LL #11 Internet of Logistics

FACTSHEET
10 MARCH 2022

A. GENERAL (business case)

1. Objectives

- Transport and cargo tracking
- Interoperable data sharing platform - data directly for stakeholders without intermediaries
- Semantic model for air cargo, including multimodal application, and application IATA's ONE Record standard for data sharing
- Architectural components related to API's and Security
- Testing end to end supply chain visibility, including some multimodal touchpoints, in the main logistics use cases
- Supply chain visibility.

2. Main emphasis

The main emphasis lies in improving end-to-end supply chain process efficiency and maximize capacity utilization by enhanced supply chain visibility and transparency through data sharing. Thereto guiding principles and an architecture are developed. This Living Lab will also introduce technology and innovation thus providing the breeding ground for a generation of tech savvy digital natives leading the logistics industry into the next decade. The Internet of Logistics Living Lab will attract fresh talent to make this happen. The IATA team also actively engages the Internet of Logistics participants in training and technical development events such as webinars and hackathons.

Specifically, the focus is on the following elements:

- Improved Data quality & control. Legacy data processes pass on data down the logistics chain sequentially, from one party to the next. Therefore, if an error occurs at any stage, it's carried forward downstream which then require resource intensive and costly data corrections. The Internet of Logistics uses semantic models and technologies that encapsulate multiple legacy standards and provides automated data interfaces to different data sources.
- Plug & play connectivity as a key design guide in the API design, enabling stakeholders to easily connect to the Internet of Logistics without technical entry barriers.

3. Challenges

- The (air freight) logistics supply chain is currently supported by a fragmented data platform eco system that does not facilitate data sharing and innovation between supply chain partners.
- Current data exchange systems are based on outdated technology which slows down innovation and progress.
- The transition from the current use of incompatible data standards and versions - that require costly data processing and conversions - into the Internet of Logistics Living Lab requires a structural change for many stakeholders.
- Next to suitable architectural solutions and semantic models, the readiness of stakeholders in understanding, applying, and implementing such new concepts. Although this leads to slow uptake curve, it also creates a core of experts to support the era of data sharing and federation of platforms.

4. Transport mode

Air, in conjunction with Road and Sea

5. EU Map Focus

Estonia, Sweden, Finland, Germany, Netherlands, Italy, Spain, Luxemburg and France as well European partner states like Switzerland and United Kingdom.

6. Geographical coverage

Current centers of activity (hubs) are in: Amsterdam, London, Montreal, Doha, Singapore, Hong Kong & Frankfurt. More hubs are continually being created. Focus countries currently include Australia, Canada, India, Qatar, SAR Hong Kong, PR China, Singapore, Turkey, United States of America.

All these territories are relevant since they move freight to and from the EU. As such, lessons learned outside the EU are equally important for the Internet of Logistics Living Lab. For example, the EU-China e-commerce corridors are highly relevant for the European freight networks.

7. Actors

The main type of stakeholders involved in the Internet of Logistics Living Lab are:

- Shippers: Ericsson
- Freight Forwarders: DB Schenker, GEODIS, DHL, DSV, SinoTrans, Expeditors, Allport, Dimerco
- Ground Handling Agents (GHA): Alha, Swissport, Menzies, DNATA, QAS
- Airports: London Heathrow, Frankfurt Airport, Hong Kong Airport Authority, Doha Hamad Airport

- Airlines: Air Canada, Lufthansa, Qatar Airways, Cathay Pacific, Singapore Airlines, Air France – KLM, Etihad Airways, Finnair, IAG Cargo, Virgin Atlantic, Swiss WorldCargo, Turkish Airlines
- Customs Authorities: Border Force (UK), HK Customs (Hong Kong), Qatar Customs
- Trucking Companies: CHI, Vedia, Ospentos
- Cargo Community Systems (CCS): Descartes, CHAMP, CCN, BT, GLSHK, Wisetech Global, CCS-UK
- IT Solution Providers: Accelya, Riege, Dakosy, Nallian, IBS Software, Nexshore
- Misc: Fraunhofer Institute, PACTL, CPSL, CargoIQ

8. Forecast scaling outside LL

The scaling of the Internet of Logistics is based in the ONE Record standard that was designed to facilitate scaling up of the network. At the start of the project, there were 30 companies actively involved in implementing the standard and connecting their platforms for interoperability. In July 2021, that number has increased to 140+. We can reasonably expect this number to go to 250 by the end of this project.

B TECHNICAL SETTING

9. ICT vs physical

As the IATA Living Lab title “Internet of Logistics” suggests, this uses the web standards, i.e. the internet for data exchange between air transport & logistics partners. Instead of the traditional electronic document exchange paradigm where logistics information travels along the logistics chain (shown on the left below), in the Internet of Logistics, data is exchanged directly between the stakeholders, somewhat independent from the physical movement of freight. To the stakeholders it appears that they have transparent access to data related to their freight and logistics, thus creating a “virtual shipment record” in the cloud.

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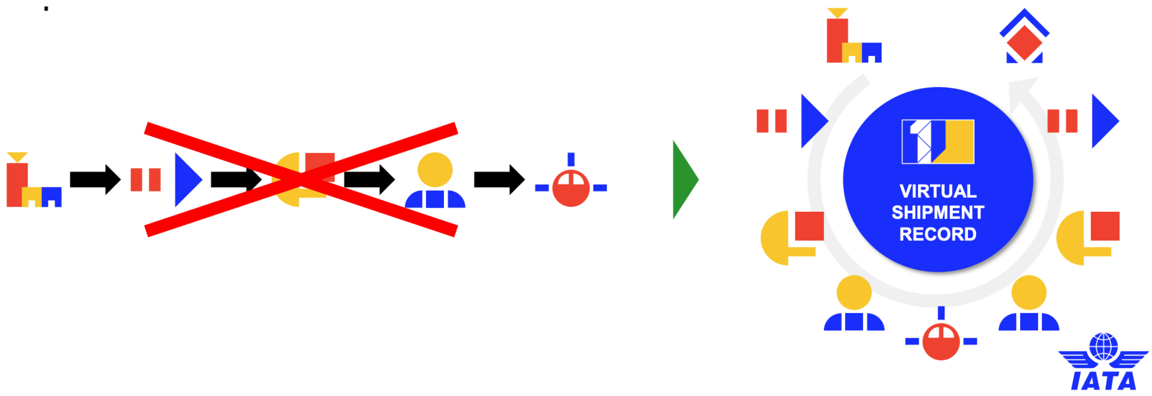
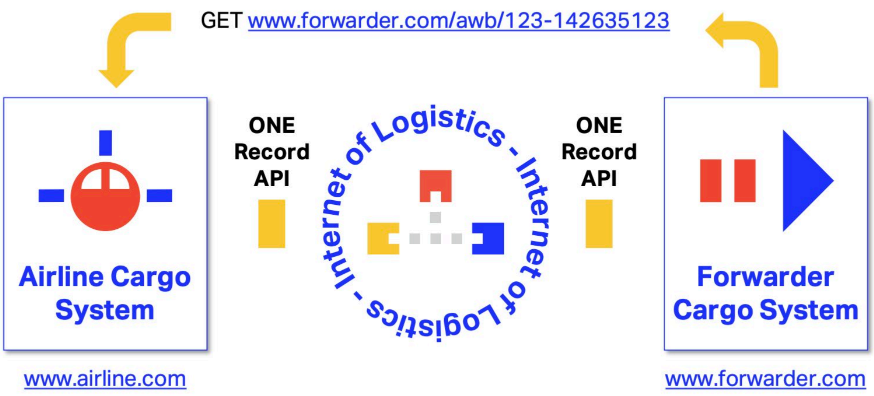
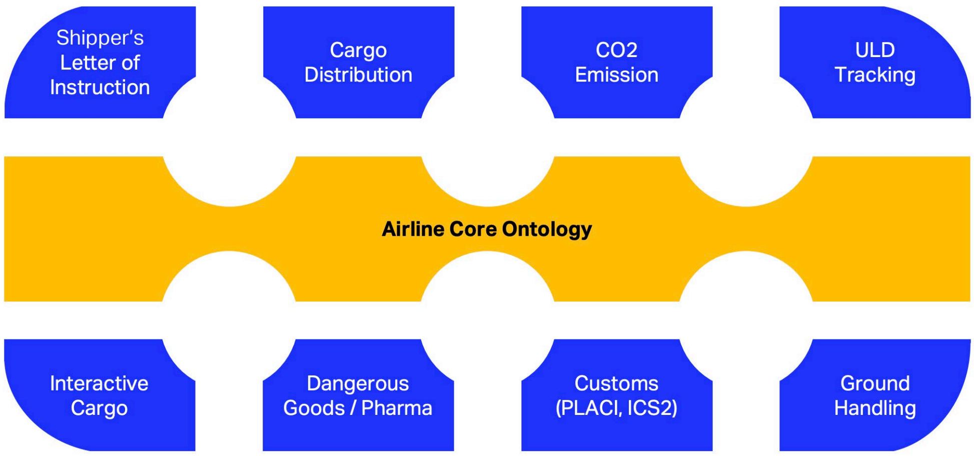


Data is exchanged via the internet using standard web protocols using API and URI's that directly identify the data that needs to be exchanged. Below is an example of an air waybill exchange between an airline and a forwarder.



Data that is exchanged is captured in a semantic model that is "physics oriented", i.e. the semantic model is a reflection of common air freight use cases and digital twins as shown below. At the center is a piece-level centric air transport model.



This Living Lab deals with the following FEDeRATED global features:

- Language
- Access
- Identity

10. DTLF implementation option

A. Peer-to-Peer (P2P)
B. Single Platform
C. Multiple platforms
D. P2P and platforms

C. ORGANISATIONAL ISSUES

11. Success factors

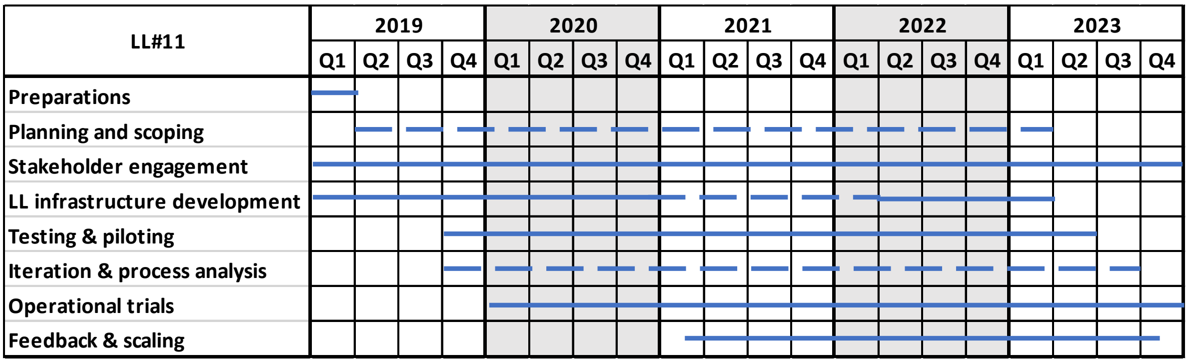
- Alignment of semantic model for air cargo with FEDeRATED semantic model and backward compatibility with legacy data standards
- Interoperability of architectural components related to API's and Security based on ease of integration between Internet of Logistics partners as well as other Living Labs
- Size of network in relation to pilot implementation and tests with airlines and their supply chain partners based on number of participating Living Lab partners and the progress over time
- Number of use cases in relation to testing end to end supply chain visibility in the main logistics use cases based on number and usefulness.

12. Risks

The Internet of Logistics Living Lab has organizational two layers:

1. The IATA team that leads and delivers the Living Lab:
    - Limited risks such as loss of staff (and their competence) due to COVID-19 impact. This is mitigated by managing transitions and planning for backfills.
2. The participating companies that execute the data sharing implementations. i.e
    - resource limitations or changes due to COVID19.
    - varying level of digital competence.
    - organizational re-prioritization.

13. Timing



14. Contact

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