Interactive Cargo

Pilot Projects

Our vision

To equip airlines and the air cargo supply chain with responsive air cargo services based on intelligent systems able to:
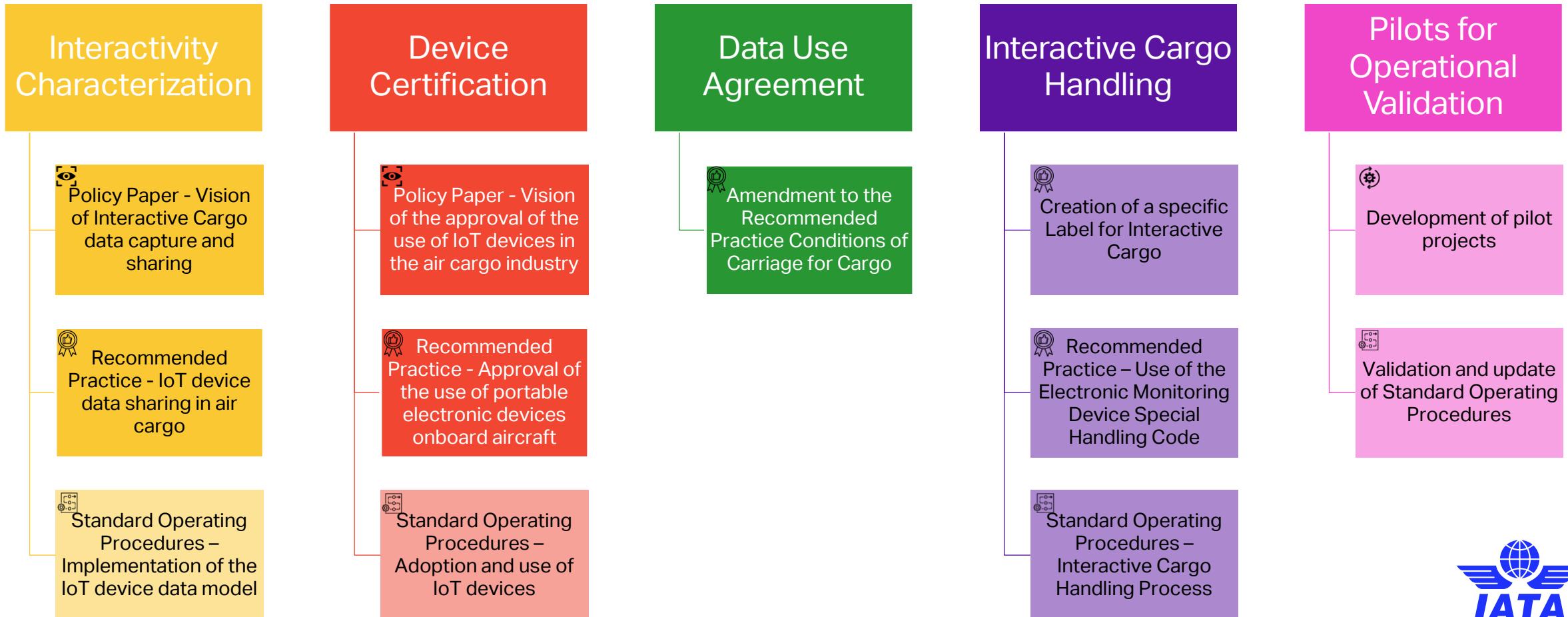
- **self-monitor**;

- send real-time **alerts**;

- **respond** to deviation to meet customers' expectations;

- and **report** on the cargo journey to allow data-driven improvements.

Making cargo talk

Objectives and key deliverables

The goal is to provide stakeholders in the air cargo supply chain with a set of standards and guidance documents to enable and ease the use of IoT devices for **interaction with cargo.**

Interactivity Characterization

- Policy Paper - Vision of Interactive Cargo data capture and sharing
- Recommended Practice - IoT device data sharing in air cargo
- Standard Operating Procedures – Implementation of the IoT device data model

Device Certification

- Policy Paper - Vision of the approval of the use of IoT devices in the air cargo industry
- Recommended Practice - Approval of the use of portable electronic devices onboard aircraft
- Standard Operating Procedures – Adoption and use of IoT devices

Data Use Agreement

- Amendment to the Recommended Practice Conditions of Carriage for Cargo

Interactive Cargo Handling

- Creation of a specific Label for Interactive Cargo
- Recommended Practice – Use of the Electronic Monitoring Device Special Handling Code
- Standard Operating Procedures – Interactive Cargo Handling Process

Pilots for Operational Validation

- Development of pilot projects
- Validation and update of Standard Operating Procedures

IATA

Interactivity Characterization

Pilot project objectives on Interactivity Characterization

Test and refine the data model of IoT devices in air cargo

Integrate the data model of IoT devices into the ONE Record data model

Validate IATA's standard API for IoT devices in air cargo
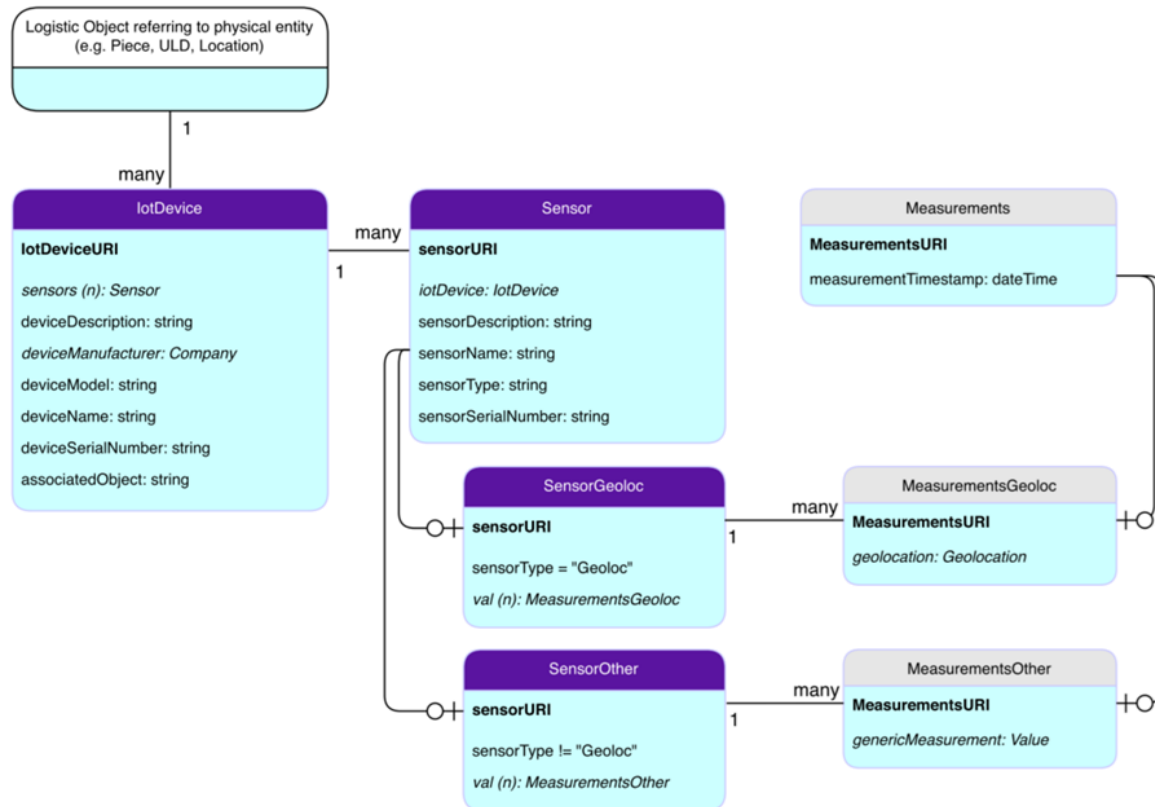
Capture real-time data on cargo conditions

Share IoT data accross the supply-chain

Develop operational procedures to respond to deviations

IATA

Integrate the data model of IoT devices into the ONE Record data model

The data model of IoT devices has been added to the IATA Cargo GitHub

The descriptions of the data elements are available on the IATA Cargo GitHub

Validate IATA's standard API for IoT devices in air cargo

ONE Record API: Overview of the key features

The ONE Record Developer Portal provides the API specifications

Server

Client

API

HTTPS

GET
POST
PATCH

API

logistics object

data security
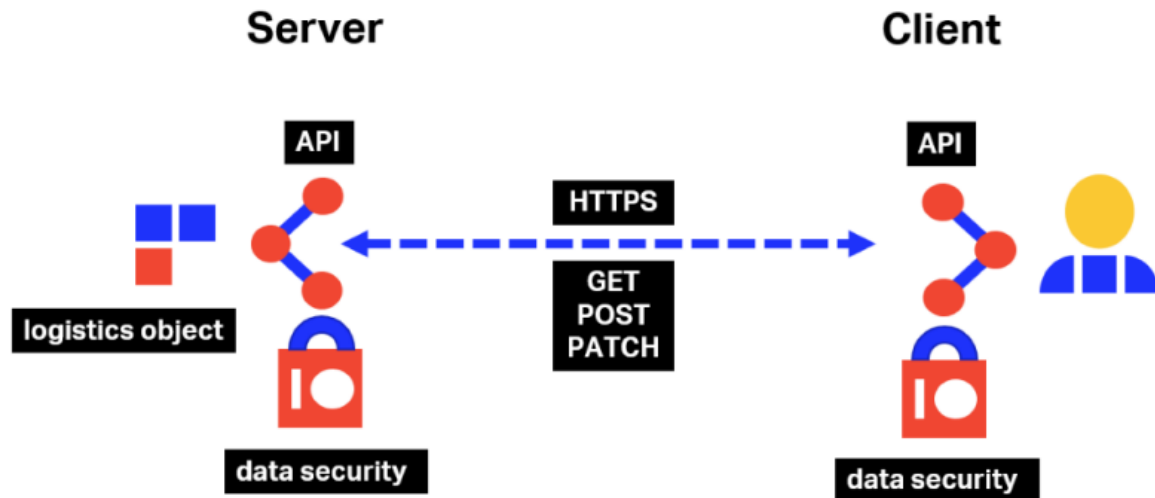
data security

Discover the features of the ONE Record API

API Specifications

Check out ONE Record Data Model, API & Security specifications, as well as the ontology on GitHub.

GO TO GITHUB

Swagger API Doc

Test ONE Record API functionalities via Swagger API Doc. You can simulate a Cargo flow in just a few minutes.

TEST THE API FEATURES

The Java Sandbox

Take a look at the ONE Record Data Model classes, properties and descriptions in the ontology visualizer.

DOWNLOAD THE CODE

How to implement ONE Record?

https://onerecord.iata.org

How to get started with ONE Record?

ONE Record drives paperless processes and creates a plug and play environment where companies can connect and re-connect their digital relations with ease. Discover the standard in a few steps!
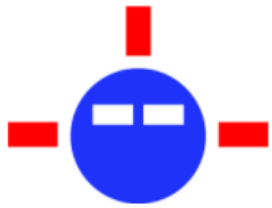
Start Now   **Resources**   **Video Learning**   **White Papers & Insights**   **Code Exchange**   **FAQs**
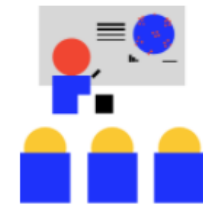
Device
Certification

Pilot Project Objectives on Device Certification

Validate the approval process recommended by IATA

Standardize the approval request form

Simplify the approval process for interlines

Pre-assess cargo tracking devices by IATA (need to be validated by airlines)

Create a database of approved cargo tracking devices

IATA

The Interactive Cargo Task Force developed the recommended practice – **Approval of the use of portable electronic devices for air cargo**.

This new IATA standard has been endorsed by the Cargo Services Conferences in March 2021.

This recommended practice introduces a simplified 4-step approval process.

Portable Electronic Device Approval Process
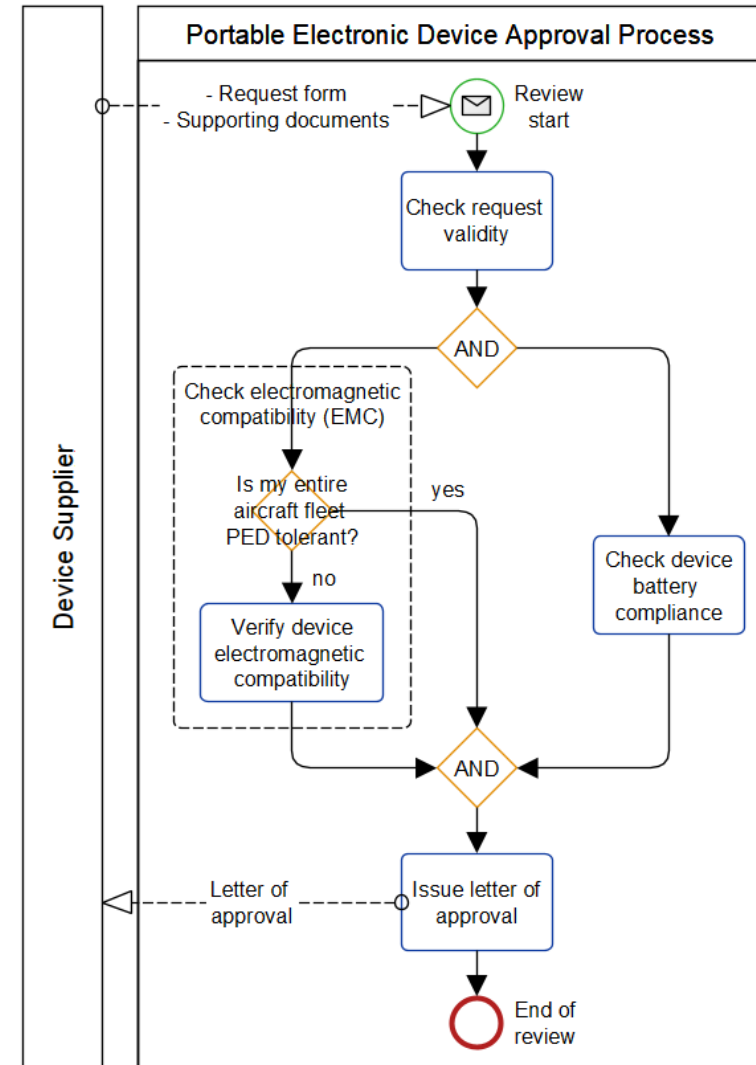
Standardize the approval request form

The Interactive Cargo Task Force also developed a standard approval request form that can be downloaded at **iata.org/interactive-cargo**

APPROVAL REQUEST FORM
**USE OF PORTABLE ELECTRONIC DEVICE ONBOARD AIRCRAFT FOR AIR CARGO**
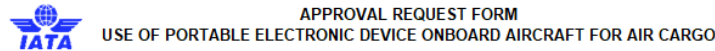
The use of Portable Electronic Devices (PEDs) on board aircraft must be approved by aircraft operators. Send this form and supporting documents by e-mail or any other means agreed with the airline.

Request information:

Reason for request	
Justification of the request	Explain the reasons for the request. For renewal, describe the modifications made to the device.
Company	
First name	
Last name	
Email	
Phone	
Number, Street	
City	
Postal Code	
Country	

Device description:

Device manufacturer	Enter the name of the device manufacturer.
Device model	Enter the commercial denomination of the device.
Device category	
Device description	Enter the description of the device, and how and where the device can be attached.
Device sensors	List all the sensors among the list: Geolocation, Light, Temperature, Vibration, Humidity, Acceleration, Pressure, Tilt
Device length (cm)	
Device width (cm)	
Device height (cm)	
Device weight (g)	
Battery type	
Battery capacity (watt-hour)	
Battery weight (g)	
Does the device contain a lithium battery?	
Is EIRP below 100mW in all modes?	

APPROVAL REQUEST FORM
USE OF PORTABLE ELECTRONIC DEVICE ONBOARD AIRCRAFT FOR AIR CARGO
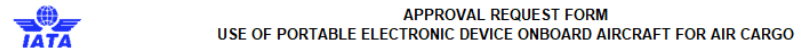
Below is the minimum list of supporting documents to be provided with the request form. Additional supporting documents may be requested by the airline, e.g. test reports from independent laboratories:

Supporting documents:

Ref.	Description	Required?
SD-A	Pictures of the device and peripherals	Mandatory
SD-B	Product label	Mandatory
SD-C	Operational description and technical specifications of the device and peripherals	Mandatory
SD-D	User Manual / Guideline	Mandatory
SD-E	Manufacturer statement of strict design and production controls	Mandatory
SD-F	Manufacturer statement of conformity to the applicable requirements of the Civil Aviation Authorities: (AC 91.21-1D, 2017, p. 91) for FAA and ("AMC1 CAT.GEN.MPA.140," 2019) for EASA	Mandatory
SD-G	One of the following standards: (i)Underwriters Laboratory, 'Lithium batteries,' UL 1642; (ii)Underwriters Laboratory, 'Household and commercial batteries,' UL 2054; (iii)Underwriters Laboratory, 'Information technology equipment – safety,' UL 60950-1; (iv)International Electrotechnical Commission (IEC), 'Secondary cells and batteries containing alkaline or other non-acid electrolytes - safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications,' IEC 62133; (v)(DO-311, 2017, p.) may be used to address concerns regarding overcharging, over-discharging, and the flammability of cell components. The standard is intended to test permanently installed equipment; however, these tests are applicable and sufficient to test electronic flight bags rechargeable lithium-type batteries; or (vi)European Technical Standard Order (ETSO), 'Non-rechargeable lithium cells and batteries,' ETSO C142a.	Mandatory
SD-H	Test summary to verify that the lithium cell and battery type has successfully passed the tests as set out in Part III, Subsection 38.3 of the UN Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.7, 2019)	Subject to conditions
SD-I	The Electromagnetic Interference (EMI) assessment report documenting that the emissions from the device comply with the levels as defined by (ED-14G, 2011)/(DO-160G, 2010) (or later revisions), Section 21, Category H. Testing must include peripheral devices used with the device during normal operations. Typically, peripherals are external sensors or associated wiring.	Mandatory
SD-J	A declaration of conformity and technical documentation showing compliance with the European Norms (EN), regulating the transmitter characteristics of the device or its transmission module.	Subject to conditions
SD-K	A declaration from the manufacturer identifying the device and confirming that EIRP (effective isotropic radiated power) is below 100mW.	Subject to conditions
SD-L	A declaration from the manufacturer identifying the device and confirming that the device: (a)features an automated and prolonged radio suspension in flight using multiple modes of redundancy; and (b)has been verified in the aircraft environment to ensure deactivation of the transmitting function in flight.	Subject to conditions

Pilots for Operational Validation

Ongoing Interactive Cargo Pilot Projects
To take part or propose a pilot, contact us at interactivecargo@iata.org

Interactivity Characterization Pilots

Real-time cargo tracking for shipments requiring special handling

Visibility, tracking and alerts at the piece level

Smooth border crossing by data sharing and logistics transparency

Real-time tracking through a web platform compliant with ONE Record

IoT data collection, distribution and reporting

Device Certification Pilots

Approval of the use of Portable Electronic Device (PED) for air cargo

IATA pre-assessment of cargo tracking devices

Visibility, tracking and alerts at the piece level

Pilot Description

- Deploying OnAsset's SENTRY devices for consignment visibility and Sentinel BLE devices to extend the visibility to piece level on Air Canada Cargo shipments.
- Demonstrating autonomous delivery of in-shipment status messaging and sensor-based alerts with availability through OAInsight API. Also, to include CargoiQ milestone mirroring through AC Cargo facilities. Additionally, include the visibility and tracking of Unilode ULDs integrated with the OnAsset Sentinel BLE devices.

Pilot Participants

Airline	
Ground Handler	
Device Manufacturer	
ULD Manufacturer	

AIR CANADA CARGO · ONASSET INTELLIGENCE · unilode

Implementation roadmap

✓ **Install devices**
JAN-21

Monitor shipment movements
JUL-21

✓ **Define the flow of data**
FEB-21

Evaluate results
JUN-21

Real-time cargo tracking for shipments requiring special handling

Pilot Description

- Track shipments requiring special handling, using Bluetooth Low-Energy (BLE) tags and sensors to capture real-time geolocation, temperature and humidity throughout the journey, except in-flight.
- Display the data in the carrier's platform and connect with supply chain actors using the One Record protocol.
- The pilot team is looking for shippers and freight forwarders to test the real-time tracking.

Pilot Participants

Shipper
Freight Forwarder
Airline
Ground Handler
Device Manufacturer
IT Service Provider

CPSL
CATHAY PACIFIC
SERVICES LTD

CATHAY PACIFIC CARGO

DESCARTES™

GLS
Global Logistics System (HK) Co., Ltd

Implementation roadmap

Find shippers and forwarders to participate in the pilot JUL-21

✓ **Install receivers and develop platform** MAR-21

Evaluate results AUG-21

✓ **Select airports and trade lanes** DEC-20

Monitor shipments and test procedure JUL-21

Real-time tracking through a web platform compliant with ONE Record
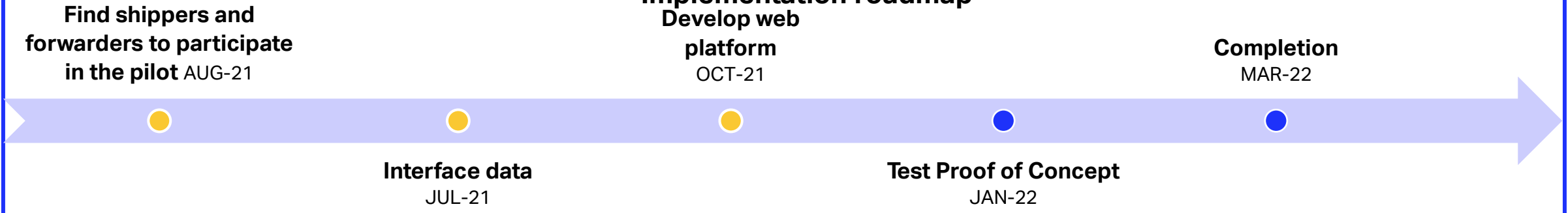
Pilot Description

The objectives of the pilot are to enable real-time tracking of shipments and validate the ONE Record data model for IoT devices:

- Visibility of tracking data for temperature-sensitive shipments using the ONE Record data model linking the air waybill and Cargo iQ events on a web platform.
- Display real-time information of temperature and geolocation information.
- Airport-to-airport (or door-to-door with freight forwarder participation).

Pilot Participants

Shipper
Freight Forwarder
Device Manufacturer
Airline
IT Service Provider

Implementation roadmap

Find shippers and forwarders to participate in the pilot AUG-21

Develop web platform OCT-21

Completion MAR-22

Interface data JUL-21

Test Proof of Concept JAN-22

Smooth border crossing by data sharing and logistics transparency

Pilot Description

- **Vedia is seeking One Record for air-road transport and especially focusing on IoT aspects and data sharing in multimodal logistics chains**.
  - Data collection from road transport via mobile app, IoT device and background systems
  - Data sharing between business and authorities
  - Data sharing between road and air transport
- Automated border crossing pilot between Norway and Finland is the first place where Vedia will adapt One Record
  - Data sharing between road transport, authorities and air cargo

Pilot Participants

| Airline |
| IT Service Provider |
| Device Manufacturer |

vedia CaaS

FINNAIR CARGO

FEDeRATED NETWORK OF PLATFORMS

Implementation roadmap

Vedia ONE Record server for border crossing pilot
Q1-21

Finland/Russia/China corridor collaboration
Q2-21

IoT data collection, distribution and reporting

Pilot Description

In 2020, the CCS-UK User Group and Nexshore developed a One Record Server which will be enhanced to provide the following:
Real-time alerts to notify parties about cargo movements. Database of en-route personnel involved in handling of special cargoes tracked by IoT devices. Publication of datasets to feed into Cargo IQ like platforms and directly back to consignment owners. Aggregation of IoT and consignment data from multiple sources. Data anonymisation to review and share information for overall shipping improvement. Visualization of route failures and risk areas using heat map overlays.

Pilot Participants

- Shipper
- Freight Forwarder
- Airline
- Ground Handler
- Device Manufacturer
- **IT Service Provider**

The CCS-UK Cargo Community User Group Ltd

Nexshore

Implementation roadmap

Find pilot participants
AUG-21

Build new functionalities, consume data and monitor en-route
OCT-21

Analyze data and produce report
JAN-22

Approval of the use of Portable Electronic Devices (PEDs) for air cargo

Pilot Description

- To adopt the IATA recommended practice and checklists for the approval of Portable Electronic Devices onboard aircraft for air cargo, in order to standardize information required for approval and decrease the total duration required for carriers to complete an approval request.

Pilot Participants

Airline
Civil Aviation
Device Manufacturer

Implementation roadmap

✓ **Find device manufacturers to participate in the pilot** NOV-20

✓ **CAAS to review IATA Recommended Practice**

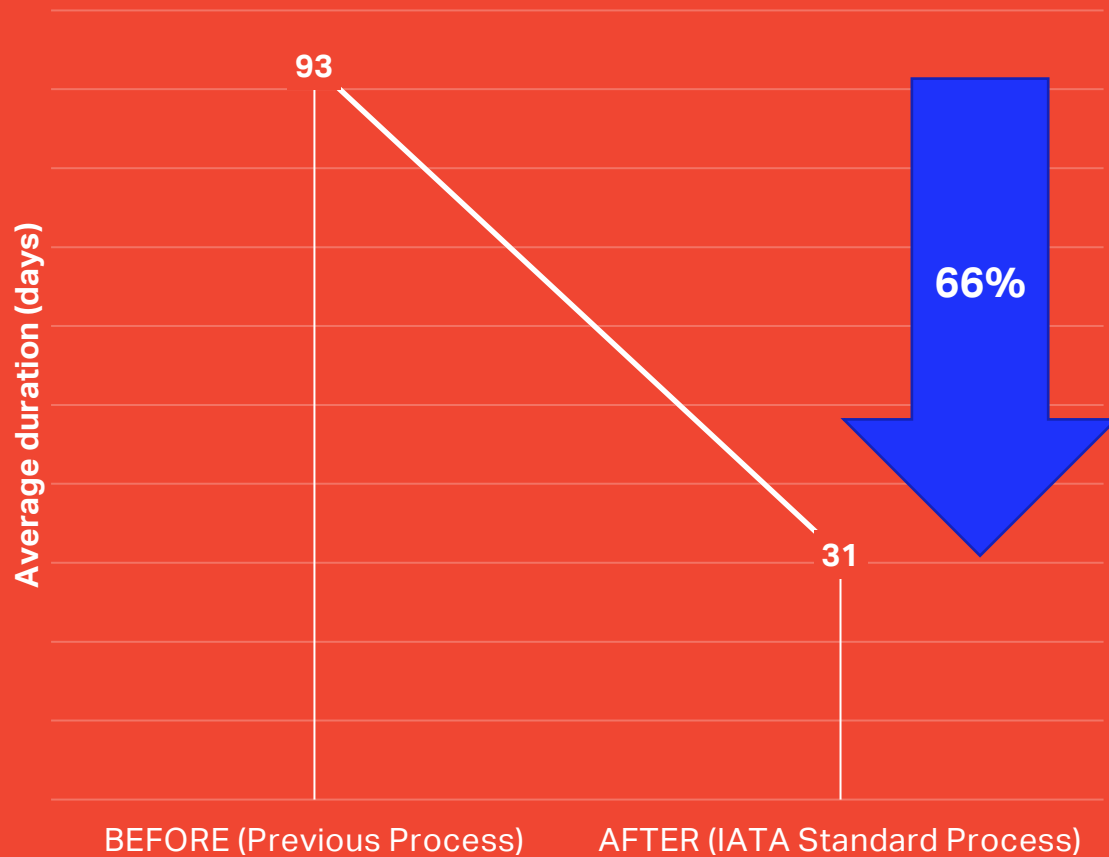✓ **Singapore Airlines to implement the IATA standard approval process**

Validate the new process with device manufacturers

Evaluate total duration of the approval review OCT-21

Approval of the use of Portable Electronic Devices (PEDs) for air cargo: First outcomes

Average duration (days)

93

66%

31

BEFORE (Previous Process)   AFTER (IATA Standard Process)

66% reduction in approval duration: Average approval time decreased from 93 days to 1 month.

Comprehensive set of documentation received as compared to prior process, reducing the process turnaround time to request for supporting documentation.

Next steps:
- Update the request form to ease the review of supporting documents

IATA

IATA pre-assessment of cargo tracking devices

Pilot Description

To develop for Device Manufacturers a device pre-assessment by an independent validator that verifies the validity of a request for the approval of a cargo tracking device by airlines. The pre-assessment will validate that:
1. The IATA standard request form is valid
2. and supporting documents that IATA recommends to attach to the request are valid.

Pilot Participants

Airline
Device Manufacturer
IATA

Implementation roadmap

IATA to survey airlines to validate the need AUG-21

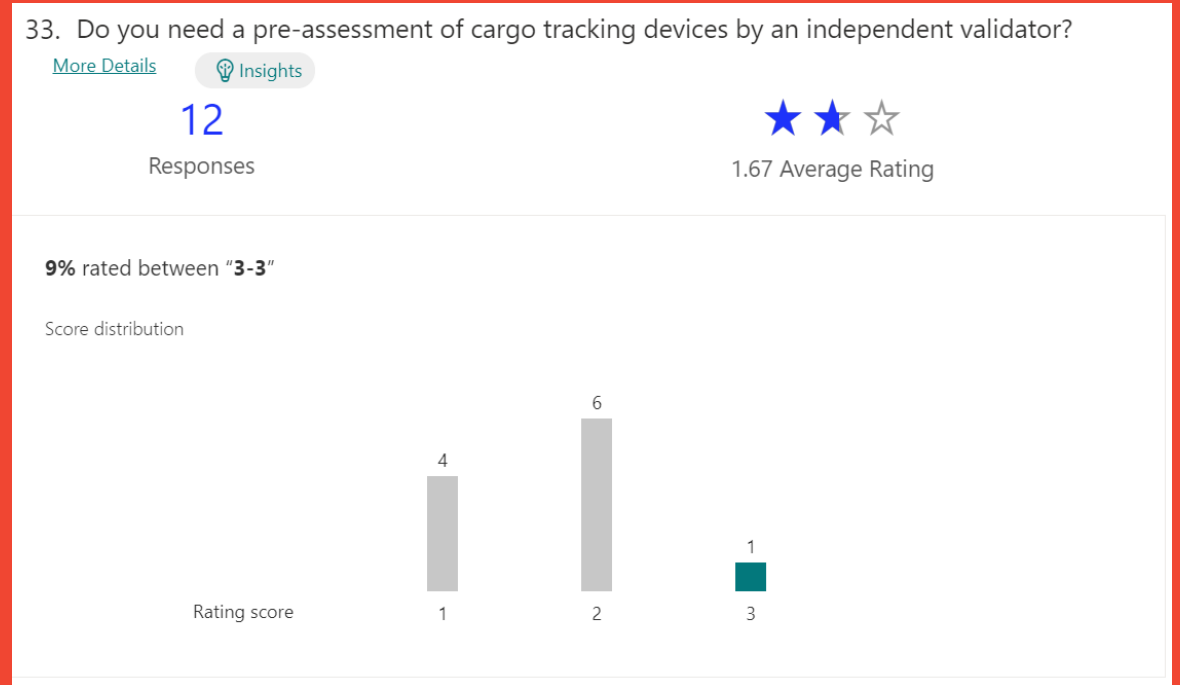**Test the pre-assessment by an independent validator** SEP-21

Find airline and device manufacturers to participate in the pilot SEP-21

Validate the program with device manufacturers and airlines OCT-21

SURVEY: How to improve the airline approval process for cargo tracking devices?

What are the reasons why requests are rejected?

1. **Missing information**

2. Battery issues ; Lithium batteries exceeding FAA or EASA recommendations

3. Not compliant with regulations

4. No commercial value

5. Intellectual property issues

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33. Do you need a pre-assessment of cargo tracking devices by an independent validator?

More Details   💡 Insights

12   ★ ★ ☆
Responses   1.67 Average Rating

9% rated between "**3-3**"

Score distribution

Rating score	1	2	3
	4	6	1

IATA

How to get involved?

Contact us at:

InteractiveCargo@iata.org

Website:

iata.org/interactive-cargo

IATA