concerns about the maintenance of national security and potential increased risk are apparent from the survey of G20 countries. This may require greater differentiation in approaches and the application of resources. For example, Australia's risk-based border policies enable more resources to be focussed on high risk travellers, thereby assisting non-risk travellers to flow freely through Australia's borders. At the same time, Australia recognises that the comparison between its visa settings and those of other countries plays an important part in its ability to attract visitors.

As the UNWTO Visa Openness Reports and in particular the calculated Mobility Score showcase, implemented visa policies affect the world population differently, so some country's citizens enjoy enormous advantages while others are faced with vast challenges due to more stringent visa requirements. In particular citizens of advanced economies enjoy much freedom when travelling for tourism purposes, with a mobility score that for the past decade has tended to be twice as high as the world's average mobility³².

Reducing visa related impediments or disincentives to travel

The following actions to reduce the perceived or actual impediments and disincentives to travel caused by visa requirements and acquisition processes reflects the experience in various countries and findings and recommendations from previous studies³³:

²⁹ World Tourism Organization, Travel Facilitation reports 2018 and 2019 available online at: www.unwto.org/sustainable-development/travel-facilitation.

³⁰ Visa Facilitation, WTTC, 2019

³¹ *Ibid.*

³² Visa Openness Report, UNWTO, 2019

³³ E.g. Visa Facilitation, WTTC, 2019; "Travel facilitation, tourism and growth", in *OECD Tourism Trends and Policies 2014*; The impact of Visa Facilitation on Job Creation in the G20 Economies, UNWTO and WTTC, 2012.

- **Reviewing visa policy and its application**

Countries should carry out a regular review of their visa policy and how it is applied. This should consider not only security questions but also the economic implications, notably through the impact on tourism. It should be based on close collaboration between the ministries responsible for tourism and for the issuing of visas (e.g. immigration department) and ideally should be informed by input from the private sector. Consideration should be given to the tourism potential and relative risks of different source markets, currently and in the future, and the visa requirements that pertain to them. The review should also reflect on the conditions placed on visas and how this is communicated, seeking feedback where possible. Outcomes may lead to changes in policy or procedures, but could also set standards for the processing of visas, such as target turn-round times. For example, France set a time limit of 48 hours for the issuing of visas for specified countries. In 2019 France established a Strategic Visa Commission which has looked at the balance between security requirements and attracting tourism.

- **Extending the judicious use of visa waiver, travel authorisation and e-visas**

Alternatives to the traditional paper-based visa can considerably increase efficiency, benefiting the issuing authority and the applicant, but need to use processes and data that ensure security. Over the last ten years many countries have moved to issuing e-visas or alternatively have introduced a visa waiver, enabling travel without a visa per se but still requiring a form of travel authorisation which is issued on-line. Australia was an early adopter of e-visas, initiated in 1996 and extended over time. The ESTA, available for residents of 39 countries travelling to the USA for business or pleasure for 90 days or less, is a good example of travel authorisation in support of a visa waiver programme – see Annex A). Other countries have introduced similar programmes. Canada, for instance, has introduced the Electronic Travel Authorization (eTA) program for visa-exempt foreign nationals travelling to Canada by air. The eTA is electronically linked to a traveller's passport. In 2022 the European Union will also come into line with this approach, by introducing the ETIAS for travellers to the EU Schengen area who currently do not require a visa. This travel authorisation is being introduced primarily for security reasons, for the control of immigration and to decrease crime and terrorism. However, it is also being promoted as reinforcing the EU's visa liberalisation policy and "making travelling to the EU less of a hassle and a much safer experience". While in Korea, prior to COVID-19, 115 countries were able to enter Korea without a visa (69 countries are under visa waiver agreements while 46 countries are eligible for visa-free entry). The Korean government continues to make efforts to improve the visa process by implementing e-visa policy to most countries that require a visa, by opening local visa issuance centres, and expanding the countries eligible for multiple-entry visas.

The process of issuing an e-visa or travel authorisation can be assisted through greater collaboration with the private sector, such as airlines or other carriers, in the gathering and use of Advance Passenger Information at the time of booking. This requires compliance with national legislation covering data sharing and privacy.

- **Removing visa requirements for specific types of visit**

Some countries have applied visa waivers strategically in certain locations or for specific types of visit in order to gain advantage from a particular tourism opportunity. An example is the relaxation of visa requirements in Russia for tours up to three days in St Petersburg and some other cities, for visitors on cruise ships or using specified tour operators. Visa exemptions may also be used to encourage stopovers by tourists in transit; a policy adopted by the UAE and in certain cities in China.

- **Pursuing third-party arrangements**

This approach entails a country recognising the visas issued by another country, without imposing its own additional requirements and restrictions. It has been used successfully in Mexico, which

initially allowed entry by holders of visas for the USA and then extended the arrangement to include holders of visas for Japan, Canada, the UK and the EU Schengen Area. It is an example of international collaboration and trust in security protocols and processes that have been adopted by others.

- **Developing multilateral or bilateral agreements**

A further form of collaborative approach is the development of agreements between pairs or groups of countries on the visa requirements for visitors travelling between or within them. In some cases these agreements may reflect wider mutual collaboration in the interests of supporting tourism growth and visitor flows between the countries concerned. For example, bilateral agreements have been reached between China and a number of countries, including Australia, which have led to a reduction in visa requirements between them. In the USA, the Global Entry programme (see Annex A) enables swift and facilitated access for nationals from countries which have reached agreement with the US authorities on the prior-vetting of travellers to agreed standards, who are then identified as ‘trusted travellers’. An example of a multilateral agreement is the Asia Pacific Economic Co-operation Business Travel Card, which allows residents of 19 APEC countries to apply once for a single card which permits travel for short stay business trips to any of the member countries. It also offers other privileges that provide a more seamless experience when crossing borders.

- **Improving relevance, awareness and communications**

Irrespective of the extent to which visas are required and the procedure involved, the level of inconvenience associated with them can be significantly reduced through effective communication. This might require that: travellers are asked only to provide information that is strictly necessary; the travel trade is kept fully abreast of visa requirements and processes, including any changes to them; eligibility and conditions are very clearly and simply explained, in multiple relevant languages; and information is kept fully up to date on user friendly websites and other media. It is also important that internationally recognised terminology is used that is easily understood by travellers. For example, WTTC question the use of the term ‘visa waiver’ as this usually still requires the acquisition of a travel authorisation³⁴.

Clarity of communication is particularly important when circumstances may change at short notice regarding restrictions on travel to a country. This may be caused by a range of natural and human related crises. Such situations may mean that a country has to withdraw the availability of a visa or travel authorisation. They may also require countries to communicate important information to potential travellers on matters relating to their personal safety and security or on their movements and activities within the country. Websites and social media containing information on visas are potentially valuable vehicles for putting across such information.

During crises, including pandemics such as COVID-19, policies and actions relating to visa acquisition can support seamless travel in a number of ways, including:

- Making sure that visa acquisition remains as simple and straightforward as possible, so minimising this as a possible barrier and disincentive when safe to travel.
- Ensuring that information relating to visa and other requirements includes very clear and regularly updated information on how the crisis is affecting the country. This should include levels of openness, regulations and restrictions in place, and conditions that travellers must meet, such as provision of health checks and records.

³⁴ *Ibid.*

- Where possible, collecting and storing any additional information that the traveller may need to supply, so this may facilitate identity checking at the time of travel (see the next section) and future traceability of the traveller (see Chapter 5).
- Communicating to intending travellers in a timely manner any changes in the situation that may occur following visa acquisition but before departure.

The opportunities and approaches identified above are relevant to all countries and should be taken into account in the development of policies and actions to reduce perceived or actual impediments and disincentives to travel caused by visa requirements and acquisition processes. However, it is important that they are not addressed by each country in isolation. A key message should be the opportunity and need for countries to work collaboratively on their visa policies and procedures in order to improve security while facilitating travel. In this regard, the development of collaborative systems to collect information from travellers in advance of their journeys, alongside increased use of on-line services and digitisation, provides an important opportunity. This theme is developed further in the next section of this chapter.

Digital traveller identity and biometrics

More efficient identity checking – the need and the opportunity

The need to check a traveller's identity at various points in a journey can cause serious bottlenecks, especially in the event of significant increases in visitor volumes. This can be very detrimental to the traveller experience and serve as a significant deterrent for future visits. Efficient and seamless identity checking can save time and improve the traveller experience as well as increasing traveller safety and security.

A typical international flight can entail identity checking on at least eight occasions: check-in, bag-drop, security access, security screening, outbound border control, boarding, and inbound border control. Identity is also likely to be checked when accessing a range of different services during the stay (for example in access to accommodation, vehicle rental etc.) and the airport experience is repeated again on the return journey. Security screening, exit control and border security have been identified as major pain points for travellers³⁵.

An opportunity to address this situation lies in the application of digital solutions and new technology. There are two main elements of the approach:

- The creation of a single digital identity for each traveller which contains a unique set of biographic data together with any additional information that may be required for identity verification, authorisation and security purposes, depending on the application. This single identity could then be used for a variety of purposes in meeting security requirements and accessing tourism services,
- The linking of the digitised biographic data to biometric data that is unique to the individual, such as based on facial recognition, iris or fingerprints. The biometric data would enable identity checking to be carried out using camera-based technology, which would allow travellers potentially to pass through identity checks without stopping, thereby considerably reducing queuing and waiting times.

The system is dependent on a critical level of trust and collaboration. Firstly, there is a need for agreement and trust between the agencies requiring identity checks, together with access to appropriate and trusted systems for authentication. Participating agencies need to abide by global protocols and standards which control access to the data. Secondly, travellers will need to be prepared to share their digital identity, with

³⁵ The Known Traveller, WEF, 2018

the assurance of strict adherence to regulations regarding the privacy and use of personal data. It is also important that the technology employed meets proven high levels of accuracy.

Recent initiatives and applications

The development and promotion of a single digital traveller identity is being pursued through a number of industry-led initiatives, as identified in Chapter 3.

A key role is being played by the WTTC through their Seamless Traveller Journey initiative. They have been able to address and take a lead on this issue from the perspective of the entire travel and tourism sector, while other global initiatives tend to be more specifically related to air transport or border security. A priority of WTTC is to work with others and to promote coordination, while recognising the significant number of individual initiatives that have pursued digital identity and biometrics.

In the field of air transportation, IATA's One-ID initiative presents a global approach for potential endorsement and engagement by governments. The context and purposes of this initiative can be seen in the IATA Resolution (Box 2). While the growth projections may change, the principles and approach outlined remain directly relevant.

Many countries and airports have been introducing new technology, including biometrics, over recent years in order to streamline and speed up traveller handling and border controls. Examples include the SmartGate programme in Australia and contactless immigration trials at Changi Airport in Singapore (see Annex D). In the UAE, biometric systems, including e-gates and smart tunnels, have been introduced in international airports, which are also working together with airlines towards integrated and universal processes in line with the IATA One-ID initiative (see Annex H). In Germany, the EasyPASS border control system is widely available at airports, and utilises facial recognition to enable citizens of the EU, European Economic Area and Switzerland to complete their border checks using their e-Passports. Japan is currently considering the use of biometric technology in areas affected by COVID-19.

WTTC conducted interviews and workshops on the Seamless Traveller Journey with over 200 stakeholders. It identified 80 separate initiatives involving the use of biometrics. It has been able to divide these into three categories: government led; government and private; and private. The importance of public-private engagement and partnership is notable. Informed by the initiatives, WTTC also identified three emerging models within aviation for digital traveller identity and biometrics:

- Government facilitated (Centralised model) – Government collects and verifies biometric data, stored in central databases (no traveller enrolment); Biometrics stored indefinitely; Only facial and finger biometrics used; Government acts as identity management service provider (provides Identity as A Service (IDaaS) platform for travel providers).
- Per trip (Semi-federated model) – Traveller creates a single journey token in advance, via mobile device or in-person at check-in; Token lasts for duration of journey; Token contains key biographic and biometric (facial) information; Orchestration platform houses and maintains token.
- Per life (Federated model) – Traveller enrolls once to create a digital identity in mobile digital wallet; Lives indefinitely for the lifespan of travel document (e.g. passport); Digital wallet contains any data a traveller chooses; Data verified using mobile eVerification or in person; Traveller pushes data to a given stakeholder in advance of travel (e.g. through distributed ledger).

There are many examples of where digital identity and biometrics is being used in border security and airport situations, which reflect these different approaches. In the USA, the Traveller Verification Service (TVS) is an example of a government facilitated model (see Annex A). A collaborative per-trip model has been implemented successfully in Aruba (Annex B).

Box 2. IATA Resolution on One-ID, June 2019

RECALLING that global air passenger traffic is projected to double by 2037, meaning that the air transport sector will accommodate an additional four billion passengers by this time;

FURTHER RECALLING that the practical obligation to obtain and check passenger identity documentation and travel authorisations is often placed upon carriers as a part of immigration and border security processes;

ACKNOWLEDGING that a safe, secure and seamless passenger experience is an objective of primary importance for consumers, governments and the airline industry;

RECOGNISING that efficient and optimised communication standards support both enhanced customer experiences and more effective security outcomes;

FURTHER RECOGNISING that important shifts in consumer behaviour, together with changing expectations in respect of real-time information, paperless processes and data privacy, require a high degree of collaboration between air transport sector stakeholders;

The 75th IATA Annual General Meeting:

1. AFFIRMS the significant benefits of paperless passenger travel by means of biometric recognition;
2. ENCOURAGES government authorities, member airlines and airports to support the One ID strategy;
3. ENCOURAGES ICAO and its Member States to urgently identify specifications for a digital travel credential that will offer a secure and efficient alternative to passports;
4. ENCOURAGES member airlines and all other actors in the air transport system to work together towards a “use case” for such a globally accepted digital travel credential;
5. CALLS on government authorities, member airlines and airports to urgently:
 - i collaborate on identity management solutions for the sharing of identity information to avoid duplication in passenger checks and enable secure paperless processes, with such solutions to satisfy the highest security principles and meet the important requirements of privacy law;
 - ii work together to find interoperable and innovative solutions;
 - iii further explore and apply the benefits of biometric recognition, including in terms of security and speed;
6. ENCOURAGES governments to explore the possibility of offering the verification of passenger identity information as a service.

Source: www.iata.org/contentassets/4a5c5d48190f4a65a03c05f247972e8b/resolution-one-id-agm-2019.pdf (accessed 9 September 2020)

The WEF’s Known Traveller Digital Identity Project has been giving a high priority to a traveller-controlled approach, which allows them to be stewards of their own identity information, supported by the use of blockchain technology. Pilot testing will occur with the co-operation of Air Canada, KLM and the airports at Toronto, Montreal and Amsterdam.

In parallel with One-ID, IATA has been pursuing the NEXTT initiative, which focuses on various aspects of the use of new technologies, with digital identity and biometrics being central to this. Some of the

applications relate to wider aspects of traveller handling within and outside airports, such as baggage handling and city centre linkages, which are picked up in the next chapter.

The WTTC has been taking an open position on these different models and approaches, recognising that no one size fits all circumstances. It encourages and supports ongoing research on impacts and implications. In a recent report³⁶ it has provided a further illustration of possible scenarios and identified four critical issues for further progress: interoperability; data collection and sharing; data privacy and intergovernmental and private sector co-operation.

An important aspect of the expansion of digital traveller identity and biometrics is the potential that it offers for the tourism sector more widely, beyond the confines of borders and airports. Its use in hotels, vehicle rental and access to a range of tourism services could save time for travellers and businesses as well as enhance security. Some examples of take-up by different types of operators are provided in Annex C. This shows how companies have seen this as a way of enhancing the visitor experience, linked to their brand.

Box 3 summarises key points on actions, issues and needs relating to digital identity and biometrics from the survey of G20 countries.

Box 3. G20 country survey: Key points on digital identity and biometrics

- Many countries have been extending the use to digital processes and biometrics to increase the efficiency of identity checking and security controls, e.g. via e-gates and kiosks, with significant time savings
- Some have been trialling or introducing seamless digital and biometric systems and pursuing the use of a single digital identity (e.g. Australia, Singapore, United Arab Emirates, United States)
- The private sector is recognised as having a key role, potentially in partnership, as providers of digital technology and as frontline users (e.g. airlines and airports)
- The most frequently mentioned challenge, raised by over half the countries, concerns data protection and privacy. The need for a regulatory framework is widely recognised. Some countries are amending legislation (e.g. Mexico) and adopting cross-sector frameworks on data usage (e.g. Canada)
- There is some concern about the accuracy of certain technology and systems, including vulnerability to hacking and fraud.
- Almost all countries envisage further use of biometrics in the future.
- Some mutual activity is occurring between neighbouring countries and at a regional level. Argentina has referred to reciprocal recognition of competences in migration and border control.
- There is widespread recognition of the need for global collaboration and co-ordination on the interoperability of systems, based on agreed international standards, data sharing and the harmonising of laws and regulations on privacy.

Source: OECD/G20 Survey on Seamless Travel and Improved Traveller Experience (2020)

³⁶ Data Facilitation for the Seamless Traveller Journey, WTTC, 2020

Identity checking and travel authorisation in times of crisis

The emergence of the COVID-19 pandemic in 2020 has raised awareness of the various ways in which a digital traveller identity and the use of biometrics can significantly benefit travel and tourism in times of crisis, through providing a seamless experience that enhances traveller safety. There are two main reasons for this. Firstly, it enables necessary additional information, such as health details, to be added flexibly to the traveller's identify record for multiple uses and, secondly, it delivers a fast and contactless checking process. In recognition of this, the WTTC now refers to their model as the Safe and Seamless Traveller Journey.

The recovery of travel and tourism following COVID-19, or future pandemics or crises, will depend on travellers feeling safe to travel and having authorisation and clearance to do so. The latter can be achieved through data added to their digital identify (e.g. passenger data envelope or digital wallet). In a pandemic, this may include evidence of antigen testing, vaccination, contacts and movements and other health data, depending on the stage of the pandemic and agreed requirements. Protocols for testing, contact tracing and health certification of travellers during COVID-19 have been identified by various industry bodies³⁷, with the aim of providing a seamless experience which facilitates travel while ensuring high levels of safety and reducing the spread of pathogens.

A prerequisite for seamless travel during times of crisis is that identity checking and authorisation is based on requirements, procedures and standards that have been agreed by governments and other key players, through collaboration and co-ordination between them. Processes and requirements need to be pragmatic and transparent. It is also very important that the fundamental principles of data privacy continue to be observed.

The use of biometric technology in checking traveller identity is especially valuable during a pandemic because it enables this to happen without the need for human contact or for touching of surfaces which may be contaminated with pathogens. In addition, by providing a speedier process and reducing the need for queuing, it can cater more readily for social distancing requirements. These benefits can apply not only at borders but at all places where identify checks are required, such as hotel registration.

Evaluation of potential outcomes

Assessments made on initiatives and schemes referred to above point to the delivery of very considerable benefits. These can be identified as:

- For governments: More security; more efficiency; lower costs; economic benefits and job creation; improved data and traceability; border control that mitigates the risk of pathogen transmission,
- For the industry: Better use of infrastructure/capacity; increased productivity; streamlined processes; greater customer satisfaction; increased security; less fraud; improved consumer data.
- For the traveller: Less hassle; saves time; shorter queues; more security; enhanced safety, from less human contact and touchless processes.

The benefits for security have been underlined by many commentators. There are two reasons for this. Firstly, experts believe that biometric matching is a much more secure and accurate method of verifying identity than visual checks and officer examination³⁸. Secondly, as staff need to spend less time on legitimate travellers, who are pre-identified, authorised and swiftly verified, they will have more time to devote to checking higher risk travellers and to spend on other security matters.

³⁷ Guidelines for WTTC's Seamless Traveller Journey: *Testing, Tracing and Health Certificates*, WTTC June 2020. <https://wtcc.org/Initiatives/Security-Travel-Facilitation>

³⁸ Smith, T. and Bonner, B. *Seamless and Secure Travel*, IBMATA, 2019.

A study of the potential impact on liability from biometric boarding³⁹ has confirmed these conclusions. This considered the effectiveness of current manual processes, finding that advance passenger data can be incorrect and that manual passport authentication can be open to error. By contrast, the trialling of biometric TVS system in the USA (see Annex A) found a passenger matching accuracy of over 99.9% and enabled staff resources to be optimised.

Many of the benefits result from reducing the time taken by a traveller to pass through the various stages of the journey that require identity checks. Potential time savings relating to the IATA One-ID and NEXTT initiatives have been estimated as follows⁴⁰ (showing percentage time reductions): Check-in (10-25%); Security check (40-50%) Boarding time (40%); Passport control time (80%).

Turning to the economic benefits arising from the use of digital traveller identity and biometrics, the estimates made for some of the initiatives suggest quite sizeable impacts:

- WTTC has estimated⁴¹ that between 12% and 30% of the expected 70 million new jobs created in travel and tourism between 2019 and 2030 across the G20 countries could be created by transitioning to a Seamless Traveller Journey and the use of technology and biometrics solutions in conjunction with sufficient infrastructure investment. Analysis undertaken for WTTC suggested that this could result in between 8 million and 21.5 million new jobs created. The WTTC and IATA have also conducted economic analysis⁴² to identify the potential costs and benefits associated with the seamless travel concept with the implementation of biometrics and associated systems over the next 30 years.
- The WEF has reported⁴³ that stakeholders anticipate that the Known Traveller Digital Identity concept will unlock an estimated potential value of USD 150 billion. This will arise from benefits associated with an increase in seamlessness (e.g. speed) and in security.
- The cost-benefit analysis of the NEXTT initiative⁴⁴ points to a massive present value benefit over a 20 year period of over USD 1.8 trillion, but this includes the impact of the introduction of a range of technology affecting airline and airport operations and including cargo as well as passengers. The benefits to passengers arising from time saving (on identity checking etc.) is estimated at USD 330 billion.

All the above economic estimates were made before the advent of the COVID-19 pandemic. The basis for the calculations, including measures and forecasts of travel and tourism volume and spending are therefore no longer tenable. The studies do indicate, however, that the approaches under consideration could have significant economic impact in certain scenarios and in the long term.

A further assessment is now needed of the economic benefit of digital identity and biometrics within the context of COVID-19 and as a facilitator of recovery in the travel and tourism sector and of future growth. It is possible that the size of the uplift that could be seen, from a very low base, could be considerable. While total volumes will be lower than in the above estimates, the relative proportion and rate of change could be significantly higher.

Issues to address and priorities for action

The existing initiatives and analysis demonstrate that there is much to gain from a widespread and co-ordinated expansion of a harmonized system of digital traveller identity backed by biometrics. The

³⁹ Biometric Boarding using Identity as a Service; the potential impact on liability in the aviation industry, OIX, 2018

⁴⁰ NEXTT *Preliminary Cost Benefit Analysis*, Atkins and SNC-Lavalin, 2018; also IATA One-ID information sheet.

⁴¹ WTTC data from Oxford Economics, January 2020

⁴² WTTC *Seamless Traveller Journey Cost Benefit Analysis*, 2020

⁴³ The Known Traveller, WEF, 2018

⁴⁴ NEXTT *Preliminary Cost Benefit Analysis*, Atkins and SNC-Lavalin, 2018;

experience gained from these initiatives, together with the experience, challenges and concerns identified by the G20 countries, points to a need to address the following issues and opportunities:

- **Co-ordination between systems and programmes**

Activity in this field is very fragmented and if this pattern continues there is a danger that the potential benefits will not be fully realised. Policies, structures and actions are required to bring the existing initiatives together and develop joint forward programmes.

- **Establishment of agreed global standards**

A global response requires an agreement on standards to which the various parties can adhere. These are required for:

- Traveller identity. Potential users need to agree on what information and data needs to be covered and shared in identity checks, as a basis for digital identity standards.
- Processes and technology. Potential users must be able to trust the systems used in common and by others. This will require agreement on standards for acceptable procedures and technologies (notably for biometric checking).

- **Development and support for interoperable systems**

Flexibility is needed, within the standards, to reflect different situations. However, digital identity and biometric systems should where possible be interoperable, based on support and guidance. Where more universal applications are possible, these should be promoted and encouraged. Two particular opportunities have been identified:

- Promoting universal use of the upcoming Digital Travel Credential, established by ICAO, building on the e-passport, as the basis for containing and conveying a traveller's digital identity.
- The establishment of a multi-national 'trusted traveller' programme, based on agreed standards⁴⁵.

- **Co-ordination of principles, legislation and regulations relating to data usage**

Standards should reflect universally agreed principles on data protection and usage. Internationally recognised codes of practice, such as 'Privacy by Design' should be adopted (see Annex B). There should also be appropriate and equivalent legislation and regulations in place to uphold these, which are comprehensively applied.

- **Providing reassurance and information to travellers**

A critical issue for the roll out of digital traveller identity and biometrics is the level of acceptance by travellers. They need to be assured that their personal data will remain secure and private and will not be misused. More consideration needs to be given to the ability of travellers to be in control of their data and how this is applied. The situation can be helped by accurate communication aimed at travellers that addresses these issues.

- **Facilitation of wider uses in the traveller journey**

Most of the work undertaken in this field has related to airports, flying and border security. Many stakeholders have been keen to promote the opportunities for the use of digital systems and biometrics by a wide range of tourism services, which need to check a traveller's identity. More work is needed on identifying and addressing issues that may be restricting this wider usage and how they can be addressed. This may include concerns about trust and security standards between multiple users of data and access to relevant platforms and verification services.

⁴⁵ Smith, T. and Bonner, B. *Seamless and Secure Travel*, IBMATA, 2019.

- **Further clarity and promotion of benefits**

There are a number of ongoing studies to gather more robust data on the impact (achieved and potential) of relevant systems. Results should be widely disseminated when available.

- **Public-private engagement and partnerships**

The private sector plays a key role both as users of systems and as providers of technology and knowledge. A number of initiatives have been led or funded by major technology companies. However, the public sector also has a major role in regulation and implementation, especially relating to aspects of security. Future success may depend on the development of suitable frameworks for effective public-private partnerships in this field.

- **Integration of additional data as required at certain times**

In the context of COVID-19 and other crises, it is likely that travellers may be required to provide additional information, such as evidence of health testing and vaccination. International agreement is needed on what may be required and how this can be best obtained and integrated within a digital identity supported by biometrics, based on agreed standards and processes and protecting personal data and privacy. This may include digital health certificates, generated by government authorised agencies and based on standards set by international agencies, such as the World Health Organization.

Governments have a key role to play in ensuring that opportunities are seized and issues are addressed. Members of the G20 could support this process by:

- Recognising the need and potential for the widespread use of digital traveller identity backed by biometrics.
- Promoting awareness of the particular benefits that this brings in facilitating travel in times of pandemic and other crises affecting travel and tourism.
- Committing to jointly facilitate its harmonised and consistent adoption, nationally and internationally.
- Investing in digital and physical infrastructure to facilitate the process.
- Ensuring effective liaison between ministries responsible for tourism, national security and transport in the development of related policies and initiatives.
- Establishing a national framework for public-private participation in this field.
- Endorsing industry-based co-ordination efforts and initiatives, such as those of WTTC, IATA and ICAO.
- Establishing and supporting international mechanisms to harmonise existing and future initiatives or standards in this field and to address the key issues identified above.

5 Connectivity and visitor management

This chapter considers the provision of efficient, timely, convenient and well co-ordinated services for travellers in order to deliver a seamless and sustainable travel experience. It focuses on two related areas: increasing connectivity and the provision of linked alternative modes of transport; and the delivery of smart information and other services to make journeys easier and smoother for travellers and to assist in visitor management.

Multi-modal transport and connectivity

Aims and challenges of seamless transport connectivity

A key requirement of seamless travel is the provision of efficient transport linkages. Linkages should be designed to meet travellers' needs at the outset (stimulating and encouraging their use), provide travellers with an enjoyable and trouble-free experience, and deliver a range of benefits to the destination.

This report does not address the overall issue of global transportation for travel and tourism, such as the development of new routes and services, which is a major and complex subject in its own right. Rather, it focusses on linkages and ease of access between transport services and modes, which is seen as a key component of seamless travel. It considers, in particular, the 'last mile' of the traveller journey⁴⁶, between point of arrival and end destination, including travel within the destination.

It is important to recall the aims and objectives for seamless travel set out in Chapter 2 of this report. These require that improved connectivity and a more seamless experience should not only enhance the traveller experience but should also provide economic benefits from well managed growth and enable more communities to be reached and to benefit from tourism. Moreover, it should address the safety, security and wellbeing of travellers and recipient communities and seek to minimise environmental impacts. These objectives should be kept closely in mind in considering the types of transport provision, linkages and support services to favour and in the development of policies and actions to deliver them.

It is also instructive to consider the concept of seamlessness in the context of transport planning and delivery. 'Seamless transport' is a term that occurs in related literature. It has been equated with the process of adapting infrastructure, operations, payments and information to deliver a more 'convenient' travel experience. A study on how users value convenience in multimodal transport provision has pointed to the following set of key challenges to be minimized or addressed⁴⁷:

- Walking time at any stage, especially if this requires more than normal effort
- Waiting time, including in transferring between services and modes
- Being bound to and restricted by limited scheduled services
- Variability and reliability with respect to travel time
- Lack of relevant information
- Crowded conditions, including in waiting and transferring between services.

⁴⁶ First mile links, from initial point of origin, can often benefit from systems similar to those that address the last mile.

⁴⁷ Wardman, M. "Valuing convenience in public transport" *International Transport Forum Discussion Papers*, 2014/02, OECD, Paris

Co-ordinated tourism and transport policy and planning

The provision of easily accessible, regular, and reliable transport options for visitors arriving and staying in a destination, which meet the above requirements, should be seen as a priority for tourism and transport planners.

A clear principle for transport planning, especially at times of financial constraint and uncertainty, is to seek to maximise the use of existing services and to carefully plan additions and expansions based on comprehensive and well-constructed forecasting of demand. Costly new transport infrastructure, especially if it is aimed exclusively at the tourist market, may not be justified.

For these reasons, it is essential that there is a close co-ordination between tourism and transport policy, requiring regular liaison between the respective ministries and agencies. Furthermore, planning of future transport services should consider equally and jointly the needs and likely future demands of both residents and visitors. At the same time, such planning can be visionary and opportunistic, considering ways in which transport provision can facilitate sustainable tourism development and how tourism uses can underpin the viability of transport services for the benefit of residents.

A consideration of the context of tourism and transport policies points to four key issues affecting the ability to deliver a seamless travel experience based on transport options and intermodal connectivity:

- **Co-ordination between transport providers**

In most countries, government and public bodies at a national and local level are involved in the provision of transport infrastructure and also transport services. This role may be divided between numerous different authorities. There are also many private sector operators of transport services. The advent of numerous, flexible and innovative small transport businesses and aggregation platforms provides a particular opportunity for delivering customer-centred seamless travel. This complex picture calls for co-ordination, with an important role for government in setting the vision for an integrated transport service and bringing the players together, including in the development of public-private partnerships. In Argentina, for example, the government's approach to multimodality has involved a comprehensive analysis of the provision of transport services, scheduling and fare structures, feeding a database that can be used by travellers in planning trips.

- **Digitalisation and the use of new data**

New sources of information on visitor profiles, preferences and flow patterns are available, notably through the use of Big Data, which can enable more precise modelling and delivery of services to meet demand. This can be fuelled by visitor information interfaces and applications, as covered in the next section of this report. To make the most of this opportunity, co-operation and data sharing is needed between the potential providers and users of data. However, challenges emerge regarding data openness and security. National and local governments can set an example. Transport for London, for instance, provides data via its API to many thousands of service developers and applications. In Helsinki, a policy of open data by the city authorities has provided a resource for seamless travel initiatives (see Annex E).

Germany is currently expanding and optimizing its National Access Point (NAP) for traffic and mobility data as part of the German Mobility Data Space. The German Mobility Data Space creates an initial point for a common European Mobility Data Space that connects the national access points of the participating member states and therefore, provides a significant impetus for the implementation of the European Data Strategy in the mobility sector within the framework of the German Presidency of the EU Council.

- **Climate change and transport related emissions**

Climate change mitigation targets are increasingly influencing transport policy. A study in 2019⁴⁸ has compared transport-based CO₂ emissions for different types of tourism use⁴⁹, providing evidence to guide tourism policy and journey planning towards more climate-friendly options. In many countries, climate change policies are driving support for seamless inter-modal linkages, in order to boost the popularity of public transport options rather than the use of individual vehicles, which are more polluting per passenger. An increase in the use of electric vehicles for tourism transport should also be supported.

- **Universal design**

The concept of universal design refers to the design of buildings, products or environments to make them accessible to all people, regardless of age, disability or other needs. It is recognised as particularly important with respect to transport, in providing more seamless access for those tourists with limited mobility or wheelchair users, but also convenience for those with wheeled luggage or parents travelling with a child in a pushchair.⁵⁰

The international crisis resulting from the COVID-19 pandemic has had a dramatic effect on transport services overall, not only for tourism. It will be important for countries, individually and collectively, to keep abreast of potential changes in patterns of demand in the short, medium and long term. In many countries, recovery may be led by the domestic market. There may also be implications for the relative popularity of private vehicles, on account of potential crowding and lack of social distancing on public transport. Nevertheless, the principles relating to seamless intermodal linkages and the availability of sustainable transport options remain relevant.

Key points from references to multi-modal transport and connectivity in the survey of G20 countries are presented in Box 4.

Box 4. G20 country survey: Key points on multi-modal transport and connectivity

- There is considerable variation in the policies and actions identified by countries in this field.
- Some countries refer to strategic transport plans (e.g. Canada) but in general the integration of tourism and transport planning is not fully identified
- A number of countries have policies and initiatives to strengthen the link between air and ground transportation (e.g. Italy, Spain, Mexico, Singapore, United Arab Emirates)
- Sustainability is a key factor driving transport policies in many countries. Partly linked to this, there is an emphasis on further development and promotion of rail services
- Gaps in transport infrastructure and the need for more investment is most frequently identified as a challenge
- The opportunity for global collaboration is mainly seen in sharing of knowledge and good practice
- A greater need for collaboration is seen at a local level, between sectors and multiple transport providers, with also some interest in co-ordination between countries in the same region

Source: Source: OECD/G20 Survey on Seamless Travel and Improved Traveller Experience (2020)

⁴⁸ World Tourism Organization and International Transport Forum (2019), Transport-related CO₂ Emissions of the Tourism Sector – Modelling Results, UNWTO, Madrid

⁴⁹ In 2005, it was estimated that aviation was responsible for around 40% and car transport 32% of total emissions by the tourism sector. From 2005 to 2016, the total transport-related emissions from tourism as a proportion of total manmade emissions grew from 3.7% to 5%.

⁵⁰ *Analysing Megatrends to Better Shape the Future of Tourism*, OECD, 2018

Delivering multi-modal linkages and services

Integrated tourism and transport plans can be used to guide various actions to strengthen linkages between different transport services and modes to enable a more seamless travel experience. The following good practices have been identified, based on approaches taken in a number of destinations:

- **Providing multi-modal transport hubs**

Physical co-location provides a primary opportunity for seamless transfer between transport services and modes. Airports can serve as efficient multi-modal transport hubs, critical for delivering seamless onward transport links for visitors on arrival. A study of efficient airport design in relation to ground transportation, based on five international case studies, concluded that success depends on providing short, direct and step free access between arrival/departure gates and transport services, which therefore ideally should be located immediately below or next to terminals⁵¹. Airports should link directly to nationwide transportation (e.g. fast rail, express coach) as well as metropolitan city services. In Singapore, Changi Airport serves as a multimodal hub, with integrated travel arrangements with cruise and ferry services (see Annex D).

Other forms of multi-modal hub may link rail, bus, car, bike and water-borne services. Major hubs can be supported by a network of lesser hubs, such as the transport hubs within Tokyo city that link to the international airport.

Some countries have identified current and future projects for new inter-modal transport infrastructure. For example, Brazil is planning a series of new bus terminals within airports. Some locations in China are developing integrated passenger transport hubs and tourist distribution centres, some of which are served by new trackless rail services. These hubs are also seen as playing a role in facilitating last mile connectivity to popular scenic spots, which has been identified as a priority in China.

Standards for the design and operation of transport hubs, with incoming visitors in mind, should cover the level and nature of co-located transport services, provision of information, signing, baggage storing and other facilities. Minimum distances and walking times could be specified.

- **Linking scheduling and payment between specific transport services**

Linkages and ease of use between different types of transport can be facilitated through the co-ordination of schedules and joint ticketing. In Spain, for example, there has been strong co-ordination between intercity rail travel and airlines, with combined services promoted and ticketed as a single journey. In Italy, an arrangement between the state rail company and Emirates offers a linked service between Dubai and 27 Italian cities, and in Germany Lufthansa offers rail+fly tickets with Deutsche Bahn. Such linkages can assist travellers not only by requiring just one payment but can also give them more reassurance about the multi-modal journey and its completion. For example, joint arrangements between providers may prevent travellers from being penalised on account of delays and missed connections.

Specific links can also be made between scheduled public transport operators and providers of services to individuals. This can be particularly useful in addressing first and last mile connectivity. Travellers can be offered price incentives to use such linkages. Examples include an initiative in Florida, USA between inter-city rail and Uber, and in Quebec, Canada between public transport services and providers of car and bike share options.

- **Developing 'Mobility as a Service' programmes**

Further to the provision of linkages and arrangements between specific transport operators, some destinations are now pursuing more generalised and flexible linking of transport services to meet

⁵¹ Surface access to airports: the case of Mexico City's new international airport, ITF/OECD, 2018

the personalised needs of individuals for any one journey. The concept of Mobility as a Service (MaaS), initiated in Helsinki (see Annex E) involves the use of a digital platform that integrates end-to-end trip planning, booking, electronic ticketing and payment services for all modes of transport, public and private, based on real time conditions and preferences. The approach is data driven and user centric. Delivery of the concept tends to be driven by the private sector, notably third-party aggregators. However, governments have been developing policies to harness this as a component in their transport planning and delivery, including in relation to tourism. For example, in Japan, the government has held a demonstration of MaaS in Kamaishi, Iwate and Goshogawara, Aomori in 2019 to improve the access and convenience for tourists and to revitalize rural areas as a result.

This fully integrated and flexible concept is well suited to the delivery of seamless multi-modal transport options that meet the needs and interests of travellers. The approach seeks to include all transport modes, including train, bus, bikes, taxis and vehicle rental. Platforms need to be objective, rather than favouring certain providers for commercial reasons. Challenges exist in the process of engaging all the relevant public and private players, addressing issues of competition between providers and securing co-operation and data sharing.

- **Promoting more sustainable and low emission transport options**

In order to comply with environmental policy objectives, visitors should be presented with more sustainable transport options in completing their journeys and exploring the destination. In part, this is being addressed by making public transport links more seamless. More specifically, many destinations are promoting the use of human powered mobility options as a positive visitor experience. Bike share opportunities are commonplace, especially in cities, and in some cases, the use by visitors is incentivised by low or free-to-use pricing, as in Copenhagen. Options to combine walking, cycling and public transport are increasingly available. Switzerland Mobility is a longstanding initiative offering co-ordinated low and no-emissions connectivity combining public transport access with hiking, cycling, mountain biking, roller-blading and canoeing routes throughout the country (see Annex F).

- **Promoting themed destination linkages and experiences**

Improving connectivity and promoting seamless travel opportunities can complement strategies to spread visitor spending to locations where it may be particularly valuable in contributing to sustainable development. This can be assisted by designing linked product offers and easy access to them. In some countries this has been done by identifying and promoting thematic routes supported by various transport options. A longstanding example is the Wild Atlantic Way in Ireland. In the UK, international visitors have been encouraged to travel beyond London through the development of itineraries and themed routes supported by government funding. Here, travel has largely been facilitated by tour operators providing bookable packages, sometimes developed in conjunction with transport providers.

- **Preparing for future forms of transport**

In the future, seamless travel and connectivity is likely to be strengthened though the advent of new transport modes. Autonomous vehicles, making use of Artificial Intelligence, have the potential to offer a flexible and sustainable way of providing for the personalised travel needs of visitors. Their use in a tourism context is being investigated and trialled in some countries, involving driverless taxis, robot shuttles and self-driving buses. Widespread adoption of AVs would have major implications for travel mobility and tourism both within major urban centres as well as for inter-city or regional travel⁵².

⁵² Analysing Megatrends to Better Shape the Future of Tourism, OECD, 2018

Visitor handling, information and management

The delivery of a seamless travel experience, which achieves its aims and objectives, can be considerably helped by the provision of information and assistance to travellers. This in turn can play a strong role in the management of visitor flows, to the benefit of destinations and the visitors themselves. The COVID-19 pandemic has underlined the importance of providing relevant and reliable information to potential and existing travellers in order to strengthen their confidence and build the recovery of the travel and tourism sector in times of crisis.

This section looks at information delivery and the use of data in the management process. It also considers various ways of facilitating and removing barriers for visitors, including those with special needs. Finally, it looks at specific information requirements and management opportunities to enable seamless travel in a crisis context.

A range of initiatives and issues identified by G20 countries is presented in Box 5.

Box 5. G20 country survey: Key points on visitor handling, information and management

- Most countries identified specific initiatives in this area
- Half of the initiatives related to general and traditional information provision and customer care
- Over half of the countries referred to their expanding use of new technology to provide visitor information and address management challenges
- A few countries referred specifically to assisting travellers with impaired mobility or other special needs (e.g. Japan, South Africa)
- The main challenge identified was the need for data openness and sharing, followed by the need to encourage greater stakeholder engagement. Inadequate broadband and Wi-Fi coverage was identified as an issue in some countries. A few countries referred to COVID-19.
- All countries indicated that they would seek to be more active in this area in future, especially in digital applications
- Global collaboration was encouraged, especially in the sharing of knowledge and skills, in general matters, such as data management and the use of technology, and in specific areas such as mobile payments.

Source: OECD/G20 Survey on Seamless Travel and Improved Traveller Experience (2020)

Smart information and support systems for seamless travel and visitor management

The provision of clear, relevant and up-to-date information is a key requirement for seamless travel and an improved traveller experience. Valuable information can be delivered at the outset in the planning stage of a journey, at the point of arrival, and during the visit itself.

The impact of new technology in this field has been considerable and is continually evolving. Its use in visitor information should increasingly be seen as an integral part of the overall digital ecosystem of a destination, where interconnected functions serve to deliver on strategic aims and enhance destination management. Good examples of an integrated approach include the Smart Destinations initiative in Spain and the Korea Smart Tourism Strategy.

A number of countries are working on comprehensive programmes to strengthen visitor information and the provision of assistance, informed by visitor data and using both traditional and digital methods. Saudi Arabia has used visitor surveys to identify needs and a mapping process to identify problem points for travellers throughout their journey, with a tourism care centre transformation plan to provide interactive help. South Africa has established a travel and tourism data management platform, including a visitor portal for real time travel information, with geo-mapped experiences and a helpline, enabling better navigation by tourists.

Alongside information delivery, the process of facilitating payment for transport and other services may be seen as a parallel and related part of the support system for seamless travel, which also has implications for digitalisation and data sharing.

Looking specifically at the requirement of seamless travel and connectivity, the following key functions and delivery mechanisms can be identified:

- **Overall journey planning and booking**

Initial journey planning should be guided by information on end-to-end travel options and connections, including within the destination. This may also lead to booking and payment for the total journey, either through the use of a traditional travel agent and tour operator or through an online platform and aggregator. The latter process can lead to a degree of personalisation of individual travel options that may provide a more seamless experience but could also be seen as limiting choice and restricting market access for certain types of supplier.

- **Mobile information apps**

A vast array of mobile travel apps are now available, at an international, country and local destination level. Some focus on particular themes or transportation modes, while others may be more general and cover all forms of travel and tourism service and facility. Over time, such apps have graduated from simple static information sources to more dynamic communication tools providing real-time information, data driven and personalised to the traveller's needs and location, using geo-positioning technology. Additional technology, such as augmented and virtual reality (AR/VR), may be used to enhance the presentation of information. Some examples include:

- A suite of apps in Helsinki, covering general destination information, multi-modal transport links, information relating to special needs and an app with WeChat for Chinese visitors, amongst other applications (see Annex E).
- Nugo – an app by the Italian State Railways offering integrated travel solutions.
- Travelwise digital directories, providing real time information along popular tourist routes.
- Apps being developed to guide travellers through airports, providing real time information on gates, timings, congestion etc., geo-located and personalised so that travellers can be reached to ensure they make their flights.

- **Integrated payment systems**

Destination smart cards or welcome cards that enable single payments to be made for flexible multiple transport journey and some other services, such as visits to certain attractions, have become commonplace in recent years. They have proved to be highly successful in making travel more seamless and saving time and hassle in purchasing multiple tickets. They are frequently found in cities, such as Singapore (see Annex D), but cards that cover wider areas can encourage more diverse journeys – an example is the national Swiss Travel Pass (see Annex F). Centralised and contactless payment processes are also valuable in helping reduce the spread of infection during health crises (see below).

The use of mobile phones, as an alternative to cash or cards, to make payments is an increasing trend in travel and tourism, including in paying for transport services. It is being demanded by more

travellers and is seen as a further way of enhancing the seamlessness of travel. Opinions differ on the level of security as a method of payment⁵³, and there are associated issues relating to data privacy.

- **Traditional non-tech information provision**

While there has been a steady and consistent move to digital information in recent years, there is still a role for printed maps and information material in certain circumstances. Some other traditional forms of communication are still seen as being of considerable importance for guiding visitors and facilitating their journeys⁵⁴. These include clear and comprehensive signposting, for example, on routes between transport services. Signage should make use of internationally recognised symbols and be in multiple languages where appropriate and necessary. Individual personal contact should also continue to play a part in visitor handling and information provision.

Visitor information provision can play a useful role in destination management and in meeting wider policy aims of seamless travel. This may partly relate to the type of information provided. For example, in west Sweden, Klimatsmart Semester is a public-private initiative that enables travellers to calculate the CO₂ emissions from different transport options, so aiding their choice. In other areas, sustainability certification and other indicators are included in information material (e.g. Helsinki Annex E).

A particular issue and opportunity in the provision of visitor information lies in the acquisition and use of data on visitor movements. Some of this data can be obtained through the actual process of communicating with visitors. Use of smart phones by visitors in seeking information and making payments contributes to the assemblage of time and location specific big data, which can be used to build up a picture of visitor flow. This in turn can be useful in improving the travel experience, by informing travellers of times and locations to avoid. It can also thereby assist in the management of pressure on certain locations and in future planning. An example of this process is the use of real time visitor flow data to advise busy visitor attractions on time-ticketing and queue management, while also informing visitors about this in real time.

Placement of sensors in crowded locations, that detect visitor movements, is also being used for the same purpose. This process, as well as data from smart phones, has potential links to the issue of digital traveller identities covered in Chapter 4. Examples of the use of this technology to manage and facilitate visitor movement may be found in Venice, Italy and in Kyoto, Japan, where communication tools, such as heat maps, provide information on visitor densities and routes to select or avoid (see Annex G). Similar real-time data is used in various heritage sites in China.

Assisting with travellers' individual needs

In addition to the delivery of visitor information and the use of associated data to assist visitor management, there are some further specific aspects of visitor handling that are particularly important in facilitating seamless travel:

- **Improved baggage handling**

Personal luggage can be a particular impediment for travellers, especially on international journeys. This is being addressed through dedicated services and the use of new technology. In Switzerland, a free service has been introduced to transfer luggage from home to hotel in advance. In the USA, Artificial Intelligence is being trialled for luggage screening at a number of airports, to enhance the speed and security of the process. Looking to the future, the IATA/ACI NEXTT programme has a vision for convenient and hassle-free handling and tracking of baggage at airports (see Annex I). This scheme involves the opportunity for baggage to be transferred independently from the

⁵³ Mobile payments in travel and tourism: unlocking the potential, WTTC, 2019

⁵⁴ Intermodal connectivity for destinations, OECD, 2016

passenger, an imbedded and traced unique bag identity based on the Internet of Things, automated bag handling and loading, and real time communications with customs and travellers.

- **Enquiry handling and personal assistance**

Travellers may wish to make specific inquiries and requests in order to facilitate their journey. Opportunities are being pursued to address this through the use of Artificial Intelligence. The Korea online tourist information platform, for instance, has AR/VR content and provides tools for travellers, such as a chatbot, message-based communication and translation and tourist complaint services. At London Heathrow Airport, Terminal 5, British Airways has used AI to trial autonomous robots that can interact with passengers in multiple languages, answer thousands of questions, and walk people to certain places, such as Special Assistance Desks if needed.

While AI can help to increase capacity and provide readily available support, there will be an ongoing need for a degree of human interaction, especially in handling individual inquiries. This is important in providing an essential feeling of welcome and support, notably on arrival in a new destination. Many first-time travellers still prefer human interactions when it comes to dealing with complex situations and queries.

- **Caring for travellers with special needs**

It is important to make specific provision for seamless travel by people with mobility challenges and other special needs. The relative proportion of such travellers may increase owing to demographic trends towards a more elderly population globally. Requirements will include accessible transportation and other infrastructure, dedicated information provision and individual assistance. New technology can help with this but cannot entirely replace human interaction and service delivery. Many countries have strong policies on inclusive tourism, supported by legislation on accessibility and universality. Destinations and key facilities, such as transport hubs, should be implementing specific strategies in this area.

In the UAE, Abu Dhabi Airport and Etihad Airways have been trialling the use of autonomous wheelchairs. This is part of a range of other technology driven measures to address traveller needs, such as a Disruption Tracker app, which alerts staff to the welfare of individual passengers whose transport has been disrupted (see Annex H).

Visitor information and management in times of crisis

The COVID-19 pandemic in 2020 has raised some new priorities for visitor information and management which are also relevant for other times of crisis. Specific measures are required to inform and guide travellers in the midst of a crisis and to build their confidence to travel again in the recovery phase. Key actions include:

- **Providing real-time knowledge of the situation in a destination**

Potential travellers will require very clear information on the country's policies and actions regarding the crisis and the implications for them of making visits, which is kept regularly up to date. This would include any areas of the country that are out-of-bounds or types of location and facility that are closed, as well as behaviours and actions by travellers that may not be permitted. It may also include information on levels of hygiene and general safety as well as availability of emergency health care. The opportunity to link this information to the visa process was identified in Chapter 4. More generally, it could be provided in communication channels related to seamless travel, such as mobile apps, as well as in mainstream media, travel-related websites and social media. Such media should also be used as a source of similar information for visitors already within the destination. In France, for example, during the COVID-19 pandemic an on-line platform has provided visitors with information on which sites are open and on the measures taken.

- **Tracking and tracing visitors**

The need to track and trace will depend on the nature and severity of the crisis. Reasons to do this may include:

- directly delivering important information, guidance or instructions to visitors.
- monitoring the movements, activities, contacts, wellbeing and personal circumstances (e.g. health conditions) of visitors, for example to limit the spread of a virus.
- providing assistance or effect a rescue.

Data and information on visitors and their movements that may have been obtained through the application of digital processes and technology related to seamless travel, identified elsewhere in this report, could be useful here. This could include the use of travellers' digital identity and big data, tracking visitor movements from geo-located information. Singapore provides examples of contact tracing, using Bluetooth signals and registering users of facilities (see Annex D).

A further example, relating to a localised crisis, is from Chengdu in China, which used big data to obtain the accurate location point and the real time conditions of tour guides, vehicles and tourists, one hour ahead of the 2017 Jiuzhaigou earthquake, thereby helping multiple departments collaborate to carry out efficient, orderly emergency evacuation.⁵⁵

- **Providing reliable health and safety information on specific locations and facilities**

During the COVID-19 pandemic, many countries have established guidance and standards for the hygiene and operation of tourism businesses and public facilities to minimise risk of infection, with those in compliance receiving a mark of recognition. In Turkey, for example, the Ministry of Culture and Tourism has established a safe tourism certification programme for facilities and transportation, which can be identified by users through a QR code. Such schemes can be very valuable in building confidence and promoting seamless travel. However, it is important to ensure some equivalency between countries in the guidelines and standards adopted, through aligning with initiatives such as the WTTC SafeTravels Global Protocols and Stamp⁵⁶.

- **Management and information to prevent crowding**

Big data and real time monitoring can be used in management and information delivery to prevent crowding and facilitate social distancing. For example, apps have been developed to provide highly accurate real-time information on the number of people in a site or building, set against identified capacity limits. The potential value of this management tool in reducing congestion and mitigating spread of infection has been clearly identified by some countries, such as Japan (see Annex G).

Risk and crisis management strategies for destinations should provide important input to future tourism policy. They should outline measures to mitigate major upheavals on both the demand and supply side of the visitor economy, as have occurred during the COVID-19 pandemic. Information management should form a key part of such strategies. Guidance on crisis preparedness has noted that strategic communication and effective media engagement during the immediate aftermath of a crisis are critical to the travel and tourism sector's timely recovery⁵⁷.

During the post-crisis recovery phase for the tourism sector, the promotion of seamless travel will be one strand in rebuilding the tourism sector. Visitor information and communications will play a central part in this.

⁵⁵ Global Report on Smart Tourism in Cities, World Cities Tourism Federation, 2019

⁵⁶ Leading Global Protocols for the New Normal, WTTC, May 2020

⁵⁷ Crisis Readiness, WTTC and Global Rescue, 2019

The role of government in visitor information and management

While the private sector is strongly involved in the provision of visitor information and support services, there is a strong and important role for government policy and action in this field. Particular areas for government engagement include:

- The provision of comprehensive fast broadband coverage, with transition to 5G. In addition, WiFi access should be made widely available in public places. Some G20 countries have identified this as a challenge.
- Co-ordination of visitor information and related services at a destination level between various private sector providers, public bodies and local authorities.
- Encouragement of data sharing and open access to data, supported by clear and enforced regulation to ensure data privacy and appropriate use. Governments should also seek to collaborate on the further development and implementation of global standards in this area.
- Legislation, regulations and guidance on inclusive access and mobility for people with special needs
- Awareness of how certain forms of seamless and co-ordinated information and payment systems can potentially limit opportunities for less connected communities and certain SMEs, requiring policies and actions towards open trading and competition. This may include support to communities and businesses to enhance their services and physical and digital connectedness to widen participation.
- Support for capacity building and skills training to improve the quality of information delivery, visitor handling and management. This should also seek to widen opportunities for more people, including women and minorities, to gain benefit from seamless travel. Training programmes should cover digital skills and a range of soft skills in the area of communications and customer care.
- Development of national and globally agreed regulations that support the technologies and software for mobile payments that are interoperable across countries and payment platforms.
- Preparation and regular review of risk and crisis management strategies.
- Leadership and clarity in information delivery and visitor management in times of crisis, in conjunction with industry bodies and in co-ordination with the global community.

While digitalisation and new technologies are of key importance for the delivery of seamless travel, providing a huge range of opportunities for businesses and travellers, it is important that their ongoing development and expansion is pursued in ways that are as inclusive as possible. Attention should be paid to the risk of creating a 'digital gap' which limits the opportunities available to certain groups on account of their lack of access to the necessary technology and skills, for reasons of location, resources, gender or other discriminating factors.

6 Conclusions and guidelines for action

This report has considered the concept and scope of seamless travel, the international policy context for its further development, and issues and G20 countries good practice in four key areas. Based on the findings and analysis, this chapter presents a set of key conclusions and guidelines for action on safe and seamless travel, for the attention of G20, OECD and other countries, and relevant international organisations. This process has been informed by the results of a survey of G20 countries, which has highlighted their activities and interests in this area, and by a set of detailed case studies presented as annexes to this report.

Key conclusions

The following conclusions consolidate the main findings from the assessment. A wide range of more detailed and specific considerations and points to pursue can be found throughout the report:

- **Seamless travel has immediate and long-term relevance for the global economy**

Prior to 2020, the importance of making travel more seamless, to reduce significant barriers to further growth and improve the flow of travellers, was widely identified by industry bodies. Where relevant action had been taken, clear benefits could be seen. Following the advent of the COVID-19 pandemic, the importance to the global economy of enabling travel has been greatly underlined. This has added a short-term focus on building traveller confidence as part of the many reasons for promoting more seamless travel which still remain.
- **There is widespread public and private sector support to advance the seamless travel agenda**

A number of initiatives to promote seamless travel have been established by international travel and tourism bodies, who are now seeking wider global support for their co-ordination and implementation. The survey of G20 countries revealed notable interest in this area, with the majority believing that seamless travel will be significantly more important to their tourism policies in the future.
- **The range of policy objectives identified for seamless travel has proved relevant and they should be reaffirmed**

Five policy objectives identified in this report include: enabling growth; strengthening safety and security; supporting regional and local economies; improving sustainability and enhancing the traveller experience. A body of evidence suggests that measures to strengthen seamless travel can benefit both the economy and safety and security at the same time, while also assisting the traveller. In pursuing the seamless travel agenda, more attention could be paid to the objectives of enhancing sustainability and assisting local areas, which are important policy priorities in many countries. Good examples of this exist in the field of multimodal transport. These objectives should be reaffirmed and more clearly articulated in future policies and actions to support seamless travel.
- **Delivering seamless travel requires policy action in a variety of distinct but inter-related areas**

Each of the four topic areas covered in the report was confirmed as important for seamless travel by the G20 countries. Each should be supported by relevant policy. Key findings and priorities in each area are as follows:

- **Visa requirements and acquisition**

While maintaining a focus on security, many countries have streamlined visa requirements and made the process simpler, with consequent uplift in visitation. More can still be done to minimise visas as a disincentive, through visa waiver, on-line processes and improved communications. There is interest in mutual collaboration between countries and in more bilateral and multilateral agreements and third-party leverage.
- **Digital traveller identity and biometrics**

Many countries have introduced aspects of digital identity and biometrics in the traveller journey, leading to positive impacts on visitor flow and security, and this has been taken up by some tourism service providers. A range of international initiatives have been developing and trialling models that could lead to an integrated framework of interoperable systems. This requires government engagement, co-ordination and backing,
- **Multimodal transport and connectivity**

There are various examples of more seamless intermodal connectivity, including transport hubs, comprehensive mobility programmes, joint payment schemes and linked travel offers, with opportunities for further focus on low emissions, universal design and new technologies. A key requirement is for close integration of transport and tourism policies and programmes.
- **Visitor handling, information and management**

A range of good practice in this area covers end-to-end travel planning and booking, numerous apps providing real time and interactive information, and the use of technology in baggage handling and meeting special needs. The need to maintain good non-tech support for travellers is recognised. Needs and opportunities include co-ordination between providers and policies to enable appropriate and more sophisticated use of data to assist visitor management.
- **In times of crisis, such as the COVID-19 pandemic, focus and co-ordination are critical**

During periods of crisis, international agreement is needed on the necessary additional requirements that travellers may have to meet, such as health checks and certificates, together with their efficient and seamless implementation, assisted by digital technology. Clarity is also required in the provision of information to potential travellers on the implications of the crisis for their movements, activities and wellbeing, before and during their journey. There should be an ability to track, trace and directly communicate with travellers during a crisis and to provide assistance if needed. More attention should be paid to visitor handling and communication within revised crisis management strategies, to reduce negative impacts in the future.
- **The private sector provides the catalyst for seamless travel but requires an effective policy framework**

Private sector businesses, including many technology companies, have been key players in opening up new opportunities for more seamless travel and lie behind many of the examples of good practice. The engagement of the travel and tourism industry, notably airlines, airports and travel providers but increasingly tourism services, in the application of new technologies and systems has been significant and is a key to future progress. However, this dynamism can also nurture fragmentation. Global policy frameworks are required within which they can work, identifying public priorities for new technology and addressing issues such as data usage, standards and interoperability of technologies and systems. Public private partnerships are very prevalent in seamless travel and should be further encouraged.

- **Governments have specific key functions plus a vital role in co-ordination and regulation**

Governments are engaged, of necessity, in many aspects of seamless travel – visas, border security, identity verification, transport planning and infrastructure and some aspects of visitor information and management. They also have a critical role in bringing players together, providing co-ordination, setting standards and providing and implementing regulation. Within government, seamless travel requires very close co-ordination between departments and policies covering tourism, transport and national security, as well as others such as health, the environment and economic development. Engagement between governments and with international bodies at a global level is also vital for seamless travel, given the multinational dimension of the sector.
- **Data openness, sharing and privacy are key issues requiring mutual trust and regulation**

Various examples of good practice in seamless travel, notably in visitor information and management, have stemmed from the wide availability of new data and policies that promote openness and sharing. Data sharing is also essential for progress in digital traveller identity. Challenges in achieving this stem from variations in data policies, practices and regulations and a lack of trust between suppliers and users. Concerns about data privacy amongst travellers need to be met. Agreement is needed on principles and parameters for data use and sharing, such as the ‘privacy by design’ principles whereby data exchange is on a ‘need to know’ or ‘authorised to know’ basis and where individuals are in control of their own data. Regulation is required at a national and global level and should be equivalent and universally applied.
- **Global collaboration is required on agreed standards and the interoperability of systems**

In addition to collaboration on principles and regulation for data collection, sharing and use, as identified above, there is also a need to establish international standards for relevant systems and technology to support seamless travel. This has been shown to be particularly important as a basis for mutual trust and recognition between governments as well as other potential users. Where possible, systems should be technologically agnostic, so they can be widely applied, but standards should be set for accuracy and function, so that they can be interoperable.
- **More work is needed on measurement and evaluation**

Initiatives and good practice examples covered in this report have variously been able to point to levels of operational success, take up, general traveller response, improved efficiency (such as faster handling) and occasionally measures of user satisfaction based on surveys. Levels of accuracy, such as in certain biometric applications, have been measured, and evidence has been provided to support claims of increased security. However, measurement and reporting of outcomes and impacts have often been limited. A particular weakness has been the lack of research on potential impacts on traveller behaviour, such as whether this will lead to net additional trips. This means that globalised evaluation of potential economic impact and job creation has been somewhat speculative. Further work is needed to improve understanding of motivations and validate assumptions, to support necessary re-evaluation of global economic impacts in the context of COVID-19 and beyond. Notwithstanding this, varied qualitative and localised benefits apparent to stakeholders can provide worthwhile justification for promoting seamless travel initiatives.
- **Infrastructure and capacity building are required to support digitalisation and the spread of relevant skills**

The benefits of seamless travel will depend to some extent on the wider developmental situation in different countries. The presence of relevant infrastructure and ability to support and fund investment programmes may be a key factor. A particular need, raised by a number of countries, is for the widespread availability of reliable broadband and Wi-Fi. Another issue is the digital capacity, including relevant skills, of potential stakeholders, such as employees in security or transport services and small transport and tourism enterprises, to enable them to participate effectively in systems based on new digital applications. Relevant capacity building and skills

training programmes may be needed which are fully inclusive and help to bridge the digital gender divide. Training should also cover non-digital soft skills in communication and customer care.

Guidelines for Action on Safe and Seamless Travel

Safe and seamless travel has both immediate and long-term relevance for the global economy, enabling growth, improving sustainability, and supporting regional and local economies. Delivering safe and seamless travel requires coordinated policy action. Governments have specific key core functions including bringing key stakeholders together, providing coordination, setting standards, and developing and implementing regulation, and can benefit greatly from cooperation with the private sector partners to achieve a safer and more seamless traveller experience.

International coordinated action and collaboration with international organizations on agreed standards and the interoperability of systems and technology can also help to improve the traveller experience whilst enhancing safety and security, which are especially critical in times of crisis, such as the COVID-19 pandemic.

For the purpose of these guidelines, seamless travel is defined as: “The provision of a smooth, efficient, safe, secure and enjoyable travel experience from a traveller’s point of origin to a destination, within the destination, and back again.”

The following guidelines will help countries advance objectives for safe and seamless travel and benefit from it:

- **Recognise the importance of facilitating seamless travel**, in the long-term and as part of the recovery from the COVID-19 pandemic, as an enabler and driver of economic growth, enhanced safety and security, and an improved traveller experience, as well as enhanced local development, greater sustainability, and better visitor management.
- **Ensure that the perspectives of the travel and tourism sector are reflected in policies and actions affecting travel** to and within a country, requiring strong liaison between ministries responsible for tourism, national security, and transportation, together with other ministries, such as health, whose policies and actions may significantly affect the sector.
- **Co-operate at the international level through appropriate fora to explore standards for the collection, sharing and use of data on travellers**, for identity checking, tracing and management purposes, in line with agreed principles on data privacy acknowledging the need to abide by requirements developed by the relevant international institutions on passenger data.
- **Work with relevant authorities to streamline travel and visa processes**, while maintaining security, including through **online** processes, and bilateral and multilateral agreements, as public health conditions allow and subject to each government’s policy priorities.
- **Seek to promote the use of digital traveller identity and biometrics while respecting data privacy based on agreed international standards and principles**, for example through global cooperation **between** governments and international bodies and enabling recognition and interoperability between different systems.
- **Coordinate transport and tourism planning and operations** in the provision of seamless links between **different** modes of transport, thereby benefitting visitors and residents, and improving destination connectivity and sustainability.
- **Encourage and support the provision of real-time information and other assistance to travellers, including** those with special needs, to facilitate their journeys and enhance their

experience, through the creative use of new technology, while also maintaining traditional customer care.

- **Establish, regularly revise, and when necessary implement crisis management strategies for travel and tourism**, which require clear and effective communication with travellers on safety issues and seek coordination between governments and with industry on appropriate traveller safety standards and procedures.
- **Support, in coordination with other relevant authorities, capacity building and investment for seamless travel**, including full broadband and extensive Wi-Fi coverage, inclusive training programs in digital skills, communication and customer care, and relevant research programs to guide policies and actions in this area.
- **Recognise the key role played by the private sector**, including technology companies as well as **transport** and service providers, in enabling safe and seamless travel, and seek to encourage and define their involvement through appropriate policy and regulatory settings and the formation of public-private partnerships (PPPs).

Annex A. Visa, identity and biometric programmes in the United States

The United States has established a suite of programmes for the expeditious handling of the entry and exit of visitors and citizens. While recognising the opportunities and benefits of promoting tourism, policies and practices concerning visas and the verification of identity must fully meet the requirements of national security. In general, the United States considers that efforts to increase security can also enable travel facilitation. Visa requirements should not be seen as a significant barrier to seamless travel and it is important to dispel any pre-conceptions by potential visitors that the visa process is difficult. Furthermore, opportunities can be taken to harness the use of digital technology to improve efficiency and reduce waiting times at border crossings.

Clear information is provided on-line on options and requirements for entry to the United States according to the origin and needs of the traveller.

A **Visa Waiver Programme** is in place which permits citizens of 39 countries to travel to the United States for business or tourism for stays of up to 90 days without a visa. In return, those 39 countries must offer U.S. citizens equivalent reciprocal privileges, and nationals to travel to their countries for a similar length of time without a visa for business or tourism purposes. Poland was added to the programme in November 2019 and it will be further expanded where possible. Travellers are required to use the **Electronic System for Travel Authorization (ESTA)**, which involves a simple application process to collect biographic information and answers to Waiver Programme eligibility questions. While facilitating travel, the Visa Waiver Programme also increases information sharing and other security measures between countries.

The **Trusted Traveler Programme** is one approach used in the United States to make the entry and exit process more seamless. Five versions of the programme are designed for different types of traveller. One of these is the **Global Entry Programme** which was established in 2008 and allows expedited clearance upon arrival for pre-approved, low-risk travellers. Citizens of the United States and 11 other countries are eligible to apply for the programme, which involves an initial interview and clearance process and payment of a fee. Over five million people are enrolled on the programme, which entitles them to use fast track lanes, automated kiosks, and swifter security and baggage checking, for multiple entries over a 5 year period. Other related programmes include **NEXUS**, enabling expedited travel between the United States and Canada for enrolled and pre-cleared members, based on bilateral agreement between the two countries.

In recent years the United States has expanded its use of biometrics in identity checking. This reflects a policy to pursue seamless travel to support both national and economic security. The **Traveler Verification Service (TVS)** is a cloud-based biometric matching service, used by US Customs and Border Protection and provided as a service to partners, including airports, airlines and the Transportation Security Administration. Based on Advance Passenger Information, a gallery of photographs is assembled of expected passengers, which have been previously verified against the identity of the traveller (e.g. for passports, visa application etc.). This gallery and identifiers are pushed into the TVS for a temporary period. It can then be used by partners (e.g. airlines) to seamlessly verify a traveller's identity using their own biometric technology, enabling swift passage for example at the boarding gate. The system is technologically agnostic, so can be used by a range of systems and infrastructure, and photos are

encrypted to ensure data integrity. Stakeholders are prohibited from using TVS data for any other business purpose. The process protects the traveller's identity, but those who would prefer a manual check can still request this.

Biometric boarding trials using TVS proved highly successful, achieving a passenger matching accuracy of over 99%, which compares very favourably with human checking processes. Average boarding times were reduced from 45 to 25 minutes. As a result, staff were able to devote more time to passengers with special needs. The trials were also deemed to be compliant with the EU's General Data Protection Regulation.

Initially, TVS was used primarily for aircraft boarding. More recently it has been tested in a wider operational environment, with a view to improving design and providing a seamless experience from curb to gate or reservation to destination, including baggage screening. To date, TVS has been operational in 18 airport arrival and 27 departure locations, together with 14 land border crossings and 7 cruise debarkation points, in partnership with cruise lines. A total of 15 million travellers have been processed by facial biometrics, with 270 detections of people attempting entry with false documents.

The impetus for the use of biometrics was to streamline processes in order to improve security. This has been achieved. Various other benefits have also emerged, including improved efficiency, time saving, better asset utilisation and an enhanced traveller experience. The advantages of a touchless and hygienic process are also recognised, with the use of biometrics being part of the strategy for mitigating the spread of infectious diseases.

An essential aspect of this initiative in the United States has been the public-private partnership approach between the Department of Homeland Security, airports, airlines, public agencies and the private sector of travel and tourism.

The potential to expand the application of seamless traveller process and technologies to wider uses and groups of travellers within the United States and globally is widely recognised. Challenges identified include privacy concerns, data sharing, standards and investment. The need for global co-ordination is recognised, especially in the interoperability of systems, information sharing and in agreement on technical and security standards.

Key points:

- *Use of seamless travel applications which support and do not compromise national security*
- *Bilateral and multilateral arrangements between countries on visa policy and waivers can help security as well as travellers*
- *Trusted traveller approaches offer opportunities for more seamless travel, with potential for international collaboration*
- *Use of biometrics delivering identifiable security gains as well as efficiency and traveller benefits*
- *Strong public private partnership as an essential component*
- *Need for collaboration on standards and interoperability of systems*

Annex B. Stakeholder engagement in biometric identity – Aruba, Kingdom of the Netherlands

Aruba Happy Flow is an early example of a digital identify and biometrics initiative, established in 2015. It provides a valuable insight into the basis and approaches for stakeholder engagement in this field.

The system provides a seamless experience for travellers at Aruba International Airport, who are only required to present their passport and travel documents once, at check-in. Their identity and captured facial image are then consolidated to create a **Passenger Data Envelope** (Single Biometric Token) which is stored on a single data platform and enables swift and uninterrupted identity verification at all other points, including bag drop, immigration and boarding, through the use of biometrics. The data is only retained for a 24 hour period.

The principle stakeholders in the process to date have been the three operational partners, the Government of Aruba, Aruba Airport Authority and KLM, in co-operation with the developing partners Vision-Box, Schiphol Group and the Dutch Government. **Phase Two** of the initiative, in partnership with WTTC, was due to launch in 2020 as the world's first pilot programme to link aviation to **non-air destination services**. This phase will use interconnected biometric technology (through API connections to the platform) to enable seamless check-in to hotels and car rental services. The system will enable the Passenger Data Envelope to hold any data fields required by the participating service providers. Initially, the launch was due to involve three participating companies. Development work has occurred, but the launch was placed on hold owing to the Covid-19 pandemic.

The initiative to date has been successful, with all partners reporting benefits arising from it. Flow through the airport has been considerably facilitated and the experience has been popular with travellers. A particular benefit for stakeholders relates to enhanced security and privacy. Governments are more confident of the identity of individuals, helping to protect against illegal immigration and crime. Airlines are more assured of meeting their legal responsibilities regarding passenger identity. Travellers have more data privacy as they do not need to show their identity papers to multiple users. Less pressure is placed on security personnel and the ability to use the system to track traveller movements has meant that many operations can be timed and performed more efficiently. The latter benefit was seen as particularly valuable by pending hotel and car rental partners, who rely on accurate scheduling of functions and resources. With the advent of COVID-19, the fact that the biometric system enables touchless identity checking and also better crowd management is seen as a major benefit.

The main challenge faced and lesson learnt from the experience of Aruba Happy Flow has been the need to develop a clear understanding by and between the different stakeholders, who previously had worked in their own silos. This has provided the basis for the necessary level of trust and co-operation. Encouraging all players to recognize this as a traveller-centric system has helped in their appreciation of the mutual benefits it can bring. Building on this understanding, the Aruba experience has led to the identification of **three factors for the successful implementation** of a single token seamless flow model⁵⁸:

⁵⁸ Steenbergen A., & Schermer, B., [What is the key to seamless travel, International Airport Review](#), March 2017

- Legal agreement, regarding the role of all parties and the data they are allowed to collect, possess and share, based on applicable privacy and data protection legislation.
- IT infrastructure, which must be stable and secure but also agile, meeting requirements for being efficient, fast and traveller-friendly as well as providing for privacy and data protection.
- Governance and mandate, with the right structures at different levels to make decisions on strategy, management and operational issues.

A strong aspect of the approach taken by Aruba Happy Flow has been concern for data privacy. The development of the initiative was founded on the internationally recognized **Privacy by Design** concept, based on seven principles that guide how privacy is built into systems, with the sharing of data being on a need-to-know and authorized-to-know basis. This approach required a Data Protection Impact Assessment to be undertaken at the outset, which is a process to ensure that data risks are assessed before contracts are signed and systems are built. In Aruba, this helped to throw light on roles and responsibilities and provided a foundation for the co-operation between the stakeholders. As well as addressing current requirements, the Privacy by Design approach also helps systems to be prepared for future additions and expansion.

The pioneers of Aruba Happy Flow envisage a wider uptake of biometric identity systems, co-ordinated through initiatives such as IATA One-ID. For this, the Aruba experience has demonstrated the need to build frameworks of trust at a local, national and international level. Governments should collaborate in supporting this approach and will remain key partners as the verifiers of traveller identity in any federated systems.

Key points:

- *Proven pilot with successful outcome and recognized stakeholder benefits, notably in security*
- *System designed to incorporate non-air services*
- *Opportunity to track travellers, enabling better scheduling of operations and services for them*
- *Practical contactless advantages in the face of health pandemics*
- *Fundamental need to obtain and develop understanding of and between stakeholders*
- *Data privacy to be designed-in from the outset*
- *Future need to build trust frameworks, incorporating a strong role for governments.*

Annex C. Digital identity applications by tourism service providers

While much of the pioneering work and global debate on the use of digital identity and biometrics in travel and tourism has focused on border security and air transport, this technology has been used by various private sector tourism service providers to make their visitor experience more seamless. Examples from four different types of service (accommodation, car-rental, attractions and cruise) are presented here.

Marriott Hotels, in a joint venture with the Alibaba Group, a multinational technology company, are operating facial recognition check-in, piloted initially in two properties in China. The initial intention was to offer an innovative and convenient check-in alternative to technology conscious Chinese travellers and then to roll this out more widely. It has been found that facial recognition check-in improves operational efficiencies. Traditional check in takes a minimum of three minutes and much longer at peak times, while the adoption of facial recognition reduces this to less than a minute.

Walt Disney World is using digital identity technology for visitor management purposes and to enhance the experience at their parks and resorts. Personal information collected on-line and at the resort is entered on a database and linked to individual radio frequency (RF) enabled devices provided to visitors, in the form of MagicBands or RF cards. These devices enable visitors, who opt to participate in the MyMagic+ experience, to have seamless access to certain areas, make purchases and enter their rooms. The experience is further developed and promoted by Disney in ways that resonate with their brand. Through the use of long-range readers in certain locations throughout the parks, the RF devices are able to “add a touch of magic by unlocking special surprises personalized just for you”. These may include videos or other experiences. The data from the digital devices is also used by Disney to track and record movements, purchases and activities, in order to improve visitor management and in future planning and marketing, including future contact with visitors. This use is explained to visitors, who have the option not to participate in MyMagic+ if they do not wish to do so. The company’s privacy policies are made available to visitors and the options and anticipated concerns are communicated and addressed through a set of FAQs.

Royal Caribbean has introduced biometric check-in on their cruise ship *Symphony of the Seas*. This uses a combination of facial recognition, bar codes and beacons. Guests upload their identity data and a ‘selfie’ photograph on the company’s mobile app prior to boarding and going straight to their rooms, where their key will be waiting for them. The process is promoted as ‘fast and frictionless’ and as part a suite of other uses of technology to enhance the experience, such as state-of-the-art wayfinding and virtual balconies.

Key points:

- *Partnerships between service providers and technology companies*
- *Significant uplift in speed of check-in*
- *Can be aimed at specific markets or priority customers*
- *Multiple types of biometric technology can be used to provide back-up*
- *Promoted as an enhanced visitor experience, that resonates with and underpins brand values*
- *Information made available on data usage and privacy policies.*

Annex D. Integrated seamless and touchless traveller services in Singapore

In 2014 the Singapore government launched the **Smart Nation Vision**, bringing together piecemeal uses of technology into a cohesive approach to build a digital economy and society. The country has been an early adopter of digital processes in travel and border security. It also shows how aspects of the response to the COVID-19 pandemic can be integrated into the approach to seamless travel, centred around the use of digital technology.

Changi Airport is a major departure and arrival point for Singapore and the wider region. The airport has also been promoted as a **multimodal transportation hub**. For example, fly-cruise and fly-ferry initiatives, involving co-ordination between the airport and ground transportation services, provide visitors with seamless connectivity between transport types, with baggage transfer and other services facilitating their access to and exploration of the city.

In 2017 Changi Airport Group initiated the **Fast and Seamless Travel System (FAST)**, which allows departing passengers at Terminal 4 to enjoy automated check-in, bag drop, immigration clearance and boarding. It employs facial recognition technology, eliminating the need for manual identity checks. Processing time is reduced, improving operational efficiency for airlines and enhancing the experience for travellers. This has been further extended through a programme of **Contactless Immigration Clearance** trials, initiated at Changi Airport Terminal 4 and the Tuas land border checkpoint in 2019. This has involved verification of identities using captured iris and facial images. These trials found that about 90% of travellers were able to clear immigration smoothly without any difficulties. The main problem for the rest was related to unfamiliarity with the process of digital image capture, leading to unsuccessful attempts to capture quality images for verification. The process may also be affected by factors such as ambient lighting and the use of certain types of lenses and head gear, pointing to the need for clearer guidance. The Customer Perception Survey, carried out by the Immigration and Checkpoints Authority, saw the overall customer satisfaction index rise from 7.72 in 2016, prior to the introduction of FAST, to 8.3 in 2018. The satisfaction index for the automated clearance system rose from 8.62 in 2016 to 9.05 in 2018.

The advent of the COVID-19 pandemic has caused Singapore to place a further emphasis on digitalisation in travel and tourism and in ensuring **low or no-touch** requirements. In Changi Airport 160 contactless kiosks have been installed across Terminals 1 and 3, which enable passengers to hover over selected options rather than needing to tap the screen. Touchless technology has also been introduced elsewhere in the airport, such as in lifts. Information campaigns have drawn attention to these changes, to boost confidence. Two technological solutions to issues relating to the safe opening of borders have been the **Trace Together Mobile Application**, which uses Bluetooth signals to facilitate contact tracing and information delivery to implicated travellers, and the **Safe Entry programme**, involving a digital system for logging employees and visitors entering business premises, which also helps with contact tracing.

The **One Singapore Experience** is the Singapore Tourism Board (STB)'s strategy to adopt a visitor lens in transforming the end-to-end Singapore experience for visitors. As part of this strategy, the **Tourism**

Information and Services Hub (TIH)⁵⁹ was developed to accelerate the digitalisation efforts of its tourism businesses by providing rich content and services for digital touchpoints, so as to enable visitors to enjoy a seamless, connected end-to-end journey

Smart digital services on TIH that businesses can leverage include:

- **Visit Singapore Account:** A unique traveller identifier for every visitor to access all essential travel services, including personalised recommendations for their trip to Singapore. Visitors can use one single account to unlock smart services such as the SG Arrival Card to ease the immigration process, the Smart Itinerary Planner to personalise recommendations, and the Visit Singapore Pass for direct access to attractions and events. These services are currently available for visitors to use on STB's Visit Singapore mobile app.
- **Visit Singapore Pass:** A single digital pass that provides visitors seamless access to places of interest using a universal 'standard' for access, whilst also generating data insights for STB and tourism stakeholders. Visitors can enjoy a frictionless and touchless experience to directly access various places of interest without the need for physical entry tickets.

In parallel with the focus on digitalisation and technology, Singapore has recognised that data analytics will be even more important in future. STB has recently launched its tourism data platform, the **Singapore Tourism Analytics Network**, to the tourism industry. This enables tourism companies to access data and perform analysis to meet their business requirements, to better understand, predict and deliver on travellers' needs in order to facilitate the delivery of a more seamless and improved traveller experience in Singapore.

Key points:

- *Co-ordinated and integrated delivery of seamless travel experience*
- *COVID-19 requirements supported within the approach to seamless travel*
- *Multimodal transport hub, linking service providers*
- *Biometric trials point to the need for more user guidance on facial image capture*
- *Health risks reduced by no-touch technology and contact tracing applications*
- *Expansion of digital access to services and attractions*
- *Business networks established to facilitate data sharing and analysis.*

⁵⁹ The Tourism Information and Services Hub (TIH) is a free digital resource platform for businesses to access relevant information on Singapore's tourism and travel software services. There are 11 content categories available in 5 languages, with over 8,000 images and over 3,000 places of interest. In addition, over 150 Application Programme Interface (APIs) are available for registered users.

Annex E. Data driven smart information for seamless travel in Helsinki, Finland

The city of Helsinki was designated as the joint European Capital of Smart Tourism in 2019. The city provides an excellent example of a truly comprehensive and dynamic approach to the delivery of visitor-focused information as a key to enabling seamless travel.

The approach is anchored in the top-level Helsinki City Strategy 2017-21, which seeks to create the best possible conditions for both residents and visitors, with an objective to be world leading in the use of digital technologies. A key to success has been the operating model, based on openness and transparency, not least in the use of data. **Helsinki Region Infoshare** (HRI) is an open data ecosystem, set up by a private non-profit organization owned by the City of Helsinki, which facilitates access to public information for use by the private sector. Open data services are maintained by the city's tourism and transport bodies, and further supplemented by national services such as Traffic Management Finland's **Digitraffic**, which provides real time road, rail and maritime traffic information across the country.

In order to maximise the creative use of data to enhance the visitor experience and management, the city's marketing department created the **MyHelsinki Open API**, which contains up-to-date information from a range of sources, as a resource to be used flexibly by app developers as well as in the MyHelsinki.fi public facing website.

Helsinki has led the way in using accessible real time data to promote transport connectivity and seamless travel. Launched in 2017, by the world's first Mobility as a Service (MaaS) operator, the **Whim** app links the city's mobility options. Users can combine and pay for public transport, taxis, car rentals, car sharing and city bike trips on the go. Research has shown high multi-modal and holistic usage, with frequent use of bicycles and taxis to meet the first/last mile challenge.

The provision of rich open data sources and encouragement of creative uses has led to a wide range of further applications and projects, many of which address particular aspects of seamless travel and its impacts. Some examples include:

- Smart City Guidance project, using mobile apps, real time directional information and use of Bluetooth signals to provide directions to visitors and suggest alternatives to congested areas
- Think Sustainably – linked to MyHelsinki.fi, directing visitors to more sustainable choices
- Virtual Helsinki – providing a VR experience of the city centre
- Input to established global apps for visitors with special needs, such as Blindsquare.com.

Specifically for the Chinese market, the **WeChat MyHelsinki** mini programme was the first city programme developed with the tech giant Tencent, owners of WeChat. Using the MyHelsinki Open API, it enables Chinese visitors to obtain tourism and transport information to get around the city. Through partnerships with Helsinki based companies, it has also been possible to enable Chinese visitors to find, book and pay for services using WeChat Pay, a mobile payment system.

Key points:

- *High level, overarching strategic direction and commitment*
- *Strong belief in open data and practical delivery of accessible public systems for private use*
- *Use of co-ordinated national and local data sources/platforms combining tourism and transport*
- *Provision of creative visitor-focused information and experiences in all aspects of seamless travel*
- *Strong private sector engagement and partnerships*

[Source: World Tourism Cities Federation, [Global Report on Smart Tourism in Cities](#), 2020]

Annex F. Multimodal connectivity – a key offer for tourism in Switzerland

Swiss transport policy is strongly oriented towards sustainability requirements (environmentally friendly, economically viable, socially equitable) and seeks to ensure that all regions of the country can be satisfactorily accessed with an efficient and sustainable transport system. Interconnected multimodal mobility offers provide a major axis on which transport policy will focus in the coming years. These developments have a positive impact on tourism.

The **Coordination Office for Sustainable Mobility**, with participation from various government offices (spatial development, transport, roads, energy, environment and health), supports projects that promote sustainable mobility in leisure time, including intermodal transport offers, tourism opportunities in the local area, solutions for baggage transport and shared mobility systems.

The overall public transport system in Switzerland provides an example of good practice. Following arrival at the airport, train and bus services provide high frequency connections throughout the country, together with opportunities to connect to cable-car services and arrange for luggage transfer and car or bike rental.

The **Swiss Travel Pass** is an all-in-one ticket for foreign visitors for Switzerland's public transport network. It includes over 250 different transport companies. It was launched in 1989 to make travelling in Switzerland easier, more sustainable and seamless. Sold as a single ticket, the pass offers unlimited travel in Switzerland from end-to-end by train, bus and boat on 3, 4, 8 or 15 consecutive days. It also allows free city transport and access to various visitor experiences (e.g. panorama train, mountain excursions and museums). Since 2019 the pass has been available as an e-ticket, **Swiss Travel Pass Flex**, which is sold for the same numbers of days as above but travel days are freely selectable within one month. It is the first e-ticket of its kind worldwide.

The pass is highly popular with visitors, who appreciate not having to queue for tickets or use unfamiliar machines as well as having free and extended choice on numerous linked travel modes. It has become a key element of Switzerland's tourism offer. In the last ten years, worldwide sales increased by over 140% to more than 140 million Swiss Francs in 2019. The greatest challenge for the industry is the breakdown of the earnings. This is based on regular surveys concerning the travel behavior of the users. This produces a distribution scale, which is under control of an independent committee that is also responsible for the breakdown of other Swiss flat-rate tickets.

Another leading example of intermodal travel facilitation is **SwitzerlandMobility**, the national network for non-motorized transport (hiking, cycling, mountain biking, skating, canoeing, snowshoe trekking, cross-country skiing and sledging). The network co-ordinates co-operation between public sector and private sector providers. Three key aspects are:

- Route development for all the above activities, with standard signing based on common rules, developed in consultation with federal, cantonal and municipal authorities.
- Linkages to and between service provider partners. These include public transport, cycle rental, accommodation and luggage transfer operators, amongst others.

- Comprehensive, map based visitor information through the SwitzerlandMobility website and app. The high quality of the design and presentation is considered an important factor for success.

Launched in 2008, SwitzerlandMobility was the result of initial efforts by cycling enthusiasts who were supported by the Swiss Tourism Federation to form a Cycling Foundation. This body gained input from various transport and tourism organizations and subsequently linked with the Swiss Hiking Federation to form the SwitzerlandMobility Foundation. Strong co-ordination and collaboration between all the partners was a key factor in achieving this in three years of development.

The Foundation is made up of around 25 members including tourism bodies, transport operators and sports bodies, with further partners including various government offices and all 26 cantons. SwitzerlandMobility currently features around 12,800 km hiking trails, 11,000 km cycling trails, 9,500 km mountain biking trails, 1,200 km skating trails, 350 km canoeing trails, 139 winter hiking paths, 168 snowshoe trekking trails, 154 cross-country skiing trails and 90 sledging runs. To communicate the routes, there are approximately 250,000 signpost locations and 507 info points, 426 public transport route recommendations, 46 guide books and 155 bookable offers.

The commitment of the Swiss Confederation to multimodal transportation is ongoing. A current project called **MultiModal Mobility (MMM)** has a vision to 2025 for a comprehensive system for planning, booking and paying for a wide range of linked transport modes through a single app.

Key points

- *Very strong combination of seamlessness and sustainability objectives and actions*
- *Engagement by various government offices in delivering sustainable mobility*
- *Highly integrated multi-modal public transport system*
- *Flexible e-travel pass as a major component of the tourism offer*
- *Independent process to determine disbursement of earnings to partners*
- *Strong partnership between public and private sector to develop multi-modal infrastructure and tourism product, based on teamwork and high quality communication.*

Annex G. Use of data to monitor visitor flows – Japan and Italy

These case studies provide examples of how new technology can be used to monitor the location and movement of people and use this as a basis for visitor information and management, thereby providing a more seamless travel experience, reducing negative impacts from overcrowding and generally assisting management in different scenarios.

Japan has recognised the importance of facilitating visitor movement and preventing congestion. This can enhance the visitor experience as well as improve safety, for example by reducing the spread of infection.

In Japan, new demographic information called **Mobile Spatial Statistics** uses location data from the Japanese mobile provider DOCOMO to provide a sample of 70% of the domestic population and 30% of tourists. These data are used by both the public and private sectors for a variety of purposes. Civic use includes crisis prevention and handling. For examples, during COVID-19 the data has shown percentages of people staying at home, which is valuable in managing the pandemic. Data analysis also provides a picture of tourist movements. For example, in Nagasaki it was found that tourists congregate near the train station, which has therefore been identified as a key place to focus resources, visitor information and management, to support dispersal and to broaden awareness of areas to visit. The data leads to more effective and precise management, as it enables results to be quantified rather than being based on intuition and assumption.

In Kyoto, data gathered from smartphone location information is used to create **heat maps** showing visitor density. Websites allow tourists to see predicted levels of crowding at popular sites at certain times. Based on this, **recommended routes** are presented, so that tourists can have a more comfortable travel experience. The data is also used to manage tourism demand.

A challenge identified in Japan is the need for national government to create a harmonized process and **unified specification** for the collection and use of big data for tourism purposes. This would enable local governments to collaborate more efficiently and to share and compare the data they collect and analyse.

In **Italy**, where major art cities had been experiencing high levels of crowding, local authorities have been developing visitor handling systems using big data analysis. COVID-19 has altered the scenario, but different aspects of visitor management can be assisted through the same technology.

In **Venice**, a visitor management system has been developed by Venis, the municipal ICT company. **Sensors** have been installed in 34 key locations in the city. They detect anyone passing underneath, identifying whether they are children or adults, the total numbers and speed of movement. The images are shown as blurred silhouettes to maintain privacy. Data provided by the sensors are linked to information from the Italian telecom provider TIM, via sim-based tracking of mobile phones. This enables checks to be made on the origin of visitors and how long they stay in the city.

A further system involves additional sensors on the waterfronts which are used to monitor traffic on the Grand Canal and lagoon. This can detect the different types of **watercraft**, each of which have regulated maximum capacities (lower during the coronavirus pandemic). All movements are observed, including irregular activity such as prohibited use of moorings, as well as traffic density in general.

All the data from the different sensors are brought together for analysis. This enables real time movements to be monitored and visitor streams to be regulated. Over time, with the accumulation of more data, the analysis will permit patterns and potential consequences of visitor movements to be anticipated, so enabling preventative action.

Data is received, analysed and acted upon in the **Venezia Smart Control Room**. This receives information not only from the sensors but also from various other sources, such those providing real-time information on public transport and motorized traffic heading towards the city. The control room will also be involved in the handling of crises and emergencies, including the use of real-time data to minimize the time taken to reach individuals or vehicles requiring special assistance. It is anticipated that requirements for contact tracing of individual tourists, for whatever reason, could be facilitated by reference to the data in the system.

Key points:

- *Locational big data from mobile phones used for multiple purposes*
- *Can assist specific needs for visitor management during periods of crisis*
- *Big data enables more precise monitoring and management*
- *Unified national standards and systems are important for local collaboration and data sharing*
- *Creative presentation of data to inform visitors of real time situations*
- *Technologies modified to maintain privacy*
- *Monitoring tailored to different types of transportation*
- *Systems can be used to reach individuals, including those requiring assistance*

Annex H. Seamless visitor handling at airports in the United Arab Emirates

This case study illustrates the range of interrelated management activities and measures undertaken to address the flow of passengers through airports, to increase efficiency and provide a seamless experience. It is based on information from the United Arab Emirates (UAE), provided by the government, airport authorities and airlines.

In the field of **digital traveller identity and biometrics**, the main airports in the UAE have taken significant steps in the introduction of relevant technology and systems, including Smart Gates at Dubai, a Smart Travel Initiative at Abu Dhabi and pursuit of the Smart Path model at Sharjah. All the airports have been active in monitoring visitor reaction and satisfaction, which has been very positive, with significant time savings recorded. In Dubai airport, the introduction of the **Smart Tunnel** was a world leading initiative. It acts as a channel through which passengers can walk without stopping, enabling them to be cleared for immigration without human intervention.

The UAE government, airports and airlines have been strong advocates of local, regional and global collaboration in the use of digital identity and biometrics. They have been supporting the International Air Travel Association (IATA) One-ID initiative and recognize the need for interoperable system co-ordination between airports, airlines and governments. The need for data protection regulation is also recognized.

The provision of a seamless traveller experience at airports is not only about digital identity and biometrics. A range of measures can be taken to increase efficiency and passenger flow through the use of new technology and enhanced operational systems to improve **visitor information, handling and management**. Examples provided by Dubai Airport (DXB), Abu Dhabi airport (AUH) and Etihad Airways (EAG) illustrate four different types of activity.

Operational management has been greatly facilitated by new technology, focused on aircraft, baggage and passenger movements to enhance flow and efficiency. At DXB, multiple investment in new cloud-based real time platforms collect and share passenger and baggage information across stakeholders. Examples include:

- Airport Community App, with 25 000 users, delivering real time data and proactive alerts
- IOT sensor technology to detect and monitor passengers and bags across the airport
- RealTimeDXB and Operations Control Centre, working with multiple data sets and systems
- Live Optimization of Stand Planning, enabling stand selection for the parking of aircraft, in order to maximise passenger connectivity and minimize walking distances
- Passenger Flow Modelling Prototype, to relate immigration lane requirements to aircraft loads.

Customer management focusses on the impact on travellers. EAG has pursued:

- A feedback programme, to guide customer interaction and improve quality across all channels
- Customer satisfaction measurement, showing what to address to provide a seamless experience
- A programme of testing potential improvements

- Customer segmentation and tailoring of experiences for different types of travellers
- Specific management action to reduce barriers for certain groups. For example, One Stop Security has been introduced for transfer passengers from certain countries so they do not have to be screened at the transfer security point, so considerably reducing transit times.
- **Disruption Tracker.** This app enables streamlining of the handling of passengers disrupted by missed connections and delays. It communicates recovery plans to all staff so they can care for passengers wherever they are.

Physical assistance for travellers has been provided, aimed particularly at those with special needs. DXB has introduced TaxiDXB, a free **buggy shuttle** to transport passengers and reduce walking distances within concourses. EAG and AUH have launched an innovative trial of **autonomous wheelchairs**, in collaboration with the supplier WHILL and technology company SITA. This enables passengers with restricted mobility to move around the airport on their own, but they can also choose to have traditional assistance from a team of dedicated porters, who will remain available.

Traveller information is provided through digital and traditional methods. Internet access and Wi-Fi is particularly important for airport users. AUH had launched Super-Fi and introduction of the 5G network and provides 11 way-finding kiosks throughout the airport, with information on services and facilities as well as a map for passengers. DXB is improving its colour-coded wayfinding system.

The UAE airports and airlines show a strong commitment to improving all aspects of a seamless traveller experience. They are engaged in working together and with other airports in benchmarking performance and sharing good practice. Customer service training for staff is also recognized as an important tool in delivering a quality experience.

Looking beyond the airports, the UAE has identified the need to strengthen the relationship between **air and ground transportation** in a holistic approach to seamless travel. It points out that the focus of airport development should change so that it's not just focused on creating more capacity at pinch points but is more about how we can use the latent capacity in the system. The way forward for airports is utterly interwoven with the way forward for ground transportation where sustainability will be driven by advancements in technology and their acceptance by society.'

Key points

- *Strong commitment to extending the use of biometrics, which has been popular with travellers*
- *Need for international agreement on biometric systems and for regulation on data protection*
- *Many aspects of airport operations can improve seamless travel*
- *Importance of customer relationship management measures*
- *Opportunities to assist passenger movement through infrastructure, technology and information*
- *Need to take a holistic approach to transportation.*

Annex I. Digital solutions for future baggage handling

This case study presents an example of how new technology can provide a more seamless and improved traveller experience through addressing a universal and practical issue, the handling of baggage. By providing digitised and automated options for baggage transfer, travellers can benefit from a less encumbered, more efficient and essentially contactless process, which is quicker, safer and more secure.

The **New Experience Travel Technologies (NEXTT)** initiative, is a collaboration between the International Air Transport Association (IATA) and Airports Council International (ACI). The initiative has been widely promoted as a basis and framework for guidance to airports, airlines and other players in design and operations for seamless travel. This has been backed up by studies, discussions, webinars and other communication to inform progress towards achieving the vision. It is a four part initiative focussing on the Cargo Journey, Baggage Journey, Passenger Journey, and Aircraft Journey. The **Baggage Journey** sets out a future vision for the convenient and hassle-free handling and tracking of baggage, whose key features are described below⁶⁰.

The approach centres on the creation of a **unique bag identity**. This may be in the form of an RFID (Radio Frequency Identification) or visual component incorporated in the bag at the time of manufacture or via detailed bag metrics obtained by 3D image capture. Separate bag tags issued at an airport would become the exception. Travellers would register their bags in advance of the journey using this bag identity alongside their own personal digital identity, to which it would be linked throughout. Additional details about the bags, such as weight, could be added to this identity at any time.

Travellers would be able to choose from a range of options for the transportation of their baggage. These might involve pick up from home and delivery to a final arrival point, use of a range of alternative pick-up and delivery options or airport drop-off and retrieval by the traveller. Baggage could also be transported and routed entirely separately from the traveller, if this proved more efficient and cost effective.

Real-time information on the status, progress and location of the baggage would be made available to travellers through a dedicated app, which would push relevant messages to them or which they could access at any time. **Digitally based tracking** would also facilitate operational and security processes, ensuring that all agencies and staff had access to the necessary information and were always aware of relevant baggage movements. Changes in a traveller's flight schedule would be checked for compatibility with the status and delivery of their baggage.

Autonomous Guided Vehicles (AGVs) and other robotics would be used to move bags from train stations, car parks and other collection points. They would also be programmed to deliver and load bags onto the correct flights, with the necessary security processes complete, and to transfer bags to pick up points.

The single bag identity and record would be used for security and customs clearance at departure and arrival. A digital record of the screened baggage images would be added to the passenger's travel profile. The progress of bags through security may trigger alerts based on screening and the bag's ID. This would

⁶⁰ Based on https://nextt.iata.org/en_GB/the-journey/baggage

be communicated to the authorities and the traveller, as necessary, and could lead to a secondary screening or higher level security process.

On arrival, most bags would proceed smoothly to retrieval, but exceptions would be flagged for inspection. Travellers would be provided with **push notifications** related to selected options for pick up. These notifications could include the precise time that a bag will reach a specified carousel or another nominated reclaim point. Alternatively, pre-arranged delivery would be made to the traveller's location of choice within the destination.

A cost-benefit analysis of the total NEXTT programme, carried out in 2018⁶¹, indicated that very significant economic benefits could accrue from the Baggage Journey component. For airlines, these would relate primarily to the mishandling of baggage, which would occur less frequently and be easier to resolve, delivering a cost saving of around 55%. For the traveller, it was estimated that time spent on baggage handling and pick-up could be reduced by as much as 80%. This time saving accounts for around one quarter of the total estimated economic value of the passenger benefits arising from the whole NEXTT programme.

Key points:

- *Linked digital identity for bags and travellers, can be supplemented at any time*
- *Travellers can choose options to suit their needs*
- *Real-time information on baggage status and location available throughout*
- *Use of autonomous vehicles and robotics to lighten the load and increase efficiency*
- *Maintained emphasis on security handling processes and related communication*
- *Significant cost and time savings anticipated.*

⁶¹ [NEXTT Preliminary Cost Benefit Analysis](#), Atkins, 14 November 2018