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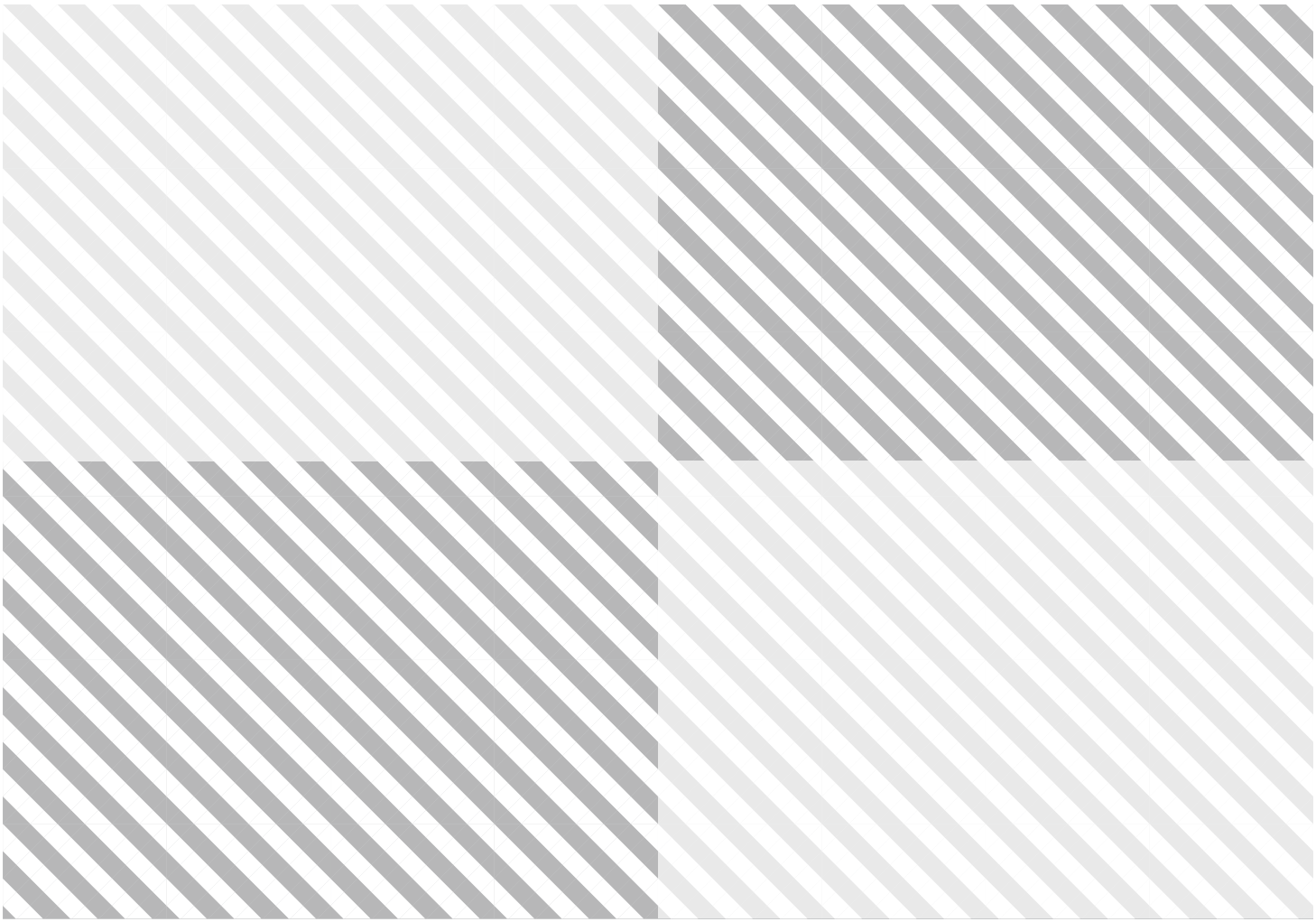
White Paper

Digital Borders

Enabling a secure, seamless and personalized journey

January 2017



World Economic Forum
91-93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland
Tel.: +41 (0)22 869 1212
Fax: +41 (0)22 786 2744
Email: contact@weforum.org
www.weforum.org

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Preface

The world is undergoing transformations, the scale, scope and complexity of which are unlike anything humanity has undergone before. Technology has, and will, continue to revolutionize the way we live, work and connect with one another as new technologies blur the lines between the physical and digital spheres.

We are simultaneously faced with a complex geopolitical landscape marked by a rise in physical and e-terrorism and a surge in populism and xenophobia. Together, they have the potential to reverse the growing freedoms acquired in previous decades by citizens to travel the world.

This new global landscape has significant implications for the movement of people across borders, and specifically the travel and tourism industry, which takes responsibility for the safe travel through the skies of over 8 million people daily.

With international arrivals forecasted to reach 1.8 billion by 2030, compared with 1.2 billion today; the industry must pursue its commitment to securely and seamlessly enable the movement of legitimate travellers. While significant progress has been made, the industry not only wants to incrementally improve the security and experience of its passengers but also to envision a framework for the cross-border movement of people in the future.

In this vision, technological advances which have revolutionized global communications and retail are also applied to the international travel process, supporting states and international agencies as they enhance their cooperation and collaboration in sharing data and harmonizing standards.

The vision put forward is a starting point to understand the opportunities and roadblocks ahead, the policy challenges to be addressed, and the necessary steps to develop a pilot and ultimately scale it. In light of the global context and the potential challenges ahead, the industry, together with leaders from government and international institutions, has an opportunity to shape the policies of tomorrow rather than react to those of today.

Executive Summary

The fusion of the physical and digital world is well under way, revolutionizing the foundations that society has grown accustomed to. From international security to global connectivity, these swift transformations pose special challenges and offer limitless opportunities to create a secure, connected, inclusive and clean world.

This new global context is critical for the cross-border movement of people, and particularly for the travel and tourism industry, which is responsible for the safe and secure transfer of over 8 million people daily through the skies. The number of people on the move today is unprecedented and the figures are forecasted to keep rising. International arrivals rose from 25 million in the 1950s to 1.2 billion in 2015 and are expected to reach nearly 2 billion international trips by 2030[1].

To support the expected growth in international travel over the next 14 years, global leaders need to fundamentally rethink the policy framework and innovate the way people move across international borders. And while enabling more people to discover the world, it is imperative to ensure the safety of national borders and citizens. The importance of designing an inclusive new global framework is highlighted by the fact that the top 10 fastest growing destinations for leisure travel spending are all emerging markets – India, Angola, Uganda, Brunei, Thailand, China, Myanmar, Oman, Mozambique and Vietnam.

This paper's vision is one for a future in which eligibility to travel is based on the individual rather than on the legacy system of country of origin. And it is possible. In this digital age, technological solutions can and should be created and implemented to move the global system from one of physical to digital borders. In effect, "digital" needs to be integrated across the travel journey, from digital identification and authentication through biometrics to a frictionless airport transfer courtesy of digitally enabled security devices and the creation of a digital interface and individual profiles to increase accuracy, efficiency and security.

While a number of international travel-facilitation programmes have emerged in the past decade, a global programme has not been successfully implemented to date. Still, the experience of countries piloting such programmes at the bilateral level has proven useful in generating best practices and lessons learned. In the context of this body of work, INTERPOL undertook a study assessing the 12 most advanced programmes. The study highlighted the most important technologically enabled elements to build a programme which allows for both the authentication and verification of individuals throughout the journey.

To move from bilateral programmes to a global one, a number of areas need to be addressed, namely, the harmonization of intelligence and data-sharing, the global implementation of common standards set by ICAO and the shift to a secure digital process. In parallel, countries should expand their multilateral agreements and move towards a single application system. These policy shifts require additional cooperation and collaboration among various agencies of government, international organizations and travellers. Moreover, national administrations should reconsider the role of the traveller in the process and create an opportunity for travellers to be part of the solution.

In effect, by moving the entire process of border management over time to a wholly automated, electronic platform, built on verified biometric data; the cross-border movement of people will not only become more accurate and efficient but also will enable public safety officials to direct more attention and resources to the identification of threats. Yet, the proposed solutions are based on the premise that individuals have a recognized identity, when 1.5 billion people today do not. To ensure that such a framework is inclusive, the broader issue of identity and digital identity has to be addressed to determine how to create effective and efficient digital identity management through acceptable global standards and norms.

To move from a vision to reality, a prototype proposal was developed. The objective is to combine and enable the customer's sharing of data and verified identity through a platform which, in turn, creates an effortless experience by connecting systems, facilitating passage and improving security. The prototype proposal entails the development of a data platform or virtual hub to be populated by multiple sources and allowing customers to share data with other entities that require the information. By bringing together all necessary stakeholders to design, agree, test and implement a new framework and prototype, the goal is for the global community to not only understand but also witness the benefits of such an approach.

The New Global Context

Change is in the air, and the coming years' promise to deliver transformation appears to be under way. While the Fourth Industrial Revolution will continue to alter the way we live, work and connect with one another, shifts in the international political and security landscape may fundamentally affect global connectivity.

We are seeing the limitless opportunities that arise from having billions of global citizens connected through mobile technologies, providing unprecedented access to information and storage capabilities. We are also witnessing the potential of emerging technologies in robotics, artificial intelligence, the internet of things and autonomous vehicles among others. The speed of these developments and fusion of these technological advancements is leading to transformations across industries as consumption, transport, production and the delivery of services are metamorphosed to create a whole new world for the 21st-century citizen. Fundamentally, technology and society must coexist to ensure that they empower and unite rather than being divisive and dehumanizing.

In parallel, the world is challenged by a complex geopolitical landscape marked by a rise in physical and digital terrorism, a surge in populism and xenophobia, which have the potential to reverse the growing connectivity we have seen in past decades. Elections and referendum campaigns in Western Europe and North America in 2016 were marked by protectionist and xenophobic rhetoric, calling for walls rather than bridges between people and countries.

These challenges cannot be addressed by closing our borders. Rather, with modern technologies and the right tools, a framework for the future can be built to keep the world connected and all its citizens safe. Effectively, these historic shifts require all stakeholders of our interconnected society – government, business and civil society – to share responsibility to ensure the world is made better for future generations.

The New Travel Context

This new global landscape is significant for the movement of people across borders and the travel and tourism industry in particular, which takes responsibility for the safe passage through the skies of over 8 million people daily. Despite the slow economic growth in advanced economics and geopolitical and security concerns, the industry has shown significant resilience globally.

While historically travel was a luxury for only those wealthy enough to afford it, the lowering of travel barriers and falling costs have allowed the travel and tourism industry to flourish. These factors, combined with the growth of disposable income, the rise of the middle class in many emerging markets and changing attitudes of people towards travel, have enabled the surge in international travel. Indeed, the world is on the move, with more people than ever travelling. The data is staggering. International arrivals rose from 25 million in the 1950s to 1.2 billion in 2015 and nearly 2 billion international trips are expected by 2030[2].

By 2030, most of the growth in international travel will come from beyond the traditional North American and European markets, from Africa, Asia and the Middle East, which will enable further growth and job opportunities in these regions. While Europe and the Americas will continue to grow, the rate is incomparable to other regions.

Table 1: Outbound Tourism by Region, 2015-2030

Region	2015 Outbound Tourists (millions)	2030 Expected Outbound Tourists (millions)	% Increase
Global	1180	1809	53%
Africa	35	90	157%
Americas	199	265	33%
Asia-Pacific	290	541	87%
Europe	594	832	40%
Middle East	36	81	125%

Table 2: Percentage market share of outbound tourists, 2015-2030

Region	2015 Percentage of Outbound Tourists	2030 Percentage of Outbound Tourists	Point Change
Africa	3%	5%	+2
Americas	17%	15%	-2
Asia-Pacific	25%	30%	+5
Europe	50%	46%	-4
Middle East	3%	4%	+1

The growth of outbound tourists from Asia-Pacific and Africa will have repercussions on the "regional" market share of outbound tourists. In effect, Asia-Pacific will take an additional 5% of the market with a total of 30% of travellers originating from the region. Europe will have the greatest percentage decrease, likely from 50% of outbound tourists to 46% by 2030 (see Table 2). These shifts are indicative of a rebalancing of global power, increased consumption and the emergence of new cultural "hotspots". Already today, China has overtaken the US as the top tourism spender in the world with $165 billion (China) compared with $112 billion (USA), despite the estimation that only 3% of Chinese nationals have passports to date.

Research undertaken by the World Travel & Tourism Council (2016) focusing on the forecasted fastest growing destinations is consistent with the expected growth of developing nations and emerging markets. In effect, not only will emerging markets become larger source markets but also they will become more attractive destinations. In effect, between 2016 and 2026, the top 10 fastest growing destinations for leisure travel spending are expected to be India, followed by Angola, Uganda, Brunei, Thailand, China, Myanmar, Oman, Mozambique and Vietnam.

Box 1: Descriptions of Six Cross-Cutting Tribes

Simplicity searchers: Individuals who prioritize ease as they plan and experience their travels. They are happy to have a trusted third party make decisions to avoid the hassle. Millions of new travellers from growth markets are likely to be part of this group.

Cultural purists: Travellers who wish to disconnect from their day-to-day lives and immerse themselves completely in the local culture. As travellers become older, materialism is replaced by personal enrichment. This group tends to be accomplished, demanding and confident.

Social-capital seekers: These digitally connected people will make decisions to maximize social reward. They want to be seen and will share their experiences on social media. Many millennials are likely to be part of this group.

Reward hunters: Individuals who will use travel to "treat" themselves to what they don't have in their day-to-day lives. Their trips will focus on a mix of luxury, self-improvement and health. This group is cultivated, wealthy and sophisticated, and prioritizes experience over destination.

Obligation meeters: People who make their decision based on duty, such as weddings, family trips, religious holidays or even business travel. Business travellers are the most significant group in this category.

Ethical travellers: Travellers who allow their beliefs and to guide their travel decisions. This could be linked to environmental, political or even social issues.

While it has been said that travellers from different regions have different preferences and expectations, Amadeus[3] undertook a study in which it defined six traveller cross-cutting tribes on the basis of the fundamental motivation for travel rather than on geography: simplicity searchers, cultural purists, social-capital seekers, reward hunters, obligation meeters and reward hunters (see Box 1). These six groups are not mutually exclusive as travellers may relate to more than one group. Yet, each of these groups has a unique purchasing behaviour in terms of the following factors: opportunity to influence, degree of personalization, purchasing experience, level of contact, touchpoint devices and types experience[4]
While travellers can be categorized in terms of motivation, there are numerous other mechanisms for segmentation. The "generation" classification provides interesting insight into differences between groups such as millennials and baby boomers.

Research shows that **millennials** are more tech-savvy and connected than any previous generation, with a desire to discover every continent: 70% versus 48% non-millennials. Millennials tend to splurge on selected travel purchases – taking, for instance, low-cost flights – and go all out on travel experiences and restaurants[5]. In the next five to 10 years, this group will become the industry's core customer base. Millennials spending on business flights is expected to account for 50% of global travel by 2020 and maintain that share for the following 15 years[6].

While millennials are on the rise, so are **baby boomers.** Baby boomers are the most travelled generation to date, with a desire to discover and learn. Unlike millennials, baby boomers have more disposable income to be able to travel. Types of travel range from luxury to adventures and eco-tourism to medical travel. The niche market of medical tourism has grown dramatically to a $40 billion a year market, emerging from the high cost of medical procedures in the West.

A Journey across Digital Borders

Time for Change

In light of the industry's growth forecasts and the new global context, the global community must pursue its commitment to securely and seamlessly enable the movement of legitimate travellers. To accommodate for the expected 2 billion international trips in the next 14 years, global leaders need to fundamentally rethink the policy framework and innovate the future of travel.

The innovations and technological advancements of the past decades have led to unprecedented connectivity and raised the expectations of travellers who wish to have a seamless, secure, efficient and personalized journey. Travellers today don't understand why they cannot be automatically checked in when they book their flight or why they have to queue for hours at immigration.

While these issues may seem simple superficially, the cross-border movement of people is highly complex and sensitive. Protecting national borders and citizens, while opening up the world as more people want to travel, has become imperative.

A consumer survey undertaken by Google in spring 2015 found that millennials, in particular, are interested in being global citizens. They want a more seamless travel experience, are willing to pay for it and to submit personal information if governments can better collaborate to create a smoother travel process. The rising global security concerns, combined with the shift in the mindsets of people and their desire to travel seamlessly, provide a great opportunity to re-envision travel.

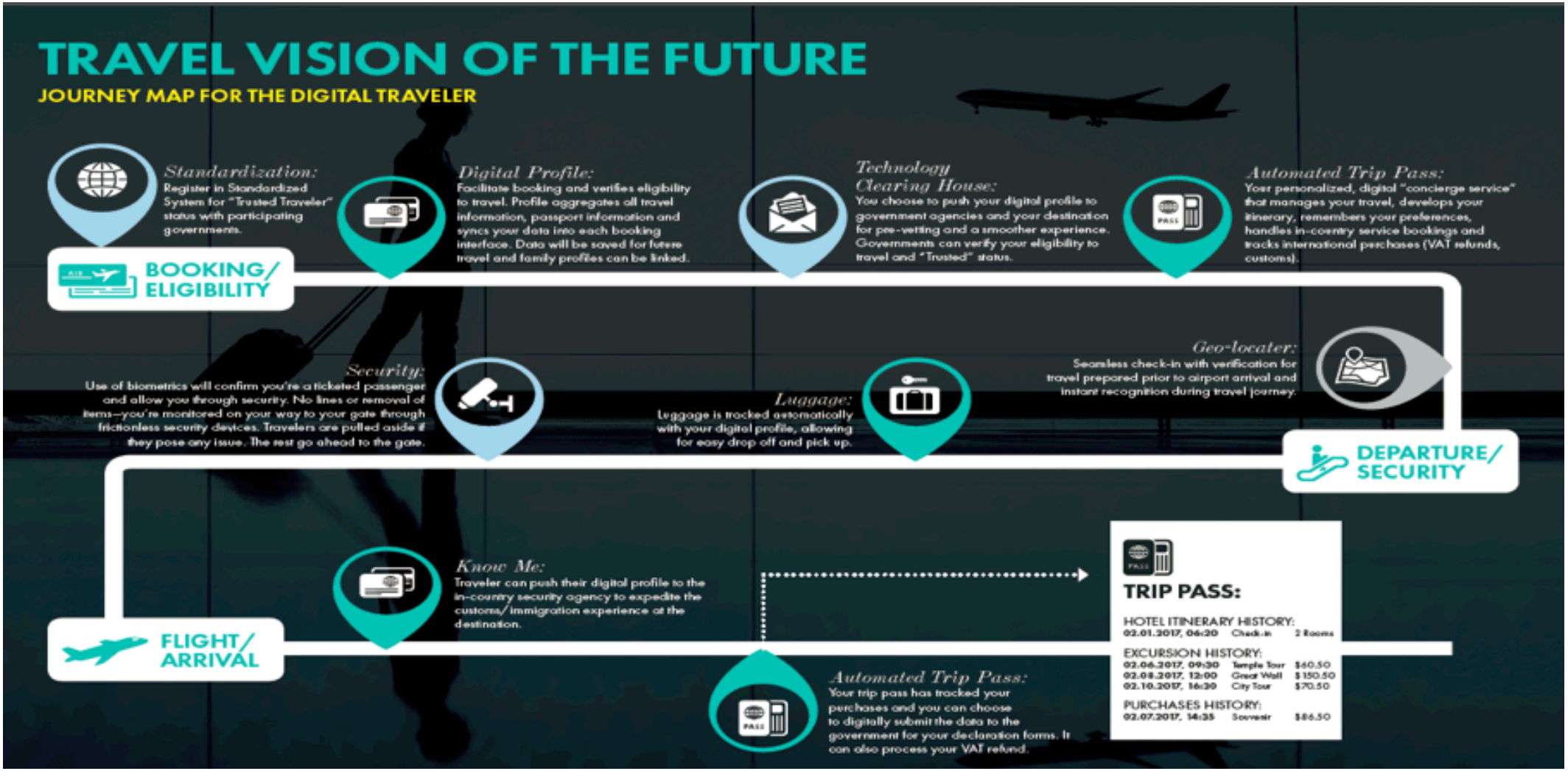
The Journey

We are in the era of the digital customer. The global citizen expects the technological advances that have revolutionized global communications and transport also to apply to the travel process. While travellers have made it clear that they expect a seamless and secure journey, the steps of that journey require clarification.

To gain a better understanding of the various elements which are important to achieving a digital journey, the following map was developed. While this map is just one possible path for the future, it provides a useful tool for leaders to consider the technologies needed and potential roadblocks and opportunities for development along the journey.

The travel journey can be broken down into three stages:

- **Booking and eligibility**: Eligibility to travel through digital identification and authentication is undertaken at this stage of the journey. Travellers can register in Standardized System for "Trusted Traveller" status with participating governments. A digital profile aggregates all travel information, passport information and syncs the data into each booking interface. Travellers can then choose to push their digital profile to government agencies and their destination for pre-vetting and a smoother experience. This would enable governments to verify the traveller's eligibility to travel and "trusted class".
- **Departure and security**: This portion of the process takes travellers from a seamless check-in with verification for travel prepared prior to airport arrival, to luggage drop-off and tracking to security check using biometrics to confirm the traveller's identity. There will be no queues or removal of items; the traveller is monitored on his or her way to the departure gate through frictionless security devices. Travellers will only be pulled aside if they raise concerns. Knowing a passenger's identity at the security checkpoint will also enable screening according to the traveller's assessed risk profile, whether high or low.
- **Flight and arrival**: The final portion of the process consists of the flight and the arrival. Through a digital profile, travellers can push their information to in-country security agencies to expedite the customs/immigration experience at the destination. By having an automated trip pass to track purchases, the traveller can choose to digitally submit data to government in declarations forms.


TRAVEL VISION OF THE FUTURE
JOURNEY MAP FOR THE DIGITAL TRAVELER
Standardization:
Register in Standardized System for "Trusted Traveler" status with participating governments.
BOOKING/ ELIGIBILITY
Digital Profile:
Facilitate booking and verifies eligibility to travel. Profile aggregates all travel information, passport information and syncs your data into each booking interface. Data will be saved for future travel and family profiles can be linked.
Technology Clearing House:
You choose to push your digital profile to government agencies and your destination for pre-vetting and a smoother experience. Governments can verify your eligibility to travel and "Trusted" status.
Automated Trip Pass:
Your personalized, digital "concierge service" that manages your travel, develops your itinerary, remembers your preferences, handles in-country service bookings and tracks international purchases (VAT refunds, customs).
Geo-locater:
Seamless check-in with verification for travel prepared prior to airport arrival and instant recognition during travel journey.
DEPARTURE/ SECURITY
Security:
Use of biometrics will confirm you're a ticketed passenger and allow you through security. No lines or removal of items—you're monitored on your way to your gate through frictionless security devices. Travelers are pulled aside if they pose any issue. The rest go ahead to the gate.
Luggage:
Luggage is tracked automatically with your digital profile, allowing for easy drop off and pick up.
FLIGHT/ ARRIVAL
Know Me:
Traveler can push their digital profile to the in-country security agency to expedite the customs/ immigration experience at the destination.
Automated Trip Pass:
Your trip pass has tracked your purchases and you can choose to digitally submit the data to the government for your declaration forms. It can also process your VAT refund.
TRIP PASS:
HOTEL ITINERARY HISTORY:
02.01.2017, 06:20 Check-in 2 Rooms
EXCURSION HISTORY:
02.06.2017, 09:30 Temple Tour $60.50
02.08.2017, 12:00 Great Wall $150.50
02.10.2017, 16:30 City Tour $70.50
PURCHASES HISTORY:
02.07.2017, 14:35 Souvenir $86.50

Learning from Experience: Border Security Solutions

To make the proposed travel journey across digital borders a reality, it is critical to gain an understanding of the different past and present security solutions. Indeed, current systems to determine an individual's eligibility to travel or enter certain countries are determined by the individual's perceived level of risk, often based on his or her nationality. Yet, with higher security concerns regarding potential terrorists travelling on passports from countries typically seen as low risk, a new way to assess a passenger's risk is needed which focuses on the individual, rather than on where they are from.

Given that the growth of travel and tourism is highly dependent on safety and security, the industry needs to innovate and consider solutions beyond the current offering. While bilateral trusted Traveller programmes have started emerging, the idea of a "global access" programme has not yet been implemented successfully. The concept was considered for a pilot by a Dutch organization, Flux, but it did not take off. Still, the experience of countries piloting such programmes at the bilateral level, including the United States, has been successful and can provide insights on the best practices and lessons learned. Specifically, given the importance of security in such programmes, the concept of the highest common denominator in border security standards should be considered.

In the context of this work, INTERPOL conducted a study of 12 of the world's most advanced traveler-facilitation programmes, whose core features can be explained in terms of their eligibility criteria, application process, the technology used and fees.

Eligibility Criteria

The eligibility criteria differs from one programme to another. However, in most instances, it is based on nationality, residency status, frequency and mode of travel.

Table 3: Eligibility Criteria of Traveller-Facilitation Programmes

Country	Name of programme	Year of creation	Eligibility required
USA	Global Entry	1998	US citizens, US lawful permanent residents and citizens of certain other countries
USA	SENTRI	1995	Proof of citizenship and admissibility documentation
France	PARAFE	2007	French citizens, citizens of the European Union, European Economic Area (EEA) or Switzerland in possession of a machine-readable passport; citizens of non-EU countries with a special resident status
Germany	EasyPass	2013	US citizens, holders of e-passport and EU citizens and travellers from Iceland, Norway, Switzerland and Liechtenstein
UK	Registered Traveller	2013	Passport holders of USA, Canada, Australia, Japan, New Zealand and Hong Kong; must have visited the UK four times in the last 52 weeks
Australia	SmartGate	2013	ePassport holders of US, UK, Australia, Canada, China, France, Hong Kong, Ireland, Japan, Korean, Macau, New Zealand, Singapore, Sweden, Switzerland are eligible to apply for the programme
Asia-Pacific	APEC Business Travel Card	2013	US citizens who are member of the Global Entry
UAE-Middle East	SmartGate	2015	UAE citizens and residents; GCC nationals and ePassport holders of 31 countries
Canada	NEXUS	2010	US citizens, Canadian citizens and lawful permanent residents of Canada
Mexico	Viajero Confiable	2012	US and Mexican citizens who are members of the US Global Entry Programme
Singapore	Singapore-US Trusted Traveller Programme	2014	US citizens who are members of the Global Entry
Netherlands	Privium/Flux	2013	Dutch citizens; US citizens who are members of the Global Entry Programme

Application Process

Eleven of the 12 programmes require that travellers pre-enrol before travelling. Applicants must complete an online application form which is then assessed by the relevant authorities. In most cases, pre-enrolment involves background checks and in-person interviews. Applicants are also required to produce proof of residency, a valid passport, one other form of identification and, in some cases, evidence of vehicle registration. The programmes managed by the United States, Canada, Mexico, Singapore, Germany, Netherlands, the United Kingdom, the United Arab Emirates, France and APEC all fall within this category.

Australia's trusted Traveller programme is the exception and does not require travellers to pre-enrol. Instead, travellers from selected countries can self-process through passport control. Australia's SmartGate technology uses the information in ePassports and facial recognition to perform checks usually conducted by an immigration officer.

Technology Used

The table below shows the technologies and biometrics that countries use to enrol and subsequently monitor the movement of travellers wishing to access their respective programmes:

Table 4: Technology Used in Traveller-Facilitation Programmes

Country	Machine Readable Passport	Iris Scanning	Biometrics	Chip Card	E-Passport	Facial Recognition
Australia	X		X		X	X
USA	X	X	X			
Canada		X	X			
UAE	X		X			
Mexico		X	X	X		
Netherlands		X				
Singapore				X		
APEC				X		
Germany				X	X	X
UK			X	X		
France	X		X		X	

Application Fees

Of the 12 programmes researched, eight charge fees that range from $37 to $122.50. These include Global Entry and SENTRI, NEXUS, Viajero Confiable, the Singapore-US Trusted Traveller, APEC, Privium/Flux and the Registered Traveller. The programmes managed by Germany, Australia, the UAE and France are free of charge.

Benefits and Future Developments

The major benefit offered by all trusted traveller programmes studied is faster immigration clearance for passengers through exclusive and automated clearance facilities (such as self-service kiosks or dedicated processing lanes). These programmes are also likely to contribute to the enhancement of trade, business and tourism links at a national level.

To date, the majority of trusted traveller programmes are limited to leading airports. However, in the future, countries could benefit from expanding coverage to other passenger border checkpoints. The existence of bilateral agreements between certain countries has given some of the programmes greater geographical scope. That is the case for Canada Nexus and Mexico Viajero Confiable programmes, Singapore-United States of America Trusted Traveller Programme, the US Global Entry and Dutch PRIVIUM/FLUX programmes, among others. Although technology and innovation continue to revolutionize safety in travel and transport, there is still growing concern that cross-border risks may adversely impact the drivers that bind countries, economies and businesses tightly together. In effect, with increased security concerns regarding criminals and terrorists travelling on passports from countries typically seen as low-risk, a new way to determine a traveller's perceived level of risk is needed which takes into account a number of factors including background information through passenger data, membership of a known traveller programme and intelligence from government agencies. One example of an innovative scheme in travel security is the Aruba Happy Flow (see Box 2)

Box 2: Aruba Happy Flow

In 2015, a unique and state-of-the-art passenger project, known as Aruba Happy Flow, was initiated in Aruba's Airport. This innovative scheme enables passengers to show their passports only once during their journey. Through the use of facial recognition, passengers can check in, drop off luggage, cross the border and board the aircraft without showing a passport or boarding pass again. Thanks to this process, clearing each checkpoint takes only a matter of seconds.

The initiative was designed to make the passenger process more secure and seamless. It was the result of cooperation between the Dutch and Aruban governments, the Aruba Airport Authority, Schiphol Group and KLM. Aruba Happy Flow merged the border control process with the private passenger process at the airport.

Today's advances in technology and unprecedented connectivity, allow for greater passenger/state cooperation to help reduce threats to global security. With this in mind, it is time to devise ways to empower travellers to assist industry and law enforcement in safeguarding the international landscape.

Authentication through Digital Identity

A key issue which emerged in the development of the vision for the future of travel is dependent on trust, which in turn requires the ability to authenticate and verify individuals. In the digital era, personal data has been dubbed “a new form of currency”, with “digital identity” encompassing all information digitally available for any one person.

While in the developed world, individuals often feel that too much information is available about them, estimates from the World Bank have revealed that about 1.5 billion people globally do not have a recognized document to establish their identity. For these “unidentified” people, ascertaining their identity is hugely empowering, while in the developed world, privacy and control of personal data concerns dominate discussions on digital identity.

Digital identity has become even more prominent on the global agenda since its inclusion in January 2016 in the UN Sustainable Development Goals. Goal 16.9 targets the provision of a legal identity for all. At the same time, the European Union’s ratification of the General Data Protection Regulations, effective May 2018, will likely lead to considerable innovation within the private sector to tackle user control and privacy issues.

Despite its importance, discussions on digital identity remain fragmented. At the same time, citizens’ concerns continue to rise with the ever-increasing use of personal data. In effect, according to the Boston Consulting Group, 88% of individuals who are online deem at least one industry a threat to their privacy.

It has become clear that digital identity is not solely significant for e-commerce organizations but to society as a whole. Individuals, the private sector and governments alike stand to gain a lot from a functioning and interoperable digital identity; and governments have an important role to play. Today, governments are the principle issuers of authentication documents and credentials in the physical world and can play a comparable role in the digital world. Successful examples of implementation at the national level have started to emerge in the past years, paving the way for the implementation of similar programmes in other nations and, optimistically, at the global level (see Box 2).

The creation of effective and efficient digital identity management can effectively enable the move of economic and social interaction online and strengthen trust-based digital services.

Box 3: Examples of Digital ID Systems across Countries

Estonia introduced a comprehensive national ID system in 2002. Citizens of Estonia are provided with a digital birth certificate which is connected to an online health insurance account. At the age of 15, an electronic ID card is made available which enables citizens to access a range of governmental services from e-banking to encrypted emails. The efficiency gains from these tools amounts to the time-equivalent of one working week per individual.

Japan launched its MyNumber National Identification system in 2016 to streamline information sharing between government agencies, administering tax, social security and disaster-mitigation programmes.

India began creating a database of unique IDs (fingerprint and iris scans included) in 2010 of its 1.2 billion citizens. This initiative has the potential to streamline India’s complex bureaucratic process and tackle developmental challenges to guarantee that benefits of services such as welfare reach the intended recipients and enable accessibility to services such as banking.

National digital ID systems, however, are not risk-free. The data collected in the systems takes the form of dossiers, often consisting of confidential information, such as travel documents, voting data, health records and tax issues among others. Both the security of this information as well as the transparency linked to the use of this personal data nationally and internationally is critical to ensure trust in the system.

Beyond Travel

While digital identity is critical to ensure the secure movement of people across borders, it is also key to numerous other issues, from financial inclusion and healthcare to the transformation of digital content and transactions on the internet of things. To address these global challenges, it is essential first to join forces and start focusing on digital identity more broadly in order to build specific applications to tackle challenges such as travel security.

Although there is a huge potential for digital identity to become a key enabler of numerous innovations across industries and issues, there are still issues that need to be addressed. Among these issues is the development of acceptable global standards and norms on meaningful consent, control and privacy which digital ID providers must respect. For instance, the preferred form of consent is linked to the type of data, with opt-in being required for highly sensitive information by more than 80% of people surveyed.

In addition, as countries consider the creation of state-issued digital ID programmes, the development of checklists to enable informed decision-making will be critical to ensure a contextual approach. Finally, the standards and solution will require a multistakeholder approach.

The Vision

On the basis of the travel journey across digital borders and analysis of current advanced traveller programmes, a vision for the future of travel across digital borders has emerged.
The aspirational vision for travel is one in which technological advances that have revolutionized global communications and transport are also applied to the travel process, simultaneously enhancing security and facilitating legitimate travel. In this vision, eligibility to travel should be based on the individual rather than on the legacy system of country of origin, in accordance with ICAO standards and UN Security Council Resolutions. By enabling travellers to share their own identification and journey data across international authorities as required by the nations of departure and arrival, the entire travel experience will be more effective and smoother.

Through this vision, travel will be safer for millions of people as intelligence and security organizations will be empowered with better tools, intelligence and data to perform their vital work more efficiently and effectively.

There is clear recognition of the pressure on infrastructure at all borders and the desirability for governments to adopt more efficient solutions to manage security needs optimally. There is also awareness and appreciation for the ongoing work of various national and international organizations to collaborate and share information that enhances our collective security.

To make this vision a reality, the following areas need to be addressed and advanced to plan for the future of travel:

1. **Increase intelligence and data sharing.** The secure, routinized and harmonized intelligence and data sharing between sovereign national governments and international security actors on international travellers is vital. While significant efforts to date have been undertaken to improve regular and timely information sharing, additional cooperation and collaboration are needed in protected data sharing among the various agencies of governments, international organizations and travellers themselves.
2. **Provide advance passenger information.** The global aviation system and the efforts of all governments to strengthen aviation security to ensure a more stable and peaceful global environment are critical to enabling the movement of people across borders. At the same time, sovereign nations are dependent on each other to provide a common secure aviation environment, which is undeniably connected to each nation's individual economic security. It is thus key to drive forward the UN Security Council Resolution 2309 (2016) that urges nations to: "Require that airlines operating in their territories provide advance passenger information to the appropriate national authorities to detect the departure from their territories, or attempted entry into or transit through their territories, by means of civil aircraft, of individuals designated by the Committee pursuant to resolutions 1267 (1999), 1989 (2011) and 2253 (2015)."
3. **Make the traveller part of the solution.** As we look into the future, national administrations should reconsider the role of the traveller in the travel security process and create an opportunity for travellers to own their qualified digital biometric profile and grant them the ability to push this secure accredited identification data in advance to facilitate travel. Traveller participation will enable the wider use of pre-clearance and will make international border crossings more efficient.
4. **Utilize ICAO-approved enhanced harmonized biometric standards.** International organizations have established harmonized and routine sharing of traveller data, including biometrics for identity verification and travel eligibility, which have improved security and facilitated international travel and commerce between partner countries. To take this forward, national governments need to implement the international standards established by ICAO and assist emerging economies in implementing those standards.
5. **Expand multilateral agreements.** Based on the success of bilateral agreements to date, and on the current state of international security, governments should aim to expand established agreements multilaterally. These expanded agreements should incorporate the harmonized requirements for traveller data collected.
6. **Aim for a single application and a single fee.** Many nations currently collect country-specific applications, with varying information requirements and separate application fees for travel security programmes. For multi-national implementation, there should be a single application to electronic travel systems with harmonized security requirements and a single cost-based fee with appropriate revenue sharing between participating governments.
7. **Move to a digital process.** Over time, the entire process of border management used by most travellers should be a wholly automated, electronic platform, built on verified biometric data. Evidence is clear that e-visas do not undermine security; they facilitate border crossings for many travellers, reduce paperwork and allow public safety officials to direct more attention and resources to threat identification.

A Prototype

To move from vision to reality, a prototype proposal was developed to combine and enable the customer's sharing of data and verified identity through a platform. This would create an effortless experience by connecting systems, facilitating passage and improving security. More specifically, the aim is to create a short-term, low-controversy and useful prototype that will enable customers to share elements of their data with chosen suppliers, vendors and government entities to facilitate authentication, identity management, data entry, check-in for flights, hotels, etc.

The basis for developing such a prototype is linked to challenges that most people face when they travel across borders. In effect, today, on a normal journey, customers are required to prove identity, input basic profile and itinerary information multiple times. They must wait at check-in counters at airports, hotels and car-hire counters to show identification, leading to inefficiencies and delays. Immigration officers have limited customer-provided data and must spend time interrogating all travellers instead of spending more time on the higher-risk/more unknown travellers. Given the projected growth in international travel, the current point-of-entry facilities will not be able to handle the number of travellers without significant increased investment.

The prototype proposal entails the creation of a data platform or virtual hub that is populated by multiple sources and that allows customers to share data with other entities that require the information. The value of such an initiative is linked to the diversity of stakeholders who would experience a variety of benefits. The box below highlights the different stakeholder benefits.

Box 4: Benefits for Stakeholders

For Travellers

- **Eliminating redundancy,** specifically the need to fill out the same information when booking a flight, hotel, car, visa application, immigration card, fast-track programme, VAT recovery,etc.
- **Expedited passage since immigration,** hotel check-in and others have complete, formatted customer identify and information
- **Accelerated decision-making** from governments regarding entry

For Airlines

- **Increased accuracy** and reduced airline fines/exposure through valid identity management, such as a mobile passport passed via the platform
- **Reduced distribution of customs forms** to each flight allowing staff to serve customers
- **Faster connections** of travellers would allow airlines to reduce block times and still have as many connecting opportunities, perhaps leading to greater aircraft utilization
- **Lowering landing costs** and station rents by reallocating space at airports to retailers

For Hotels

- **Improving service efficiency** as front-desk representatives will not need to ask travellers for a passport, photocopy and file it, speeding up the check-in process, and improving safeguarding of customer data
- **Ensuring accurate staffing** at hotels through more accurate arrival/departure information

For Airports

- **Freeing up space** as customers have virtual forms filled out and don't require areas dedicated to fill out forms
- **Improving airport and city perception** as queues become smaller given that more people can be expedited
- **Lowering landing costs** and station rents by reallocating space at airports to retailers

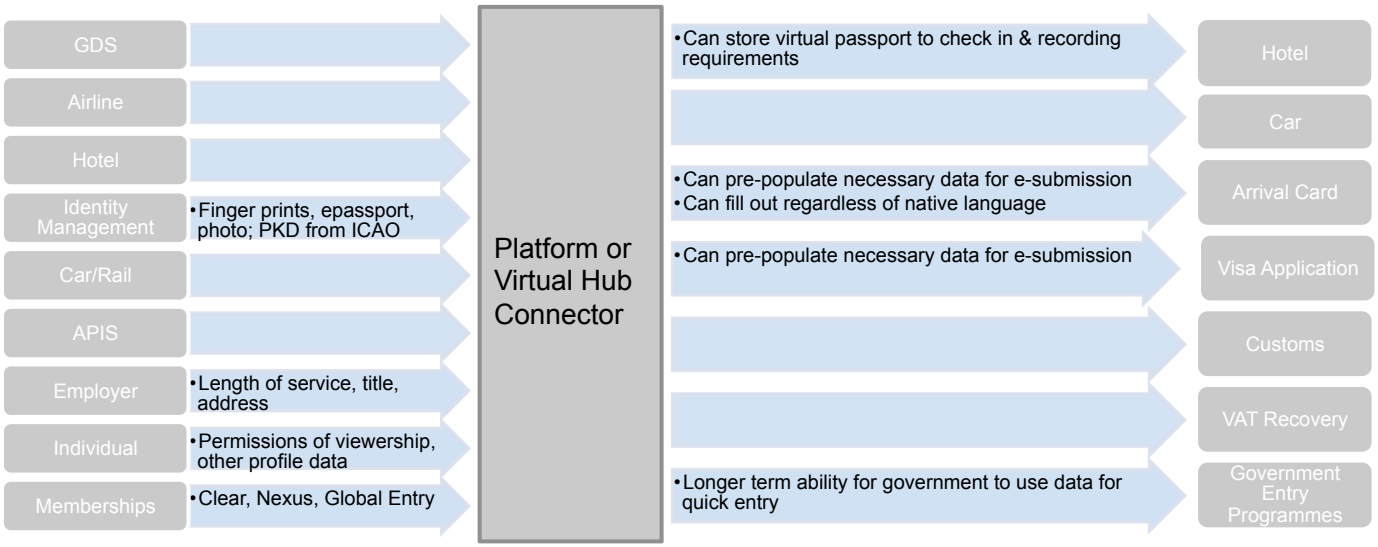
For Governments

- **Ensuring data accuracy** by exposing the data from the virtual hub/platform
- **Guaranteeing complete data** for profiling/risk purposes thanks to the platform, as passengers book outside the global distribution system (GDS) channel 50%-70% of the time
- **Better decision-making** thanks to more customer data; governments can spend more time on people without as much background data which can make their countries safer
- **Clearer traveller profiles** could influence foreign governments' decision to allow entry and expedite admittance to Fast Track programmes or expedited lanes (knowing that a person is already a member of US Global Entry could give another country more confidence in expediting that person's entry)
- **Greener** as there will not be the need to print as many forms and worry about their distribution
- **More efficiency** by having all of the data from the forms in a standardized, easy-to-read, already-input system and avoid storage of paper or scanning or data entry
- **Reducing staffing and training costs** as passengers can be scanned more efficiently resulting in agents handling more passengers

The prototype proposal recommends testing the concept quickly by integrating a few existing products together. Travel and tourism organizations represented at the World Economic Forum could participate in such a prototype. The following services could be offered to their clients:

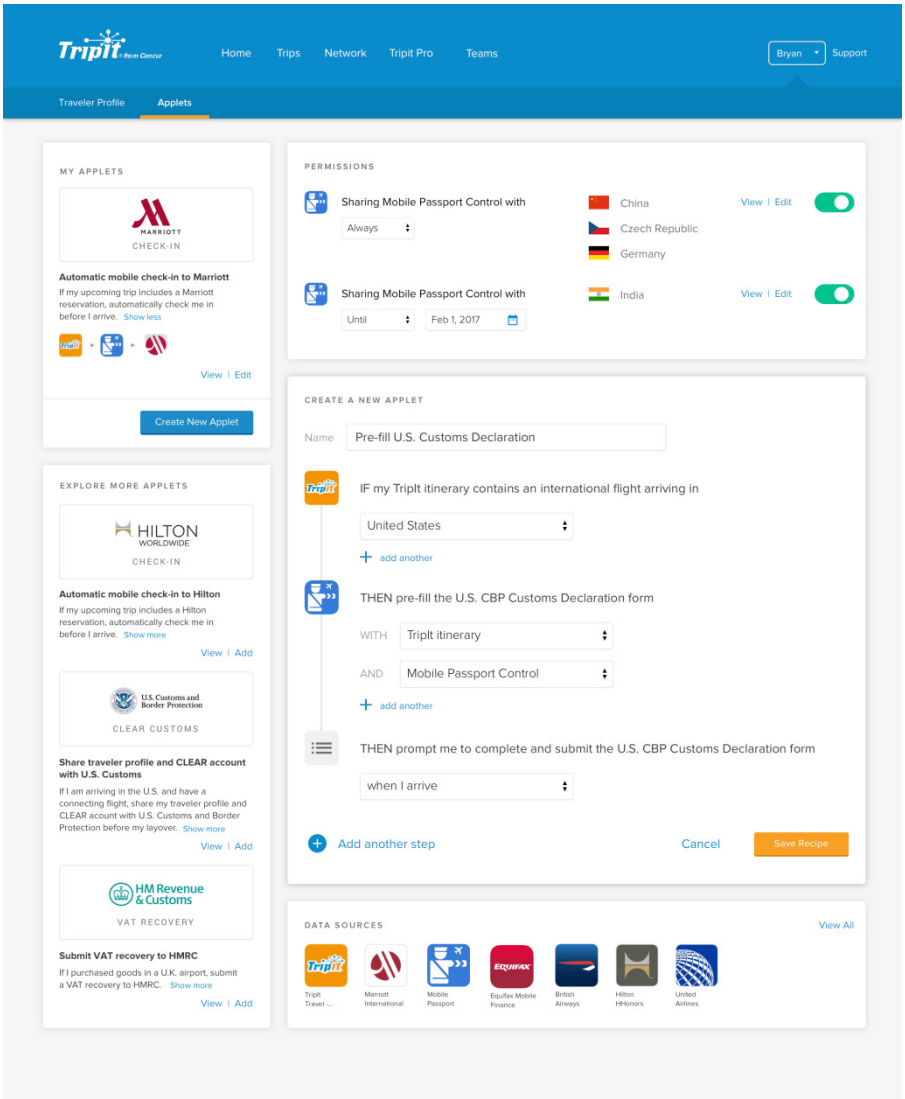
- Ability to enroll in the platform. Since multiple suppliers already feed data and extract data from TripIT, it could be used as a proof of concept. In the longer term, it is recommended to build a virtual hub connector so that the data doesn't actually reside in any one place but is merely called up when needed from the root source
- Utilize existing mobile passport technology to provide the identity management and automatically fill out US Arrivals forms using profile and itinerary data
- Have organizations such as Marriott and Hilton utilize the platform to virtually capture passport data for hotel check-in
- Collaborate with a government entity to accept pre-populated data into their arrival forms or expedited entry application forms
- Identify one to two US airports (MIA, JFK) and one international airport (LHR, FRA?)

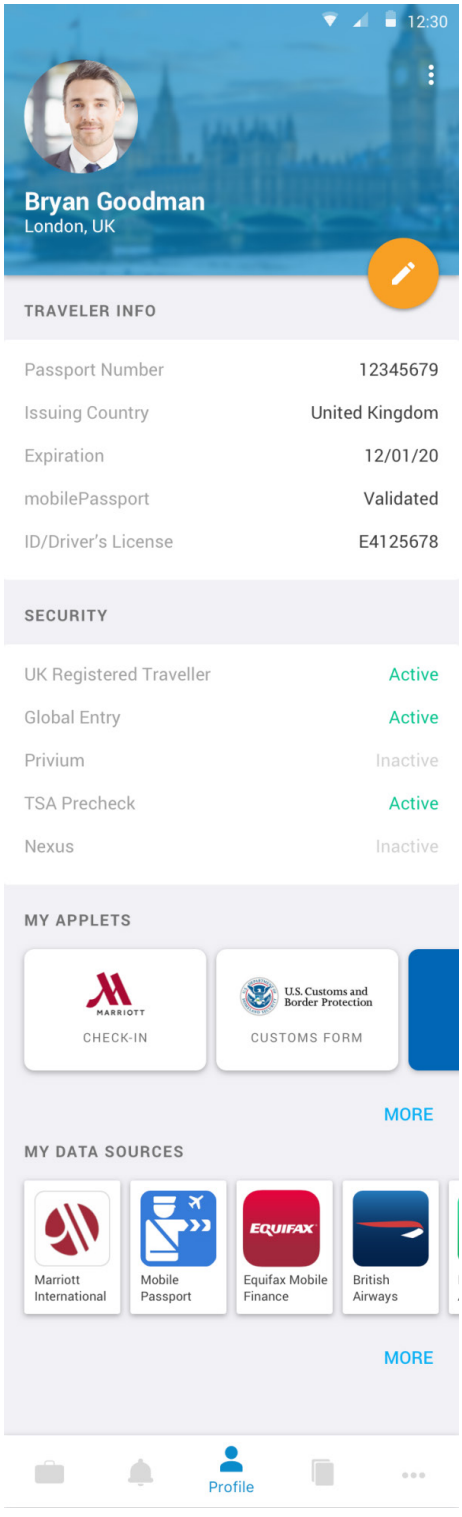
Box 5: Creating a Platform or Virtual Hub Connector



In a second phase, as different constituencies become accustomed to using the platform, possibilities are endless to incorporate data. Travellers can choose to include bank information, credit scores, driving records or anything else that governments deem essential for granting expedited entry. Accredited biometric stores/kiosks could create a business of validating your identity and populating the platform. The issues of privacy, information security and liability will need to be addressed to enable governments to gain more trust and be willing to populate a risk score or risk colour into the system.

Box 6: Visualizations of prototype





The Justification for Action

To ensure that the vision of a framework for the future of travel becomes reality, key stakeholders must see its value, especially when world events threaten additional barriers to international travel. Travel has been demonstrated to drive economic growth and promote peace. A revamped framework for the future of travel will also enhance security and better meet consumer expectations for a smoother experience.

Ultimate success in designing and implementing a new framework for travel will depend on buy-in from three key groups of stakeholders:

- **Public sector** (governments, global security organizations): Collaboration, data sharing and a commitment to systems integration will be paramount to a functioning trusted traveller programme. Governments and security institutions will have to buy into the concept early to provide key input for the development of a technical solution that meets the highest security standards.
- **Private sector** (corporations, academia): With cutting-edge technology and data-security capabilities, the private sector will drive demand for and help build the framework on which a programme operates. Through extensive customer platforms, companies will design the customer interface and help promote the programme.
- **Consumers:** The travelling public must trust that the system can secure its data and see tangible benefits through an improved travel experience and cost-savings through participation. A spring 2015 Google Consumer Survey indicated that consumer interest in such a programme was strong and that demonstrating cost- and time-savings in a programme will be key to success.

Securing Borders and People: Supportive Narrative to Address Security Concerns

In the current global geopolitical and security context, the issue of security is foremost. From terrorism to the fear of pandemics, government, business leaders and travellers alike are concerned about security and safety as they cross borders. Better coordination and collaboration between governments, travellers and the private sector will enhance global security efforts and support increased travel.

The implementation of a global data platform to assess the "risk" level of travellers, if not through actual data, through a type of "credit score", would give governments more accurate information about passengers and better protect their borders and citizens. It would lead to integration rather than dissolution of power of national governments. Countries concerned about security could be reassured by the existence of common "high bar" data standards across the platform. Most governments would have access to more – and better – information through a new integrated platform than they have today. The integrated framework would raise security standards globally without asking any country to lower existing requirements.

The ability to effectively pre-vet the majority of passengers would enable government and border control agencies to more easily single out those that require further investigation. The establishment – through an integrated global framework – of a digital identity, such as a unique traveller identification number, grounded in biometrics, could help governments and security agencies quickly establish travellers' identities and efficiently screen trusted travellers.

For example, an integrated framework based on digital identity would reduce fraud and the use of stolen passports. According to INTERPOL, between 2002 and 2013 almost 40 million travel documents were reported lost or stolen. False and stolen passports are often linked to asylum-seekers, terrorists and criminals.

Multiple Benefits: Supportive Narrative to Demonstrate Cost-Savings, Economic Opportunity and Soft Diplomacy

An integrated framework for travel, such as a global trusted traveller programme, would improve efficiency and reduce travel costs, allowing more people to travel and drive economic growth. Having been able to pre-vet the majority of passengers, via an opt-in system, would enable these travellers to have a more seamless and efficient experience, with less time queueing at border and security checks. Business travellers would experience a faster, more seamless experience, saving companies time and money. For example, the US Department of Homeland Security reported that participation in Global Entry reduced passengers' waiting time by up to 70% or an estimated seven minutes, on average[7]. Expedited screening via a new global framework could spread such efficiencies across the globe.

Simultaneously, pre-screening would allow for governments and border control authorities to make better use of their resources and existing investments by focusing on passengers whom they haven't been able to pre-vet and/or are determined to have a higher "risk" level. Of the Transportation Security Administration's approximately $8 billion 2015 budget, about $4 billion went on screening operations, with another $3 billion on salaries and compensation.

With a reduced need for in-person visa interviews, governments could enjoy significant cost-savings. For example, it costs hundreds of thousands of dollars to support one consular official for a one-year posting overseas.

While an economic impact analysis should be conducted to verify the assumption, countries would likely experience an increase in economic activity as a result of streamlined global travel. For example, for every 33 international visitors to the United States, one domestic job is created. Countries participating in an improved framework for travel could see their attractiveness as a destination bolstered and non-participating countries would be incentivized to join the system or miss out on the benefits.

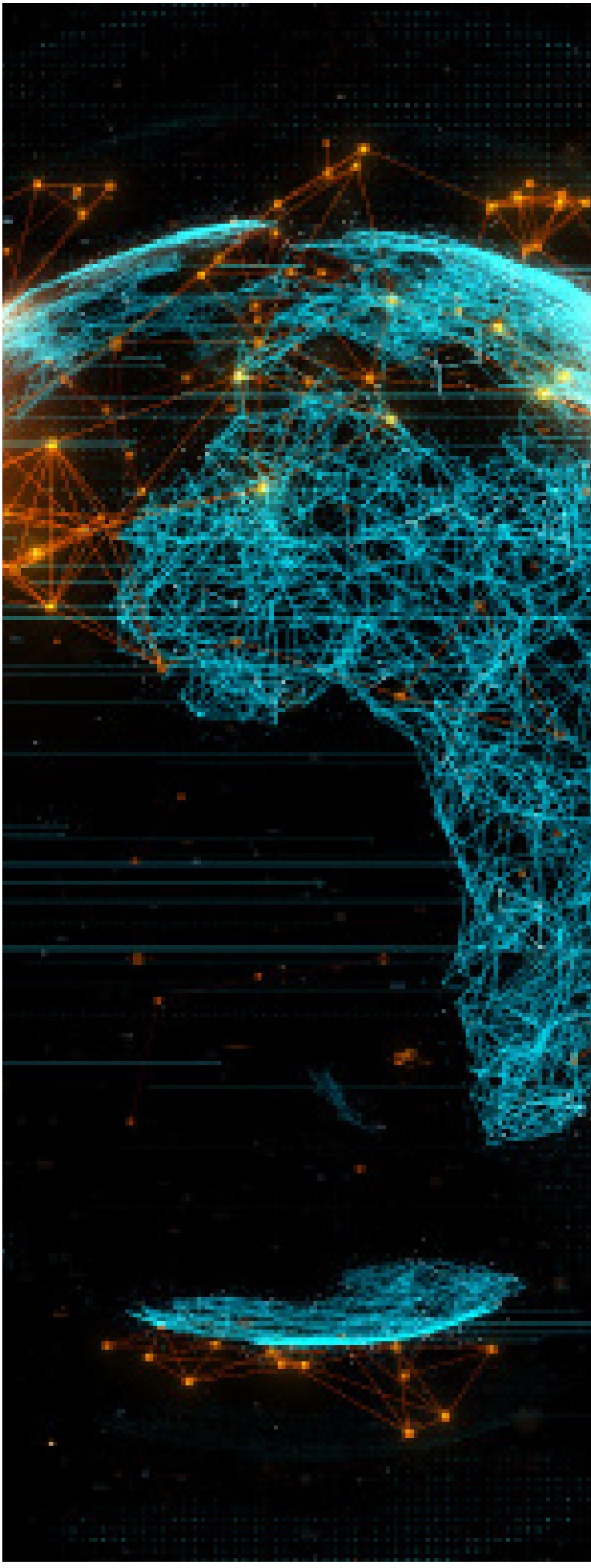
“Soft” diplomacy, cultural exchange and the promotion of peace would be additional benefits of a new framework for travel. Many European countries already fund travel programmes to neighbouring countries to expand social ties and promote peace on the continent.

Among private sector companies, there will be an obvious advantage in increased travel, not only for travel companies but also across a variety of sectors including retail, transport, construction, technology and more. For the tech industry, a new platform offers a significant opportunity to expand the cloud industry, in particular partnerships to develop new technologies and accompanying infrastructure in support of a new framework for global travel.

Consumer Appeal: Supportive Narrative for Travellers/ Experience

Consumers are focused on the balance between benefits offered by a new system, cost and concerns about privacy and security. A user-friendly “one-stop-shop” interface will be essential in winning over customers. A system that requires less effort and time on behalf of the user, feels more modern and provides greater flexibility and mobility is particularly appealing to NextGen travellers.

Consumers will want the platform to integrate all their data – from health records to travel preferences and identifiers – into a single, secure interface. Consumers would also be attracted to a system that prompts travellers to update information and offers suggestions based on past data and preferences, including linking family members or work colleagues who frequently travel together. Concerns about corruption and privacy could be mitigated by using a private sector-driven platform to interface with consumers. Consumers focused on cost could be convinced by demonstrating immediate and long-term savings in costs associated with today’s travel model, including visa applications, entry fees and wasted time.



Looking Ahead

The Fourth Industrial Revolution combined with the rising expectations of today's global citizen provides a unique opportunity to move from walls to digital borders with the potential to enhance security while facilitating the journeys of the 21st-century travellers.

Yet to achieve this ambitious goal, a number of areas need to be addressed and advanced, including the harmonization of intelligence and data sharing, the global implementation of common standards, the move towards a secure digital process and focusing on digital identity.

Looking ahead, additional cooperation and collaboration are needed in protected data sharing among the various agencies of government, international organizations and travellers themselves. Such collaboration would be facilitated through a move to a digital process. By moving the entire process of border management over time to a wholly automated, electronic platform, build on verified biometric data; the cross-border movement of people will not only become more accurate and efficient but also will enable public safety officials to direct more attention and resources to identifying threats.

However, challenges remain around the global implementation of harmonized biometric standards established by the International Civil Aviation Organization (ICAO). Given the success of these standards in enhancing security and facilitating trade and travel, national governments need to implement these international standards and support developing nations in their implementation. While the implementation of harmonized biometric standards is a realistic solution for individuals with an identity, to date there are 1.5 billion people globally who do not have a recognized document to establish their identity.

As such, it is essential to participate in addressing the broader issue of identity and more specifically digital identity, which not only impacts the cross-border movement of people but also issues ranging from financial inclusion to health and welfare. A cross-system dialogue needs to determine how to create an effective and efficient digital identity management through acceptable global standards and norms which can effectively enable the move of economic and social interaction online and strengthen trust-based digital services.

While in the past governments have taken on sole responsibility for travel security processes identity issues, there is an opportunity to reconsider the role of travellers and enable them to be part of the solution. As the global community considers the potential of a single application to electronic travel system, with harmonized security requirements and a single cost-based fee, travellers could own their qualified digital biometric profile and be given the ability to push their secure accredited identification data before travel. Traveller participation would enable the wider use of pre-clearance and will make international border crossings more efficient.

Although the move to digital borders may not happen overnight, the development and implementation of scalable prototypes and solutions will enable the global community to understand and witness the immense benefits of such an approach.

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Nigel Aston, Senior Advisor, Corporate Strategy, Amadeus IT Group, Spain
Desiree Bandal, Head, ASEAN Affairs, AirAsia, Malaysia
Brent Barker, Global Travel Security Consultant, Barker Global Security LLC, USA
Celine Canu, Manager, Passenger & Facilitation, International Air Transport Association (IATA), Montreal
Mick O'Connell, Director, Operational Police Support, INTERPOL, Lyon
Kelly Craighead, Executive Director, National Travel & Tourism Office, International Trade Administration, US Department of Commerce, USA
Boubacar Djibo, Director, Air Transport Bureau, International Civil Aviation Organization (ICAO), Montreal
Maurine Fanguy, Vice-President, Solutions and Strategy , MorphoTrust, USA
Melissa Flood, Vice-President, Government Affairs, Marriott International, USA
Brian Goldman, Senior Manager, Accenture, USA
Nathalie Hesketh, Special Adviser, Travel & Visas, Fipra International , Belgium
Isabel Hill, Director, National Travel & Tourism Office, International Trade Administration, US Department of Commerce, USA
Muriel Leveque, Vice-President Safety Group, AccorHotels, France
Helen Marano, Senior Vice-President, Government & Industry Affairs, World Travel & Tourism Council (WTTC), UK
Hans Miller, Chief Executive Officer, Airside Mobile Inc., USA
Jonas Neihardt, Senior Vice-President, Government Affairs, Hilton Worldwide, USA
David Pavelko, Global Travel Director, Google, USA
Steve Redlinger, Private Sector Office, US Department of Homeland Security, USA
Antoine Rostworowski, Airport Customer Experience and Technology, Airports Council International (ACI), Montreal
Cheryl Rutenberg, Head, Partnership Development, Visa, USA
Marco Scarpa, Security Business Domain Director, Thales, France
Charlie Sultan, Senior Vice-President, Supplier Services, Concur, USA
Rob Torres, Managing Director, Travel, Google, USA

World Economic Forum

Tiffany Misrahi, Community Lead, Head of Aviation, Travel & Tourism, World Economic Forum, USA
Juergen Keitel, Community Lead, Head of Aerospace, World Economic Forum, USA
Rose Summers, Community Coordinator, Mobility Industries, World Economic Forum, USA

For further information on this report or the work undertaken by the World Economic Forum's Aviation, Travel and Tourism Industry community, contact: Tiffany Misrahi, Community Lead, Head of Aviation, Travel and Tourism Industries by email at tiffany.misrahi@weforum.org

Endnotes

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World Economic Forum
91–93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel.: +41 (0) 22 869 1212
Fax: +41 (0) 22 786 2744

contact@weforum.org
www.weforum.org