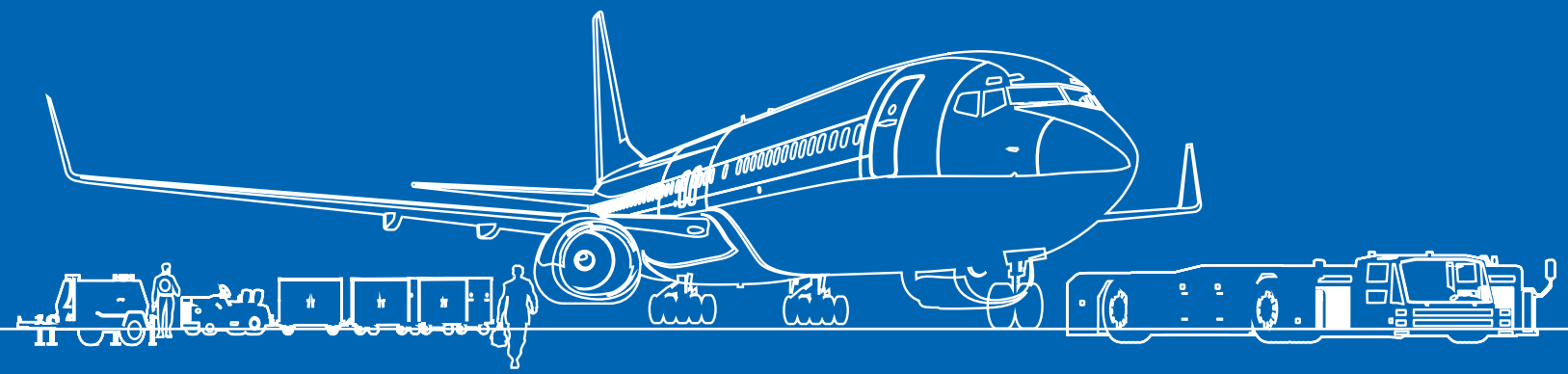




**INTELLIGENT**  
**CARGO USING**  
**INTERNET OF THINGS**



## An Industry Rising Above Technology Disruption

It's the age of the internet of things—and businesses that are leveraging this disruptive technology is clearly a step ahead of the game. Connectivity is now helping make operations more efficient and smarter by connecting everyday objects via a network. For the airlines industry, this opens a plethora of opportunities. IoT is transforming the way Airlines manage

operations, handle baggage, enhance passenger experience, and improve flight efficiencies.

Cargo handling is one such area where the Airline industry has immense opportunity to drive down costs and improve the customer experience through IoT-enabled Unit Load Devices (ULD).

# Airlines Intelligent ULD

ULD's are expensive and a critical component of the Cargo business. Managing ULDs inefficiently impacts the bottom line and impacts the customer experience. A number of business challenges are listed below which can be alleviated by making the ULDs more intelligent by utilizing IoT technology to gain visibility into the ULDs and the cargo that is transported in the ULDs. Major challenges faced include:

## ULD SHORTAGE

Due to lack of inventory visibility of ULDs, stations can face a shortage of or have excessive ULDs which impacts utilization and shipment guarantees. Shortage of ULDs can result in cargo not being accepted on flight and causing a backlog that has to be accommodated on later flights. In addition, this also impacts the ground operation staff as last minute impacts can result in baggage/cargo mishandling and delays.

## HIGH RELOCATION COST

Unavailability of ULDs at certain stations mean that ULDs need to be relocated across the network to where there is a need of incremental ULDs. ULDs can be misrouted and misplaced which further adds to the challenges. Unviability of ULDs directly impacts Airline cargo revenues as Cargo cannot be accepted even though the capacity to transport that cargo exists.

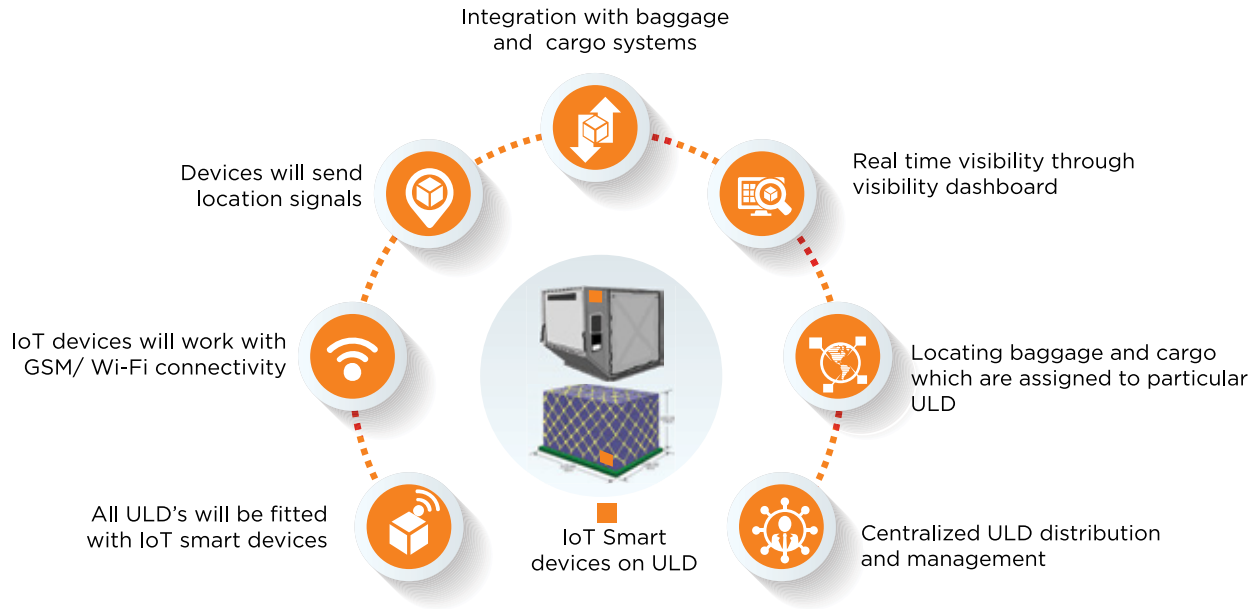
## INADEQUATE CARGO VISIBILITY

Airlines have failed to invest in providing visibility of cargo to their customers. A shipment can go missing at the origin airport and that issue might not be discovered till the receiver at the destination airport files a claim. This can result in penalties which impact the bottom line and impacts the customer experience.

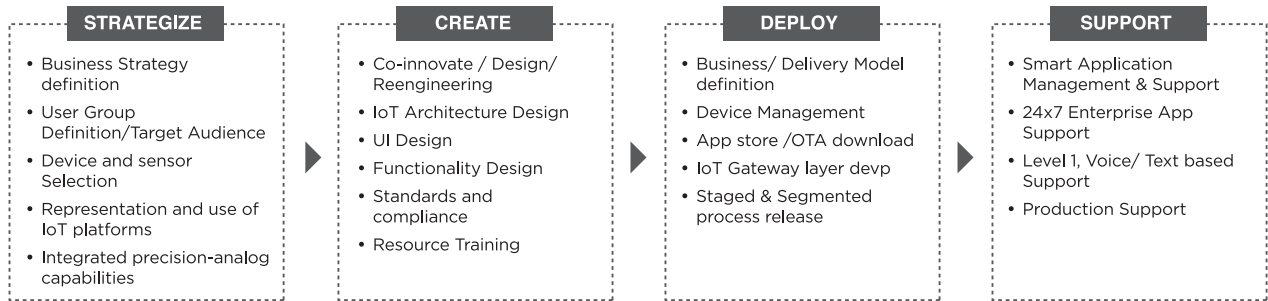
## IMPACT ON FLIGHT OPS AND GROUND SUPPORT

Last minute load alteration leads to incorrect fuel calculation that results in extra fuel burn, and reduces Flight Ops efficiency. On the other hand, damaged ULD and unplanned maintenance can raise safety concerns and operational inefficiencies.

# Transforming ULD Efficiencies with IOT



## HCL: Enabling ULD of the future with IoT



### INFLUENCING FACTORS



Security



Customer Experience



Performance





Real-time Data/Analytics






Standards and Compliance

# BENEFITS OF INTELLIGENT ULD





## CUSTOMER EXPERIENCE

-  Real-time visibility of baggage and shipment updates
-  Proactive updates on baggage/ shipments

## OPERATIONAL EFFICIENCY

-  Centralized inventory management
-  20% to 30% increase in ULD utilization
-  Real-time monitoring of ULD movement

## ULD MANAGEMENT APPROACH

-  Increased control on ULD maintenance cost
-  Reduction of in demurrage charges
-  Increased efficiency with less manpower
-  Monitoring of ULD in non-regulated environment

## ARRIVE AT THE FUTURE WITH HCL

HCL's IoT enabled ULD tracking solution helps provide real time visibility of ULDs which enables Airline's to manage and optimize ULD usage and at the same provide visibility into the Cargo that is being transported in the ULDs.

HCL has already filed a patent on this solution and many other solutions in this space that provides insight into scheduling and tracking of cargo, location-specific occupancy levels in real-time through the use of IoT-enabled smart devices and sensors etc.

Discover customized IoT solutions for your business with IoT WoRKs™ at HCL. At IoT WoRKs™ we help create entirely new services that deliver measurable business outcomes. We had worked with leading companies globally and helped them create an entirely new ecosystem with connected data, people, processes and things that delivers measurable business outcomes enabling them become a 21<sup>st</sup> century enterprise.

To discover more, mail us at:  
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