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BUSINESS PROPOSITION OF EIDAS-BASED EID

Aviation sector

Value Proposition of eIDAS-based eID

CEF eID SMO

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Introduction

01

The objective of this paper is to provide an analysis of the potential reuse of eIDAS-based eID in the aviation sector.

Every day, airlines collect identity information on thousands of passengers to guarantee the safety of air travel, and collaborate with border control and law enforcement authorities. In many cases, identity information still relies on manual data entry by passengers and visual verification by airline staff at the airport.

Airlines are in the process of fully digitalizing the passengers' flight experience from booking to boarding. Electronic identification solutions (eIDs) based on higher level of assurance could improve the quality of the data collected, decrease the risk of errors and fraud, and provide a smoother travel journey for users.

The eIDAS regulation no.910/2014[1] provides a predictable regulatory environment to enable secure and seamless electronic interactions between businesses, citizens and public authorities. It introduces the concept of mutual recognition of national eID schemes in Europe, allowing users to prove their identity online in a simple and secure way.

Considering the regular consumption of identity information by the aviation sector, the use of eIDs to verify the identity of passengers has been identified by the European Commission as one of the key use cases to explore. Airlines could leverage nationally issued electronic identification means (e.g. national eID cards, Mobile ID solutions) to seek assurance about the identity of passengers and comply with their regulatory obligations. This paper focuses on the use case of passenger identification by European and international airlines when traveling within the Schengen area and outside.

More precisely, this paper aims at:

- Understanding the consumption of identity information by the aviation domain;
- Exploring how eIDAS-based eID could add value to the existing identification process;
- Highlighting key challenges to the reuse of eIDAS-based eID by the aviation sector;

 Drawing recommendations on the key steps needed to envisage a reuse of eIDAS-based eID in the aviation sector on the medium and longer term.

In order to better understand the opportunities and challenges of airlines with regard to passenger identification, five interviews with sectoral trade associations and airlines have been conducted between January and May 2018. The analysis has been complemented by desk research.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.257.01.0073.01.ENG

What is eIDAS-based eID?

02

EU Member States are currently supporting the uptake of electronic identification (eID) to enable secure and seamless electronic interactions between businesses, citizens and public authorities, in the context of the eIDAS Regulation (EU 910/2014).[2]

Electronic identification is the process of a person or business proving who they claim to be in an online environment. Information is shared thanks to an eID means containing the identification data, usually taking the form of a smartcard, an identifier/password system or a mobile app. Over the past decades, EU/EEA countries have been providing to their citizens this type of solution, mainly to access eGovernment services (eg. declare tax online).[3]

The eIDAS Regulation foresees that if an EU/EEA Member State offers an online public service to citizens/businesses for which access is granted based on an electronic identification scheme, then they must also recognise the notified eIDs[4] of other Member States by 29 September 2018.

Although, the main focus of the regulation is to grant access to online public services cross-border, Member States are also encouraged to support the voluntary reuse of eIDAS-based eIDs by the private sector. Each Member States remains free to set the conditions for the reuse of its national eIDAS infrastructure by the private sector and for the sharing of the minimum data set of its national eID scheme with private service providers.

[2] Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC, see: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.257.01.0073.01.ENG

[3] In the context of the aviation sector, we are therefore speaking about information contained on national ID cards, not on passports.

[4] By notified eIDs, we mean all eID schemes that have completed the notification process. The notification process refers to the selection, peer review and official addition of national eID schemes to the eIDAS Network. Notification ensures that the eID schemes connected to the eIDAS Network satisfy the conditions of quality and security set out by the eIDAS Regulation.

Identification: what do airlines do?

03

Regarding identity, the main responsibility of airlines is to check whether their passengers are properly documented, meaning that they possess a travel document (e.g. passport) and the right to travel to the country of destination (e.g. EU/EEA citizens or a visa). The documents are usually checked visually at the airport by an agent of the airlines in order to detect possible fraud.

As such, airlines do not actually need to know the identity of their passengers, (name, birth date, nationality, etc). However, airlines have been increasingly requested to cooperate with law enforcement authorities and to collect key information about their passengers, notably identity data.

When boarding a plane, passengers can therefore be requested to share their identity by three different types of stakeholders:

- by border control officers;
- by police officers; and
- by airlines.

Traveling within Schengen

In the case of intra-Schengen flights, passengers are not crossing an external border. Passengers who have passed the security check at the airport are considered as "cleared" from a security point of view. Their identity does not have to be checked.

[5] https://ec.europa.eu/home-affairs/what-we-do/policies/borders-and-visas/schengen/reintroduction-border-control_en

In line with the conditions and requirements set by the Schengen agreement, Member States may temporarily re-introduce internal borders controls and/or police checks to control the identity of passengers at the departure or arrival airport.[5] In this case, rules and identity verification procedures explained in the next section apply.

Within the Schengen area, some airlines request the identity of passengers to verify that the person who purchased the ticket is the one boarding the plane. This is done for commercial purposes only, in order to prevent customers from reselling their tickets.

Finally, like any service provider, airlines consolidate a customer file to store all information linked to the journey of a specific person. This type of record contains personal information of passengers (name, contact details), their itinerary and booking information (ticket details, fare, seat location, payment details) collected by airlines during reservation and check-in procedures. In case the passenger travels with multiple airlines during the same journey, airlines have agreed on a common standard to store this information called the PASSENGER NAME RECORD (PNR). Information contained in the PNR is collected from passengers at the time of booking and complemented with information collected during check-in/baggage drop at the airport.

Traveling outside Schengen

When passengers leave the Schengen area, airlines are requested to collect passengers' identity and transmit the information to law enforcement authorities in order to ensure the security of European external borders and facilitate the screening procedure at the destination country.

In this case, airlines need to collect **ADVANCE PASSENGER INFORMATION (API)**, a dataset containing passengers' identities based on their travel documents. This electronic data interchange system has been initially introduced by the US Customs and Border Protection (CBP) and is now requested by an increasing number of departure and destination countries.

In the European Union, the EU Directive 2004/826 introduces an obligation for carriers to communicate passenger data at the time of check-in to the relevant authorities in charge of border control at an external border. Information is provided to Border Control officers in order to conduct a pre-screening of passengers who may be denied access to the territory.

[6] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:261:0024:0027:EN:PDF

Key trends

04

The need for increased accuracy

Although initially introduced by airlines to facilitate the customer journey, PNR data is more and more requested by law enforcement authorities as well as by customs and border protection departments to fight terrorism and trace criminals in combination with the API data. This practice has been formalized in the EU by the adoption of the 2016/681 PNR directive on 27 April 2016, requesting airlines to pass on passengers' PNR data to national authorities.[7] In cases where API data is collected, the information must be shared, along with PNR data, with law enforcement authorities. This obligation applies to extra-EU flights but may also be requested for intra-EU flights if a Member State notifies its decision to the European Commission.

Police may use this information to determine patterns and flag passengers that may be involved in terrorist or criminal activities.

According to the legislation, airlines are not required to check the accuracy of the data contained in the Passenger Name Record and are therefore relying on self-declared information that may contain manual data entry mistakes or incorrect information. However, airlines have reported that more and more law enforcement authorities are requesting more accurate information from the PNR.

An improved experience through new technology

While airlines are being requested to conduct increasing numbers of checks and collect more data on passengers' identities, projects aiming at improving user experience of air travel are multiplying. Airlines are currently attempting to digitalise the booking and boarding experience as much as possible and review the customer journey to make it as frictionless as possible. The objective is to provide an end-to-end experience (from booking to boarding) based on biometric information to validate identity and associated travel documents, rather than requesting paper passports

[7] https://eur-lex.europa.eu/eli/dir/2016/681/oj

and boarding passes. Facial recognition is one of the technologies considered most promising for the implementation of this ideal user experience.

In the framework of its "Simplifying the Business - StB" project, IATA has launched a work-stream called "One ID" aiming at providing "seamless and hassle free travel experience to connect the dots across the end-to-end passenger process from an identity management perspective".[8] More precisely, the work-stream sets out its objectives as:

"In the near term, the main focus will be on the pre-departure process, in particular how identity related information can be verified early on in the process, as well as how biometric information can be used as a single token to facilitate the departure and/or arrivals process within a given airport ecosystem. The e-passport will still be used to authenticate identity.

In the longer term, we will start to see wide scale interoperability between airport ecosystems enabling cross-border scenarios linking departures to arrivals.

Ultimately, we expect to see the use of a digital identity allowing an individual to assert their identity, online or in person, to the required level and throughout the end-to-end process, entirely replacing the use of a physical passport".[9]

The task force intends to further explore possible implementation and piloting of the One ID concept during the year 2018. A white paper on the One ID concept was published earlier this year.[10]

Different solutions are currently being pushed to the market, to reply to this need of interoperable identity management, that users could reuse when seeking private services. One of them is Verimi,[11] an identity platform that has succeeded in partnering with important firms such as Lufthansa, Deutsche Bank, Deutsche Telecom, Allianz, Daimler, etc. The solution offers the possibility to store derived identity of personal-related data from various official documents (e.g. Passport, ID, and driving license) and reuse it to prove one's identity online, while ensuring a smooth user experience.

Another implementation experiments with the use of facial recognition. British airways and Lufthansa are currently piloting advance boarding procedures for some of their flights leaving the US by checking the face of passengers boarding the plane against the one stored in the Customs and Border protection (CBP) database, collected at the time of entry to the US. Passengers leaving the US are therefore being offered the possibility to board the plane without needing to use paper boarding passes or to scan their passport at the check-in/boarding desks. It is expected that this systems will reduce the boarding time from 40 minutes to only 20 minutes for an Airbus A380,[12] which is beneficial for both the airlines and the passengers while providing better data to law enforcement authorities.

Blockchain: keeping track

Some airlines are currently exploring the use of blockchain to keep track of passport information that has already been swapped once. If users at the time of booking provide information that matches the verified data base, no further checks need to be done at the airport. The overall security process is enhanced as verified data can be shared days in advance with the relevant law enforcement authorities.

British airways has been exploring this possibility with the startup Vchain.[13] Other companies developing blockchain solutions for identity management, such as Shocard, Sovrin and uPort, could start offering the same kind of solution to airlines.

[8] http://www.iata.org/whatwedo/stb/Pages/index.aspx

[9] http://www.iata.org/whatwedo/stb/Documents/StB-White-Paper-2017.pdf

[10] https://www.iata.org/whatwedo/passenger/Documents/OneID_Concept_Paper-Version1-January2018.pdf

[11] https://verimi.de/en/

[12] About Lufthansa: https://www.aviationcv.com/aviation-blog/2018/lufthansa-facial-recognition-stations About British Airways: https://www.theverge.com/2018/3/9/17100314/british-airways-facial-recognition-boarding-airports

[13] https://btcmanager.com/british-airways-testing-vchains-blockchain-check-in-service/

Current challenges of identity verification

05

By 2036, the total number of air passengers is expected to double and reach 7,8 billion annual travelers.[14] This forecast, coupled with increasing pressure to perform security checks, means that airlines must rethink their identity management procedures. Moreover, the obligation for the different actors of the aviation sector to comply with their respective regulatory requirements has progressively resulted in more friction for the passenger's experience.

This situation means that a number of key challenges regarding collecting identity data of customers need to be addressed.

The following section lists some of the most stringent challenges linked to identity data collection and management.

Table 1 – Overview of costs linked to identity management challenges

Challenge	Costs
Collecting accurate identity data	• Staff cost for checking API data at airport • Infrastructure costs for checking API data at the airport • Fines imposed under API EU directive and third countries • Fines imposed under PNR EU directive and third countries • Repatriation costs of passengers being denied at country of arrival
User experience	• Loss of market (customer will favour friction-less processes)
Smooth and interoperable exchange of data	• Inefficiencies and duplication of paperwork • Lack of interoperability can lead to mistakes and data inaccuracy (cf. point above)

[14] http://www.iata.org/pressroom/pr/Pages/2017-10-24-01.aspx

The cost of inaccuracy

Airlines have put in place procedures to avoid as much as possible inaccuracies in the collection of identity data, notably in the context of API data collection. Information initially collected at the time of booking (self-declared identity) is checked at the airport by scanning passenger's passport Machine Readable Format at the time of check-in or baggage drop. Almost 50% of self-declared identity information needs to be corrected when checked at the airport.[15]

Recently, airlines have introduced self-check-in possibility to fasten the process and avoid passenger queues at the airport. In this case, passengers' passport data is not automatically checked at the airport if passengers are not dropping any luggage. This is not necessarily a problem for intra-EU flights for which airlines are only required to share PNR data without having to guarantee the accuracy of the data. However, for international flights, airlines need to provide accurate API data and therefore request passengers to still pass by a physical desk to have their passport scanned. Yet IATA's research has found out that still one in every 25,000 international passengers boards a flight with incorrect documentation, resulting in a fine for the airline.[16]

As a consequence, we could identify the following reasons for inaccuracies in passengers' data:

- Manual data entry mistakes/fraudulent data entry by passengers in the case of self check-in and no check has been performed at the airport. e.g. discrepancies between the official name stated on the passport and customary name;
- Errors in reading the machine-readable zone (MRZ) of passports at the checking/boarding desk due to deficient optical readers;
- Errors due to the lack of standards regarding PNR data.

Consequences of providing inaccurate data can lead to direct and indirect financial costs:

- Fines imposed on carriers for bad API data quality are defined by article 4 of the API directive.[17] Member States need to take measures "to impose sanctions on carriers which, as a result of fault, have not transmitted data or have transmitted incomplete or false data". These fines are at least EUR 3000 for each journey for which passenger data was not communicated or was communicated incorrectly. Specific fines are defined by each EU Member State and by third countries in case of international flights out of the scope of the EU directive.
- In case of bad PNR data quality, penalties are defined by each Member State in accordance with the national provisions adopted pursuant to the European Directive.[18] Again, additional costs may be incurred by airlines in case of international flights out of the scope of the EU directive.
- In the case of a passenger being denied access to the country of arrival, airlines have to bear the repatriation costs;
- The verification of identity data requires several agents at the checking/boarding desks and ties up infrastructures at the departure airport.[19]

IATA's research show in a conservative estimation that these costs can amount to USD 0,5 per passenger, which means that based on 1,5 billion international passengers globally per year, the invoice for airlines can reach USD 750 million annually.[20]

Airlines are therefore eager to smoothen the data collection and verification process as much as possible. Forecasts regarding the increase of air transport traffic is pushing airlines to find more automated solutions to conduct these checks.

The lack of interoperability and cooperation

Despite international cooperation between airlines, there is still a lack of interoperability (legal, semantic, organizational and technical) between all the stakeholders of air transportation regarding the different datasets that need to be exchanged as a part of identity data collection. This is mainly due to legacy systems that have been introduced over time by different stakeholders in order to comply with regulations.

[15] http://www.futuretravelexperience.com/2017/04/iag-to-invest-in-two-start-ups-following-hangar-51-accelerator-programme/

[16] http://airlines.iata.org/analysis/document-verification-travel-trouble

[17] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:261:0024:0027:EN:PDF

[18] https://eur-lex.europa.eu/eli/dir/2016/681/oj

[19] Daily staffing costs for each airline can be estimated using the following formula: number of flights per day x boarding time per flight in hour x number of staff per board x cost of staff / hour

[20] http://airlines.iata.org/analysis/document-verification-travel-trouble

Among others, we could identify the following challenges:

- **LEGAL**: Considering that both the API and PNR requirements at the EU level have been defined in the form of EU directives, airlines must cope with many different legal dispositions at the national level. In addition, airlines are calling for a better harmonization of the recognised ID documents within Europe.[21]
- **ORGANIZATIONAL**: In accordance with the dispositions of the Schengen agreement, Member States can reintroduce temporary border controls at internal borders. Consequently, airlines are requested to collect API data. However, it may be difficult to modify the ongoing procedure for intra-EU flights and collect such information at the last minute, considering that API data has not necessarily been pre-collected at the time of booking.
- **SEMANTIC**: Although international standards have been adopted to share API data, this is not yet the case for PNR information, which may result in data errors when transferred from one system to another.
- **TECHNICAL**: All Member States' information systems are not ready to receive API data electronically and exploit the information exchange to perform the necessary security checks. Additionally, airlines are calling for the development of interactive API, providing a "Board / Do Not Board" response at the time of check-in to avoid costs linked to detention and removal of persons inadmissible upon arrival at the final destination.[22] Ongoing European efforts in the context of the Smart Border initiative[23] may contribute.

The burden on user experience

The development of procedures to comply with regulatory requirements has led to unnecessary friction on the customer side. Airlines are therefore facing the challenge of ensuring an ever-increasing level of trust and security regarding the data collected, while improving user experience to avoid any potential drop-off during the booking procedure.

Airlines are therefore investigating new ways of collecting accurate and verified identity data, as well as ways to efficiently store the information in order to implement the once-only-principle, while staying in line with the new GDPR requirements. The use of biometrics represents a huge opportunity to smoothen the overall process, however airlines are currently limited in their ability to use data contained in the official ID Documents owned by users, hence the development of pilots based on "derived identities".

[21] When traveling within Schengen, the ID document of passengers may be checked at the airport of departure (but not necessarily). A passenger can leave the territory by showing a document that is considered as an ID in their own country. However, if the passenger is controlled abroad by a police officer, the latter may not recognize the ID document the person is presenting. (e.g. French person traveling in Spain using his/her driving license).

[22] https://www.iata.org/iata/passenger-data-toolkit/assets/doc_library/02-api/API%20Guidelines%202014%20Main_%20Text_E.pdf

[23] https://ec.europa.eu/home-affairs/what-we-do/policies/borders-and-visas/smart-borders_en

Reusing eIDAS-based eID in aviation: an assessment

06

This section will assess whether eIDAS-based eIDs could be reused to fulfill passenger identity verification requirements on airlines. [24]

From the above mentioned challenges, there is a clear case for the aviation sector to leverage the possibilities offered by digital identity. The medium and longer term objective is clearly to remove the need for paper passports and to digitalise entirely the booking/check-in/boarding process. Collection of information on an automated and electronic basis will improve the quality and level of assurance of the data collected, allow for a single data provision, and reduce costs linked to data verification in terms of staff and infrastructure at the airport of departure. Higher quality of API and PNR data will reduce current fines imposed to airlines due to inaccuracies of data shared with law enforcement authorities.

It remains to be seen under which conditions eIDAS-based eIDs could contribute to the improvement of the current user experience and offer higher levels of security for the airlines.

For the purpose of this assessment, we will consider a use case where an airline is required to provide API data for civil passengers for intra and extra-EU flights.

The following table provides an overview of the data that needs to be collected in line with the EU API directive versus the information contained in the eIDAS Dataset.

[24] For more information about how the eIDAS-based eIDs and the interoperability systems works at the European level, please consult https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/eID

Table 2- Correspondence tables between API data collected by airlines and eIDAS minimum data set

	eIDAS Dataset	API Dataset
Mandatory	Current Family Name	√ Last Name
	Current First Names	√ First Name (and middle name)
	Date of Birth	√ Date of birth
	Uniqueness Identifier	√ Gender
		X Nationality
Optional	First Names at Birth	X Country of residence
	Family Name at Birth	X Travel document type [e.g. passport]
	Place of Birth	X Travel document number
	Current Address	X Travel document expiry date
	Gender	X Travel document country of issue
		X [For travelers to the US other than US nationals, permanent residents and alien residents] Address of the first night sent in the US

Only four of the eleven attributes collected as part of the API are actually available in the current eIDAS dataset. This difference comes from the fact that the eIDAS Dataset has been built on information usually collected to produce a national ID card and not a travel document such as a passport.

Missing attributes could be collected by the definition of additional sector-specific attributes that could be forwarded by Member States whenever an authentication request under eIDAS is triggered. This decision would have to be agreed upon by the national experts of the eIDAS Cooperation Network, following a discussion within the eIDAS eID technical subgroup.

Additionally, airlines are investigating more and more the use of biometrics included in the passport and any other identification documents. In many cases, the reuse of fingerprints is restricted from a regulatory point of view but the use of the photo is accepted. eIDAS eID does not allow for the exchange of the biometrics information at the moment nor the photo of the holder.

It is noteworthy that OIX[25] has published in September 2017 a white paper on "Transforming the Airline Passenger Journey", investigating how the national eID scheme GOV.UK Verify could be used to address the above mentioned challenges for the aviation sector, as well as alternative solutions.[26] Within this project, user research has been conducted to further assess whether passengers would be willing to use a digital identity to provide API data. Although users already in possession of a digital identity felt the process useful and securing, people without a pre-existing digital identity did not see the value of creating one for the purpose of providing API data. These results are encouraging, notably for countries that enjoys a wider uptake of electronic identity use among the general population.

[25] The Open Identity Exchange (OIX) is a non-profit, technology agnostic, collaborative cross sector membership organisation with the purpose of accelerating the adoption of digital identity services based on open standards.

[26] http://oixuk.org/wp-content/uploads/2017/09/Transforming-the-Airline-Passenger-Journey.Sept17.pdf

Added value of eIDAS-based eID

The main advantage of reusing eIDAS-based eID is that it provides a strong authentication of passengers directly endorsed by governmental authorities. It offers a real advantage compared to current private sector identity management solutions that often provide great user experience but remains weak in terms of registration and verification of users' identity.

eIDAS-based eID should therefore be used for occasional access and/or to verify information provided by a user when acquiring a derived identity. The private sector relying parties could at the same time save costs of identity verification (through face to face procedure, or visual remote connections) and at the same time improve the level of assurance of their eID schemes that would benefit from the high level of trust of the eIDAS network.

More precisely, eIDAS-based eIDs could address to a certain extent some of the above mentioned challenges:

- Eliminate manual data entry errors for available attributes;
- Increase the level of assurance regarding the data exchanged (high trust in the information provided by the eIDAS network);
- Ensure interoperability of the solution between a significant numbers of EU Member States, allowing airlines to base their processes on the cross-border recognition of national eIDs;
- Allow for more flexible user experience if associated to derived identities solutions considering that the passenger does not need to have his passport physically to share the requested attributes.

Remaining challenges

The following section list a series of limiting factors that would prevent eIDAS-based eID to be the sole source of information to proceed to the verification of passengers at the moment. Some of these limitations could be solved by taking action at the EU level, while others could be overcome by associating eIDAS-based eID to derived identities solutions.

Absence of some attributes

At the moment passport information (nationality, travel document type, number, expiry date, and country of issue) is missing from the eID minimum data set, preventing airlines from gathering all necessary data from passengers in order to be compliant with API requirements. This limitation could be solved by the adoption of a sector-specific attribute dataset based on passport information.

Additionally, the eIDAS minimum dataset does not offer information about visa detention with is often contained physically within the passport.

Absence of biometric data

Airlines are moving towards more use of biometric information (facial recognition) and the eIDAS minimum dataset does not allow for the digital sharing of the holder's picture.

Low uptake of eIDAS-based eID and limitations linked to user experience

The uptake of eID among the population is too low at the moment to justify an integration within the current airlines systems. A minimum of 50% of the population reusing an eIDAS-based eID would be necessary to justify an integration, according to our interviewee's estimations. In general, it will be impossible to guarantee a 100% coverage of the passengers in terms of eIDs, and alternative methods of verification would still be required.

Not all eIDAS-based eIDs offer the same level of user experience. Additionally, in many cases, the reuse of a national eID scheme means that passengers are directed from the airline's app or website to the eID scheme authentication page, and then back again to the airline's interface. This situation might deter airlines to adopt the solution considering that any drop-off rates linked to poor user experience would result in commercial loss. Comparatively, private sector identity management solutions can be tailored to the needs of the airlines and integrated more smoothly into the overall passenger booking journey. In this case, the use of eIDAS-based eID for occasional access to generate a derived identity would limit possible users paint points linked to less optimal user experience to one-time only.

Finally, API data is often filled in by a third party. The current eIDAS-based eID solutions offered by EU Member States are not optimal as the owner of the eID will only be able to share his/her own data. Power and mandate possibilities are still limited and would require a prior authorisation process which could be deemed too burdensome compared to scanning the passport at the airport. Again, it would be up to derived identity solutions to consider this aspect when developing solutions for the airlines.

Absence of clear guidance from the Member States on the possibility to offer eIDAS-based eID to the private sector

The eIDAS regulation encourages Member States to open the reuse of their notified eID schemes to private Service Providers.

However, each Member State remains free to set its own conditions and compensations (fees) for allowing private Service Providers to consume the national eID scheme, as well as different conditions to consume cross-border eIDs in the context of eIDAS.

For airlines to be able to clearly assess the added-value of integrating eIDAS-based eID within their processes, the conditions set by Member States as receiving and/or sending countries need to be clarified, notably the cost model.

The following table provides an overview of the key challenges identified for the aviation sector and assesses to what extent eIDAS-based eID could address them. In terms of data sharing and higher levels of data quality and assurance, eIDAS-based eID could provide significant amelioration of data collection for airlines and law enforcement authorities. However, in terms of user experience, eIDAS-based eIDs remain limited due to the absence of biometric data in the minimum dataset and the extra burden this imposes on customers. The above mentioned study conducted by OIX has determined that users possessing an eID were willing to reuse it, but others did not find it worthwhile to invest time and energy in obtaining such a solution. Additionally, the fact that in many cases airplane tickets are purchased by third parties, limits the possibility of real-life application. Solutions aimed at checking self-declared identity against a verified database reusing blockchain technology seem to ensure quality of security of the data collected without altering the overall user experience.

Table 3 – Extent to which eIDAS-based eID can address key challenges

Challenges	Can be solved by eIDAS-eID?	Comments
Collecting accurate identity data	Partially/Yes	eIDAS-based eID could tackle the problems linked to incorrect data entry on the condition that a sector-specific data set containing passport information is adopted.
User experience	No	eIDAS minimum dataset does not contain biometric information, which is considered by airlines as the key enabler for better user experience Use of eIDAS-based eID is only relevant for the segment of the population already using eID to access online services.
Smooth and interoperable exchange of data	Yes	Reuse of the eIDAS protocol would fix challenges linked to the lack of semantic interoperability.

Recommendations

07

This strategic paper aims to provide a preliminary assessment of the potential to reuse eIDAS-based eID in the aviation sector.

There is a clear case for the aviation sector to consider leveraging eIDAS-based eID to verify the identity of passengers based on strong authentication and information directly confirmed by governmental entities.

The most promising use case does not consist in using eIDAS-based eID to confirm API data each time a customer seeks to book a flight. eIDAS-based eID should rather be considered for occasional access, like for validating the creation of a customer account or verifying information from derived identity solutions developed for the aviation sector.

Some key limitations have been listed, yet none of them constitutes a blocking factor regarding the reuse of eIDAS-based eID in the aviation sector: passport information could be provided as part of a sector-specific dataset if agreed by EU/EEA Member States, while challenges linked to user experience and lack of biometrics data could be solved by derived identity solutions. Overall, the use of eIDAS-based eIDs to “endorse” and “verify” information provided by private identity providers would improve the overall trust and assurance of the identities shared by the airlines with the law enforcement authorities.

Our key recommendation would be to further examine the actual needs of the aviation sectors in terms of identity management and establish key requirements of the airlines as well as passengers. A clear inventory of current and future solutions to improve identity management in the aviation sector should be performed. The role that eIDAS-based eIDs could play in securing these solutions should be further assessed.

Other potential business cases in the industry, for example to manage and enhance the security of cargo deliveries at the airport, to authenticate carriers for law enforcement information systems (e.g. the ETIAS system) or to improve the credit card validation of passengers should also be investigated. An assessment of the extent to which eIDAS-eID could provide added value should also be conducted.

The European Commission and EU Member States can support this assessment by providing relevant information to the aviation sector and by clarify the conditions for the reuse of national eID schemes by private service providers and private identity providers.

More specifically, we recommend the following actions to the European Commission, EU/EEA Members and airline industry.

European Commission: More coordination

The European Commission is currently planning a key role in coordinating the actions of EU/EEA Member States regarding eIDAS-based eIDs. It has already supported several studies on the reuse of eIDs in specific sectors as well as launched a work-stream on the user experience of eIDAS-based eID in the context of cross-border authentication of natural persons to access online public services.

The European Commission is now exploring how to clarify the business proposition of eIDAS-based eIDs for the private sector and collecting the intentions of EU/EEA Member States regarding the conditions that will be set to allow private Service Providers to consume cross-border eIDs under eIDAS trust framework.

Overall, we encourage the European Commission to:

- Continue to clarify the position of EU/EEA Member States on the conditions set for the private sector to consume eIDAS-based eID, notably for private identity providers developing derived identity solutions. Such information should be widely communicated to the private sector when available in order to seek greater alignment between the expectations of the private Service Providers and the actual possibilities that are offered by the eIDAS Regulation;
- Explore further cooperation with IATA's task force on One ID, and any other initiative linked to eID in the aviation sector, in order to explore how eIDAS-based eID could contribute to the ongoing proof of concept;
- Support the discussion on the adoption of sector-specific attributes (passport data) if needed and requested by the aviation sector.

EU/EEA Member States: More clarity

At the moment there is still a lack of clarity from the EU/EEA Member States with regard to the conditions that will be set for private Service Providers to consume eIDAS-based eIDs in a cross-border context.

Overall, we encourage Member States to:

- Allow private Service Providers to reuse the national eID scheme if the intention is to support the reuse of eID in the aviation sector, and set out clear conditions and guidelines. High uptake of nationally-issued eIDs are generally observed in countries that have built strong cooperation with the private sector.
- Consider the adoption of sector-specific attributes based on passport information. Agreement on the specific dataset will have to be reached at the eIDAS Cooperation Network level following an opinion of the eIDAS eID technical subgroup;
- Provide clear information to private Service Providers on how they can integrate the national eID scheme authentication process to their online check-in systems (i.e. when airlines have a European website, which national eID scheme should be used to authenticate users?) as well as provide step-by-step guides.

Airlines and sectoral trade associations: More consideration

The aviation sector is considering the digitalisation of the booking/check-in/boarding experience as a priority for the upcoming years, digital identity being one of the key components.

At the moment, it seems that airlines have been exploring new identity management systems that reply to their specific challenges, but limited thought has been given to the reuse of eIDAS-based eIDs or even to the interoperability of the eIDAS solutions with the derived identities currently under piloting. eIDAS-based eIDs could improve the current processes of registration and verification of identities, considering that information is validated and endorsed by governmental authorities.

Overall, we encourage airlines to:

Consider eIDAS-based eID as one of the solutions to be explored in order to improve identity data accuracy for occasional access and/or to verify ID information provided by derived identity solutions;

- Seek ongoing cooperation with the European Commission and EU Member States on the topic of identity management and regularly share key pain points that could be addressed at the EU level;
- Consider the conduction of a pilot about the use of eIDAS-based eID in the sector;
- Continue exploring ways of implementing the once-only-principle, helping users that are willing to have their identity information stored by airlines to avoid providing the same information repeatedly;
- Segment customers to determine whether a group of users would be interested in reusing their national eID scheme to verify their customer account or derived identities;
- Explore further the reuse of eIDAS-based eID for other use cases beyond passenger identification (e.g. credit card validation/payment information or cargo delivery (this is B2B so eID for legal persons would have to be more developed).

European Commission

Business proposition of eIDAS-based eID: Aviation Sector

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