Digital Cargo Webinars 2021

Episode 3 : Interactive Cargo

Your host:
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Project Manager Interactive Cargo
IATA

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The video recording and the presentation will be available shortly after the end of this webinar at:

www.iata.org/en/events/e-cargo

Competition law guidelines

Do not discuss:

- Any element of prices, including fares or service charges
- Commissions
- Allocations of customers or markets
- Marketing plans, commercial terms or any other strategic decision
- Group boycotts
- Your relations with agents, airlines, solution providers, or other third parties
- Any other issue aimed at influencing the independent business decisions of competitors

2021 Digital Cargo Webinars Calendar

1	**Executive session**	Recording of webinar (YouTube)
2	**Digital Cargo**	24 June, 14:00 - 15:30 CEST
3	**Interactive Cargo**	29 June, 14:00 - 15:30 CEST
4	**Pilots & Hackathon**	1 July, 14:00 - 15:30 CEST
5	**ONE Record**	6 July, 14:00 - 15:30 CEST
6	**EU FEDeRATED Project**	8 July, 14:00 - 15:30 CEST
7	**Digital Cargo Products & Tools**	13 July, 14:00 - 15:30 CEST

Register on www.iata.org/en/events/e-cargo

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Agenda

Part 1

The IATA Interactive Cargo project achievements and next steps
Sonia Ben Hamida, Project Manager Interactive Cargo, IATA
Carlos Tornero, Deputy General Counsel, IATA

Part 2

Safely and efficiently approving the use of cargo tracking devices
Jeff Clark, Founder & CEO, 7PSolutions, LLC

Part 3

Sharing IoT device data with ONE Record: Outcomes and lessons learnt
Tomal Sohorab, Manager, Cargo Solutions Strategy and Business Development, Air Canada Cargo

Part 4

The handling of interactive cargo: Main challenges and potential solutions
James Hookham, Secretary General, Global Shippers' Forum

Part 5

Networking session
Webinar participants

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How to participate during the webinar?

1. Each part is followed by 5 min of Q&A:
   - Type your questions and comments in the question panel.
   - Or raise your hand to be unmuted.

2. Join the IATA Interactive Cargo virtual space to meet the project participants and learn more about the project.

2021 Interactive Cargo Webinar

Part 1

The IATA Interactive Cargo project achievements and next steps

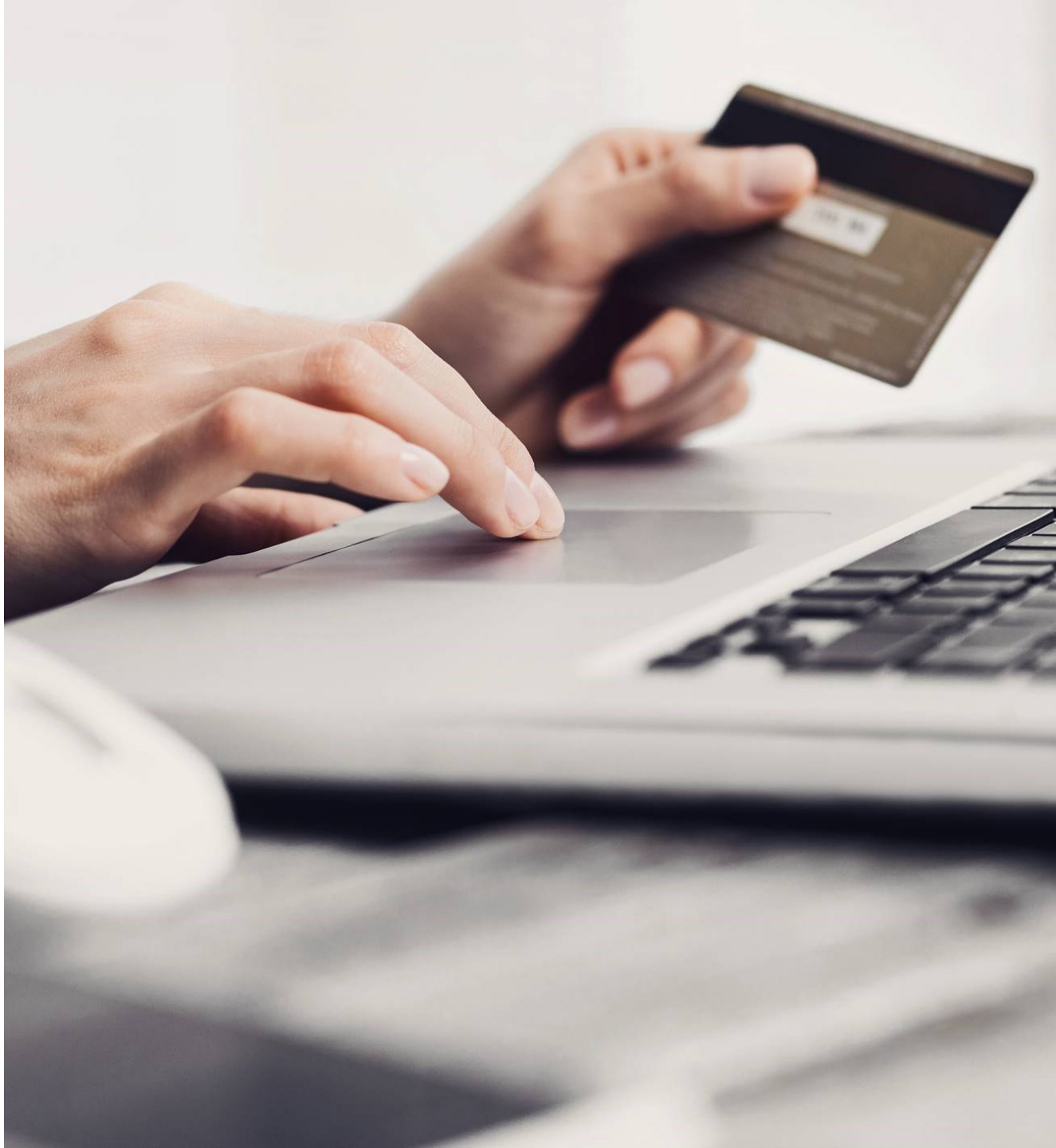
Sonia Ben Hamida
Project Manager Interactive Cargo
IATA

Carlos Tornero
Deputy General Counsel
IATA

The Time to Prepare for COVID-19 Vaccine Transport is Now

iata.org/en/pressroom/pr/2020-09-09-01

Air cargo is an essential component of cross-border e-commerce



iata.org/en/programs/cargo/cargo-operations/e-commerce-logistics

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

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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

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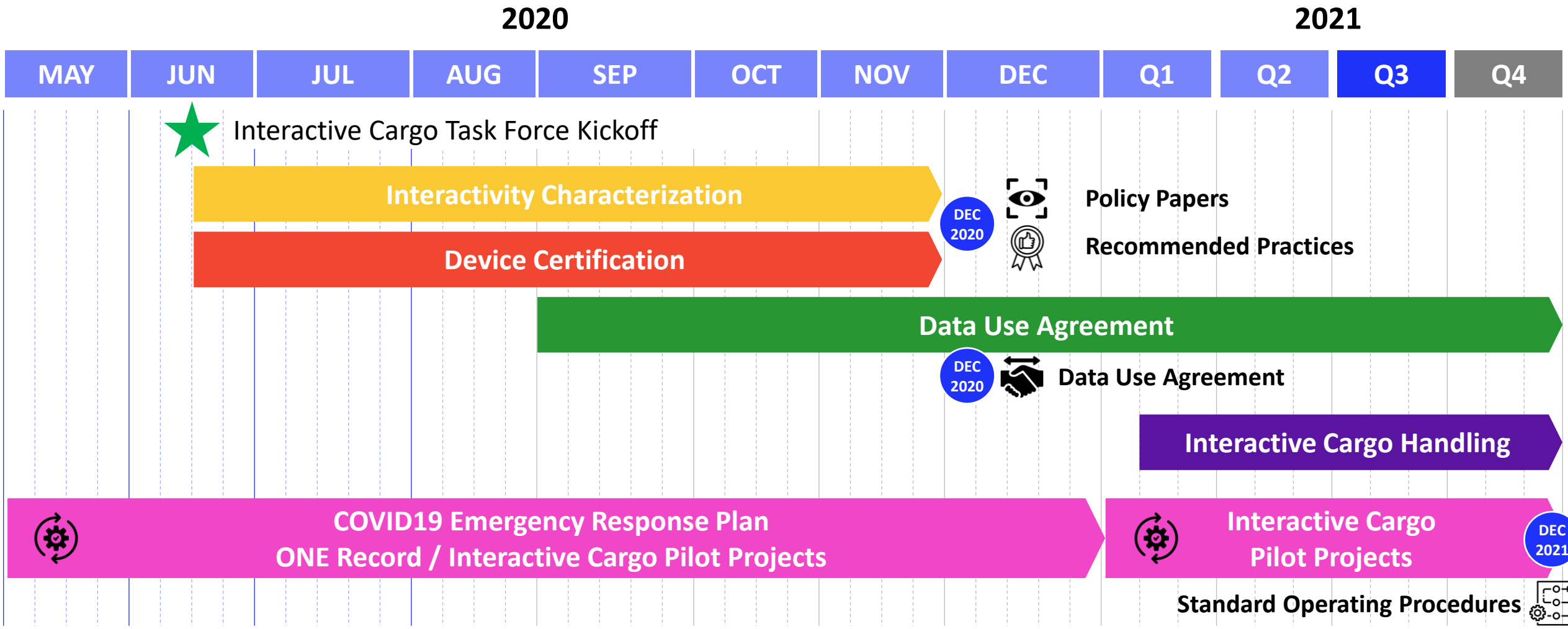
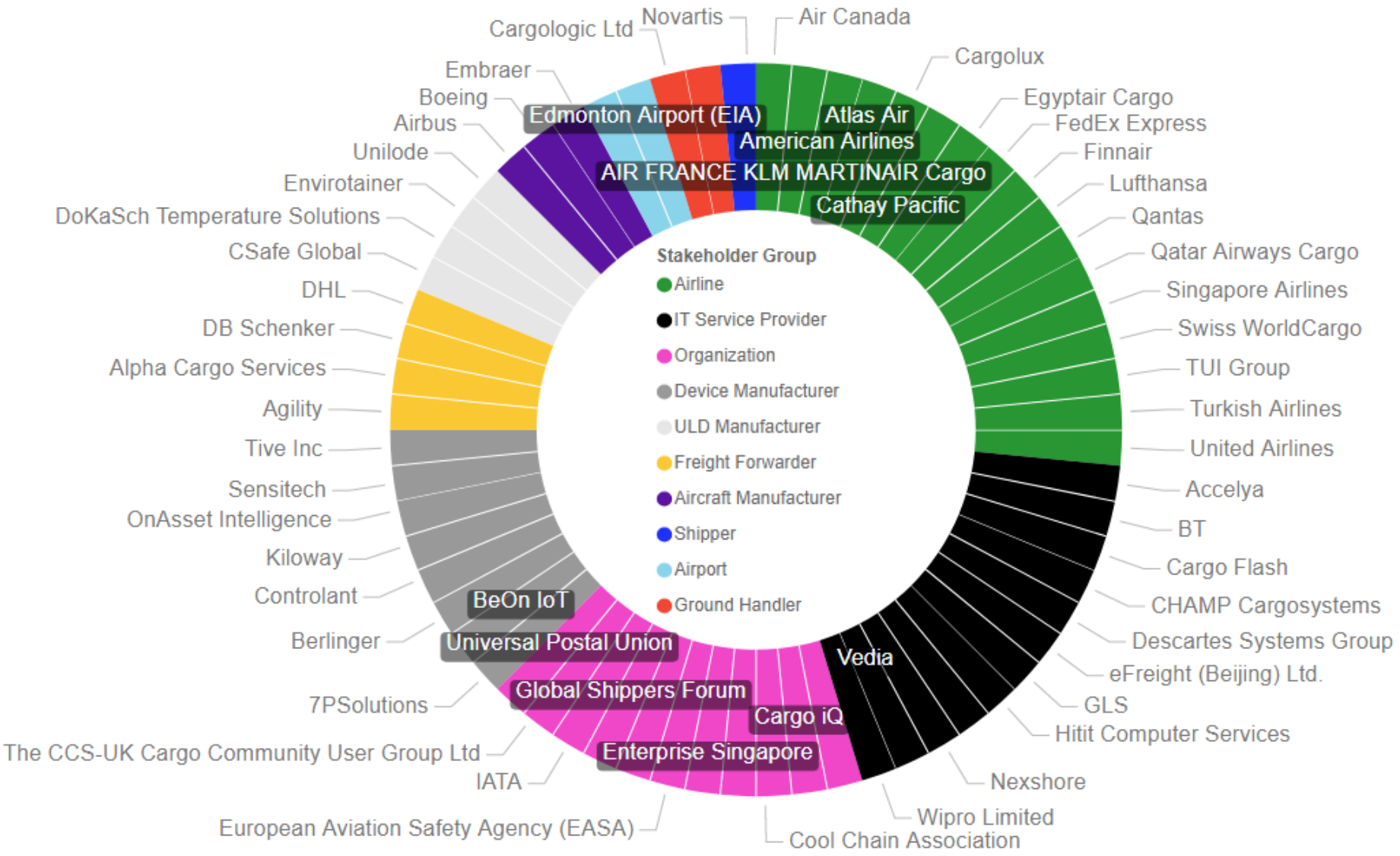
Project timeline: Key milestones



Interactive Cargo Project Participants

The Interactive Cargo Task Force is composed of more than 60 participants, representing the whole supply chain:

- 20 members;
- Observers;
- IATA Subject Matter Experts;
- Invited experts.



Interactivity Characterization

Interactivity Characterization

How to integrate Interactive Cargo requirements into ONE Record ?

- ✓ Understand what interactions we want to achieve
- ✓ Define what we want to capture/measure

- ✓Identify the data elements required
- ✓Agree on a standard / common language

- ✓Integrate the data elements into the ONE Record data model
- ✓Identify and define business rules as appropriate

RECOMMENDED PRACTICE – IOT DEVICE DATA SHARING IN AIR CARGO

This recommended practice defines the common vocabulary for air cargo to enable cargo interactions using IoT devices. This standard enables data sharing between supply chain actors through the integration of these data elements into the ONE Record data model available on the IATA Cargo GitHub.

The recommended practice will be available in the next release of the Cargo Services Resolution Manual.

RECOMMENDED PRACTICE 16XX
IOT DEVICE DATA SHARING IN AIR CARGO

CONSIDERING, the industry demand for a transparent, efficient, digitally connected, and secure air cargo supply chain.

CONSIDERING, the requirements for special cargo such as pharmaceutical products, live animals, perishable goods, valuables, and dangerous goods.

CONSIDERING, the increasing the growth of e-commerce demand for air cargo.

RECOGNIZING, the need for cargo interactions, such as locating, tracking, monitoring, alerting, and responding to deviations.

RECOMMENDS that Members using IoT devices in air cargo should always:

- Use the data elements, the definitions, and the units of measurement described below;
- Apply the Piece Level Tracking approach as per RECOMMENDED PRACTICE 1689;
- Use the ONE Record standard to exchange data as per RECOMMENDED PRACTICE 1690.

Contents

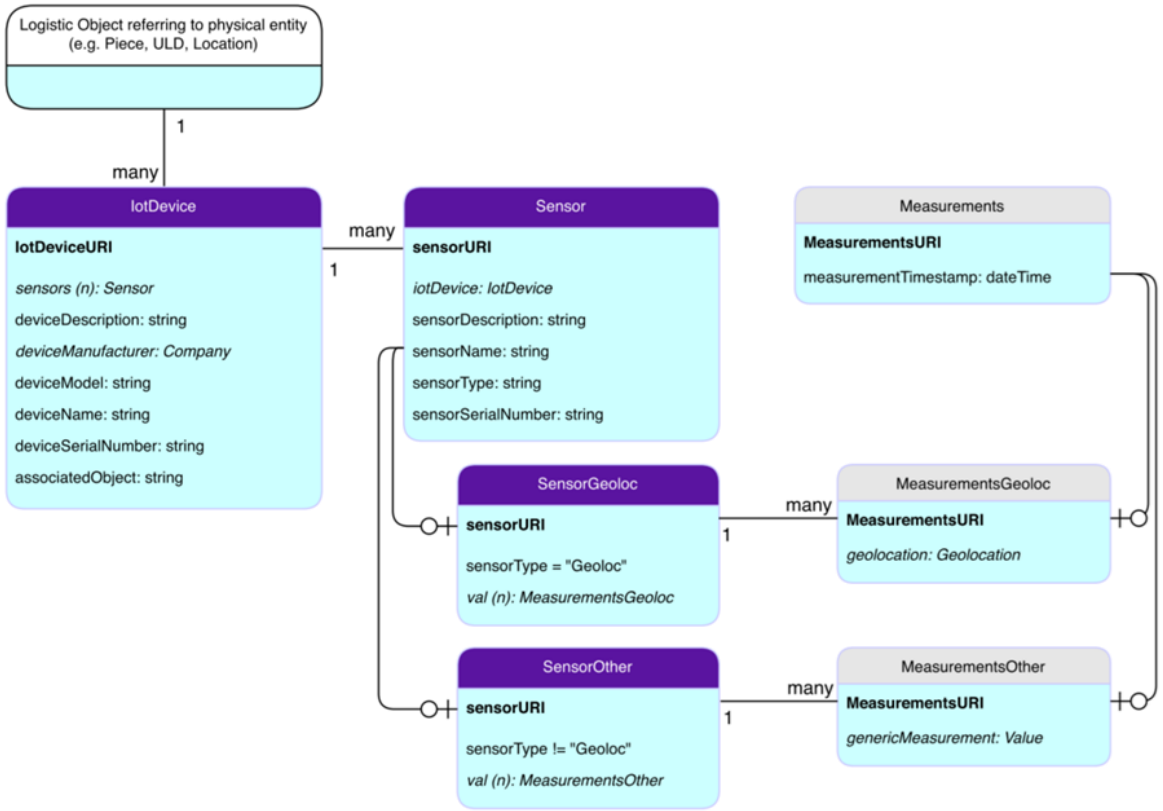
1 Definitions 1
1.1 Device description 1
1.1.1 Device definition 1
1.1.2 Device composition 2
1.1.3 Device identification 2
1.1.4 Measurement capability 3
1.2 Sensor description 3
1.2.1 Sensor definition 3
1.2.2 Sensor identification 3
1.2.3 Sensor type description 3
2 Integration of the data elements into the ONE Record Data Model 6

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**

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

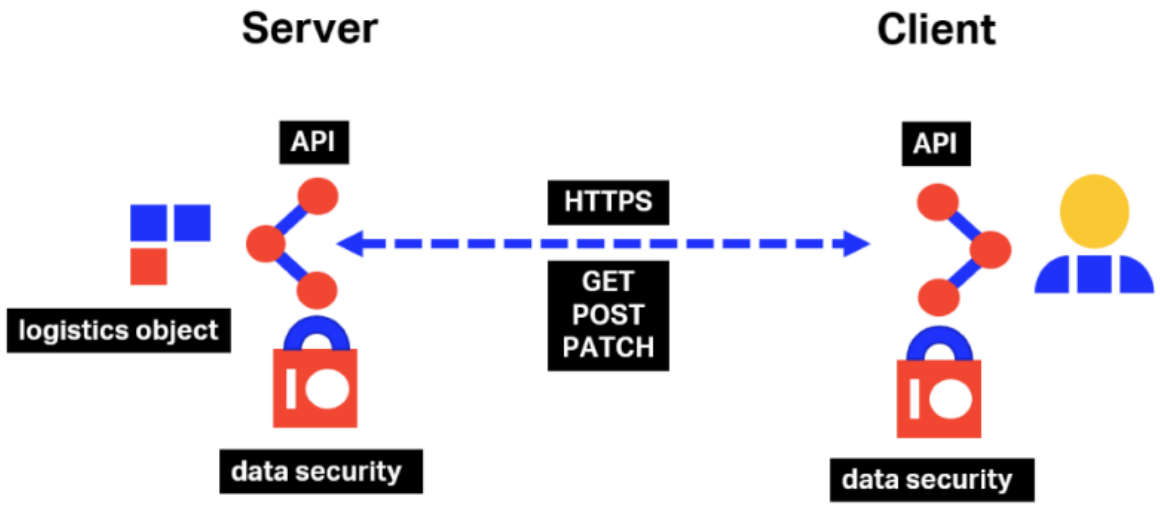


The descriptions of the data elements are available on the IATA Cargo GitHub

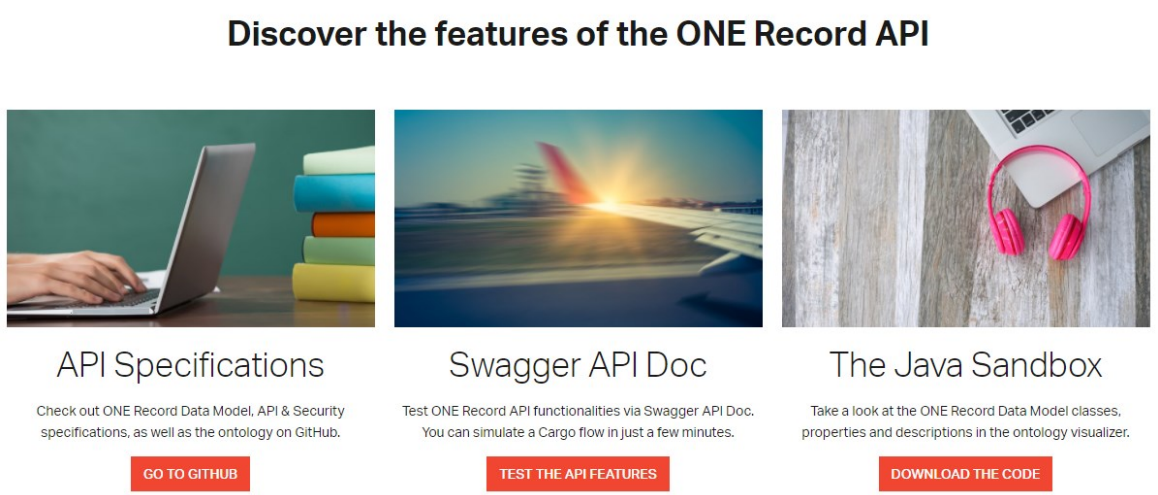
Class type	Class	Data property	Description
Logistic Object	**Sensor**		**Sensor details and measurements, linked to Connecte**
Logistic Object	Sensor	iotDevice	Reference to the IoT Device to which the sensor is linked
Logistic Object	Sensor	sensorDescription	Natural language description of the sensor
Logistic Object	Sensor	sensorName	Name of the sensor defined by the sensor's manufacturer
Logistic Object	Sensor	sensorSerialNumber	Serial number that allows to uniquely identify the sensor
Logistic Object	Sensor	sensorType	Type of sensor as described in Interactive Cargo RP
Logistic Object	**SensorGeoloc**		**Sensor measurements details for Geolocation sensors**
Logistic Object	SensorGeoloc	val	Reference to the measurements recorded by the geolocation s
Logistic Object	**SensorOther**		**Sensor measurements details for sensors other than**
Logistic Object	SensorOther	val	Reference to the measurements recorded by the sensor

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



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

Device Certification

How to set a standard certification process?

- ✓ Understand the technical constraints
- ✓ Understand the regulatory framework (e.g., FAA, EASA)
- ✓ Understand the current certification process

- ✓ Identify the pain points
- ✓ Define the priorities

- ✓ Identify commonalities and harmonization potential
- ✓ Set standard for connected device certification process

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As-is Analysis

What are the regulations and guidance materials?

- ***`AC 91.21-1D Use of Portable Electronic Devices Aboard Aircraft* (Advisory Circular 91.21-1D). (2017).** Federal Aviation Administration (FAA). https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1032206
- **AMC1 CAT.GEN.MPA.140 Portable electronic devices. (2019).** In *Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Annex IV Commercial air transport operations [Part-CAT]*. European Union Aviation Safety Agency (EASA). www.easa.europa.eu/sites/default/files/dfu/Consolidated%20AMC-GM_Annex%20IV%20Part-CAT_March%202019.pdf
- *DO-160G—Environmental Conditions and Test Procedures for Airborne Equipment*. (2010). American Radio Technical Commission for Aeronautics (RTCA). https://do160.org/rtca-do-160g/
- *DO-307 Revision A - Aircraft Design and Certification for Portable Electronic Device (PED) Tolerance*. (2016). American Radio Technical Commission for Aeronautics (RTCA). https://global.ihs.com/doc_detail.cfm?document_name=RTCA%20DO%2D307&item_s_key=00500905
- *DO-363—Guidance for the Development of Portable Electronic Devices (PED) Tolerance for Civil Aircraft*. (Dec-16). American Radio Technical Commission for Aeronautics (RTCA). https://standards.globalspec.com/std/10072592/RTCA%20DO-363
- *EASA FAQs—Cargo Tracking Devices*. (2020). EASA. https://www.easa.europa.eu/the-agency/faqs/cargo-tracking-devices
- *ED-14G—Environmental Conditions and Test Procedures for Airborne Equipment*. (2011). European Organisation for Civil Aviation Equipment (EUROCAE). https://eshop.eurocae.net/eurocae-documents-and-reports/ed-14g/#
- *ED-130A—Guidance for the use of Portable Electronics Devices (PEDs) on Board Aircraft*. (2016). European Organisation for Civil Aviation Equipment (EUROCAE). https://eshop.eurocae.net/eurocae-documents-and-reports/ed-130a/
- *ED-239—Aircraft Design and Certification for Portable Electronic Device (PED) Tolerance*. (2016). European Organisation for Civil Aviation Equipment (EUROCAE). https://eshop.eurocae.net/eurocae-documents-and-reports/ed-239/
- *FAA Aid to Operators for the Expanded Use of PEDs*. (2014). https://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2013/info13010sup.pdf
- *Guidance Document—Battery Powered Cargo Tracking Devices and Data Loggers*. (2020). International Air Transport Association (IATA). https://www.iata.org/contentassets/05e6d8742b0047259bf3a700bc9d42b9/lithium-battery-guidance-document-2020-for-pharma-en.pdf
- *Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria* (7th ed.). (2019). United Nations (UN). http://www.unece.org/trans/danger/publi/manual/rev7/manrev7-files_e.html

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RECOMMENDED PRACTICE – APPROVAL OF THE USE OF PORTABLE ELECTRONIC DEVICES FOR AIR CARGO

This recommended practice introduces a simplified and standard approval process for the use of portable electronic devices onboard aircraft. The standard approval request form can be downloaded at www.iata.org/interactive-cargo.

The recommended practice will be available in the next release of the Cargo Services Resolution Manual.

RECOMMENDED PRACTICE RPXXXX

APPROVAL OF THE USE OF PORTABLE ELECTRONIC DEVICES ONBOARD AIRCRAFT FOR AIR CARGO

CONSIDERING, it is the operator's responsibility to authorize the use of Portable Electronic Devices (PEDs) onboard aircraft.

CONSIDERING, the potential for PEDs that are active during transport to interfere with aircraft navigation or communication systems.

RECOGNIZING, the need for supply-chain visibility.

RECOGNIZING, the complex regulatory landscape.

RECOMMENDED that, Members defining their device approval process should always:

- Use the below guidelines and checklists as a reference.

However, it is recognized that the final decision is up to the operator and the approval process must comply with all applicable international/national regulations.

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1 Definitions 2
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4 Portable Electronic Device Approval Process 3
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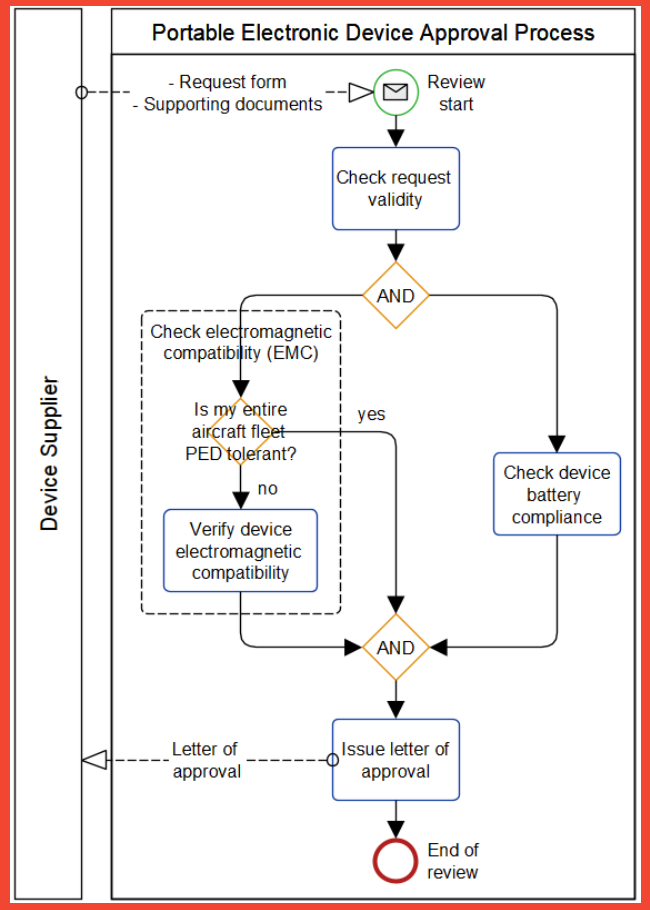
4.2 Check Electromagnetic Compatibility (EMC) 4
4.3 Check Device Battery Compliance 5
4.4 Issue Letter of Approval 5
Attachment 'A' – Approval Request Form for the Use of Portable Electronic Device Onboard Aircraft for Air Cargo 6
Attachment 'B' - Aircraft PED Tolerance Checklist 10
Attachment 'C' – Device Electromagnetic Compatibility (EMC) Checklist 11
Attachment 'D' – Regulations and Guidance Materials 12

Overview of the recommended practice

Process



Request Form

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?	

Checklists

Aircraft PED tolerance checklist
1.Front Door Coupling
2.Back Door Coupling

Device Electromagnetic Compatibility checklist
1.Front Door Coupling
2.Back Door Coupling

Pilot Project Objectives on Device Certification

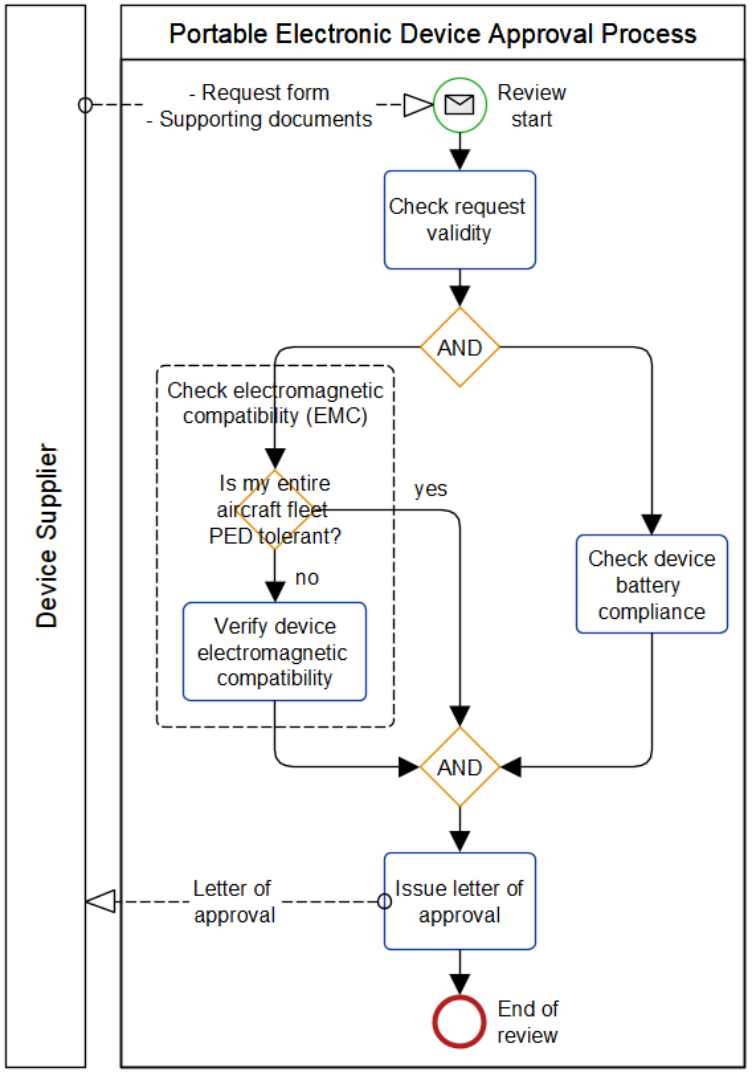
- Validate the approval process recommended by IATA
- Standardize the approval request form
- Simplify the approval process for interlines
- Pre-assess cargo tracking devices by IATA (need to be validated by airlines)
- Create a database of approved cargo tracking devices

Validate the approval process recommended by 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.



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

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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

Data Use Agreement

Data Use Agreement

What are the rules around the use and disclosure of the data?

- Understand risks related to the use of Interactive Cargo Data
- Understand the data legal framework with regard to tracking devices

- Identify the mitigation risks
- Describe the use/disclosure and outlines parameters of specific purpose

- Agree on a Data Use Agreement, either under a charter or an amendment of the conditions of carriage

The adoption of IoT devices introduces new risks and opportunities

1. **Internet of Things (IoT)** devices are becoming more predominant, supply chain stakeholders need to be mindful of the following key issues:

    - Safety issues
    - Data privacy and protection
    - Liability issues
    - Data ownership
    - Intellectual Property Rights

2. **Lithium battery-**powered devices are being used and can interfere with aircraft equipment:

    - Civil Aviation authorities must approve these devices.
    - Airlines want shippers to tell them when and which devices are being used.

3. **Quality of service**.

Amendment of the Recommended Practice 1601 Conditions of Carriage for Cargo

"….3.8 Portable Electronic Devices for Air Cargo (PED)

a) Shipper shall not attach to, or include with, any shipment any equipment used to capture and record data regarding the shipment (a Portable Electronic Device, also known as a PED) except in compliance with the conditions set forth in paragraphs (b), (c), and (d).

b) At the time of booking with the Carrier, Shipper will provide the Carrier in writing with (1) the name of the Device Manufacturer and the model of the PED to be attached; (2) confirmation that such device has been approved/certified for use in air carriage by the appropriate regulatory authorities if applicable and previously authorized by the Carrier; and (3) confirmation that any such device that contains a lithium battery has been handled and packaged in accordance with applicable dangerous goods regulations.

c) Shipper shall also ensure that the PED is in good working order before Carriage.

d) Shipper shall acknowledge that in tendering a Shipment with a PED, Shipper grants the Carrier a perpetual, royalty-free, irrevocable license to use any data emanating from such PED and Shipper shall make such data available to the Carrier upon request.

e) Notwithstanding acceptance by the Carrier of a shipment including a PED, Shipper shall remain responsible for any damage or injury to the Carrier or third parties as set forth in Sections 6.1.1 and 11.9 hereof".

Interactive Cargo Handling

Challenges identified in interactive cargo handling

- Procedures and requirements for using approved tracking devices and data loggers remain unclear.
- No standard way to declare and describe devices, this most often leads to their non-declaration.
- Difficult and time-consuming to verify that the device is approved for interline.

If no action is taken, the handling of interactive cargo will evolve inconsistently and inhibit the movement of goods as shipments will be more likely to be blocked, delayed, or returned.

Pilots for Operational Validation

Pilots for Operational Validation

How to verify the set of standards are fit for purpose?

- Stakeholders
- Scope (i.e., business process)
- Deliverables
- Timeline

- Project team
- Roles & responsibilities
- Organization structure

- Stage-gate process
- Project committee
- Key Performance Indicators

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

✓ **Define the flow of data**
FEB-21

Monitor shipment movements
JUL-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 HK
Global Logistics System (HK) Co., Ltd

Implementation roadmap

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

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

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

Monitor shipments and test procedure JUL-21

Evaluate results AUG-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

ONASSET INTELLIGENCE

SINGAPORE AIRLINES CARGO

CARGO COMMUNITY NETWORK

Implementation roadmap

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

Interface data JUL-21

Develop web platform OCT-21

Test Proof of Concept JAN-22

Completion MAR-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

CAAS
Civil Aviation Authority of Singapore

SINGAPORE AIRLINES CARGO

BeOn

berlingergroup
feel safe

SOLUTIONS

Implementation roadmap

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

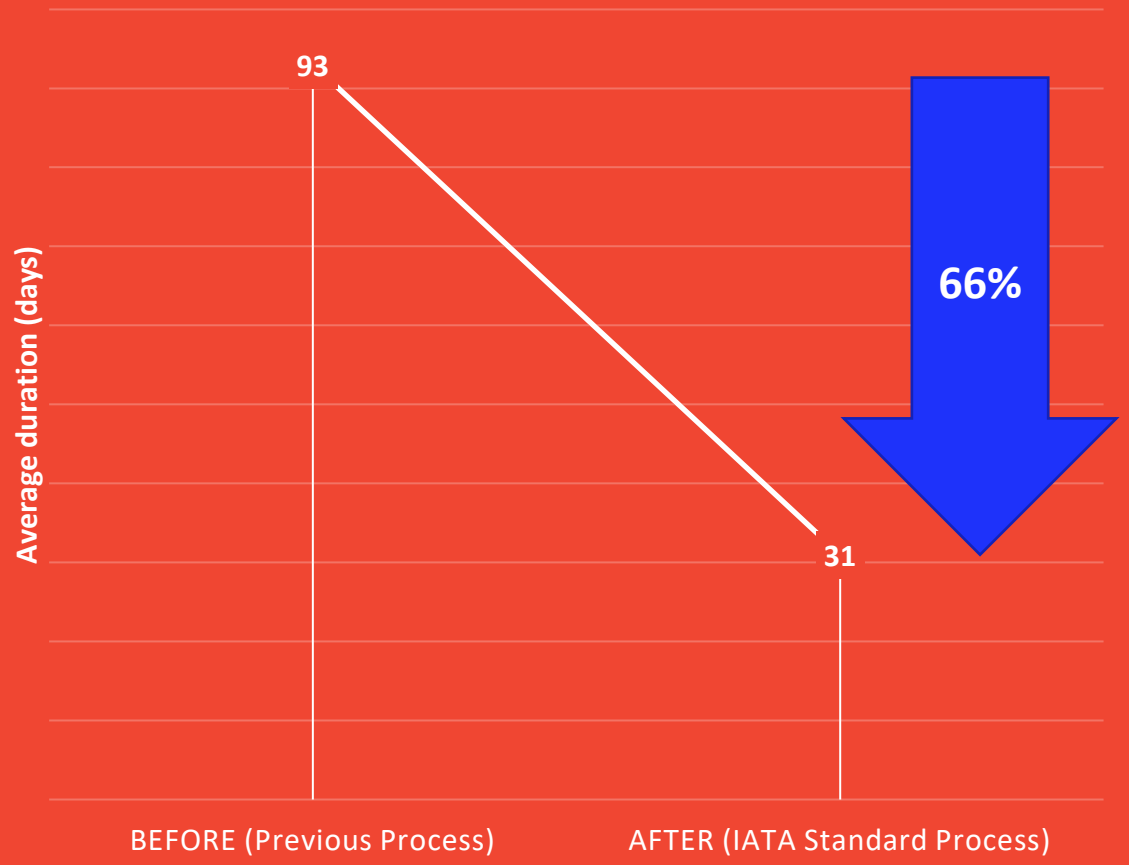
✓ **CAAS to review IATA Recommended Practice**

✓ **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



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 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

IATA

SINGAPORE AIRLINES CARGO

berlingergroup
feel safe

Implementation roadmap

IATA to survey airlines to validate the need AUG-21

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

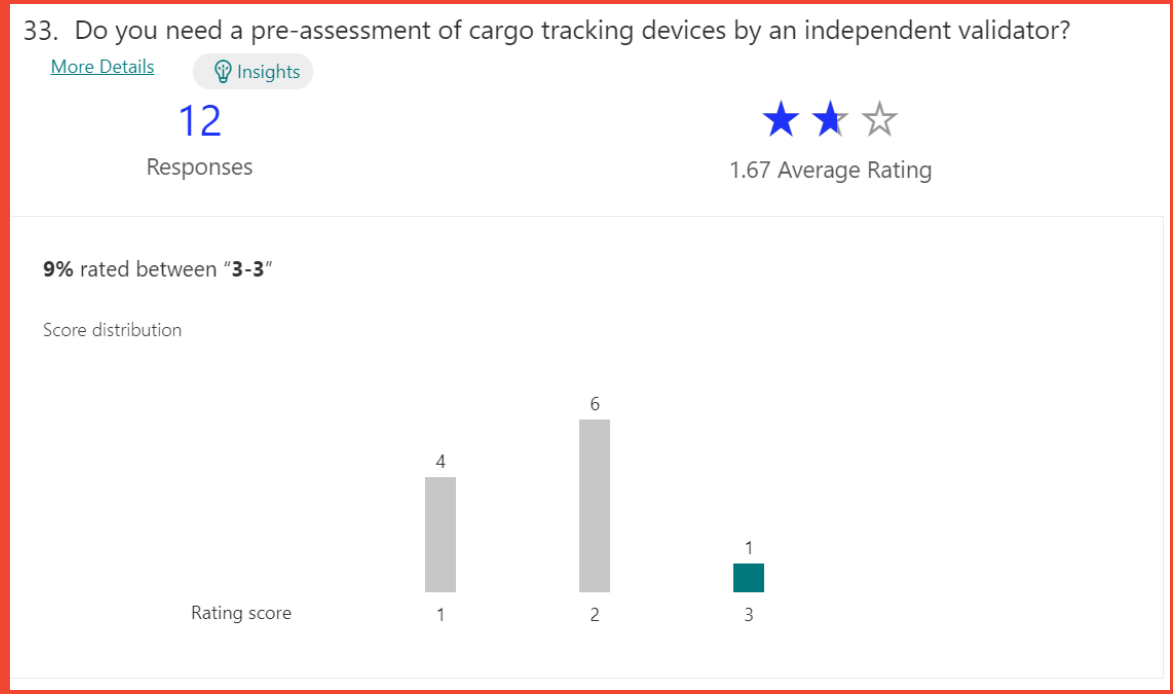
Test the pre-assessment by an independent validator SEP-21

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



For more information, visit the Interactive Cargo web page

Making Cargo Talk

"When something goes wrong, it takes time to get information". Air cargo customers demand more end-to-end visibility and real-time information about their shipments. The demand for these capabilities is exploding with the growth of e-commerce and increased quantities of special cargo flown. The online retailers and shoppers need and want to know where their shipments are at any time. The producers and manufacturers of fresh food, perishable items and pharmaceuticals want to know the conditions in which their shipments are moving. Equipping the air cargo industry with this capability is imperative to improve the value proposition of air cargo and help our members to capitalize on e-commerce and special cargo growth.

Air cargo suppliers need that information at an individual piece level to take proactive actions to ensure compliance with customers' and regulators' demands. This is valid for all types of products but is becoming a critical requirement for Special Cargoes (pharma, perishables, live animals, vulnerable, high value, etc.).

Find out more about the Interactive Cargo project here (pdf)

Objectives

The vision of the Interactive Cargo project is to equip the air cargo supply chain with responsive air cargo services based on intelligent systems able to self-monitor, send real-time alerts, respond to deviations to meet customers' expectations, and report on the cargo journey.

The goal of the Interactive Cargo project 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 to enable cargo interactions.

The scope of the Interactive Cargo project includes the planning, development, testing, deployment, and promotion of the standards and guidelines. The four objectives of the project are as follows:

1. Simplify and standardize the air carriers' process for the **approval of the use of portable electronic devices on board aircraft**.
2. Define the **IoT device data elements** to be captured and shared among the supply chain actors and ensure visibility and traceability of the air cargo supply chain. The data elements will then be integrated into the IATA ONE Record Data Model.
3. Add an amendment to the conditions of carriage for cargo on the **Data Use Agreement** to clarify the legal context of data use.
4. Run **pilot projects** to operationally validate the IATA standards.

Designed for

- Shippers
- Freight Forwarders
- Ground Handlers
- Airlines
- International or National Organizations in Air Cargo
- Aircraft Manufacturers
- Device Manufacturers
- ULD Manufacturers
- IT Service Providers

Upcoming deliverables

- **Recommended Practice - IoT device data sharing in air cargo** to be endorsed by the Cargo Services Conference (CSC) by March 2021.
- **Recommended Practice - Approval of the use of portable electronic devices for air cargo** to be endorsed by the Cargo Services Conference (CSC) by March 2021.

Pilots

The following pilots will validate the IATA standards. Contact us if you wish to participate or propose your own pilot project:

- Portable Electronic Device (PED) approval for air cargo (pdf)
- Real-time cargo tracking (pdf)
- End-to-End visibility (pdf)
- Other pilots to come.

Meetings

The Interactive Cargo Task Force meets every two months to review the project. The meetings are listed on the Work Groups Calendar. In addition, work package meetings are held once or twice a month.

Membership

The Interactive Cargo Task Force is composed of more than 50 participants representing the whole supply chain:

- **Up to 20 members** representing their area of expertise. They are nominated by the IATA Cargo Operations and Technology Board (COTB);
- **Observers** from IATA Members and industry stakeholders, including Strategic Partners, may attend the meetings with the agreement of the Secretary;
- **IATA subject matter experts** from other groups such as the Dangerous Goods Board (DGB), Cargo iQ, the Ground Handling Consultative Council (ICHC), the Live Animals and Perishables Board (LAPB), the ONE Record Task Force (ORTF), and the ULD Board (ULDB).
- **Invited experts**: From time to time, for specific topics, the Secretary invites industry experts for consultation.

If you are interested in joining the Task Force or want to find out more, contact us at interactivecargo@iata.org.

How to get involved?

Contact us at:

InteractiveCargo@iata.org

Website:

iata.org/interactive-cargo

2021 Interactive Cargo Webinar

Part 2

Safely and efficiently approving the use of cargo tracking devices

Jeff Clark
Founder & CEO
7PSolutions, LLC

IATA

TP SOLUTIONS

Safely and Efficiently Approving the use of Cargo Tracking Devices

29 June 2021

TP SOLUTIONS

Approving the use of Portable Electronic Devices (PEDs) Approval for Air Cargo

Pilot Project Goals

- Adopt the IATA recommended practice for the approval of PEDs onboard aircraft for air cargo shipments
- Establish a standardized checklist to be utilized during the approval process
- Standardize the information required
- Decrease the duration required for airlines to complete an approval request

TP SOLUTIONS

Approving the use of Portable Electronic Devices (PEDs) Approval for Air Cargo

Approval Challenges

- Documents required for the approval process
- The time required for the PED approval
- How to approve different models / types of devices at the same time
- How to approve next generate of PEDs

TP SOLUTIONS

Approving the use of Portable Electronic Devices (PEDs) Approval for Air Cargo

Pilot Project Results

- A detailed device manual was provided to the airline, this was easily passed to the civil air authorities of their home base country
- Device manual allowed for a simple check-off by airline engineering team as well as the civil air authorities, reduction of questions
- Improved approval duration
- Improved approval process of two (2) different PED models within the same process

STRATEGIC PARTNER
IATA
INTERNATIONAL AIR TRANSPORT ASSOCIATION

2021 Interactive Cargo Webinar

Part 3

Sharing IoT device data with ONE Record: Outcomes and lessons learnt

Tomal Sohorab
Manager, Cargo Solutions Strategy and Business Development
Air Canada Cargo

IATA

Blue Skies

Tomal (Tom) Sohorab
Manager, Cargo Solutions Strategy and Business Development
tomal.sohorab@aircanada.ca

June 29, 2021

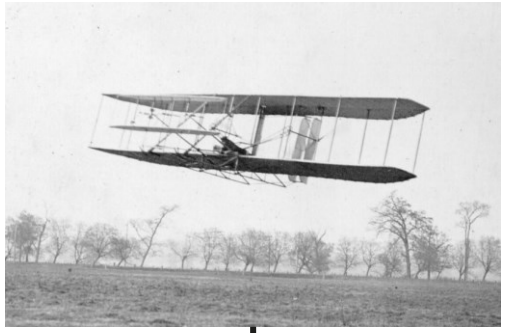
Outline:

1. **Air Canada Timeline**
   The technology milestones and the common denominator.
2. **Build Cars or Roads ?**
   IoT devices driving the demand for transparency. Transparency requires structure !
3. **Beyond Cargo**
   Transparency creating new opportunities beyond the box.

Air Canada Timeline

You've Got Mail !

A brief history of Air Canada (TCA)

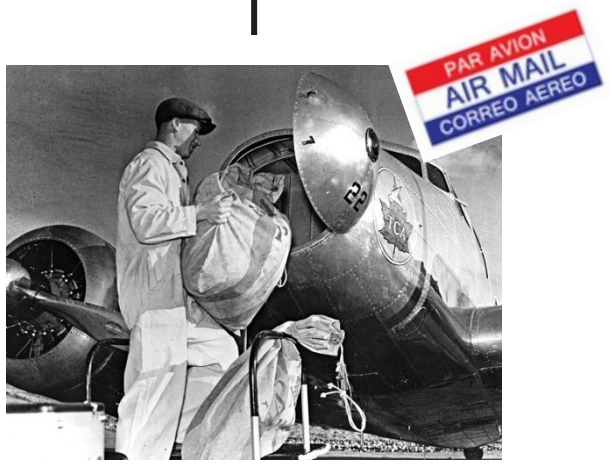


1900s

1950s

Today

1937

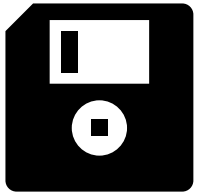


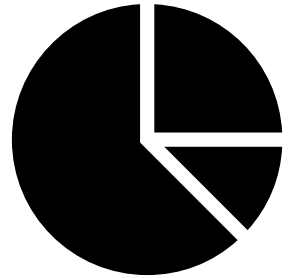
1995

Passenger vs Cargo Data:

Finding the common denominator

Class Type
PCC
…

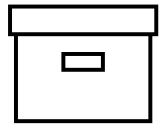




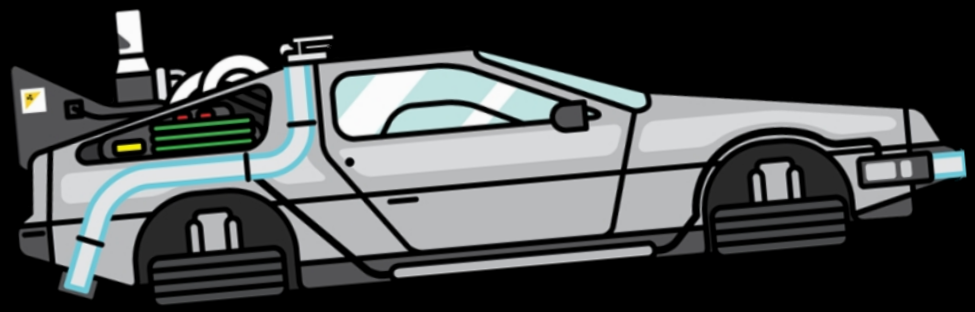
PUP …

FOH, RCS,
DEP, ARR,
RCF, NFD, DLV

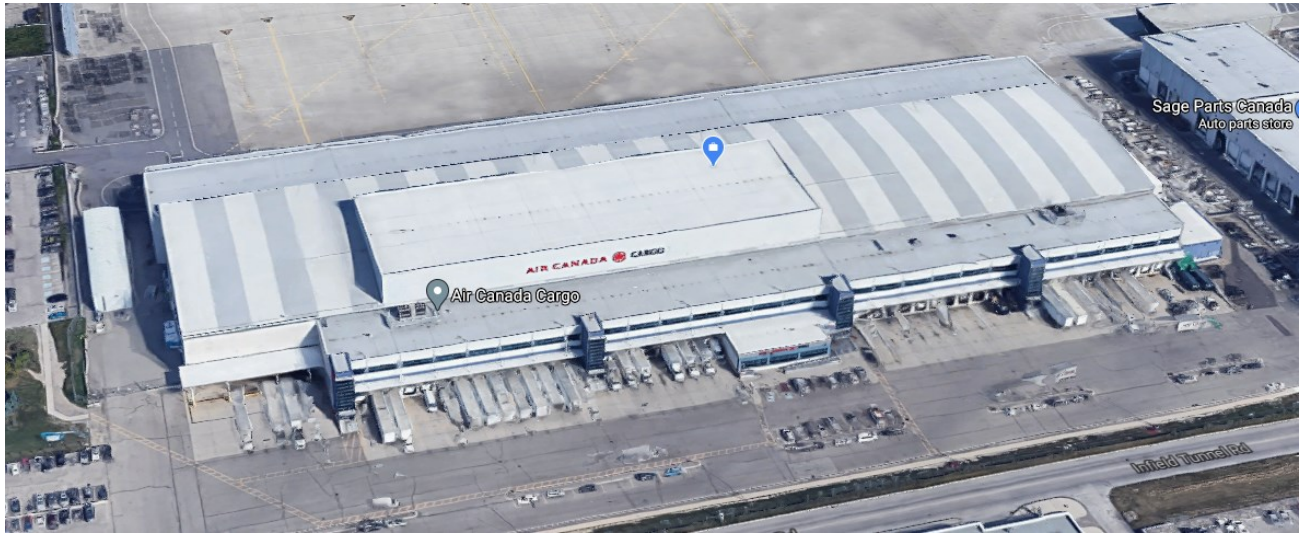
… POD



Cars or Roads ?



Answer: Roads



CEIV - EXCELLENCE IN LOGISTICS
IATA
ANIMALS

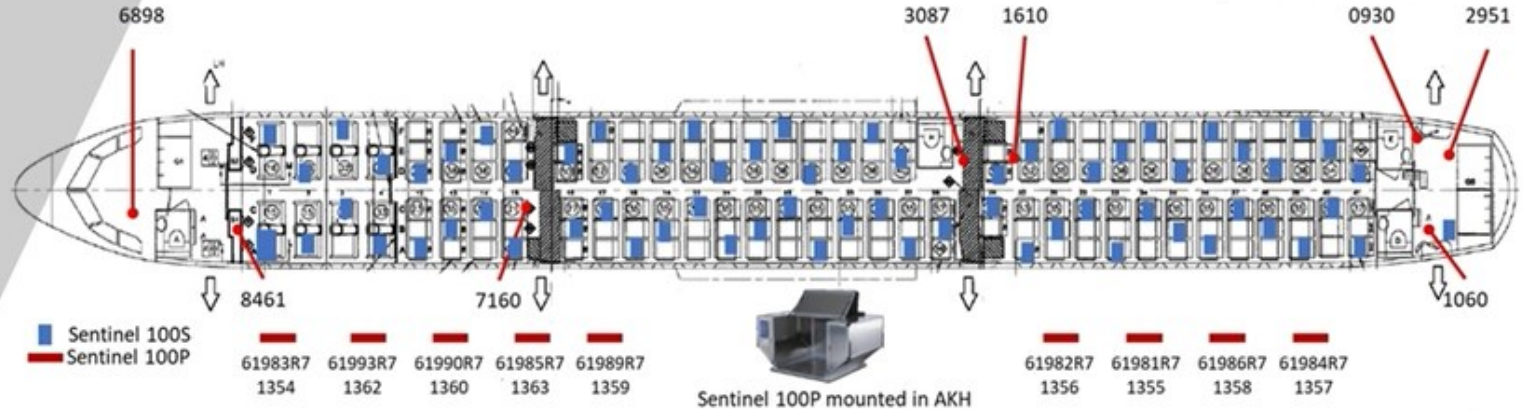
2018

CEIV - EXCELLENCE IN LOGISTICS
IATA
PHARMA

2020

Connected Aircraft

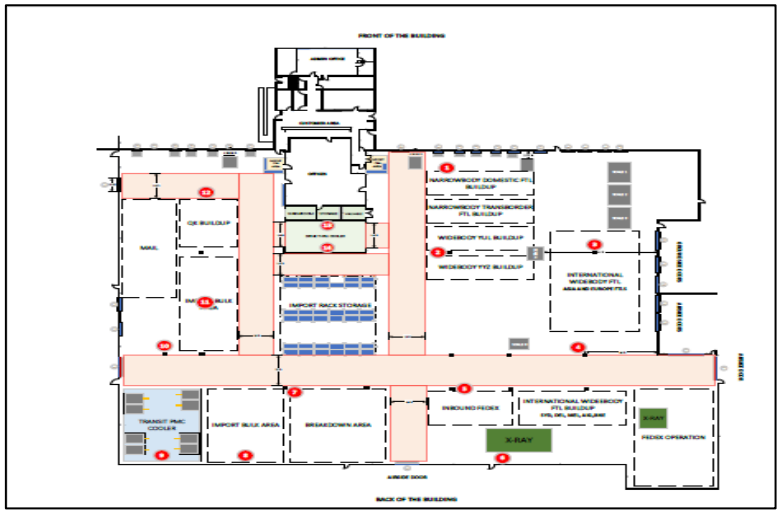
Blue dots represent a Sentinel (tracker) and
Red lines represent a Sentry (e.g. 6898, 8461, 7160 …)
Red lines with the R7 represent the Sentinel 100P
(tracker to be used in ULDs)

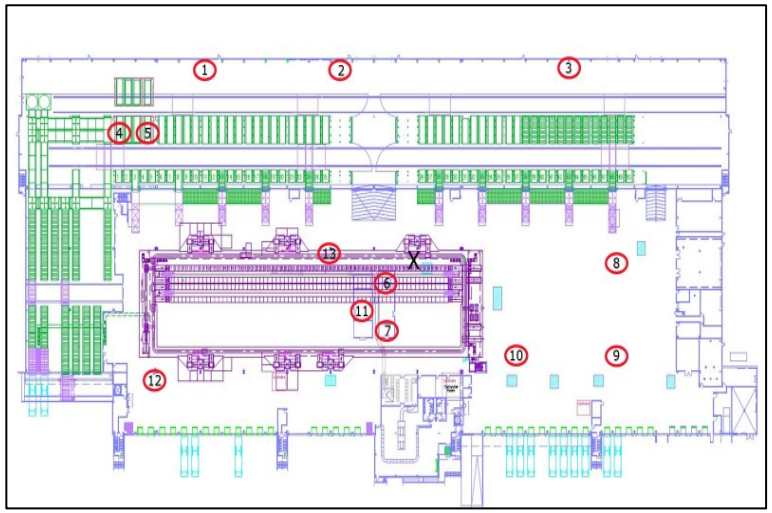


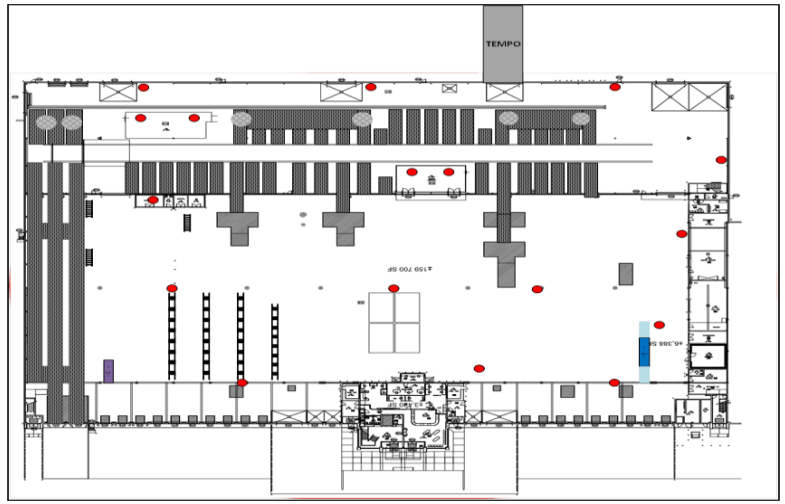
Connected Warehouse

Red X = Sentry 500 (reader)
Yellow O = Sentinel 100 (tracker)

Air Canada Cargo Warehouses w/Real-Time Temperature Monitoring

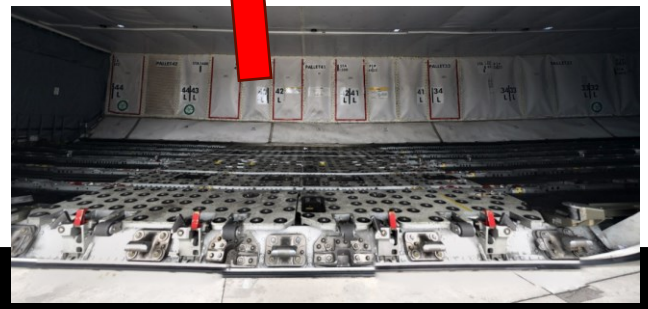




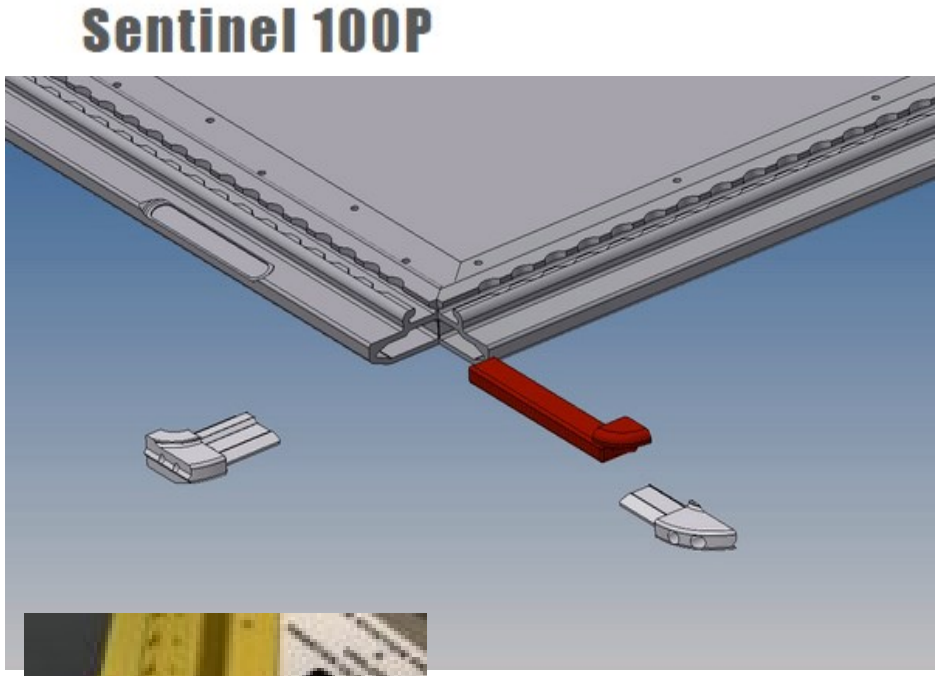


A319 – Air Canada Jetz (C-GBIK)

Another First !

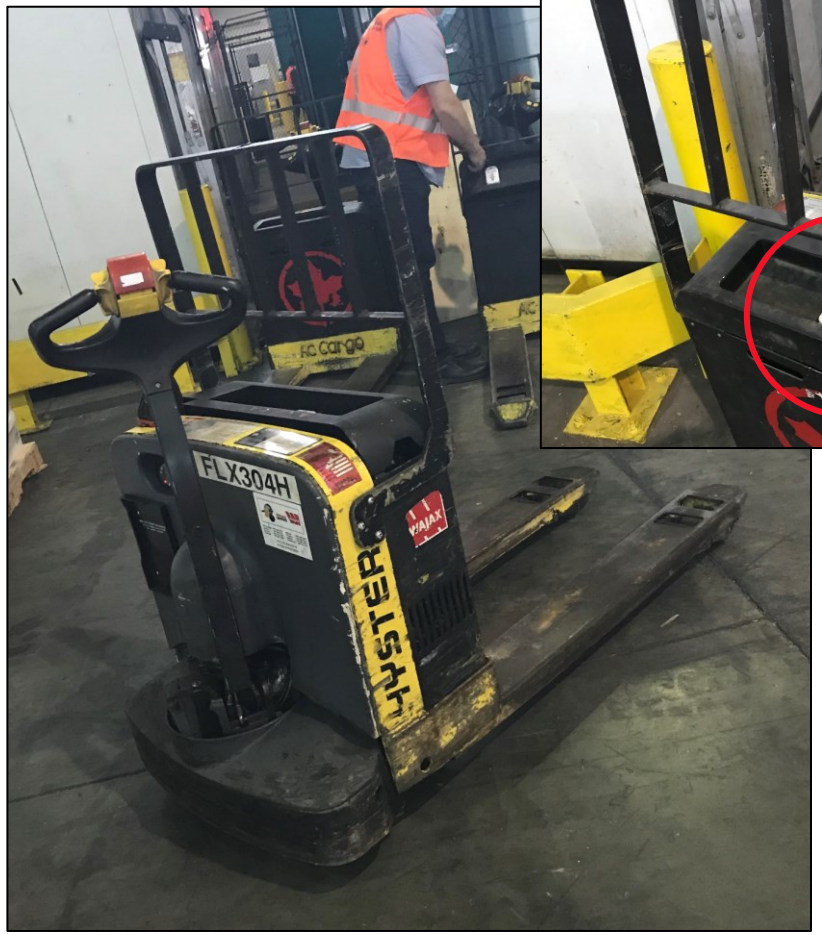


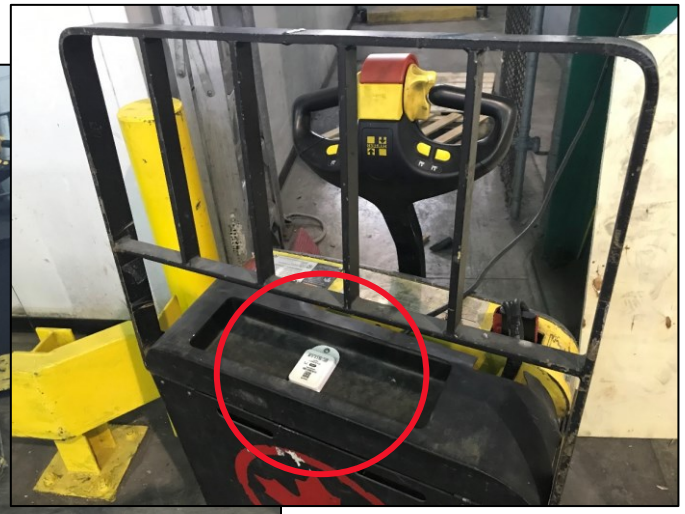
Unilode Sentinel tags in Pallets & ULDs

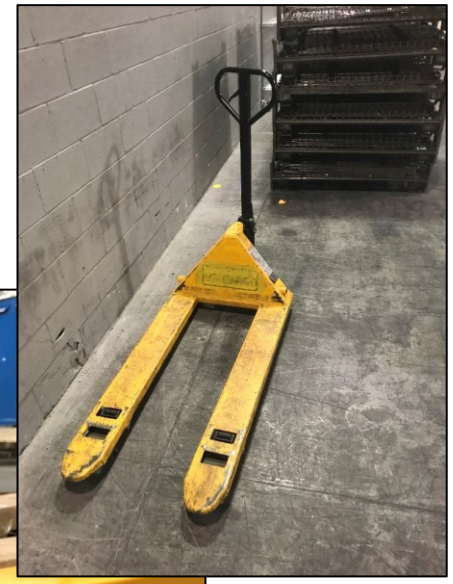


The eternal cargo resident

FLX and Pump Trucks







What Next ?

Cargo Piece Level Tracking
(One Record)

Passenger Baggage Tracking

Cargo and Maintenance
Warehouses

Unaccompanied Minors

Cargo, Maintenance, and
Airports Assets

Pet location tags

Airports Ground Service
Equipment

AC Altitude Bag Tags

OnAsset and Air Canada Bluetooth tags

2018

Tomal (Tom) Sohorab
Manager, Cargo Solutions Strategy and Business Development

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Thank You

Merci

2021 Interactive Cargo Webinar

Part 4

The handling of interactive cargo: Main challenges and potential solutions

James Hookham
Secretary General
Global Shippers' Forum

IATA

IATA Digital Cargo Conference 2021
Interactive Cargo Project

29 June 2021

‘The Handling of Interactive Cargo: Main Challenges and Potential Solutions’

James Hookham
Global Shippers’ Forum

Agenda

global shippers forum

- Opportunities
- Challenges
- What could possibly go wrong?
- Handling procedures
- De-risking use of smart trackers and data loggers

Brave new world

Smart trackers & data loggers offer shippers:

- Real-time location tracking
- In-flight comms capability (?)
- Record of environmental conditions
- Alerts for tampering, change of route, temperature exceedances, mechanical shock, etc
- Notification of arrival, departure, jurisdiction change, clearance, etc

New technology?
What could possibly go wrong?

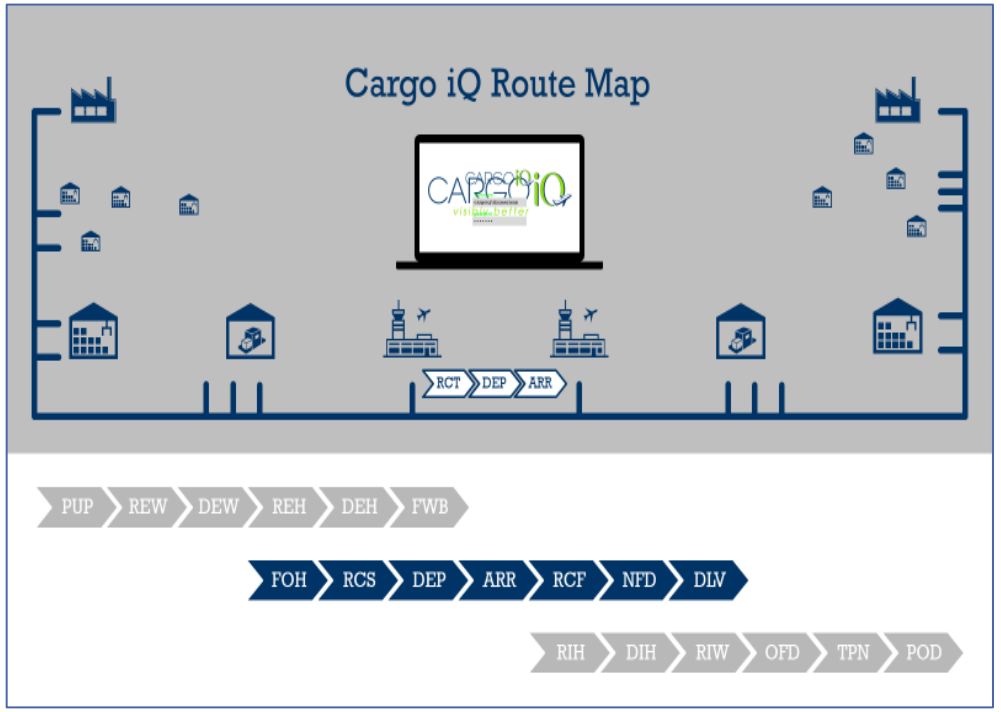
global shippers forum

- Make and model approved by booked airline or partner airlines?
- Do I need to provide evidence of conformity?
- Are battery-powered units Dangerous Goods?
- Any additional marking/labelling on packages?
- Any additional entries in Airwaybill?
- Advance notification?
- Additional costs? Additional risk of delay?
- Data access rights, uses and protections

Solutions under development …

global shippers forum

- Device conformance checking
- Standardised handling procedures
- Simplified DG procedures (?)
- Common documentation requirements
- ‘One-stop’ source for IC requirements
- Handling staff training
- Data protection & security assurances
- Integration of IoT capabilities into Cargo iQ MOP and shipper KPIs



“Interactive Cargo needs to become routine in order to become popular”

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 Digital Cargo Conference 2021
Interactive Cargo Project

29 June 2021

‘The Handling of Interactive Cargo: Main Challenges and Potential Solutions’

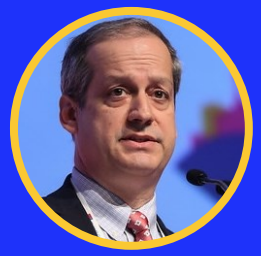
James Hookham
Global Shippers’ Forum

2021 Interactive Cargo Webinar

Part 5

Networking session with our speakers

Sonia Ben Hamida
Project Manager Interactive Cargo
IATA



Carlos Tornero
Deputy General Counsel
IATA

Jeff Clark
Founder & CEO
7PSolutions, LLC

Tomal Sohorab
Manager, Cargo Business Development
Air Canada Cargo

James Hookham
Secretary General
Global Shippers' Forum

Networking: Join the IATA Interactive Cargo virtual space to talk with our speakers and the IATA Digital Cargo Team

IoT Device Approval

Jeff Clark
Founder & CEO
7PSolutions, LLC

IoT Data Sharing

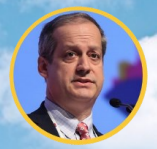
Tomal Sohoral
Manager, Cargo Business Development
Air Canada Cargo

Pilots & Hackathon

Sonia Ben Hamida
Project Manager Interactive Cargo
IATA

Henk Mulder
Head, Digital Cargo
IATA

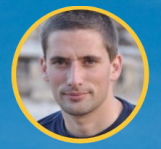
Data Use Agreement



Carlos Tornero
Deputy General Counsel
IATA

David Sauv
Manager Digital Cargo
IATA

Christophe Lambert
Project Manager Digital Cargo
IATA



Arnaud Lambert
ONE Record Engagement
Manager, IATA

IATA Digital Cargo Team

Cargo Handling

James Hookham
Secretary General
Global Shippers' Forum

How to meet and talk with people in the room?

1. Click and hold and your avatar will move to your cursor.
2. Bring your avatar to another avatar, and a circle will form.

2021 Digital Cargo Webinars Calendar

1	**Executive session**	Recording of webinar (YouTube)
2	**Digital Cargo**	24 June, 14:00 - 15:30 CEST
3	**Interactive Cargo**	29 June, 14:00 - 15:30 CEST
4	**Pilots & Hackathon**	1 July, 14:00 - 15:30 CEST
5	**ONE Record**	6 July, 14:00 - 15:30 CEST
6	**EU FEDeRATED Project**	8 July, 14:00 - 15:30 CEST
7	**Digital Cargo Products & Tools**	13 July, 14:00 - 15:30 CEST

Register on www.iata.org/en/events/e-cargo

IATA

Thank you

Contact:

InteractiveCargo@iata.org

Website:

www.iata.org/interactive-cargo