Digital transformation by Unilode

Creating the world’s first fully digitised IoT ULD fleet

CNS PARTNERSHIP CONFERENCE
Tuesday May 7th, 2019, 11:30-12:00
Doral National - Miami, FL USA
The Rationale
Unilode’s aims is to deliver enhanced value for the Air Cargo Industry

Key objectives for the solutions

Identification via barcodes/RFID

This is the current tracking black spot for shippers and freight forwarders

Identification via barcodes/RFID

Unavailability of ULDs causes revenue loss

Lost in transit

Wrong positioning causes delays

Exposed to wrong ambient condition (e.g. too hot)

Damaged through mishandling

Opened to remove cargo (theft)

Not just a new \textit{flavour} but a better:

\begin{itemize}
  \item \texttt{T} transparency
  \item \texttt{A} ccuracy
  \item \texttt{S} afety/Security
  \item \texttt{T} raceability
  \item \texttt{E} fficiency
\end{itemize}

for the industry!
The Challenge
Unilode was looking for best-in-class technology

Any solution should be able to meet 5 predefined criteria

“I looked around and could not find quite the car I dreamed of, so I decided to build it myself”

Ferdinand Porsche

1. Non-obstructive tag design ✓
2. Compliant with regulations ✓
3. Mobile APP – inflight monitoring ✓
4. Multi-sensor capabilities ✓
5. Non-proprietary/ Interoperability ✓
The Solution
Unilode’s digitalisation programme is the industry’s first end-to-end solution

Transforming ULD management into a key value-driver for the industry

Smarten up the “vehicle”

Build the “highway”

Deliver the data

Containers

Pallets

Create best-in-class tag solution: non-obstructive and multi-sensor capabilities!

Unilode MRO stations
GHAs facilities
Airport terminals
Freight forwarder facilities
Airlines facilities
Shipper facilities

Create interoperable reader infrastructure together with the key stakeholders!

Co-develop the back-end system (‘data exchange platform’) that collects information in order to track & trace ULDs around the globe

Create operational excellence through process transparency and advanced data analytics.

Creating a new value proposition for the industry!
Translating key pre-requisites into solutions
Creating non-obstructing pallet and container tags

Equipping the “vehicle”: Container tags are mounted inside the units

Features:
- Geo-Location
- Temperature
- Humidity
- Light
- Shock
Exploring the pallet technology

Equipping the “vehicle”: Pallet tags are non-obstructing and integrated
Selected technology must fulfill highest compliance standards

Tagged ULDs identifiable, certified & tested against DO-160G, Section 21 (Categories H, M and P)

Unilode's intelligent ULDs are compliant with all regulations & clearly identifiable!

Uses two Lithium Thionyl Chloride ER 10450 batteries which complies with United Nations (UN) Transportation Regulations, ‘Recommendations on the transport of dangerous goods - manual of tests and criteria’, UN ST/SG/AC.10/11; and Underwriters Laboratory, ‘Lithium batteries’ UL1642; and IEC62133, Directive 2006/66/EC and ROHS 2002/95/EC.

Lithium Thionyl Chloride batteries contained in Equipment UN3091 PI970 Section II. Can be shipped by air in accordance with International Civil Aviation Organization (ICAO), 2017-2018 edition Section II, or International Air Transport Association (IATA) 58th edition, Section II, for Lithium batteries, contained in equipment. Unrestricted, no label or declaration required.

Mobile App allows for full shipment control

Accuracy, instant visibility, in-flight alerts – and you already own the reader

A flexible reader network is important to provide global asset visibility, eliminating manual and laborious SCM messages by GHAs. Unilode’s solution enables mobile phone reading, even during flight, and provides you with all the data you need.

Special cargo monitoring is important at all times during the journey. Mobile phones can detect Unilode tags in flight via BLE and send data to the ground via onboard WiFi, so ground and flight crews can be instantly alerted if necessary. Alternatively, a BLE 5.0 reader installed in the aircraft hold can detect tags and send data to ground via the aircraft’s communication hub.
Unilode’s technology is the only feature-rich, scalable, sensor solution. Bluetooth® 5.0 paired with multi-sensor technology.
Unilode believes in a non-proprietary infrastructure.

The use of standard BLE protocols enables the use of any reader infrastructure.
The Use Cases
Unilode’s Digital Solution allows partners to grow their business

Sensor data will create end-to-end transparency for the air cargo supply chain

Unilode’s modern sensor technology may help you to gain better control over your most critical shipments!

Flowers  Pharmaceuticals  Perishables  Valuables & Fragile  Baggage  Quality
Use-case: End-to-end monitoring of special cargo

Sensor data example: End-to-end transparency for flower shipments

Track shipment

Stay in control!

Build-Up

Trucking

In-flight

Destination

Receive customised alerts for corrective action!
The Infrastructure
In 2019 Unilode will build a unique digital infrastructure

Creating end-to-end visibility to Unilode’s ULD fleet

In 2019 Unilode will:
- Equip 40,000 ULDs of its pooled fleet with Bluetooth® tags
- Establish a reader infrastructure at 40 airports
- Offer a ULD track & trace portal to its customers

During Phase 2 Unilode will:
- Increase the number of Bluetooth® tagged ULDs to 90,000+
- Make Bluetooth® reader infrastructure available at more than 100 airports
- Automate ULD control messages

By the end of Phase 3:
- 100% of the Unilode ULD fleet will be Bluetooth® - tagged
- Bluetooth® reader infrastructure will be implemented at more than 254 airports
- Full set of digital value-add features will be available