1. INITIATIVE OVERVIEW

THE CHALLENGE
WTTC’s latest annual research, in conjunction with Oxford Economics, shows the Travel & Tourism sector experienced 3.5% growth in 2019, outpacing that of the global economy (2.5%) for the ninth consecutive year. Over the past five years, one in four new jobs were created by the sector, making Travel & Tourism the best partner for governments to generate employment. The industry has long tried to improve security, reduce fraud, and improve the traveller experience. Seamless Traveller solutions enabled through biometrics, provide the mechanism to increase security while enhancing the traveller experience across the air and non-air touchpoints. Additionally, contactless biometric technology can assist in the prevention of pathogens’ transmission between passengers.

THE OPPORTUNITY
Significant technological advances in digital identities continue to enter the marketplace. These technologies enable verified digital identities that use biometrics to confirm, with high certainty, the identity of a user. Applying these solutions to the Travel and Tourism industry offers significant benefits. Verified identities will enable the secure, seamless movement and management of travellers across the air and non-air journeys. Utilizing traveller biographic, biometric, loyalty, credit card, travel history, proof of immunity or vaccine and other personal information will allow governments and travel providers to more efficiently and safely move the traveller through journey touchpoints. Travellers will no longer be required to present and verify their identity and relevant travel (e.g. recently visited countries) and medical history (e.g. vaccine) at multiple touchpoints. The result reduces fraud and allows for the movement of more travellers securely and efficiently through existing infrastructure and easing resource requirements.

WTTC APPROACH
WTTC defined its global vision for the Seamless Traveller Journey as enabling a seamless, safe and secure end-to-end traveller journey encompassing both air and non-air traveller touchpoints. Systematic biometric verified identification at each stage of the journey will replace today’s manual identity verifications. These solutions will capitalize on several opportunities including improving the customer experience, creating a frictionless experience at touchpoints, improving security, health safety, and promoting commercial benefits to travel providers.

Significant technological advances, especially in biometrics, have enabled digital identity solutions which are demonstrating strong opportunities to enable verified identities. These verified identities enable the secure, seamless movement and management of travellers across travellers’ air and non-air journey.
THE BENEFITS

It has been well documented that traveller digital identity solutions will alleviate the strain on existing travel infrastructure and facilitate a touch-free experience. Beyond infrastructure, there are ample benefits to the public sector, private sector and the traveller, in addition to the fact that touchless biometrics and contactless passage through security, border control and boarding offer airports hygienic advantages that mitigate the risk of pathogen transmission.

- **Public sector** – Governments increase their border security while reducing the cost of border crossing operations
- **Private sector** – Companies will increase their security while reducing the demand on infrastructure and resources while improving the customer experience
- **Traveller** – Travellers will be able to book travel, check-in (e.g. airport, hotel, cruise, etc.), proceed through security, cross borders, board aircraft, collect luggage, rent and retrieve cars, and other non-air services, simply using their verified identity by confirming their biometrics

### PUBLIC SECTOR
- Increased border security
- Increase border crossing capacity
- Increased health control mechanisms
- Reduced resource requirements (e.g. reduce border crossing personnel)

### PRIVATE SECTOR
- Reduced strain on infrastructure
- Increased security
- Increased asset utilization
- Reduced data liability
- Enhance/ personalise the customer experience

### TRAVELLER
- Enhanced personalised travel experience
- Removal of points of friction
- Security and transparency of personal data usage

2. LATEST PERSPECTIVE: DATA FACILITATION METHODS

INTRODUCTION

This paper provides an update on the progress of WTTC’s STJ initiative and discusses four STJ prototypes which link air and non-air travel. The prototypes are grounded in the work done previously in the Emerging Models report published in Q4 2019. As the prototypes have been defined, key questions have emerged for industry leaders to consider as STJ continues to become a reality.

Several biometric-driven solutions are currently operational around the world. While there have been significant benefits realised in each program, overwhelmingly these solutions have been siloed. Limited interoperability across today’s solutions present the critical need for global best practices to govern information storage, exchange and partnership across organizations for future state solutions.

Significant learnings are becoming available from those operational solutions. Taking lessons learned and synthesizing them into standardised approaches to more easily facilitate interoperability is critical to success.

PRINCIPLES OF SUCCESS

The industry is at a critical point where biometric digital identity solutions are being designed and developed to serve travellers across the air and non-air touchpoints. The proposed facilitation methods start to define models which facilitate the conversation to answer key questions the industry needs to consider as best practices are developed. These questions align with our four principles of success.
3. DATA FACILITATION METHODS OVERVIEW

As scope expanded to include air and non-air travel, two of the three original emerging models became the backbone of the biometric traveller journey. Per Trip, allows a traveller to create a single journey token in advance via mobile device or in-person at check-in. Following their trip, the token containing the traveller data is purged. Per Life, where travellers enrol once to create a verified digital identity which exists until the traveller decides to purge their digital identity. Government has become a data facilitation method which can facilitate both, the Per Life and Per Trip models.

To enable the Per Trip and Per Life model, traveller data will be stored and shared across multiple stakeholders in the traveller’s journey. We have defined three data facilitation methods to enable this:

1. Centralised: traveller data is stored and managed on a central platform that other travel providers must connect to.
2. Decentralised: traveller data is stored on their mobile device and pushed to travel providers by the traveller.
3. Hybrid: uses both centralised and decentralised methods within a single traveller journey.

<table>
<thead>
<tr>
<th>FACILITATION TYPE</th>
<th>DESCRIPTION</th>
<th>EXAMPLE</th>
</tr>
</thead>
</table>
| CENTRALISED | 1. Traveller data is centrally stored and managed by a 3rd party
2. Travel providers connect via secure API connections
3. Two centralised providers:
   - **Private Corporation:** Traveller actively enrols their digital identity data which is stored by a 3rd party provider
   - **Government:** Traveller biographic and biometric (optional) data collected through government issued documents (e.g. passport, eVisa, etc.) |
   - **Private Corporation:** Clear in the United States
   - **Government:** United Arab Emirates uses Smart Gates at certain points of immigration |
| DECENTRALISED | 1. Digital identity data owned and managed by the traveller and stored in a digital wallet on their mobile device
2. Traveller manages the data that is pushed to chosen stakeholders and when it is sent |
   - **Apple Pay:** where user manages their information which lives securely on their personal device. At the time of purchase, a user determines when and where to share their information |
| HYBRID | 1. Utilization of multiple technologies and/or facilitation options across stakeholder systems throughout the travel value chain
2. Processes for integration not yet designed, so many options may exist |

In today’s environment, centralised is the most prominent data storage and facilitation method for biometric driven travel programs. Centralised platforms align with traditional strategies where consumers provide large institutions with personal data and each company owns and manages that data in exchange for customers receiving benefits. But consumers stance on data sharing, transparency, and control is shifting.

Consumers are beginning to demand greater control and transparency of their data. The fundamentals of the decentralised data storage and facilitation method account for this shift, allowing travellers ownership and transparency over how their data is used and shared. However, the reality is certain institutions, such as governments, will always have some form of centralised data facilitation. A government views the data of their citizens and those visiting paramount to national security and will, therefore, maintain ownership and management of their data. Since government validation of identity will always be a critical component of a travellers journey, the reality is end-state solutions will need to support a hybrid of centralised and decentralised.
### 4. SEAMLESS TRAVELLER JOURNEY PROCESS

To assist in the definition of each data storage and facilitation method, the following framework is used which breaks down the Seamless Traveller Journey into four steps:

1. **Enrolment**: Traveller enrols in a biometric program and upon completion, their Traveller Data Envelope (TDE) is created
2. **Pre-travel (booking)**: Traveller makes purchases and reservations for their journey
3. **In-transit**: Traveller touchpoints encountered once their trip begins
4. **Post-travel**: Occurs when the traveller has completed all the touchpoints during their journey

#### ENROLL

- **All enrolment options require capturing traveller:
  - Biographic data from government-issued documents
  - Biometric details to create a verified identity

- **Optional data can be captured such as a credit card and loyalty information**

- **Upon completion of enrolment, traveller’s Data Envelope (TDE) is established**
  - Note: Information can be added to the TDE in future interactions

#### PRE-TRAVEL (BOOKING)

- **Traveller can utilise their TDE, verified biometric identity and PIT when the traveller begins their booking process (air and non-air travel suppliers)**
  - Note: Only applicable for travellers who verify their biometrics prior to booking

- **Traveller can leverage their TDE to share information such as credit card, biographic information (e.g., address, passport number, etc.) during booking and while in-transit**

#### IN-TRANSIT

- **Touchpoints the traveller encounters once they begin their trip**
  - **Touchpoints can include air and non-air components**
  - **Traveller biometrics are verified at several touchpoints to confirm identity and share information required by the travel supplier**
  - **Traveller provides consent throughout their journey to ensure transparency on what data is being shared**

#### POST-TRAVEL

- **Components of the biometric life cycle, which being once the traveller has completed some or all portions of their journey**
  - **Decision regarding the storage of the traveller’s data are executed**

- **Travel suppliers: data shared will be stored and purged per current operating procedures**

- **Technology platform**
  - TDE will be stored based on enrolled model (Per Trip or Per Life)

### 5. SEAMLESS TRAVELLER JOURNEY PROTOTYPES

The prototypes developed are meant to facilitate conversation and understanding of how each data facilitation method can be operationalised:

#### ENROLL

Regardless of the data facilitation method used, travellers will need to first enrol. Enrolment requires the traveller to share biographic information (originating from a government-issued document) and biometric information, which are used to verify the traveller’s identity. The specific traveller data requirements will be defined based on government regulations and type of travel. Additional traveller data can be captured to enhance the benefits of the traveller’s digital identity including address, credit card, loyalty information and others. This traveller data will be stored with other 3rd parties via a Traveller Data Envelope (TDE), and a common framework for the Traveller Digital Envelope will be critical to facilitating future interoperability.

During enrolment, there are three categories of data which will be collected. Depending on the program and the traveller’s preferences the amount of data which is collected may vary:

1. **Biographic**: solutions require biographic data derived from government issued documents. Biographic data will include the traveller’s name, nationality, date of birth, address, etc. There are two ways a traveller can enrol their biographic data.

   1. **ePassport**: Travellers who have an ePassport can capture their biographic information from the chip leveraging the current work of the ICAO Digital Traveller Credential (DTC) program. Using NFC technology, a traveller can access their biographic data stored on the ePassport chip. Utilizing the DTC has several benefits. First, it provides travellers with a seamless way to register their biographic information. Second, the data is government authenticated information which cannot have been previously tampered. Lastly, it is widely trusted across governments around the world.

   2. **Other government issued identifications**: In instances where travellers do not have an ePassport, biographic data can be collected utilizing other government issued documents (e.g., driver license, visa, etc.). When uploaded, these documents will be authenticated using advanced technologies to ensure the highest level of trust and accuracy.

2. **Biometric**: mobile enrolment will initially capture facial biometrics and use liveliness detection technology for authentication, kiosk enrolment may capture facial, iris, and finger biometrics.

   - **Note**: Travellers using mobile enrolment may be required to capture a secondary biometric during travel based on government regulations.

3. **Other personal data**: to maximize the benefits of digital identity, travellers may choose to upload additional personal data such as loyalty, credit card, travel history, and travel preferences, etc.

Enrolment can be passive (i.e. government-mandated) or active (i.e. traveller initiated). Depending on the biometric digital identity solution, travellers will have three active enrolment options: mobile enrolment, on-site enrolment, and a combination of mobile and on-site enrolment.
On-site enrolment
- Enrolment can occur pre-travel or during their journey
- Traveller enrols using a kiosk or other terminal at a touchpoint along the traveller journey (e.g. airport, hotel, car rental facility, etc.)
- Traveller uploads biographic data from a government issued document using NFC technology (e.g. ePassport) and biometrics (facial, finger, or iris)
- Traveller may upload additional personal information

Mobile enrolment
- Enrolment can occur pre-travel or during their journey
- Traveller enrols using a personal device (e.g. mobile)
- Traveller uploads their biographic data from a government issued document using NGC technology (e.g. ePassport), facial biometrics via a selfie and liveliness detection
- Traveller may upload additional personal information

To provide additional context and illustrate how data facilitation methods can be operationalised, we developed four prototypes each aligned to a different facilitation method. The details of each scenario differ in scope to illustrate the broad applications of a Seamless Traveller journey solution.

### PROTOTYPE

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>Booking process</th>
<th>eVisa</th>
<th>Airport check-in</th>
<th>Airport lounge</th>
<th>Aircraft boarding</th>
<th>Border crossing</th>
<th>Car rental retrieval</th>
<th>Hotel check-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTRALISED</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Government</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>DECENTRALISED</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>HYBRID</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
6. CENTRALISED

OVERVIEW
The centralised method is the storage and management of traveller’s data by a 3rd party. The provider can be either a private corporation or government. In both cases, travel providers along the traveller journey connect to the centralised platforms to receive data and messages. The main difference between a program managed by a private corporate versus a government is the enrolment method. For a private corporate the traveller actively enrolls in the program, whereas for government-managed platforms the traveller’s data is automatically stored.

CENTRALISED – PRIVATE CORPORATION
- Name: Morgan
- Trip overview: Domestic point to point; air and car rental

Traveller perspective: Morgan arrives at the airport and uses her verified identity to confirm check-in and retrieve baggage tags. Upon boarding, Morgan uses an eGate procedure where her photo is taken and matched with digital identity on her Traveller Data Envelope (TDE). When arriving at her destination, Morgan proceeds to the rental car facility and obtains her car and confirms her identity using biometrics upon departure. Upon identity verification, the rental car company receives required information (e.g. driver’s license number and credit card number) from the TDE. Morgan is cleared to depart.

Facilitation perspective: Travel providers across the traveller journey connect to a centralised database which holds Morgan’s Traveller Data Envelope. At each touchpoint in the journey, Morgan consents and verifies her identity which is matched to her envelope on the centralised database. Lastly, for travel providers who require additional information to complete the check-in process, that is sent securely from Morgan’s data envelope to the travel provider.

CENTRALISED PROTOTYPE SCENARIO – PRIVATE CORPORATION

<table>
<thead>
<tr>
<th>TRAVELLER</th>
<th>GOVERNMENT / IMMIGRATION</th>
<th>TECH PROVIDER</th>
<th>CAR RENTAL</th>
<th>AIRLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveller arrives at airport</td>
<td>Traveller provides consent and scans biometrics</td>
<td>Trust decision returned to travel provider system</td>
<td>Traveller authenticated and check-in process executed</td>
<td>Traveller data is captured by airline for required documentation processing (e.g. APIs)</td>
</tr>
<tr>
<td>Traveller check-in complete and proceeds to boarding gate</td>
<td>Live biometrics checked against TDE data on the orchestration platform</td>
<td>Trust decision returned to travel provider system</td>
<td>Traveller data is captured by airline for required documentation processing (e.g. APIs)</td>
<td>Trust decision returned to travel provider system and traveller is added to passenger manifest</td>
</tr>
<tr>
<td>Traveller approaches eGate and scans biometrics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traveller cleared to board flight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**CENTRALISED – GOVERNMENT**

- **Name:** Olivia
- **Trip overview:** International journey; air only

**Traveller perspective:** Twenty-four hours before departure the government platform sends a gallery package to the airline which Olivia will be using for her trip. When Olivia arrives at her departure gate she opts-in to using the eGate to board her flight. Olivia presents herself in front of the eGate boarding device which takes a picture of her face and matches it to the gallery provided by the government platform. Upon arriving back in her home country, Olivia opts-in to the biometric immigration process, which validates her identity using facial recognition confirms her identity to her profile on the government platform.

**Facilitation perspective:** Twenty-four hours before departure, an airline will send their passenger list to the government platform for a passenger gallery to be created. Upon boarding, the passenger’s biometrics are matched with the gallery on the government platform. At a border crossing, the traveller shares their biometrics which is matched to their profile on the government platform.

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**7. DECENTRALISED**

**OVERVIEW**

Decentralised digital identities put ownership and management into the hands of the traveller. Traveller data is stored in their personal Traveller Data Envelope (TDE) and stored and managed on their device (e.g. mobile). Connections to travel providers can occur in two ways:

1. **Direct connection:** Travel providers develop connections with the digital identity platform which facilitates the transfer of traveller data.
2. **Trip token:** For a given trip, tokens are generated and stored on a digital identity platform hosted by a 3rd party which connects to travel providers. In these instances, the token follows the Per Trip model, with traveller data being purged after their journey.

When a traveller encounters a point in their journey where their digital identity can be leveraged, they are presented with the opportunity to share data or a message to the travel provider. The traveller will be presented with what information is being requested and by whom. In addition to traveller information being sent to travel providers, where appropriate travellers will have the ability to share zero knowledge messages which allow travel providers verification of existing data without the liability of receiving the data. It will be the decision of the traveller whether consent to sharing the requested information. The traveller will also be in control of when the life of their digital identity ends and purging the data.

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**CENTRALISED PROTOTYPE SCENARIO – PRIVATE CORPORATION**

**AIR AND BORDER CROSSING**

<table>
<thead>
<tr>
<th>TRAVELLER</th>
<th>GOVERNMENT / IMMIGRATION</th>
<th>AIRLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveller approaches to board and scans biometrics</td>
<td>Government creates a gallery of passengers for upcoming flight</td>
<td>Airline sends passenger list to request gallery for upcoming flight</td>
</tr>
<tr>
<td>Traveller enters exceptions processing</td>
<td>Live biometrics matched against government platform</td>
<td></td>
</tr>
<tr>
<td>Traveller cleared to board flight</td>
<td>Traveller authenticated?</td>
<td>Boarding confirmed and traveller is added to passenger manifest</td>
</tr>
<tr>
<td>Traveller arrives back at home country border crossing and scans biometrics</td>
<td>Live biometrics matched against government platform</td>
<td></td>
</tr>
<tr>
<td>Traveller cleared to the country</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**KEY QUESTIONS**

- With multiple centralised solutions existing, will travel providers take the burden of connecting multiple centralised platforms or will travellers be forced to participate in multiple SIJ solutions?
- Are governments willing and able to share information from their platforms with other governments and the private sector to allow a global seamless end-to-end cross border journey?
### Decentralised Prototype Scenario
#### Booking

<table>
<thead>
<tr>
<th><strong>Traveller</strong></th>
<th><strong>Tech Provider</strong></th>
<th><strong>Hotel</strong></th>
<th><strong>Car Rental</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveller begins to book their travel for air, car and hotel</td>
<td>Traveller logs into their TDE using their biometrics</td>
<td>Traveller makes booking decisions and travel provider requests traveller data from their TDE</td>
<td>Traveller uses the hotel provider mobile app to check-in</td>
</tr>
<tr>
<td>Traveller goes consent for requested data to be shared with each travel provider</td>
<td>Live biometrics checked against TDE data on the orchestration platform</td>
<td>Only the required data is stored by each travel provider on the traveller's confirmation, while other received information is purged</td>
<td>Traveller verifies their identity using their mobile device</td>
</tr>
<tr>
<td>Traveller receives confirmation number and trip details</td>
<td>Traveller data provided to each travel provider</td>
<td>Traveller data is captured by airline for required documentation processes and luggage tags are provided (e.g. APIs)</td>
<td></td>
</tr>
</tbody>
</table>

#### Airline

<table>
<thead>
<tr>
<th><strong>Traveller</strong></th>
<th><strong>Government / Immigration</strong></th>
<th><strong>Tech Provider</strong></th>
<th><strong>Airliner</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveller arrives at airport</td>
<td>Traveller approaches check-in, and scans biometrics</td>
<td>Live biometrics checked against TDE data on the orchestration platform</td>
<td>Check-in progress executed</td>
</tr>
<tr>
<td>Traveller checks-in complete and proceeds to boarding gate</td>
<td>Traveller receives confirmation to board plane</td>
<td>Live biometrics checked against TDE</td>
<td>Traveler data is captured by airline for required documentation processes and luggage tags are provided (e.g. APIs)</td>
</tr>
</tbody>
</table>

### Decentralised Prototype Scenario
#### Car Rental and Hotel

<table>
<thead>
<tr>
<th><strong>Traveller</strong></th>
<th><strong>Tech Provider</strong></th>
<th><strong>Car Rental / Hotel</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveller shares authenticated identity with the hotel</td>
<td>Traveller authentication message and required data sent to airline</td>
<td>Traveller checks-in complete</td>
</tr>
<tr>
<td>Traveller data request is received and traveller sends data to travel provider</td>
<td>Traveller authentication and required data is confirmed (e.g. drivers license and credit card etc.)</td>
<td>Traveller data is stored in guest record</td>
</tr>
</tbody>
</table>

### Key Questions

To enable the traveller to own and facilitate their data with travel providers, critical solution design questions need to be addressed. Two distinct options should be discussed:

- Is the travel industry open to establishing secure connections to trusted 3rd party providers to create a meaningful ecosystem (e.g. each solution has enough travel providers reducing the number of Seamless Traveller Journey solutions a traveller must enroll)?
- Secure processing and transmission of data are critical to the success of any solution, what are the common standards for how data is processed and transmitted between a Traveller’s Data Envelope and travel providers?
8. HYBRID

OVERVIEW

The hybrid option is the most likely to be used in the end state. It combines all the functionality of the centralised and decentralised storage and management methods. The flexibility to utilize a centralised and decentralised platform in a single journey allows each stakeholder to partake in a biometric traveller program. In the end state, this flexibility will be required since the reality of the situation is certain stakeholders, such as a government, will always maintain a centralised platform. While other stakeholders, such as travel providers, are willing to remove the data liability and pass it back to the traveller via a decentralised platform.

PROTOTYPE SCENARIO

- Name: Ross
- Trip overview: International; air, car and hotel
- Data storage and facilitation methods: centralised [private corporation and government] and decentralised

Traveller perspective: During the booking process, Ross sends all the required information (for each travel stakeholder) from his digital identity via his mobile device. To obtain his visa, Ross applied for an electronic visa with the visiting nation. When Ross arrives at the airport, he verified his identity on his mobile device and uses his verified identity to check-in. When Ross arrives at his destination airport and enters immigration, he uses his biometrics to confirm his identity and retrieve his electronic visa. After immigration, Ross arrives at rental car facility and obtains his car and is cleared to depart by sharing a zero-knowledge message confirming his identity, and valid driver license. When arriving at the hotel, Ross’s facial image is captured at the check-in counter. Ross will be a passenger. When Ross arrives at his departure gate he opts-in to using the eGate to board the flight. Ross presents himself in front of the eGate boarding device which takes a picture of his face and matches it to the gallery provided by the government platform. Upon arriving back in his home country, ross opts-in to biometric immigration process, which validates his identity using facial recognition confirms his identity with his profile on the government platform.

Facilitation perspective: Utilizing both centralised and decentralised solutions, depending on the touchpoint the traveller encounters. The traveller will control the triggering of their data to travel providers at certain touchpoints, while others such as border crossings, will continue to leverage centrally stored data.

<table>
<thead>
<tr>
<th>HYBRID PROTOTYPE SCENARIO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BOOKING AND DIGITAL VISA APPLICATION</strong></td>
</tr>
</tbody>
</table>

**TRAVELLER**
- Traveller logs into their TDE using their biometrics
- Traveller gives consent for requested data to be shared with each travel provider
- Traveller receives confirmation number and trip details
- Traveller applies for a travel visa with the issuing government

**GOVERNMENT / IMMIGRATION**
- Issuing government approves visa is stored on their platform
- Only the required data is stored by each travel provider
- Traveler data sent to each travel provider
- Traveler makes booking decisions and travel provider requests traveler data from their TDE

**TECH PROVIDER**
- Live biometrics checked against TDE data on the orchestration platform

**HOTEL**
- Only the required data is stored by each travel provider
- Traveler receives confirmation number and trip details

**CAR RENTAL**
- Traveler makes booking decisions and travel provider requests traveler data from their TDE

**AIRLINE**
- Traveler applies for a travel visa with the issuing government
### HYBRID PROTOTYPE SCENARIO - AIR AND BORDER CROSSING

**TRAVELLER**
- Traveller arrives at airport
- Traveller scans biometrics to check in
- Traveller shares authenticated identity and required data
- Traveller checks in complete and proceeds to security check point
- Traveller opts in to biometric boarding crossing
- Traveller is cleared to enter the country

**ARRIVING GOVERNMENT / IMMIGRATION**
- eVisa existence verified
- API data is shared with the airline
- Live biometrics checked against TDE data on the orchestration platform and visa or electronic travel authorisation is confirmed

**TECH PROVIDER**
- Live biometrics checked against TDE
- Check-in process executed
- Traveller data is captured by airline for required documentation processes and luggage tags are provided (e.g. APIs)

**AIRLINE**
- Traveller check-in complete and proceeds to security check point
- Traveller opts in to biometric boarding crossing
- Live biometrics matched against government platform
- Traveller authenticated?
- Government creates a gallery of passengers for upcoming flight
- Traveller enters exception processing
- Traveller enters boarding process
- Traveller is cleared to board flight
- Boarding confirmed and traveller is added to passenger manifest
- Traveller enters country border crossing and scans biometrics
- Traveller arrives back at home country border crossing and scans biometrics
- Traveller is cleared to the country

### HYBRID PROTOTYPE SCENARIO - GOVERNMENT AIR AND BORDER CROSSING

**TRAVELLER**
- Traveller approaches to board and scans biometrics
- Traveller enters exception processing
- Traveller enters boarding process

**GOVERNMENT / IMMIGRATION**
- Government creates a gallery of passengers for upcoming flight
- Live biometrics matched against government platform
- Traveller authenticated?
- Traveller enters country border crossing and scans biometrics
- Traveller is cleared to the country

**AIRLINE**
- Airline sends passenger list to request gallery for upcoming flight

### HYBRID PROTOTYPE SCENARIO - CAR RENTAL AND HOTEL

**TRAVELLER**
- Traveller approaches to board and scans biometrics

**TECH PROVIDER**
- Live biometrics checked against TDE data on the orchestration platform

**CAR RENTAL / HOTEL**
- Traveller data request is received and sent to travel provider
- Traveller authenticated and required data is confirmed (e.g. driver's license and credit card, etc.)
- Data received is stored on guest record

### KEY QUESTION
- How does the Travel and Leisure industry avoid a multitude of solutions for each portion of the traveler journey? For example, a traveler flying on Lufthansa, via Heathrow airport, to the United States and renting a car with Hertz will need to enrol in three programs: A Star Alliance solution, a Heathrow airport-specific solution, and Hertz's solution with Clear for a biometric journey across all touchpoints.
9. CONCLUSION

The demand by traveller’s for biometric digital identity solutions continues to grow. Combine the growth in demand, rapid evolution of technology, and data and biometric regulation in its infancy, the travel industry is at a critical junction. It is critical for the travel industry to consider these five areas to ensure long-term success of an end-to-end STJ ecosystem.

10. NEXT STEPS

Given the viability of each model identified to achieve an end-to-end seamless and secure traveller journey, WTTC will undertake the following next steps to advance the initiative:

- Capture information about how government and travel provider requirements shift post Coronavirus (COVID-19), and define how a digital identity with biometrics enables the solutions.
- Evaluate the privacy and data sharing implications of the models and further analyse the attributes of the STJ.
- Provide progress reports with next steps around data privacy, traveller data envelope best practices, standards, and minimum data requirements.
- Build alignment across stakeholders while driving the execution and evaluation of global end-to-end round-trip air and non-air pilots.
- Document and quantify the benefits of an end-to-end Seamless Traveller Journey.
- Continue to build on the efforts underway with organisations such as the International Air Transport Association (IATA), The International Border Management and Technologies Association (IBMATA), International Civil Aviation Organization (ICAO), Airports Council International (ACI), CLIA and the World Economic Forum (WEF) as well as independent efforts by airlines, airports and governments.

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Oliver Wyman works with the world’s leading travel and leisure companies, including hotels, airlines, passenger rail and bus operators, theme parks, cruise operators, gaming and lottery companies, tour operators and travel agencies, travel technology companies, airports, rail stations, and concessionaires, as well as private equity firms. The firm has more than 4,700 professionals around the world and draws on deep industry expertise and specialised capabilities to develop growth strategies and operational excellence initiatives with its clients to transform their business.

Oliver Wyman is a trusted advisor to the World Travel and Tourism Council advising on its growth strategy, and has been directly supporting the development of the Seamless Traveller Journey programme. Oliver Wyman is a wholly owned subsidiary of Marsh & McLennan Companies [NYSE: MMC].
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