SEAMLESS TRAVELLER JOURNEY

WTTC DISCUSSION PAPER: DATA FACILITATION FOR
THE SEAMLESS TRAVELLER JOURNEY
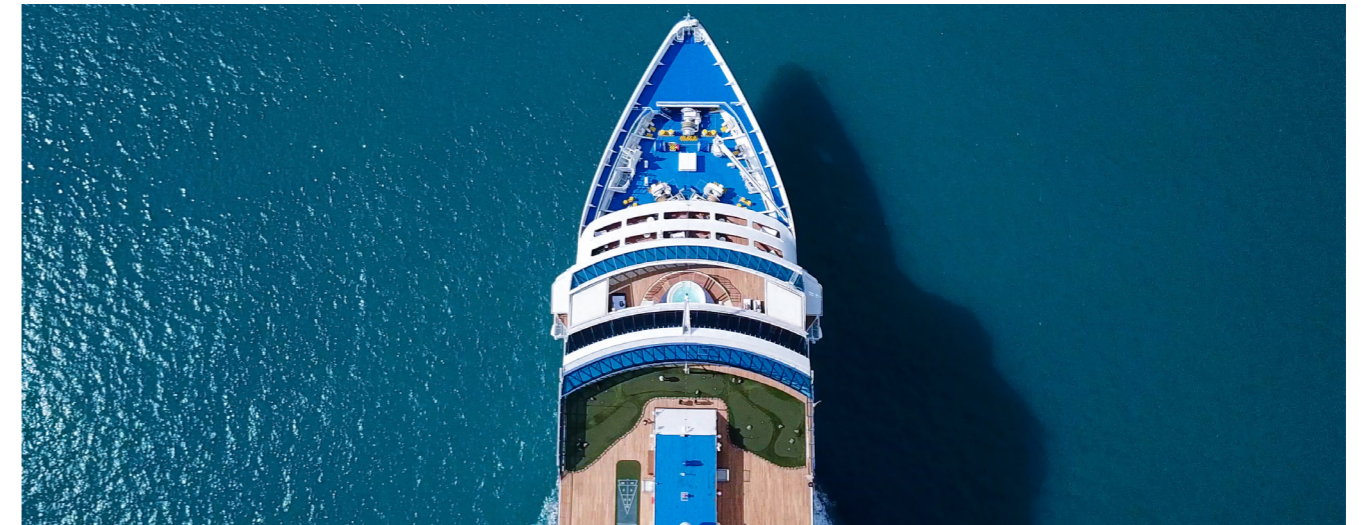
WORLD
TRAVEL &
TOURISM
COUNCIL

OLIVER WYMAN

SEAMLESS TRAVELLER JOURNEY
DATA FACILITATION FOR THE SEAMLESS TRAVELLER JOURNEY

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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 touchless 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/ personalize 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.
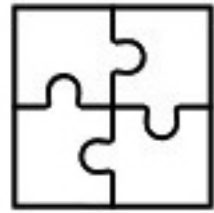
Several biometric driven solutions are currently operational around the world. While there have been significant benefits realised in each program, overwhelmingly these solutions have been siloed. Limited interoperability across today's solutions present the critical need for global best practices to 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.

1

Interoperability

Scalable solutions seamlessly interacting between the private and public sector.
Key open questions:
• How will the industry ensure solutions seamlessly interact across parties within the public and private sector?
• What data standards and requirements will be used to scale solutions across the globe?

2

Data collection and sharing

Data shared in a fully transparent manner with minimum data required, including 'zero-knowledge proof messages' where a traveller provider is given proof data exists without receiving the sensitive information.
Key open questions:
• Who owns the data?
• Where and how will traveller data be stored?
• Who will control the right to share traveller data?
• How is traveller consent shared?

3

Data privacy

Highest standards of data privacy, clear transparency to the traveller and only share operationally required data to travel providers.
Key open question:
• As regulators and travellers mature their stance on data privacy, how are solutions developed to meet today's laws, while being flexible to adapt to future regulation and consumer demands?

4

Intergovernmental and private sector cooperation

Bilateral data sharing agreements between multiple governments and between the public and private sector.
Key open questions:
• How will data sharing agreements between governments be established and how will those government entities work with the private sector?
• How will consent be received from the traveller for the sharing of their data?

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.

FACILITATION TYPE	DESCRIPTION	EXAMPLE
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	PRE-TRAVEL (BOOKING)	IN-TRANSIT	POST-TRAVEL
• All enrolment options require capturing traveller o Biographic data from governments issued documents o Biometric details to create a verified identity • Optional data can be captured such a credit card and loyalty • Upon completion of enrolment, traveller's Data Envelope (TDE) is established *- Note: information can be added to the TDE in future interactions*	• Traveller can utilise their TDE, verified biometric identity and PII 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	• 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 traveller information required by the travel supplier • Traveller provides consent throughout their journey to ensure transparency on what data is being shared	• 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 o Travel suppliers: data shared will be stored and purged per current operating procedures o 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.
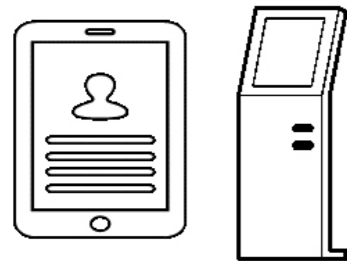
1

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

2

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

3

Mobile and on-site enrolment
- Enrolment can occur pre-travel or during their journey
- Traveller enrols using a personal device (e.g. mobile)
- Using a kiosk or other terminal along the traveller journey the traveller either:
  o Enhances their TDE with additional information (e.g. adds secondary biometrics)
  o Completes enrolment by adding missing required data

4

Passive enrolment
- No traveller action required
- Typically used by government platforms which collect biographic and from existing databases or collection at touchpoints controlled by the government such as border crossing

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.

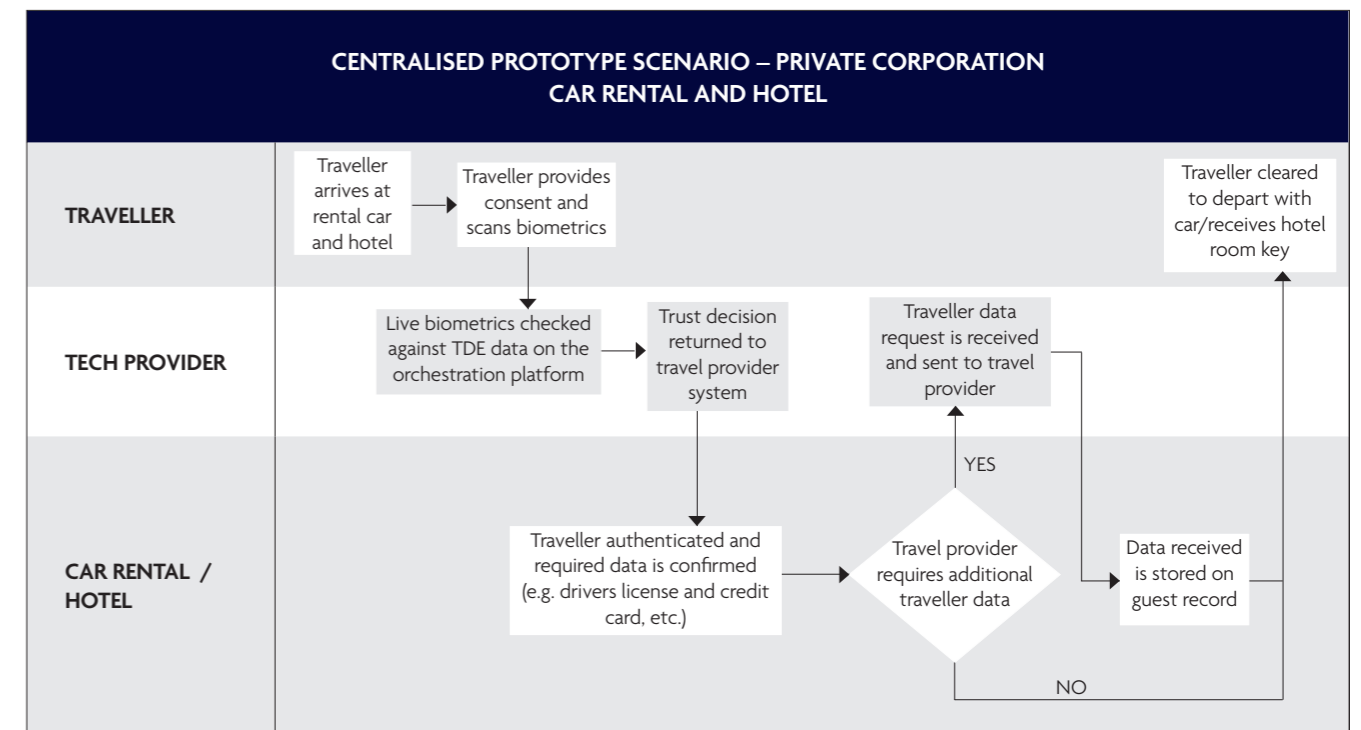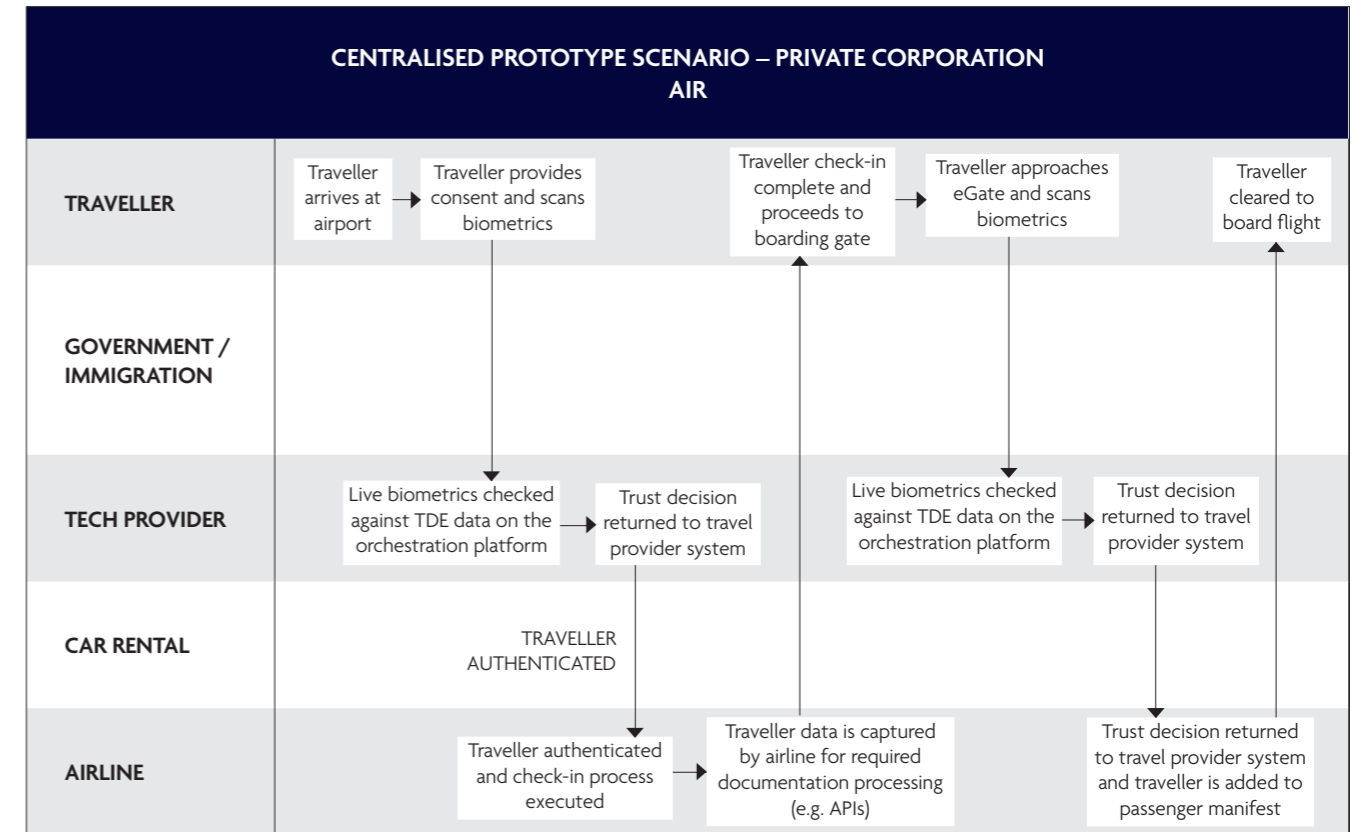| PROTOTYPE		ACTIVITY							
		Booking process	eVisa	Airport check-in	Airline lounge	Aircraft boarding	Border crossing	Car rental retrieval	Hotel check-in
CENTRALISED	Private corporation			✔		✔		✔	
	Government					✔	✔		
DECENTRALISED		✔		✔	✔				✔
HYBRID		✔	✔	✔		✔	✔	✔	✔

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 — AIR

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

CENTRALISED PROTOTYPE SCENARIO – PRIVATE CORPORATION — CAR RENTAL AND HOTEL

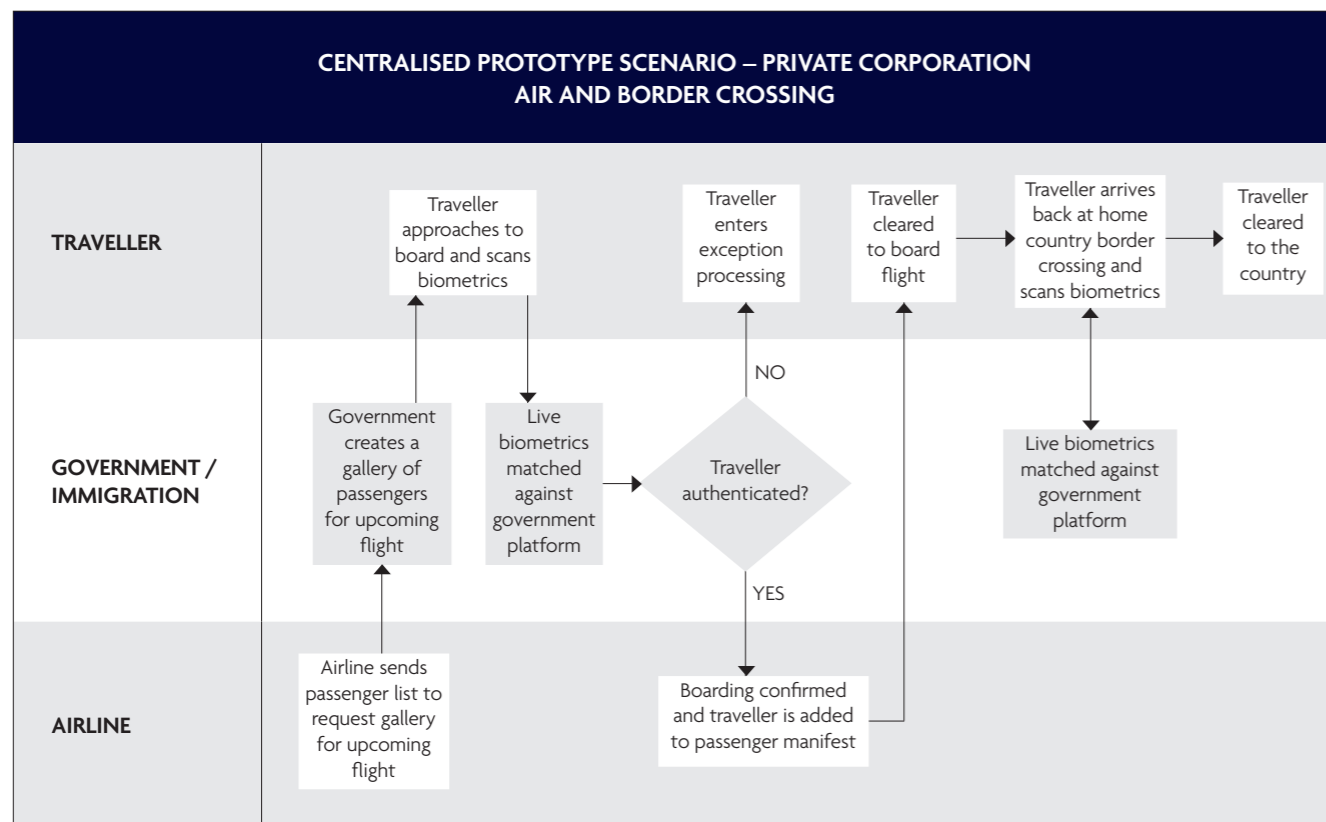|					
TRAVELLER	Traveller arrives at rental car and hotel	Traveller provides consent and scans biometrics			Traveller cleared to depart with car/receives hotel room key
TECH PROVIDER	Live biometrics checked against TDE data on the orchestration platform	Trust decision returned to travel provider system	Traveller data request is received and sent to travel provider		
CAR RENTAL / HOTEL		Traveller authenticated and required data is confirmed (e.g. drivers license and credit card, etc.)	Travel provider requires additional traveller data	Data received is stored on guest record	

YES / NO

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.

CENTRALISED PROTOTYPE SCENARIO – PRIVATE CORPORATION
AIR AND BORDER CROSSING

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 STJ 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?

7. DECENTRALISED

OVERVIEW

Decentralised digital identities put ownership and management into the hands of the traveller. Traveller data is stored in their person 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 purges 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.
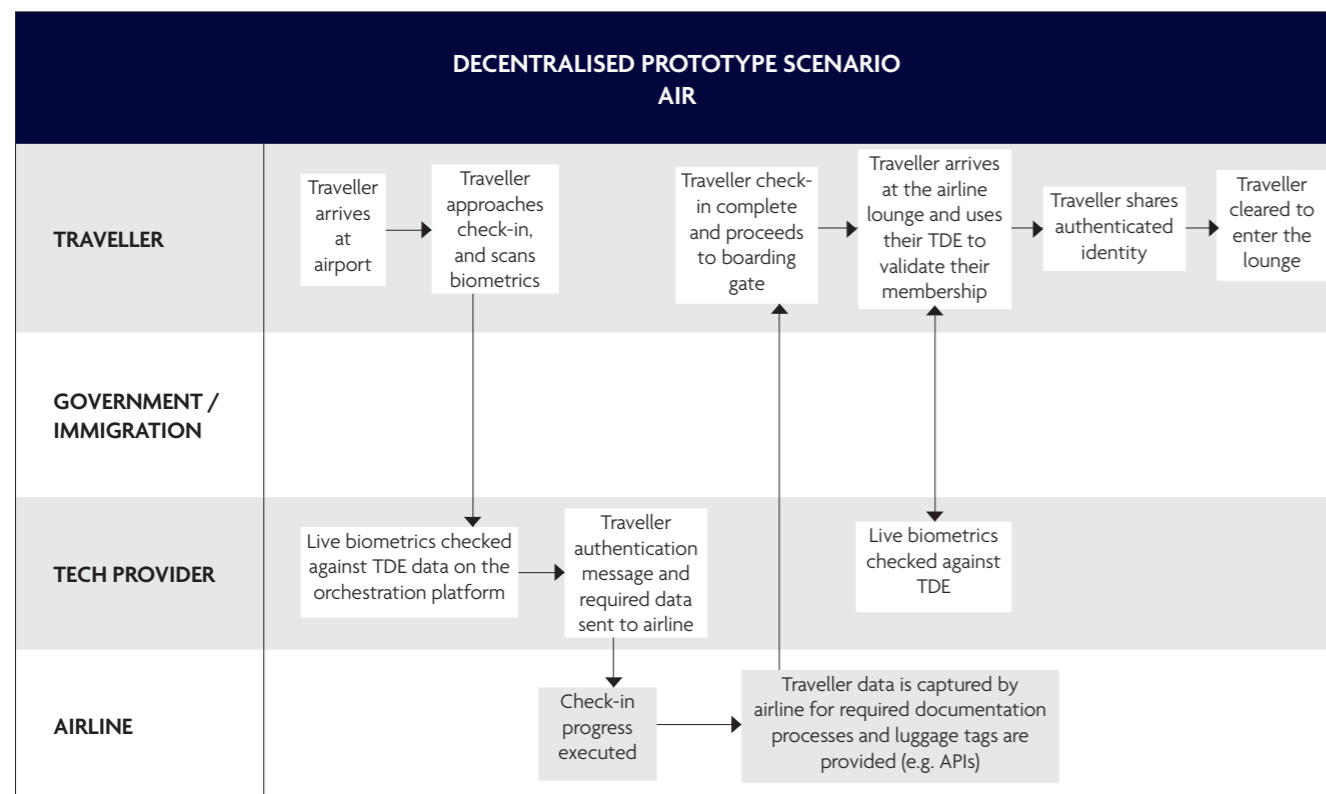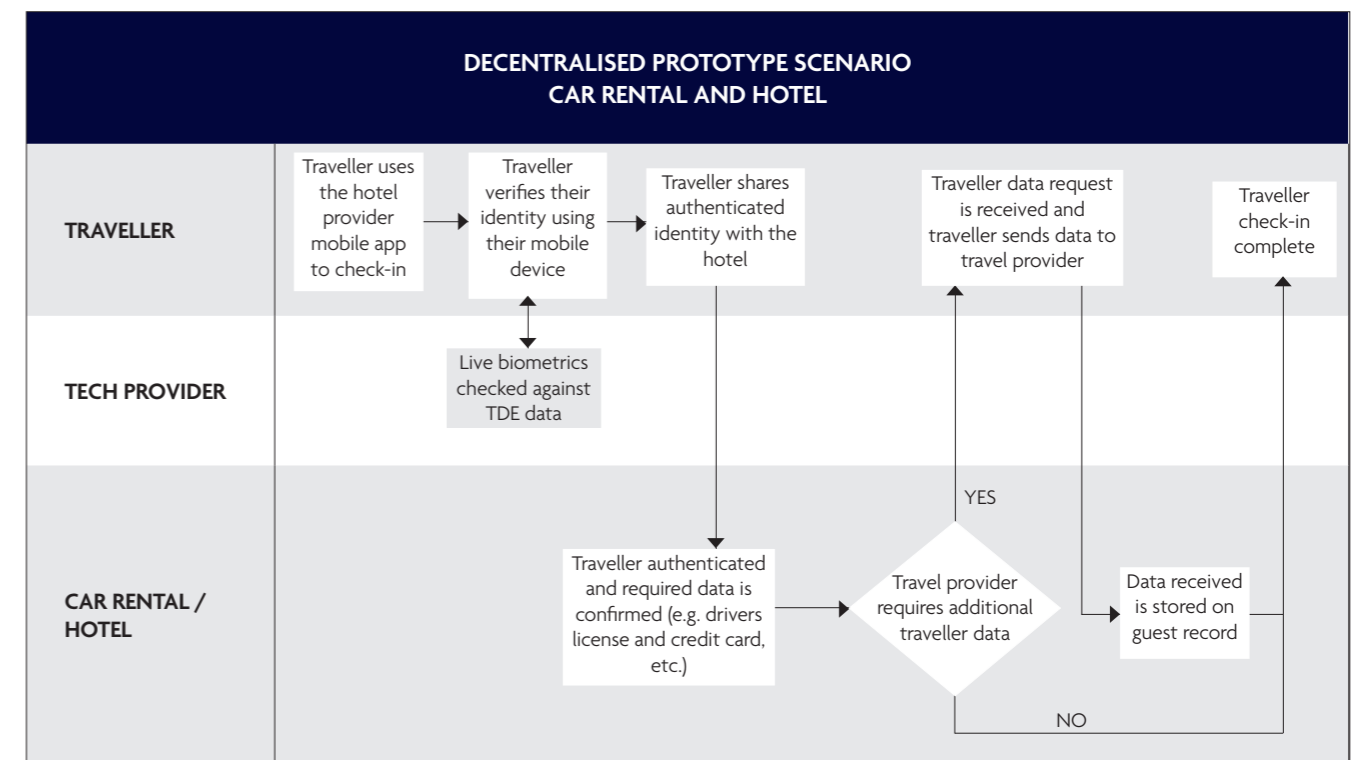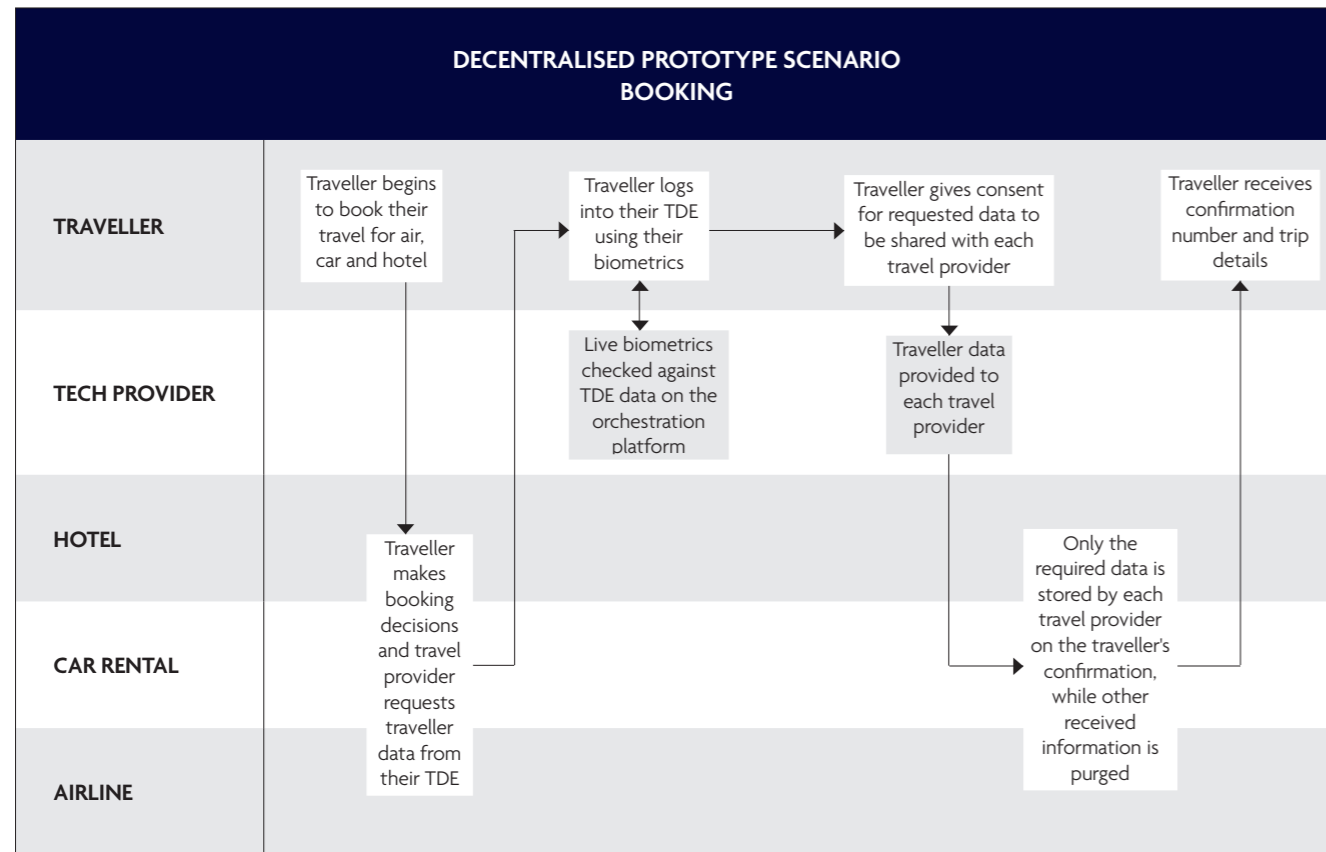
PROTOTYPE SCENARIO

- Name: Matthew
- Trip overview: Domestic point to point journey; air and hotel

Traveller perspective: During the booking process, Matthew sends all required information (for each travel stakeholder) from his digital identity via his mobile device. This allows Matthew to share is confirmed identity, loyalty information, credit card, and other required information to complete his reservation. Upon arrival at the airport, he scans a unique QR code to confirm his identity at airport check-in. After clearing the security checkpoint, Matthew enters the airline lounge. To enter the lounge, Matthew pushes a verified zero-knowledge message which confirms his lounge access (this message confirms that Matthew's digital identity confirmed his identity, flight information, and club membership number). While in the airport lounge, Matthew using his mobile device to check-in to the hotel pushing a message confirming his identity and tokenised credit card number for incidentals. Upon the hotel's receipt of the information, Matthew receives his mobile key allowing him to proceed directly to his room upon arrival at the hotel.

Facilitation perspective: Travel providers connect to a decentralised platform which allows the traveller to control the triggering of their data throughout touchpoints in the traveller journey. At each touchpoint in the journey, the traveller will verify their identity on their mobile device and either share verified identity messages, required data, or zero-knowledge messages.

DECENTRALISED PROTOTYPE SCENARIO
BOOKING

TRAVELLER	Traveller begins to book their travel for air, car and hotel	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
TECH PROVIDER		Live biometrics checked against TDE data on the orchestration platform	Traveller data provided to each travel provider	
HOTEL				Only the required data is stored by each travel provider on the traveller's confirmation, while other received information is purged
CAR RENTAL	Traveller makes booking decisions and travel provider requests traveller data from their TDE			
AIRLINE				

DECENTRALISED PROTOTYPE SCENARIO
AIR

TRAVELLER	Traveller arrives at airport	Traveller approaches check-in, and scans biometrics	Traveller check-in complete and proceeds to boarding gate	Traveller arrives at the airline lounge and uses their TDE to validate their membership	Traveller shares authenticated identity	Traveller cleared to enter the lounge
GOVERNMENT / IMMIGRATION						
TECH PROVIDER		Live biometrics checked against TDE data on the orchestration platform	Traveller authentication message and required data sent to airline	Live biometrics checked against TDE		
AIRLINE			Check-in progress executed	Traveller data is captured by airline for required documentation processes and luggage tags are provided (e.g. APIs)		

DECENTRALISED PROTOTYPE SCENARIO
CAR RENTAL AND HOTEL

TRAVELLER	Traveller uses the hotel provider mobile app to check-in	Traveller verifies their identity using their mobile device	Traveller shares authenticated identity with the hotel	Traveller data request is received and traveller sends data to travel provider	Traveller check-in complete
TECH PROVIDER		Live biometrics checked against TDE data			
CAR RENTAL / HOTEL		Traveller authenticated and required data is confirmed (e.g. drivers license and credit card, etc.)	Travel provider requires additional traveller data	Data received is stored on guest record	

YES

NO

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?
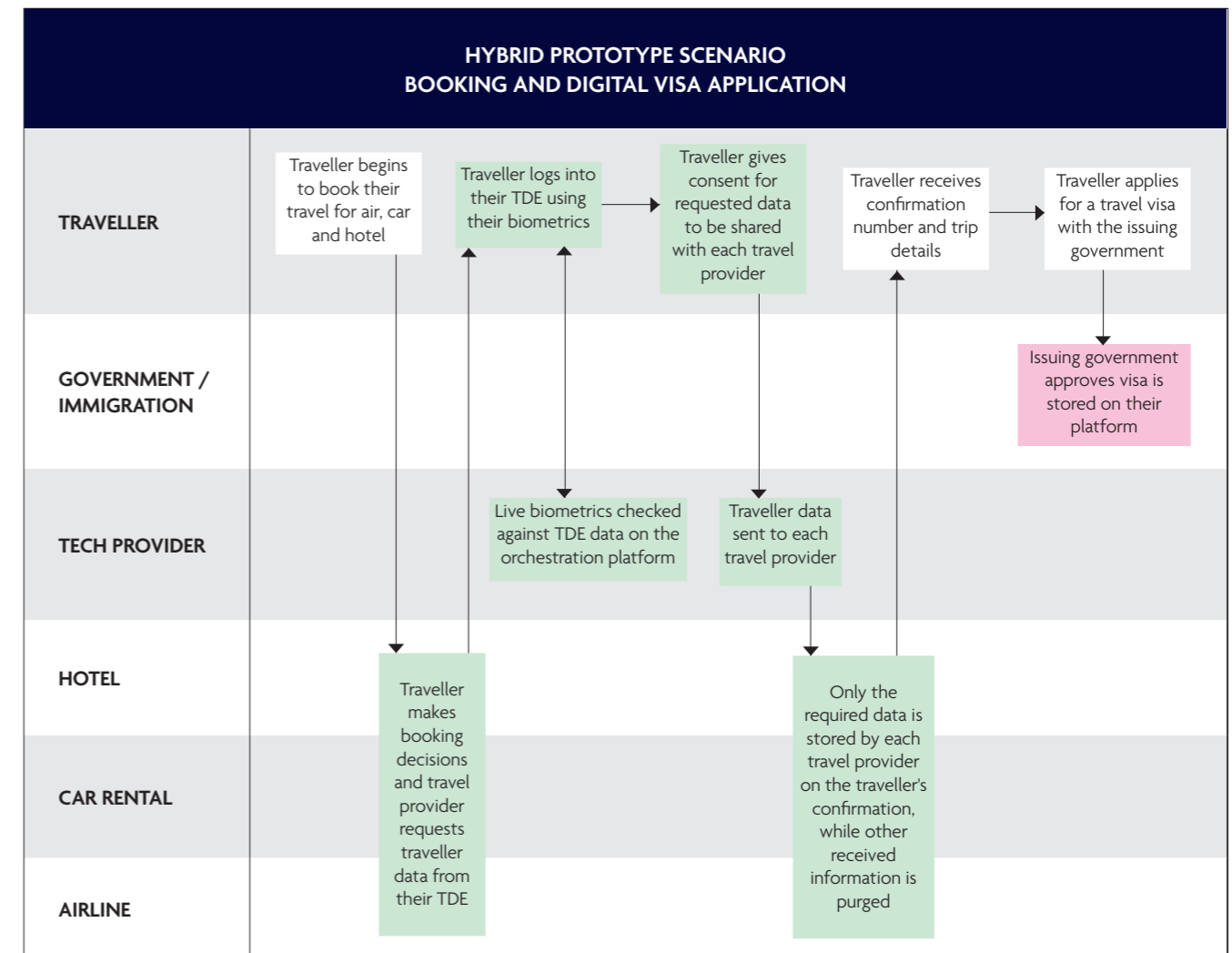
8. HYBRID

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.
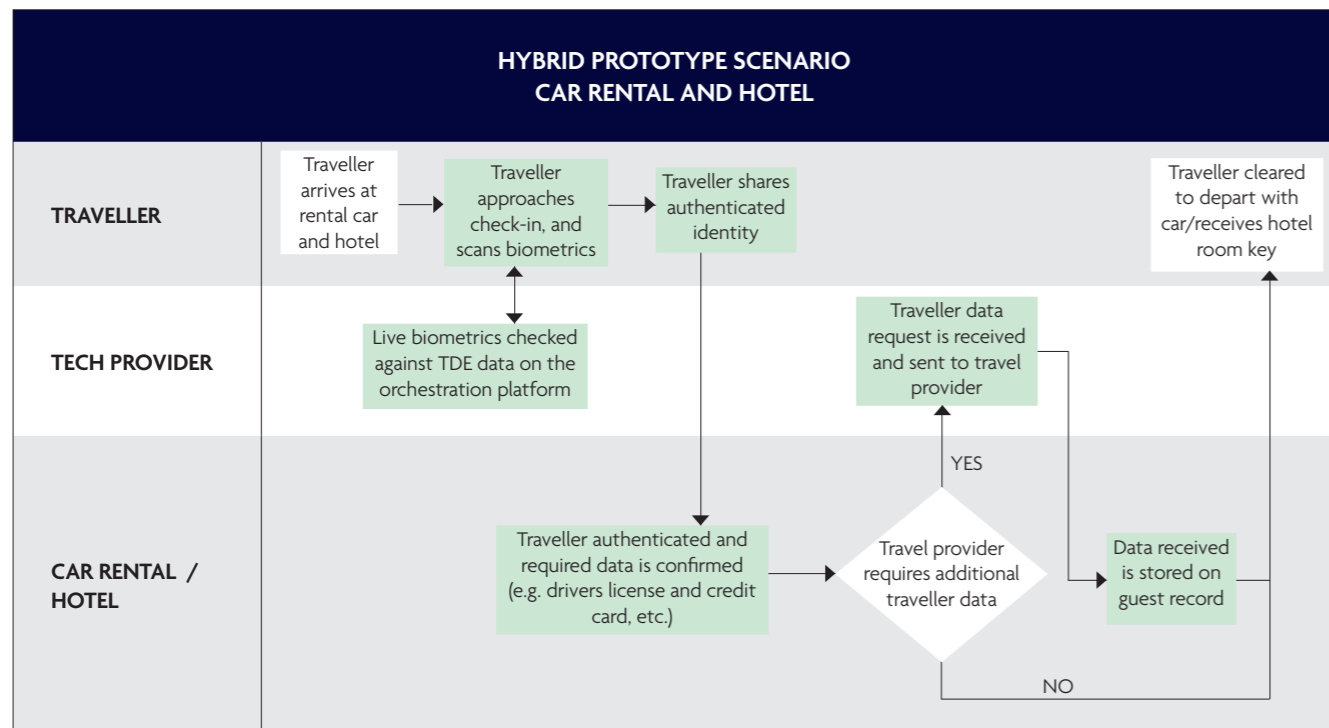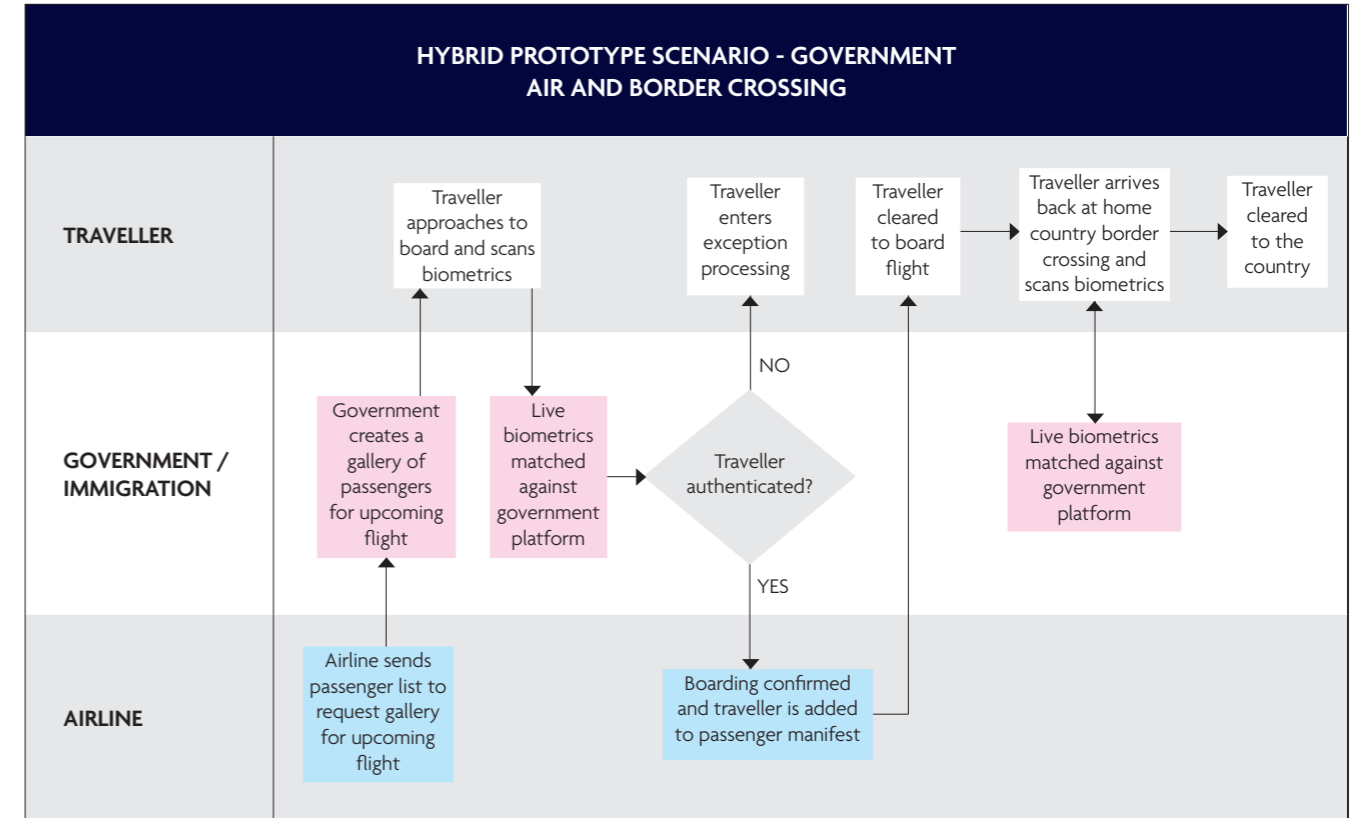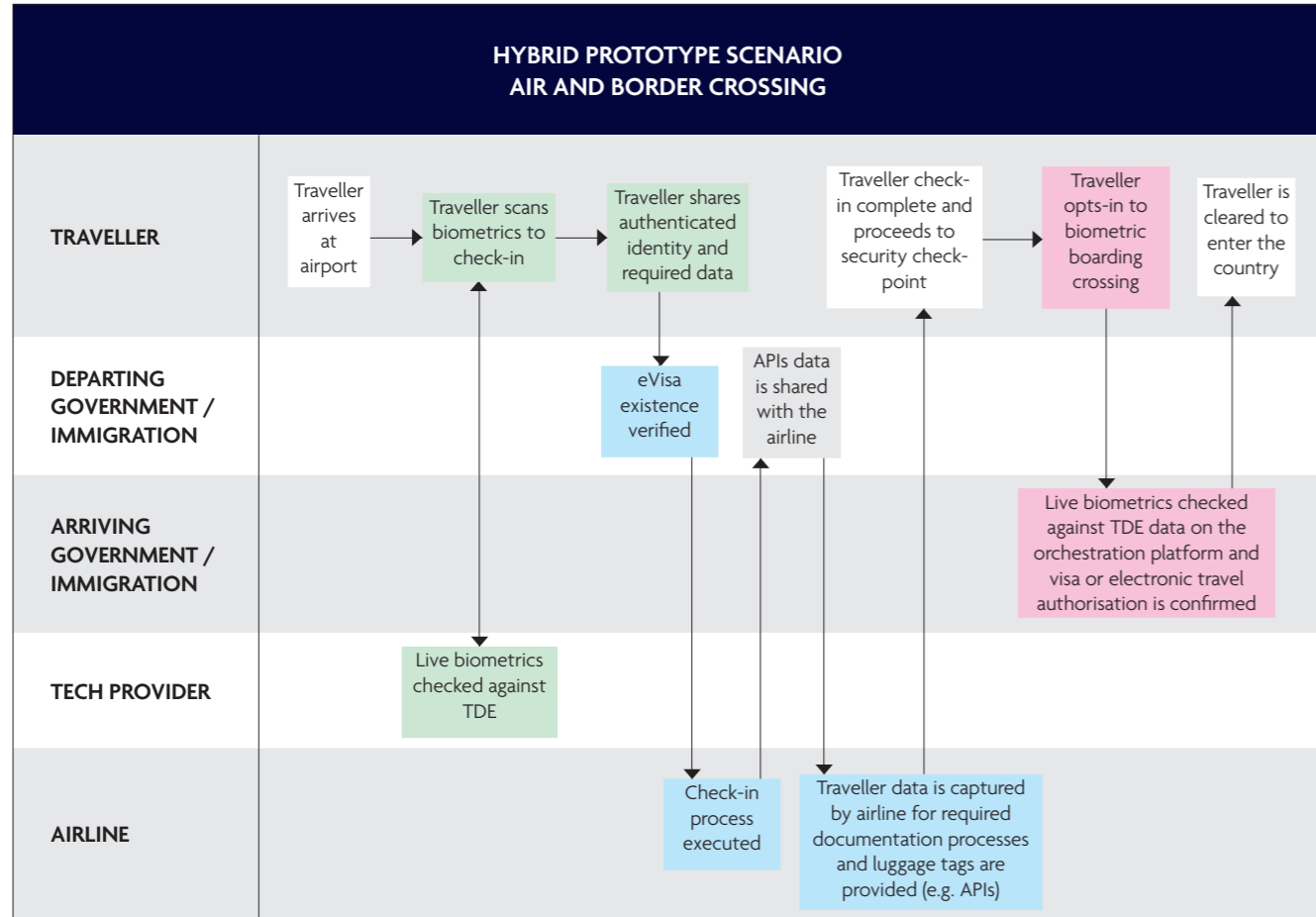
PROTOTYPE SCENARIO

- 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's face is matched with his profile, at which point his identity is verified and credit card information is shared with the hotel. Twenty-four hours prior to departure for Ross's return trip, the government platform sends a gallery package to the airline which 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.

Facilitation Method

| Centralised | Decentralised | Government |

HYBRID PROTOTYPE SCENARIO
BOOKING AND DIGITAL VISA APPLICATION

TRAVELLER	Traveller begins to book their travel for air, car and hotel	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
TECH PROVIDER		Live biometrics checked against TDE data on the orchestration platform	Traveller data sent to each travel provider		
HOTEL	Traveller makes booking decisions and travel provider requests traveller data from their TDE		Only the required data is stored by each travel provider on the traveller's confirmation, while other received information is purged		
CAR RENTAL					
AIRLINE					

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 check-in complete and proceeds to security check-point	Traveller opts-in to biometric boarding crossing	Traveller is cleared to enter the country
DEPARTING GOVERNMENT / IMMIGRATION			eVisa existence verified	APIs data is shared with the airline		
ARRIVING GOVERNMENT / IMMIGRATION					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				
AIRLINE			Check-in process executed	Traveller data is captured by airline for required documentation processes and luggage tags are provided (e.g. APIs)		

HYBRID PROTOTYPE SCENARIO
CAR RENTAL AND HOTEL

TRAVELLER	Traveller arrives at rental car and hotel	Traveller approaches check-in, and scans biometrics	Traveller shares authenticated identity		Traveller cleared to depart with car/receives hotel room key
TECH PROVIDER		Live biometrics checked against TDE data on the orchestration platform		Traveller data request is received and sent to travel provider	
CAR RENTAL / HOTEL			Traveller authenticated and required data is confirmed (e.g. drivers license and credit card, etc.)	Travel provider requires additional traveller data — YES → Data received is stored on guest record / NO	

HYBRID PROTOTYPE SCENARIO - GOVERNMENT
AIR AND BORDER CROSSING

TRAVELLER		Traveller approaches to board and scans biometrics		Traveller enters exception processing	Traveller cleared to board flight	Traveller arrives back at home country border crossing and scans biometrics	Traveller cleared to the country
GOVERNMENT / IMMIGRATION	Government creates a gallery of passengers for upcoming flight	Live biometrics matched against government platform	Traveller authenticated? NO / YES			Live biometrics matched against government platform	
AIRLINE	Airline sends passenger list to request gallery for upcoming flight		Boarding confirmed and traveller is added to passenger manifest				

KEY QUESTION

- How does the Travel and Leisure industry avoid a multitude of solutions for each portion of the traveller journey? For example, a traveller 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 (Coronavirus (Coronavirus (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.

ABOUT OLIVER WYMAN

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].

The World Travel & Tourism Council is the global authority on the economic and social contribution of Travel & Tourism.

WTTC promotes sustainable growth for the Travel & Tourism sector, working with governments and international institutions to create jobs, to drive exports and to generate prosperity. Council Members are the Chairs, Presidents and Chief Executives of the world's leading private sector Travel & Tourism businesses.

Together with Oxford Economics, WTTC produces annual research that shows Travel & Tourism to be one of the world's largest sectors, supporting 330 million jobs and generating 10.3% of global GDP in 2019. Comprehensive reports quantify, compare and forecast the economic impact of Travel & Tourism on 185 economies around the world. In addition to individual country fact sheets, and fuller country reports, WTTC produces a world report highlighting global trends and 25 further reports that focus on regions, sub-regions and economic and geographic groups.

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