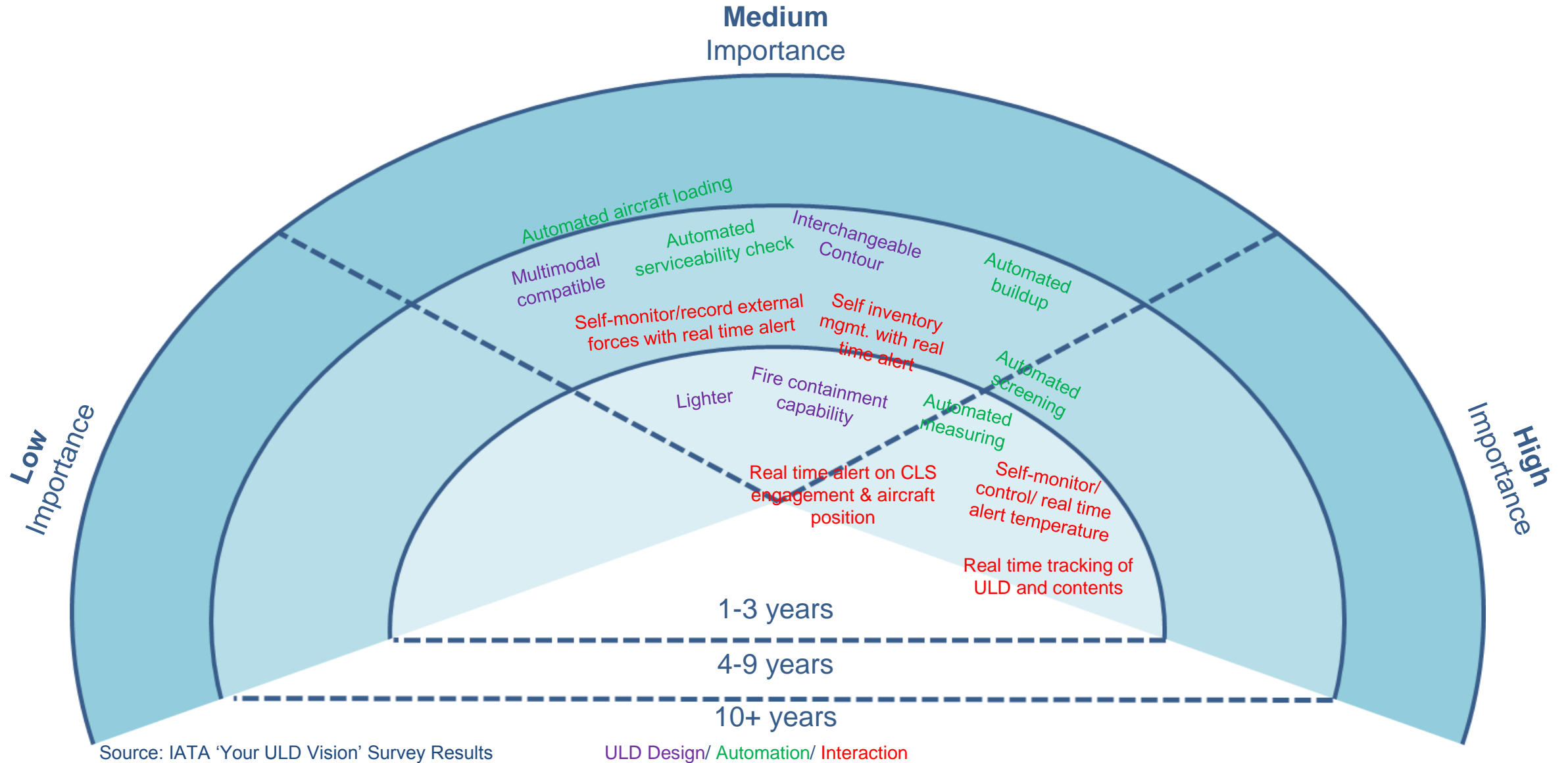


# How smart a ULD could be?





# Smart ULD Radar



Source: IATA 'Your ULD Vision' Survey Results

ULD Design/ Automation/ Interaction



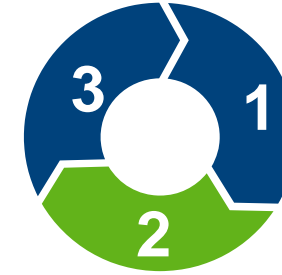
# Interactive Cargo and Smart ULD







# Interactive Cargo Making Cargo talk!



Under  
development

## Our vision

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.

## Starting with piece level tracking

- For an end-to-end tracking and monitoring of cargo shipments at piece level
- Through the PLTTF, a dedicated task-force which is developing PLT standards, processes and procedures

## Coming next

- Release of the PLT Implementation Guideline (incl. processes, procedures and data exchange)
- Establishment of the Interactive Cargo Task Force and Strategic Partnership Program
- Interactive Cargo standard setting



# Making cargo talk!

Developing the capability to:



Locate



Track



Monitor



Notify  
/ Alert



Respond  
/ Interact





# Interactive Cargo for ULDs

- ❑ Tracking ULD location in **real time**
- ❑ Tracking the contents loaded
- ❑ Monitoring the ULD/ contents conditions (temperature, shock, tampering)
- ❑ Receive and send **real time alert /notifications**
- ❑ Communicate/interact with the ULD(s) to **respond to deviation, send instructions, etc.**
- ❑ Asset management





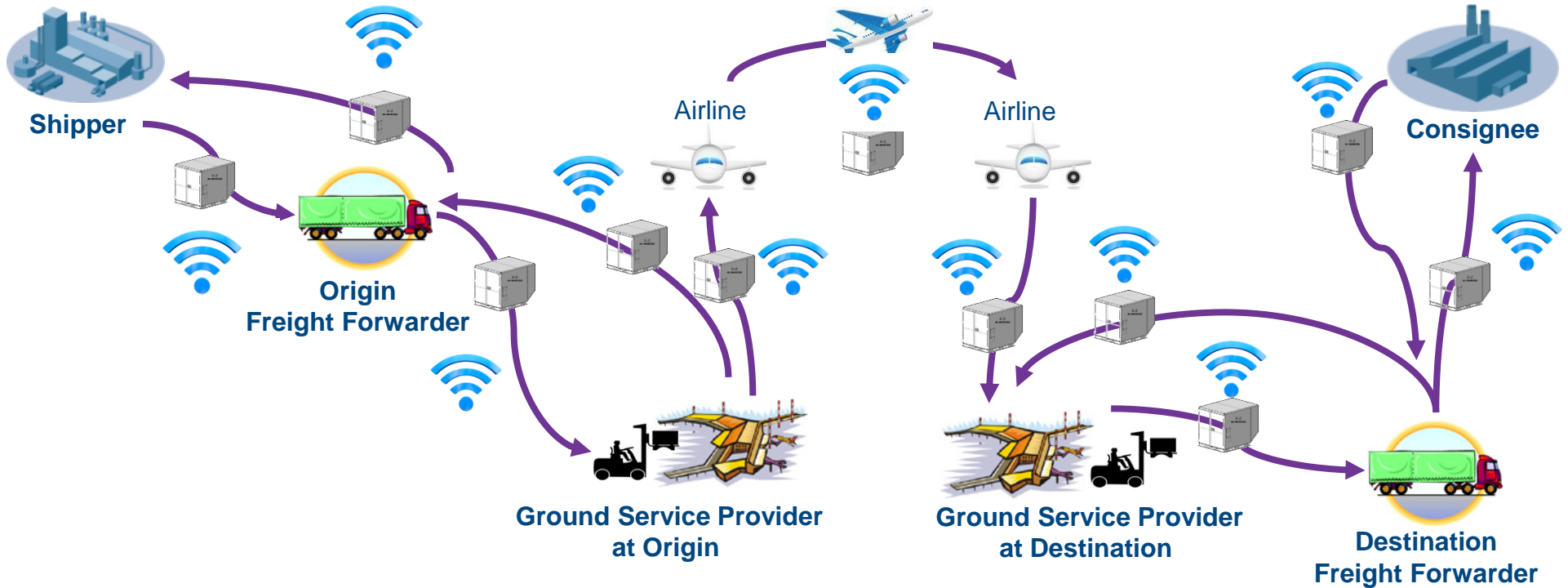
# Benefits?

- ❑ Found lost ULDs
- ❑ Reduce manual inputs (operations)
- ❑ Facilitate quick response to deviations/errors
- ❑ Enhance quality with traceable and trackable ULDs





# ‘Smart ULD’, a key enabler of Interactive Cargo





# One Record and Smart ULD







# ONE Record

*Moving to smart data sharing*

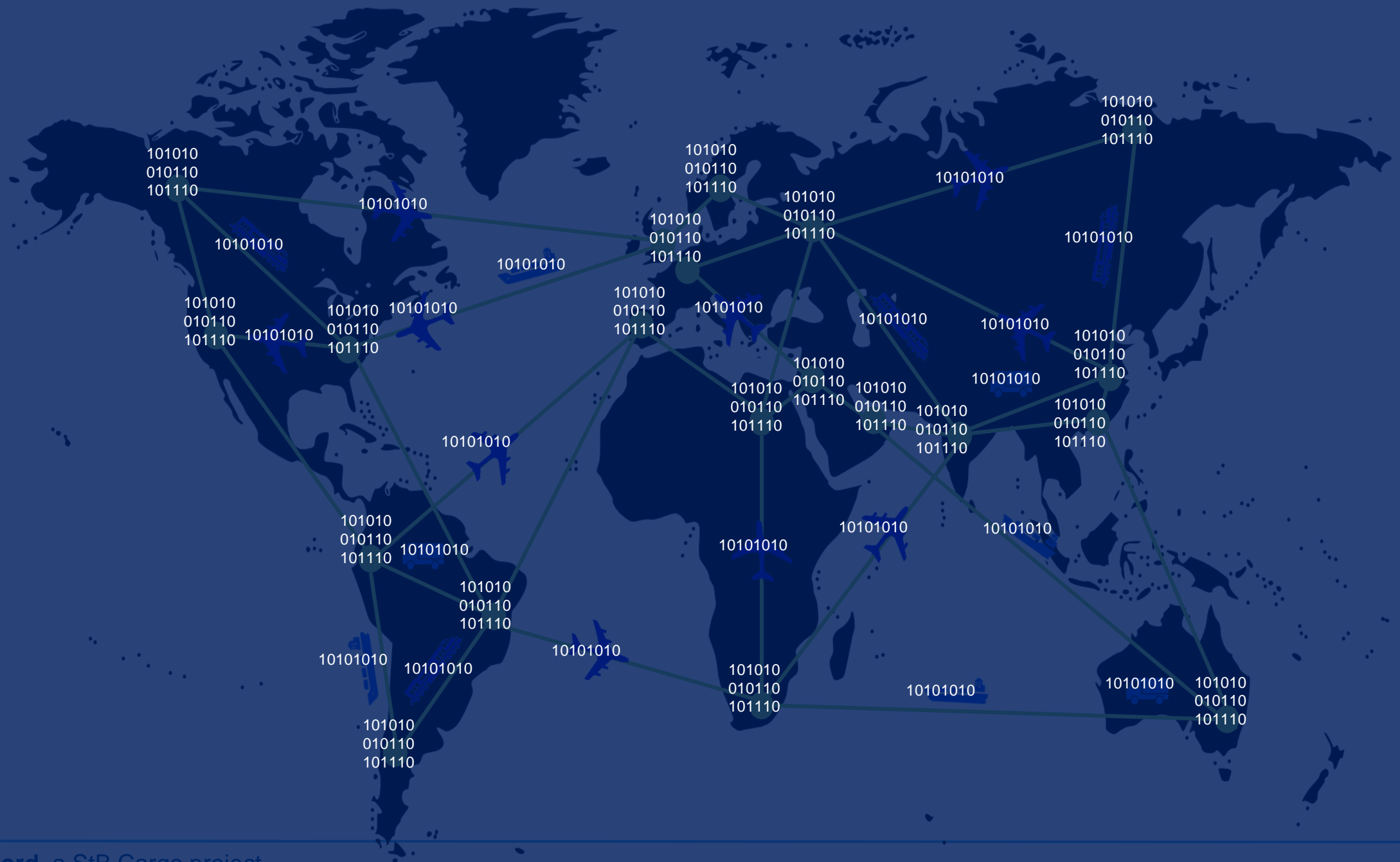
**David SAUV**  
Project Manager, Digital Cargo, IATA





# Context







**ONE Record vision**



# Our vision

an end-to-end digital logistics and transport supply chain where data is easily and transparently exchanged in a digital ecosystem of air cargo stakeholders, communities and data platforms



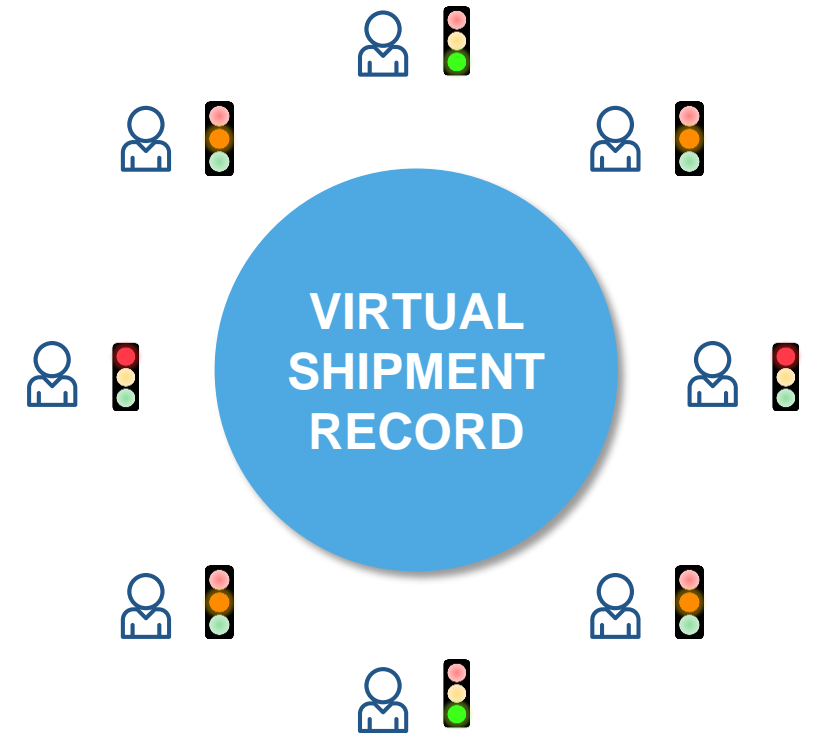
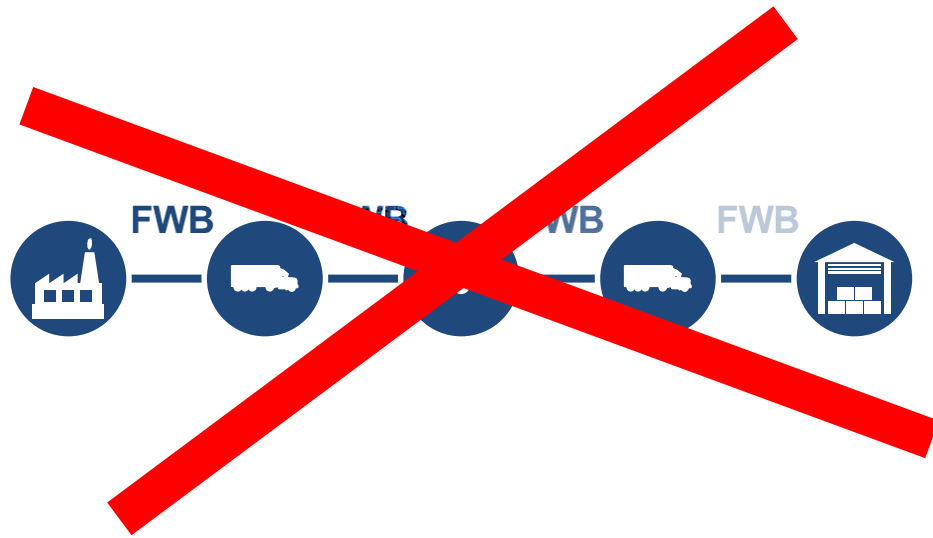


**ONE Record concept**



# ONE Record concept

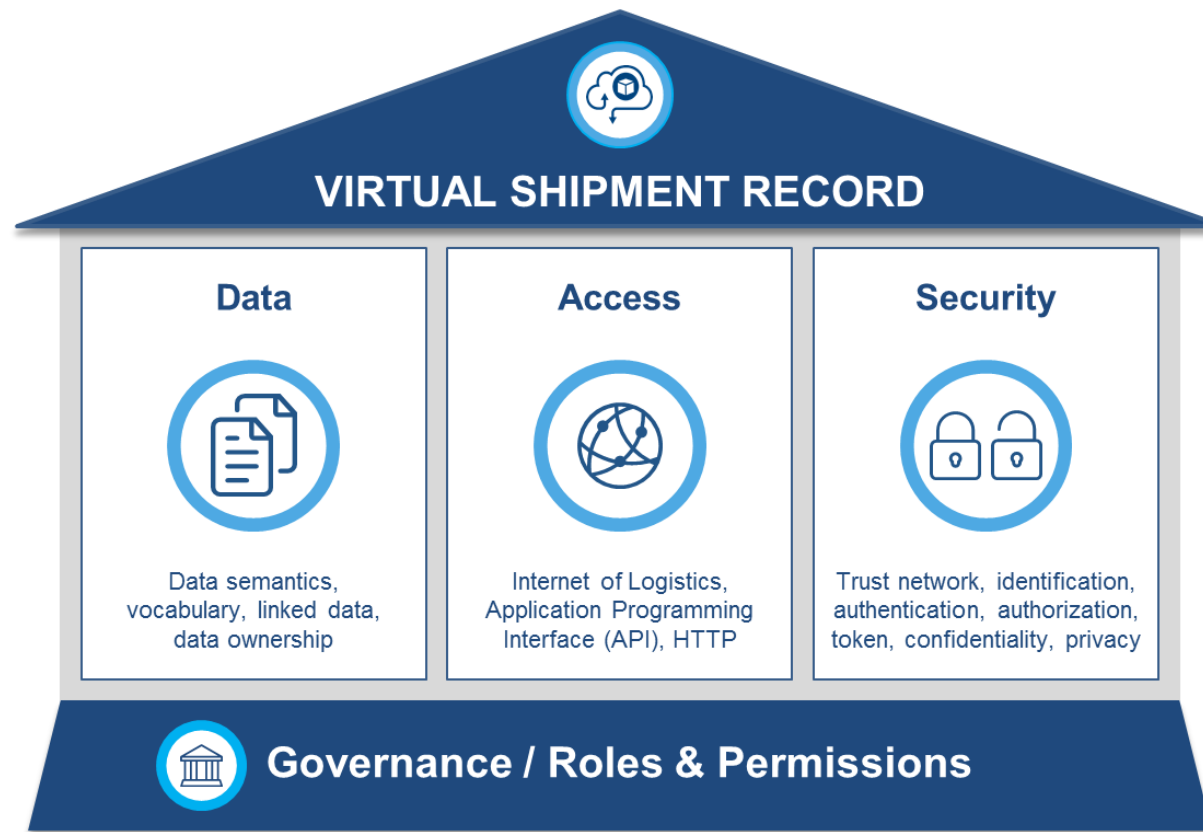
- The essence of the ONE Record is to move from a peer-to-peer messaging model to data sharing model relying on a Virtual Single Record





# ONE Record concept

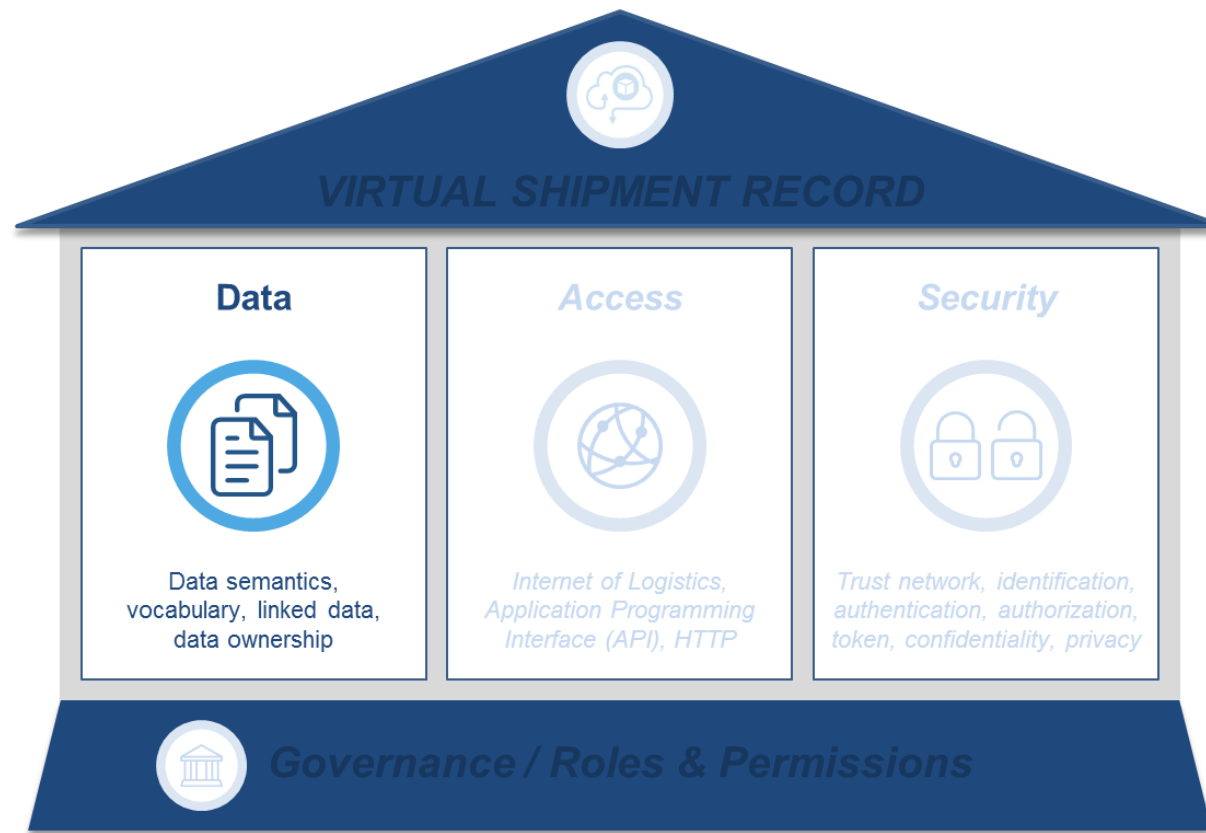
- The Virtual Shipment Record is based on 3 pillars enabling to define WHAT, HOW and with WHOM data can be shared





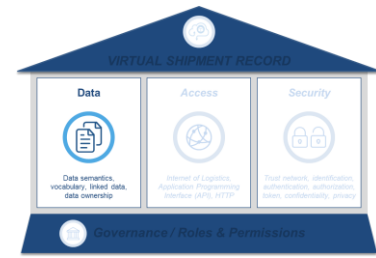
# ONE Record concept

- ❑ WHAT data can be shared?





# ONE Record / Data



- ❑ The objective is to provide the air cargo industry with a standard data semantic structure and a defined data ownership





The diagram illustrates a virtual warehouse structure. At the top, a blue roof contains a white circle with the text "VSR". Below the roof, a dark blue banner reads "VIRTUAL SHIPMENT RECORD". The structure is supported by three white pillars, each with a blue circular icon and a title. The first pillar has a document icon and is titled "Data". The second pillar has a globe icon and is titled "Access". The third pillar has a padlock icon and is titled "Security". Below each pillar, specific data elements are listed. At the bottom, a blue banner contains a white circle with the text "GPR" and the title "Governance / Roles & Permissions".

Data	Access	Security
<p>Data semantics, vocabulary, shared data, data ownership</p>	<p>Internet of Logistics, Application Programming Interface (API), HTTP</p>	<p>Trust network, identification, authentication, authorization, provenance, confidentiality, privacy</p>

Governance / Roles & Permissions

- | ROLES & PERMISSIONS |                       |       |       |        |        |                    |
|---------------------|-----------------------|-------|-------|--------|--------|--------------------|
| DATA                | OWNER<br>(originator) | READ  | WRITE | CHANGE | DELETE | DELEGATE<br>ACCESS |
| Element 1           | Actor                 | Actor | Actor | Actor  | Actor  | Actor              |
| Element 2           | Actor                 | Actor | Actor | Actor  | Actor  | Actor              |
| Element 3           | Actor                 | Actor | Actor | Actor  | Actor  | Actor              |
| Element 4           | Actor                 | Actor | Actor | Actor  | Actor  | Actor              |
| ...                 | ...                   | ...   | ...   | ...    | ...    | ...                |
| ...                 | ...                   | ...   | ...   | ...    | ...    | ...                |
| ...                 | ...                   | ...   | ...   | ...    | ...    | ...                |
| ...                 | ...                   | ...   | ...   | ...    | ...    | ...                |
| ...                 | ...                   | ...   | ...   | ...    | ...    | ...                |
| Element N           | Actor                 | Actor | Actor | Actor  | Actor  | Actor              |





# Potential scope for ONE Record



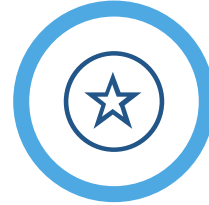
## Customs documents

Export Goods Declaration  
Import Goods Declaration  
Export Cargo Declaration  
Import Cargo Declaration  
Customs Release Export  
Customs Release Import  
Certificate EUR.1  
ATA Carnet



## Transportation documents

House Manifest  
Master Air Waybill  
Flight Manifest  
Transfer Manifest  
Transit Declaration  
Freight Booked List



## Special cargo documents

Consignment Security Declaration  
Certificate of Origin  
CITES Certificate  
Shipper's Certification for Live Animals  
Shipper's Dangerous Good Declaration  
Certificate of Death



## Commercial documents

Letter of Instruction  
Invoice  
House Air Waybill  
Packing List



## Interactive Cargo

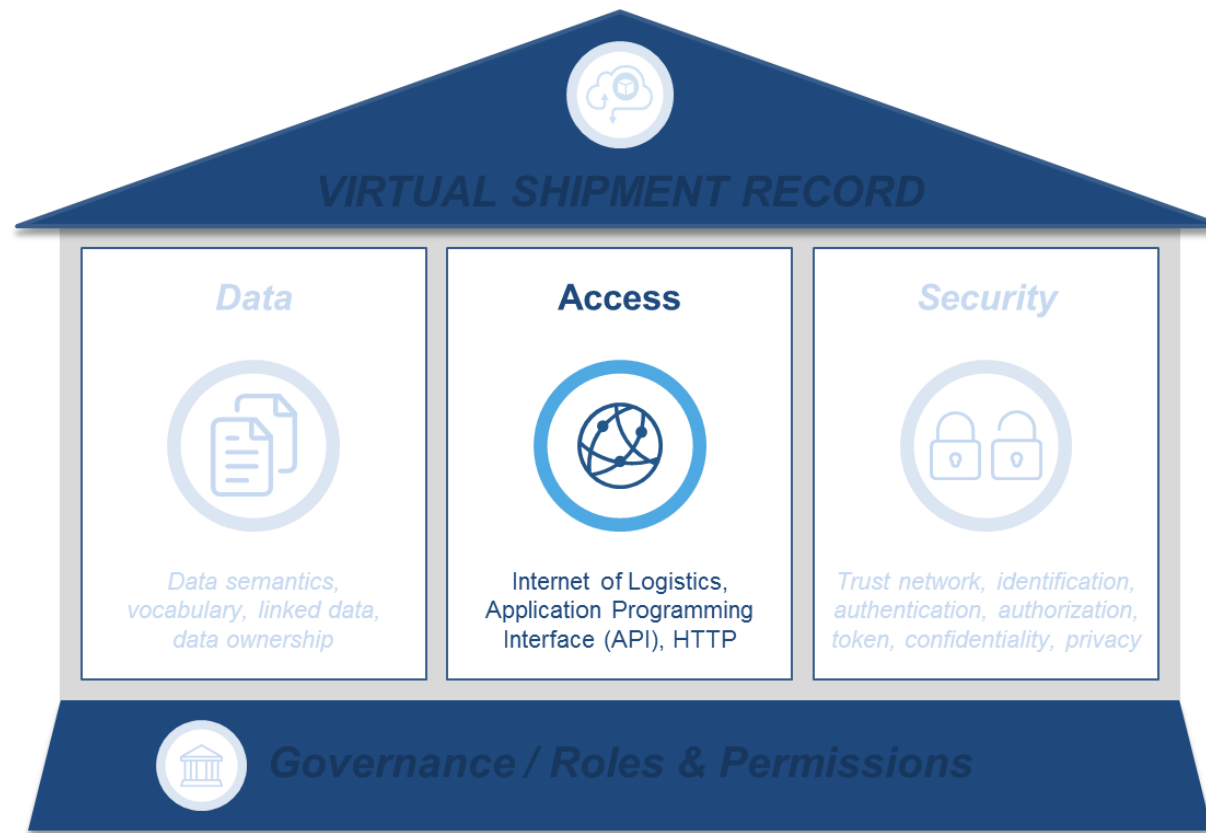
Locate  
Track  
Monitor  
Notify / Alert  
Respond / Interact





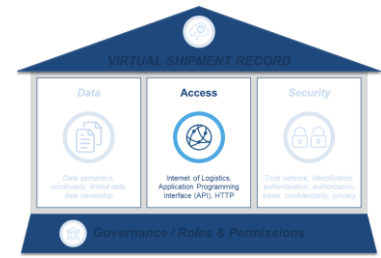
# ONE Record concept

- HOW data can be shared?





# ONE Record / Access



- The concept of ONE Record is to :

1

Share the data through an Internet of Logistics

2

Use existing web standards such as and HTTP and JSON

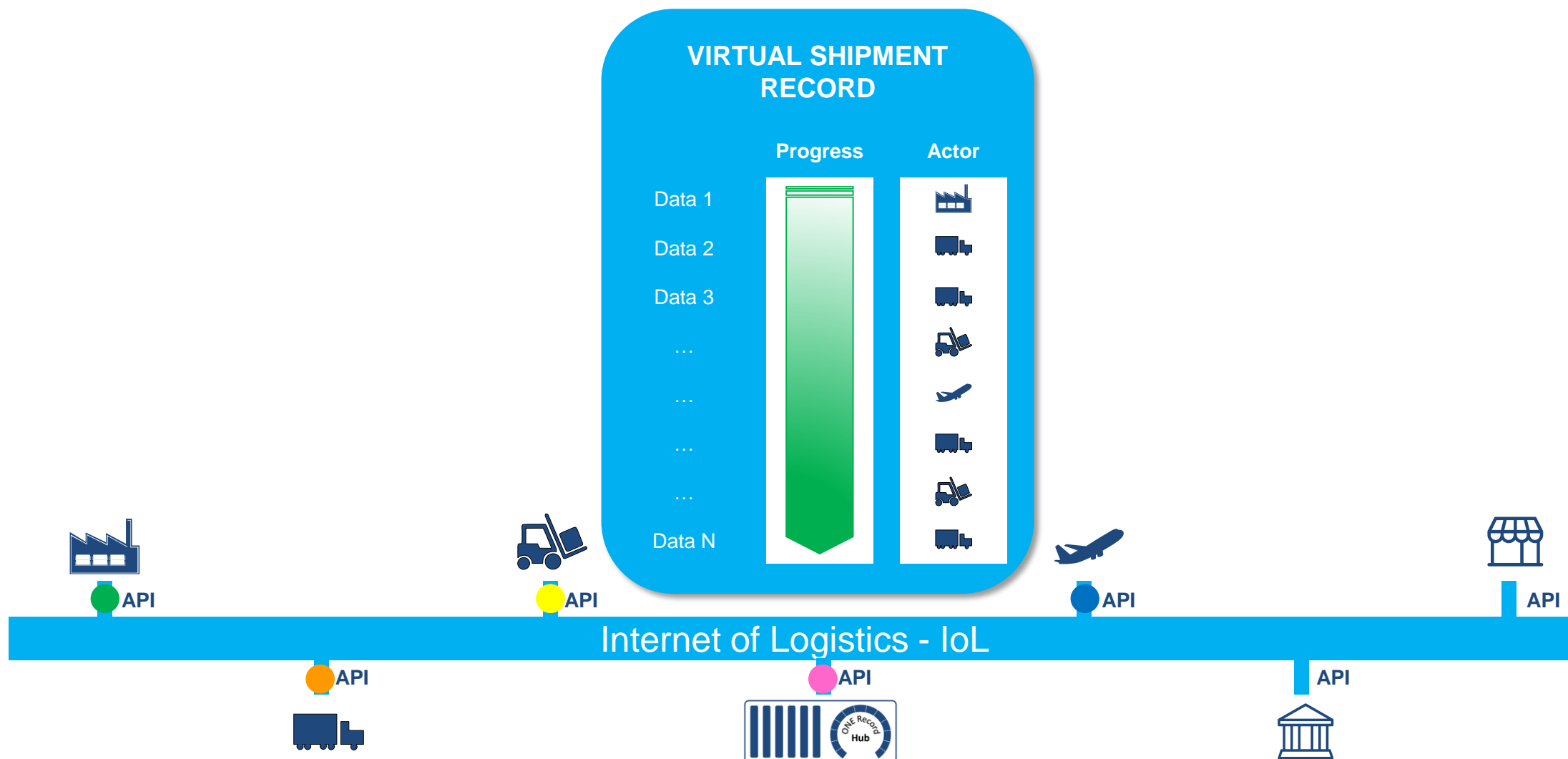
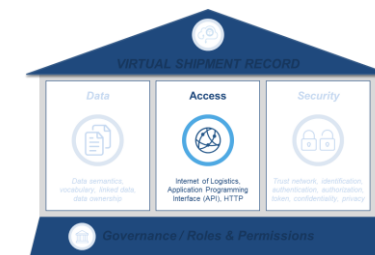
3

Rely on standard Application Programming Interface (API)



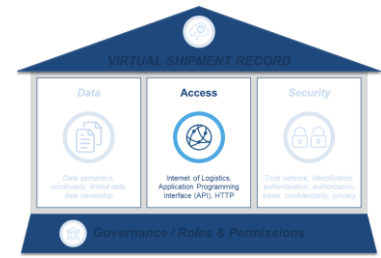


# ONE Record / Access

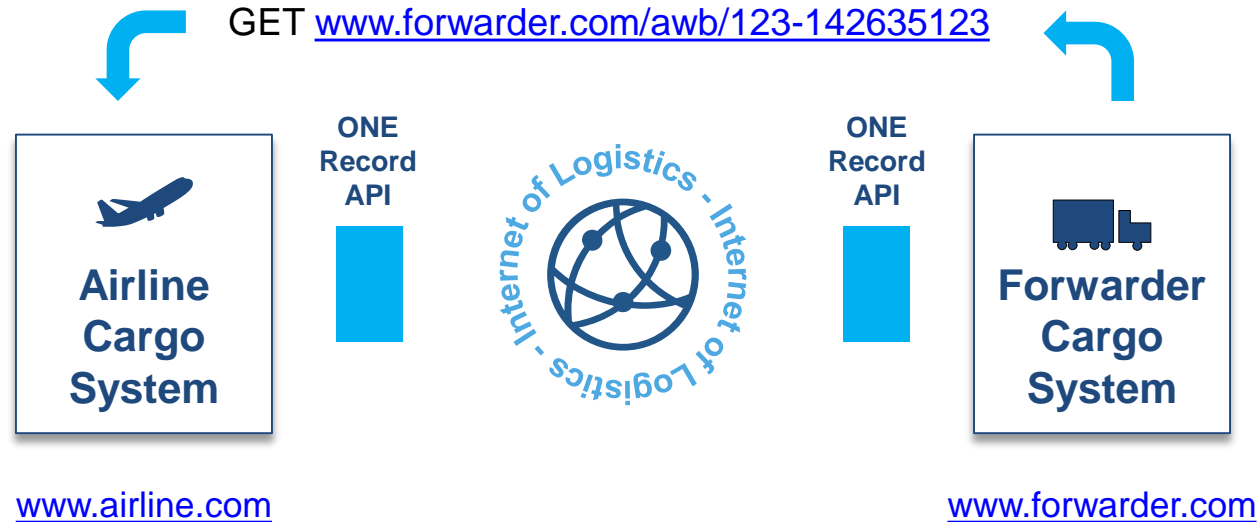




# ONE Record / Access example



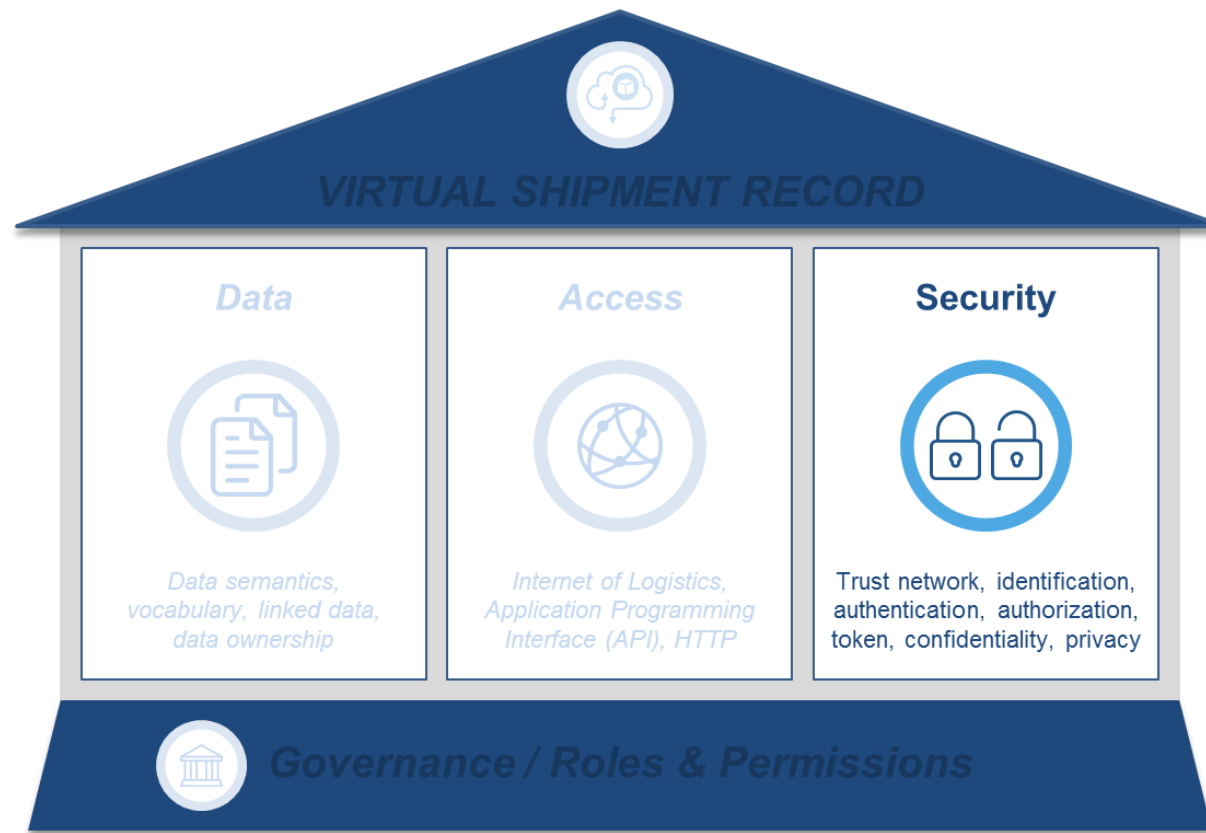
- An airline wants to have access to the shipment record of a particular AWB





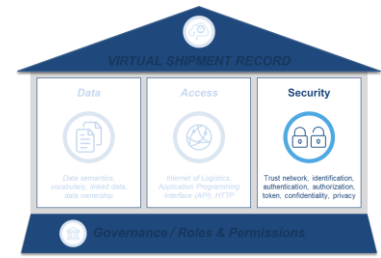
# ONE Record concept

- ❑ With WHOM data can be shared?





# ONE Record / Security



- ❑ The security of ONE Record relies on 3 pillars :



## IDENTIFICATION

*Who are you?*



## AUTHENTICATION

*Are you who you claim to be?*



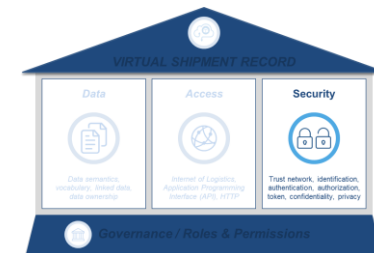
## AUTHORIZATION

*Do you have the right credentials?*

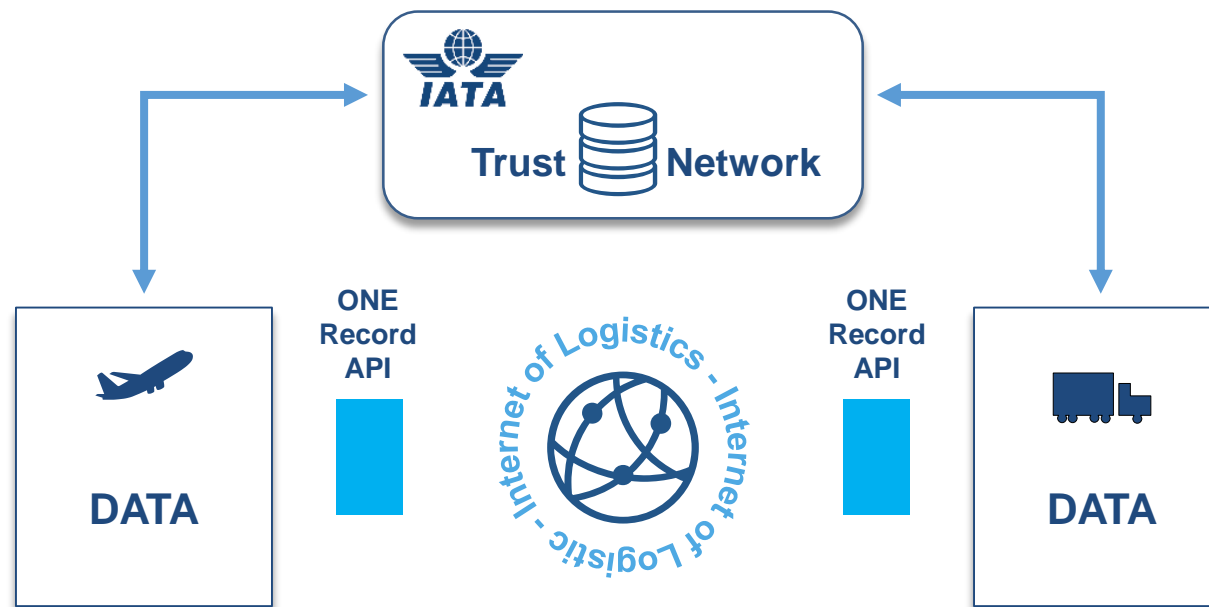




# ONE Record / Security

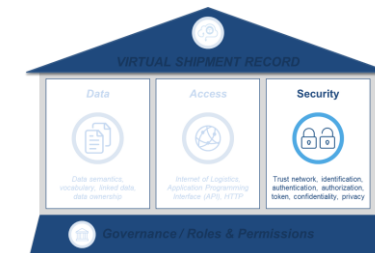


- ❑ The security of ONE Record is managed through a Trust Network





# ONE Record / Security



- ❑ The security of ONE Record is managed through an  Trust  Network



## IDENTIFICATION

- Register the ONE Record participant through a dedicated accreditation process
- Issue a ONE Record certificate as an identifier



## AUTHENTICATION

- Verify the validity of the ONE Record certificate



## AUTHORIZATION

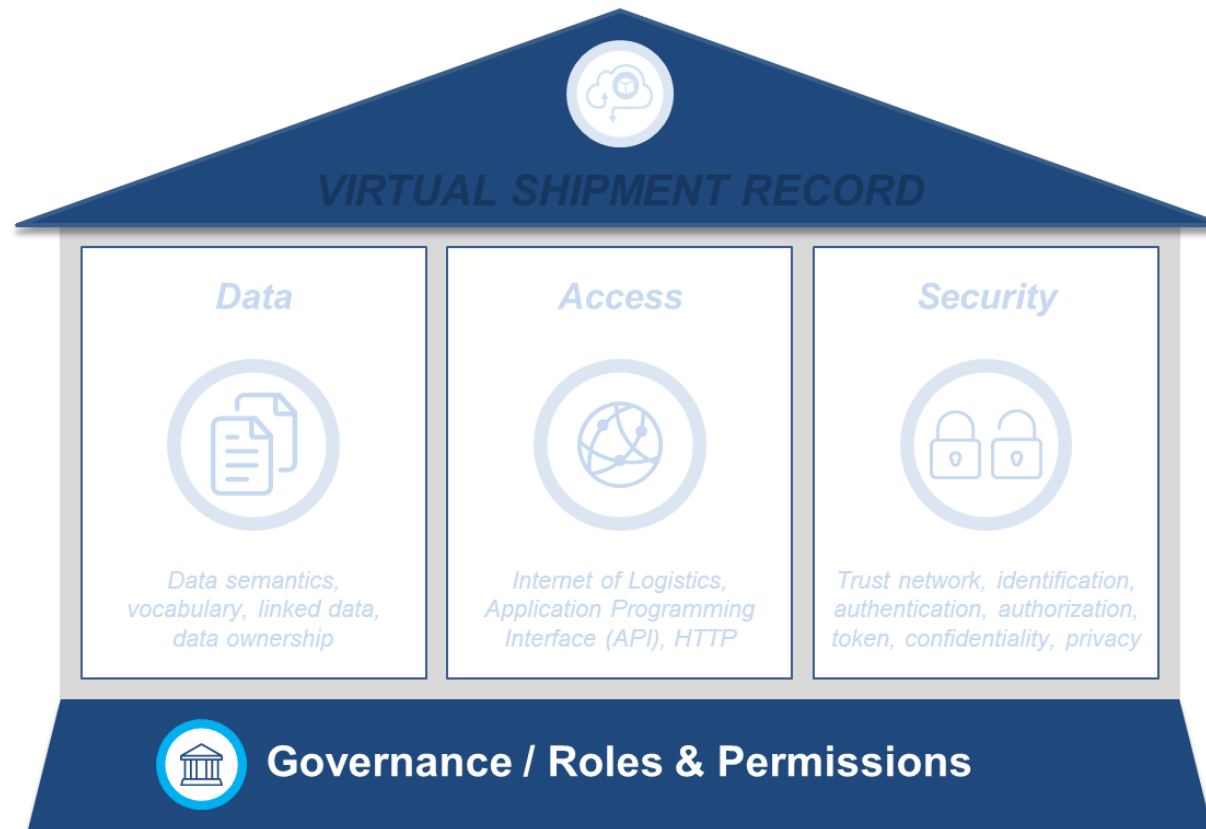
- Managed by the data owners. Can grant access to specific companies or groups of companies





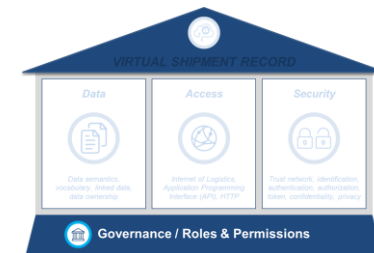
# ONE Record concept

- How to manage data governance?





# Governance / Roles & Permissions



- ❑ The data governance foundations are based on:



**DATA**



**ROLES &  
PERMISSIONS**

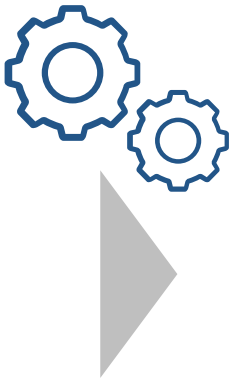
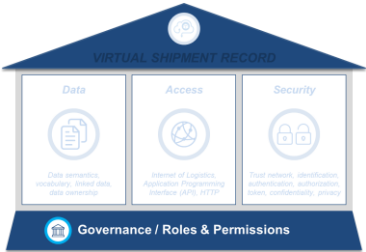


**ACTORS**





# Governance / Roles & Permissions

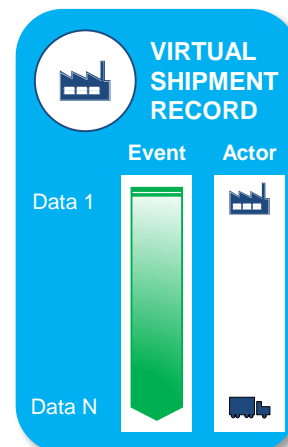
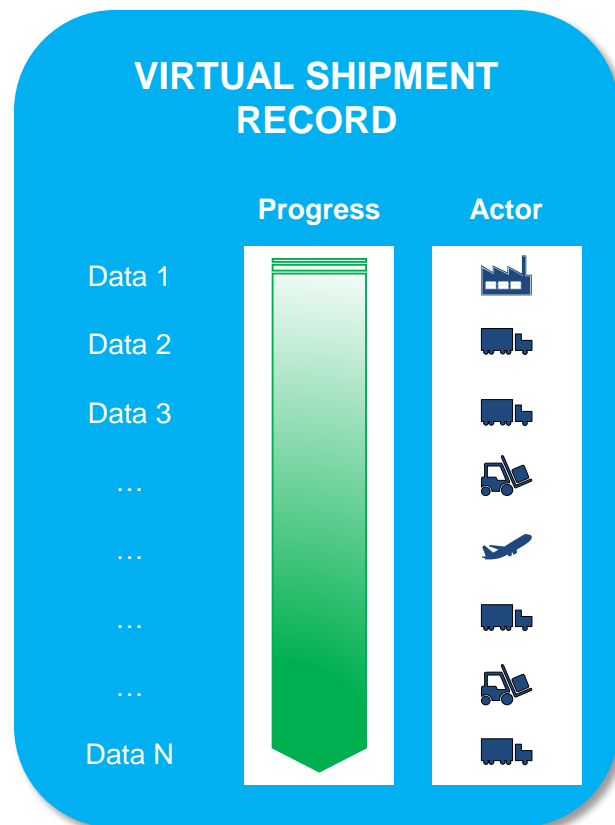
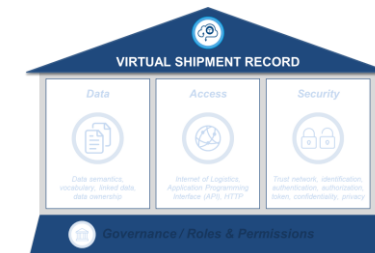


ROLES & PERMISSIONS						
DATA	OWNER (originator)	READ	WRITE	CHANGE	DELETE	DELEGATE ACCESS
Element 1	Actor	Actor	Actor	Actor	Actor	Actor
Element 2	Actor	Actor	Actor	Actor	Actor	Actor
Element 3	Actor	Actor	Actor	Actor	Actor	Actor
Element 4	Actor	Actor	Actor	Actor	Actor	Actor
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
Element N	Actor	Actor	Actor	Actor	Actor	Actor





# Virtual Shipment Record



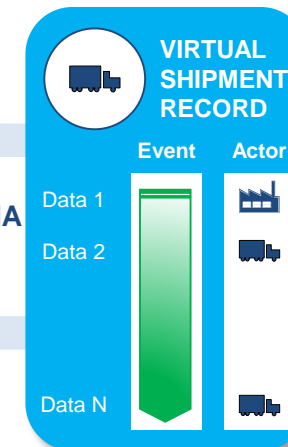
**BKD**  
  
Shipper

**PUP**

**REW**  
  
Origin Forwarder

**DEH**

**FOH**  
  
Origin GHA

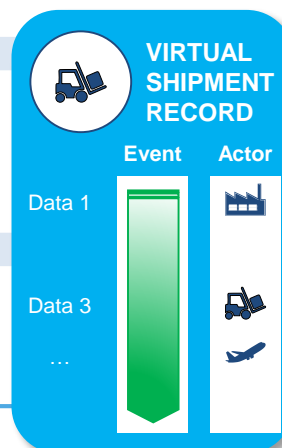


**RCS**  
  
Export Customs

**FUM**

**DEP**  
  
Airline

**ARR**  
  
Import Customs

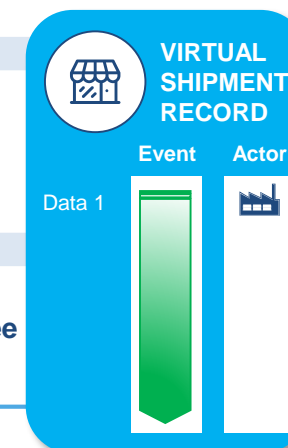


**RCF**  
  
Import GHA

**DIH**  
  
Import Forwarder

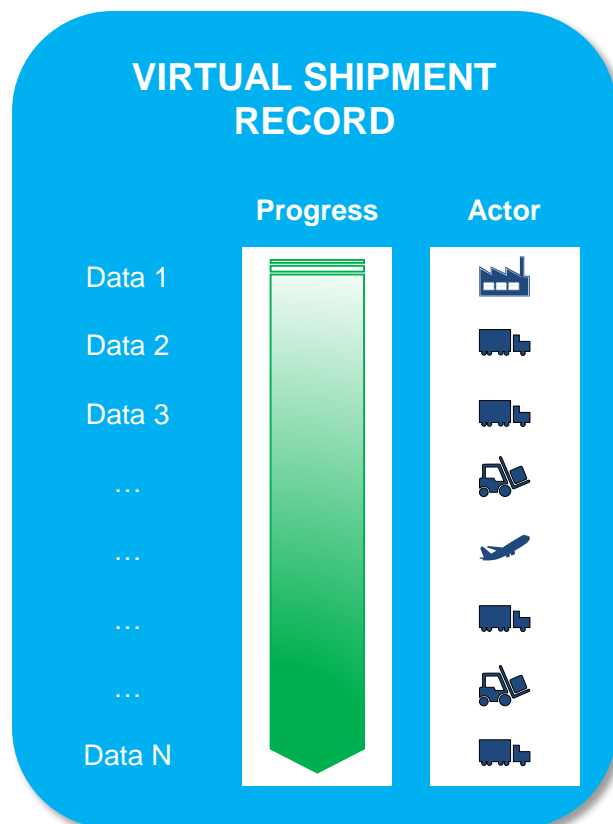
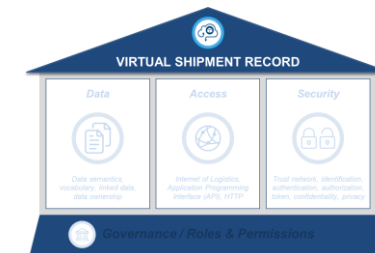
**FFM**

**POD**  
  
Consignee





# Virtual Shipment Record



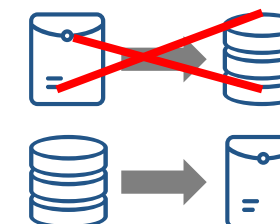
- ❑ Eliminate duplicate



- ❑ Improve data quality



- ❑ Pursue “documents as output” rather than “document as input”






**ONE Record project**



# How to deliver the ONE Record project?

- ❑ Several initiatives have been initiated to deliver the ONE Record project

**ONE Record Task Force**

The ONE Record Task Force is established as a Cargo Operations and Technology Board (COTB) subgroup.

The Task Force focuses on the development of standards with the objective of facilitating web API based data exchange.

As such, it will provide a recommended practice on data semantics and data governance as well as standards for data sharing based on web APIs.



The IATA AIR Hackathon is a round-the-clock experience which include a 28 hour coding experience in IATA's home town, Geneva.

It will be held on September 14-15-16 2018.

This edition will feature the first cargo hackathon giving the opportunity to build solutions to enhance cargo data sharing based on the ONE Record API.





# IATA Project Team



**Henk MULDER**  
*Project Sponsor*



**David SAUV**  
*Project Manager &  
ORTF Secretary*



StB

Cargo



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Where: Singapore, Singapore

Venue: Marina Bay Sands

Audience: **Open to all**



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  - ☐ Have you recently graduated or are you about to finalize your thesis?
  - ☐ Are you looking for an opportunity to boost your career and show industry leaders you've got what it takes?
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# Thank You!

LIAO, Zhi Yong  
Manager, Cargo Business Process & Standards  
[liaozy@iata.org](mailto:liaozy@iata.org)

To represent, lead and serve the airline industry

