11th World Cargo Symposium
14-16 March 2017
Abu Dhabi
Disrupting the Air Cargo Industry Through Digital Transformation
Opening Remarks

David Sauv
Project Manager, eAWB
IATA
Do not discuss:

- Pricing, including fares, service charges, commissions, etc.
- Bids on contracts or allocation of customers
- Geographic/Product market allocations
- Marketing plans, including expanding or withdrawing from markets
- Group boycotts
- Your commercial relations with agents, airlines or other third parties
- Any discussion aimed at influencing the independent business decisions of your competitors

“In case any of the above is discussed then we may ask you to leave the meeting, or the meeting may be terminated”
Welcome Address

Cormac Whelan
Chief Executive Officer
Mercator
How Digital Innovations Transformed or Disrupted Other Industries

Emma Loxton
Associate Partner
McKinsey & Company
The world’s largest hotel service…

The world’s largest taxi service…

The world’s largest retailer…

… doesn’t own any beds

… doesn’t own any cars

… doesn’t own any stores
Value creation is happening at a greater scale and faster.

Billion dollar + enterprise value companies that did not exist in 2006.

Billion dollar + enterprise value companies include:
- Airbnb
- Spotify
- Uber
- Fitbit
- Dropbox
- Quora
- Snapchat
- Instagram
- Tumblr
- Pinterest

These companies have rapidly grown and created significant value in a short span of years.
Four dimensions of digital disruption

- Undistort demand
- Unconstrain supply
- Make new markets
- Reimagine business systems
- New value propositions
- Hyperscale platforms

SOURCE: McKinsey DOTMatrix™
Disruption is happening across all sectors
Estimated market share of new digital entrants/adjacencies, %

<table>
<thead>
<tr>
<th>Sector</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>26.3%</td>
</tr>
<tr>
<td>High-tech</td>
<td>24.5%</td>
</tr>
<tr>
<td>Telecom</td>
<td>17.5%</td>
</tr>
<tr>
<td>Business services</td>
<td>16.9%</td>
</tr>
<tr>
<td>Sample Average</td>
<td>16.8%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>16.0%</td>
</tr>
<tr>
<td>Retail</td>
<td>15.4%</td>
</tr>
<tr>
<td>Financial services</td>
<td>13.5%</td>
</tr>
<tr>
<td>Transport &amp; logistics</td>
<td>12.7%</td>
</tr>
<tr>
<td>Automotive &amp; assembly</td>
<td>8.3%</td>
</tr>
<tr>
<td>CPG</td>
<td>7.6%</td>
</tr>
</tbody>
</table>

1 Market share of entrants gained in last 7 years; difference at no digitization would have been 8% growth or an impact of 1.8% points in growth per year

SOURCE: MGI, McK Digital survey 2016
And creating growing economic pressure

Change in growth rate due to digital...
% growth, estimated

... at current level of digitization

<table>
<thead>
<tr>
<th>Avg rev</th>
<th>Median rev</th>
<th>Avg EBIT</th>
<th>Median EBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>-6.0</td>
<td>-3.5</td>
<td>-4.5</td>
<td>-1.2</td>
</tr>
</tbody>
</table>

... and at full level of digitization

<table>
<thead>
<tr>
<th>Avg rev</th>
<th>Median rev</th>
<th>Avg EBIT</th>
<th>Median EBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>-12.1</td>
<td>-7.3</td>
<td>-10.2</td>
<td>-5.3</td>
</tr>
</tbody>
</table>

1 Estimated effect via regression on EBIT and revenue growth of disruption
SOURCE: MGI; McKinsey Digital Global Survey
Inefficiencies in freight logistics make it prone to disruption

<table>
<thead>
<tr>
<th>Operational</th>
<th>Inefficiencies (examples)</th>
<th>Likely disruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial processes</td>
<td>Commercial processes</td>
<td>Substitution of labor, new advanced-</td>
</tr>
<tr>
<td>largely manual</td>
<td>largely manual</td>
<td>analytics-enabled solutions</td>
</tr>
<tr>
<td>Lack of data integration</td>
<td>Lack of data integration</td>
<td>Real-time tracking as new standard,</td>
</tr>
<tr>
<td>– limited transparency</td>
<td>– limited transparency</td>
<td>increased prediction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structural</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High degree of</td>
<td>High degree of</td>
<td>Improved market transparency and</td>
</tr>
<tr>
<td>fragmentation – many</td>
<td>high degree of</td>
<td>E2E integration</td>
</tr>
<tr>
<td>handovers</td>
<td>high degree of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>fragmentation – many</td>
<td></td>
</tr>
<tr>
<td></td>
<td>handovers</td>
<td></td>
</tr>
<tr>
<td>Complex financial flows</td>
<td>Complex financial flows</td>
<td>Secure transactions with upfront</td>
</tr>
<tr>
<td>– high number of</td>
<td>– high number of</td>
<td>payment</td>
</tr>
<tr>
<td>transactions</td>
<td>transactions</td>
<td></td>
</tr>
</tbody>
</table>
There are opportunities from greater data exchange across all parties in the value chain

Opportunity for improved operational efficiencies

Berthing slots and labor can be better utilized by forecasting ship ETAs more accurately resulting in up to 8 p.p. of EBITDA potential for terminals.

Sharing real-time data on ETAs and terminal congestion with inland operators could reduce waiting times of trucks by 25%.

Optimizing steaming speed in line with berth and pilot availability can reduce bunker spend by 1-2%.

Example: As one of the most advanced ports Antwerp has deployed a collaboration suite (APCS) to connect port stakeholders digitally.

Opportunity for new revenue pools

Managing data end-to-end across shippers, carriers, and ports would create new revenue pools (e.g., production steering of consignees) and address the ~20% admin costs of trade.

Selling of trade insights provides a new revenue pool for existing data.

SOURCE: McKinsey; Port of Antwerp; Logindex; Leidos; Transparency Market Research
In air cargo there are digital opportunities across the value chain

**Digitized customer interactions**

- **Digital sales channels** are already increasingly becoming standard
- Strong focus on **SME customers** without large logistics departments

**Improved operational efficiencies**

- Advanced analytics to be strongly utilized, e.g. for **predictive maintenance**
- Further improvements in **yield management** due to learning algorithms and distributed computing

**Enhanced data ecosystems**

- Standardization toward **electronic Air Waybills** well under way enabling increasing data exchange across stakeholders and with that new **value-added services**

**Increased door-to-door business**

- Digital channels offer new **opportunities to upsell**, e.g., on hinterland operations and services

SOURCE: McKinsey; WCA China Global
How might disruption play out?

**Potential role**

1. **Customer** (own volumes)
2. **Consolidator** (market place volumes)
3. **Carrier**
4. **Fulfillment Specialist**
5. **Forwarder** (own volume)
6. **Forwarder** (third party volumes)

**Today’s activities**

- [amazon.com](https://www.amazon.com)
- [powered by Amazon](https://www.amazon.com)

**Competitive advantage**

- Low
- High

SOURCE: Web and press search, McKinsey analysis
Actions to tackle digital disruption

1 Competitive advantage more pronounced for first movers and decreasing over time

SOURCE : McKinsey
Digital Platform: Foundation for a Successful Digital Transformation Journey

Brendan McKittrick
Chief Technology Officer, Mercator
Digital Transformation

Digital Platform: Foundation for a Successful Digital Transformation Journey
Brendan McKittrick - Chief Technology Officer
We’ve been on a journey to revolutionize air cargo
Economic Backdrop to the Airline Industry

World Scheduled Airline net profit margin (%)

Source: ICAO, IATA
(After interest and taxation)
The rise of digital commerce (e-commerce) has empowered consumers, who can now source products from anywhere in the world or compare prices with just the touch of a smartphone.

The role of airlines in the global e-commerce boom is important, because:

- 64% of online consumers say delivery speed is important (Accenture)
- 61% of survey respondents stated they would be willing to pay more for same-day delivery (PricewaterhouseCoopers)
Some case studies:

- Amazon branded its airline “Prime Air”
- Alibaba’s partnership with USPS and Singapore Post
- Isetan Singapore’s E-commerce site and Yamato Transport and ANA Cargo
- Cathay’s partnership with China Post and Hong Kong Post
Digital Transformation

Retail

Other Industries

Air Cargo

Rise in air cargo volumes

necessity for faster and better transportation

Digital platform
Augmented Reality – A Case in Point

**Market Growth**
Industry predicts that by 2017 the AR market will grow to USD 5.2 billion.

**New Perspective**
Augmented reality (AR) provides new perspectives in air cargo’s planning, process execution, and transportation.

**Hands Free Operation**
AR-powered warehouse operations utilize smart glasses for the hands-free operation of various tasks within a warehouse such as product picking, packing, sorting, and even assembly.

**Right Information**
AR empowers workers by providing the right information, at the right time, and in the right place.
Digital Technology – Macro Trends

- Augmented Reality
- Big Data
- Cloud
- Mobility
- On-Demand Logistics
- IoT
- Self Learning Systems
- Omni Channel
- Digital Currency
- Logistics Marketplaces
- Robotics & Automation
- Blockchain
Greatest Challenges Facing Organizations

- Low yields: 21%
- Outdated/complex Legacy systems: 8%
- Lack of data availability/visibility: 8%
- Inaccurate/sub-optimal pricing: 4%
- Asset utilization (ULD management): 7%
- Poor customer relations (track and trace, claims): 6%
- Meeting Customer preferences: 1%
- Capacity Utilization
- Lack of operational efficiency
- Greatest Challenges: 2...
Challenges Related to User Experience

- Capacity Utilization: 25%
- Meeting Customer Preferences: 6%
- Meeting Customer Preferences (track and trace, claims): 1%
- Inaccurate / sub-optimal pricing: 7%
- Lack of data availability/visibility: 8%
- Outdated/complex Legacy systems: 8%
- Low yields: 8%
- Lack of operational efficiency: 21%
- Poor customer relations (track and trace, claims): 4%
- Asset utilization (ULD management): 7%

Source: Accenture 2015 Air Cargo Survey
Designing for an Enhanced User Experience

Public API

Self Service
- Shop
- Book
- Billing
- Regulatory
- Pricing
- Warehousing
- Quality
- Analytics

Management & Monitoring

Connectivity and Integration

API Enabled Product
Supporting a Marketplace & Partner Ecosystem
Fully Self Service Enabled
User Experience is the Key Differentiator

- Technology is irrelevant… when it works
- The user experience is paramount
- Operate at the speed of change
- 4As Approach to provide access to information
  - Anytime
  - Anywhere
  - Any channel
  - Authorized
Product Design: Warehouse App
### Existing Flight Capacity Dashboard

#### Flight List

<table>
<thead>
<tr>
<th>Flight</th>
<th>Type</th>
<th>Period</th>
<th>ABC Code</th>
<th>Capacity</th>
<th>Filled</th>
<th>Available</th>
<th>Overbooked</th>
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</thead>
<tbody>
<tr>
<td>A10001</td>
<td>PAS</td>
<td>3 Jan 2017</td>
<td>100</td>
<td>200</td>
<td>150</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>A10002</td>
<td>PAS</td>
<td>4 Jan 2017</td>
<td>100</td>
<td>200</td>
<td>150</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>A10003</td>
<td>PAS</td>
<td>7 Jan 2017</td>
<td>100</td>
<td>200</td>
<td>150</td>
<td>50</td>
<td>0</td>
</tr>
</tbody>
</table>

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**Notes:**
- **Weight or Volume:** Value in KB and revenue in base units
- **Blue:** Utilization > 100%, Green: Utilization > 80%, Yellow: Utilization > 60%, Red: Utilization < 80%
Real-Time Command & Control Dashboard App
Thank you

Visit www.mercator.com
Big Data and Artificial Intelligence: Opportunities for Smarter, Faster and Safer Operations

Martin Kraemer
Head of Marketing
Jettainer
ULD management in the digital age
Research, activities & future scenarios

IATA World Cargo Symposium 2017, Abu Dhabi
Martin Kraemer, Head of Marketing & PR, Jettainer GmbH,
Who is Jettainer?

- World leader in outsourced ULD management solutions
- World’s largest fleet of about 100,000 active ULDs
- 500 stations around the globe
- 25 airlines served with full ULD management
- A team of 80 highly dedicated air-cargo professionals
- ULD steerers implanted into cargo department at hubs
- We offer the entire ULD supply chain & logistics
„Immediateness“
Speed is standard, smart use is king!
Digital = Quantity + Quality
„Digitarget“

Customer faces a system?
Customer faces a person „made smart“ by a system
„Digitization accuracy“
„Digitization“
System replacing humans?
System supporting humans!
digital = smart?
How does a customer benefit?
What is the business case?
The air cargo supply chain

Many players run or develop digital projects in order to smoothen their own process.
Many players run or develop digital projects in order to smoothen their own process.

Shippers book online, get confirmation from forwarder’s system. Shippers provide some forecasts to forwarders or even have contracts about (some) constant capacity.
The air cargo supply chain

Many players run or develop digital projects in order to smoothen their own process.

Freight forwarders book electronically (eAWB) with airlines. They have (some) capacity based agreements and provide some forecasts to airlines.
The air cargo supply chain

Many players run or develop digital projects in order to smoothen their own process.

- Shipper
- Freight Forwarder
- Customs
- ULD Manager
- Airline

Customs (in many places) receive electronic documentation and clear freight electronically.
Many players run or develop digital projects in order to smoothen their own process.

The air cargo supply chain

- Shipper
- Freight Forwarder
- Customs
- ULD Manager
- Airline

Receives some forecast from forwarders and can (at least partially) plan their flights, extra sections, and peak capacity demand accordingly.
The air cargo supply chain

Many players run or develop digital projects in order to smoothen their own process.

ULD managers act „on demand“ with no notice and no forecast. Making the business extremely challenging. Solutions:

- Jettainer’s smart steering logic
- long term experience (humans, data)
- intelligent systems to combine both
We are pushing ahead digitalization:

- Digital / automated processes: Electronic in/ out booking, stocktakes etc. (Tool: JettWare mobile on JettApp, JettPad, Smartphone)
The ULD manager

How can an ULD manager support efficiency along the chain?
We are pushing ahead digitalization:

- Digital / automated processes: Electronic in/ out booking, stocktakes etc. (Tool: JettWare mobile on JettApp, JettPad, Smartphone)

- Software /IT: Jettainer‘s decision support system, big data/expert system. Artificial intelligence used to better manage ULD fleets.
The ULD manager

How can an ULD manager support efficiency along the chain?

- Booking information from shippers
- Forecasting information from forwarders & airlines
- Custom data could be integrated into our artificial intelligence.

Outcome: Even better efficiency in ULD usage and management.
The ULD manager

How can an ULD manager support efficiency along the chain?

<p>| Calculation time: 25.01.2017 13:25 (UTC) | Actual Stock: 41 | Situation: -9 (Understock) |</p>
<table>
<thead>
<tr>
<th>Recommendation for AIRLINE4-CDG-PMC</th>
<th>Cost</th>
<th>Compliance</th>
<th>Benefit</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>(AIRLINE4031/25JAN17 22:25 UTC) AUH → CDG: 10 PMC</td>
<td>Your comment here (optional)</td>
<td>Create MR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(AIRLINE4031/27JAN17 22:25 UTC) AUH → CDG: 10 PMC</td>
<td>Your comment here (optional)</td>
<td>Create MR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Cross Utilization) From AIRLINE15 → AIRLINE4: 4 PMC</td>
<td>interesting alternative</td>
<td>Create MR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(AIRLINE4031/26JAN17 22:25 UTC) AUH → CDG: 10 PMC</td>
<td>Your comment here (optional)</td>
<td>Create MR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(AIRLINE4037/26JAN17 05:05 UTC) AUH → CDG: 9 PMC</td>
<td>Your comment here (optional)</td>
<td>Create MR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- [HUB-US] Origin Station AIRLINE4-CDG-PMC is Volume Category A or Hub for AIRLINE4.
- Benefit: A flight within next 24 hours.
- Benefit: Hub - Understock.
- Benefit: HUB-US, Understock fully dissolved. <24h Delivery time
- Compliance: Average First Capacity Positions for "AIRLINE4-PMC from AUH to CDG on A330-300" is 0.00
- Compliance: Average Total Opportunities for "AIRLINE4-PMC from AUH to CDG on A330-300" is 0.00.
- Compliance: Data source is positioning compliance between 26Dec2016 07:24 and 25Jan2017 12:53.
- Compliance: Historical Max Free Capacity is [0]
- Cost: Aircraft fuel cost for 9 empty PMC on AIRLINE4037/26JAN17 is expected to be 173.78 EUR.
- Pallet Stack: 9 PMC as 1 stack/s.
- Pallet Stack: The demanded quantity [9] does not meet the minimum quantity per pallet stack [20].
- Single-Leg: AUH-CDG with Airbus A330-300.
- Sustainability: Aircraft fuel consumption for 9 empty PMC on AIRLINE4037/26JAN17 is expected to be 238.05 liters.
- Sustainability: The CO2 emission for 9 empty PMC on AIRLINE4037/26JAN17 is expected to be 657.02 kg.
- Weather: The weather in AUH is 20.66 °C.
- Weather: The weather in CDG is -2.61 °C.
We are pushing ahead digitalization:

- **Digital / automated processes**: Electronic in/out booking, stocktakes etc. (Tool: JettWare\textit{mobile} on JettApp, JettPad, Smartphone)

- **Software / IT**: Jettainer’s decision support system, big data/expert system. Artificial intelligence used to better manage ULD fleets.

- **Hardware (ULDs)**: Intelligent ULDs that communicate automatically (Tool: GPS, other sensor devices)
The ULD manager

How can an ULD manager support efficiency increases in the chain?

Together, we make ULDs smart!

Lufthansa Industry Solutions
The ULD manager

How can an ULD manager support efficiency along the chain?

What if we connect with other players:
- Booking information from shippers
- Forecasting information from forwarders & airlines
- Customs data

... could be integrated into our artificial intelligence.

Outcome: Even better efficiency in ULD usage and management.
The smart ULD opportunities derive from an intelligent ULD.

Geolocation

Temperature

Vibration

Humidity

Damages
The air cargo supply chain

Many players run or develop digital projects in order to smoothen their own process.

![Diagram of the air cargo supply chain with roles such as Shipper, Customs, Airline, Freight Forwarder, and ULD Manager. An incident is noted, leading to a time advantage to generate a solution.]
The air cargo supply chain

Many players run or develop digital projects in order to smoothen their own process

- Reduce repair time (pre alert)
- Determine repair incident origin (cause)
- Early alert in case shipment error
- „per hour“ usage fee
- Tell ground handling how to built up
- Share these data with others along the transport chain
Summary

Quantity, quality and collaboration will lead to customer-oriented business cases

• Ensure data quality
• Define effect / target
• Calculate business case

• Think along the logistics chain and collaborate!
Blockchain: What Opportunities for the Air Cargo Industry

Wassilios Lytras
Co-Founder & Chief Operating Officer
Gatechain
Blockchain: what opportunities for the air cargo industry?

March 15, 2017 – IATA WCS Abu Dhabi

Wassilios Lytras
www.gatechain.com
Disclaimer

• Simplified view to cover in 15 minutes
• Narrative chosen to explain the use case, not the technology
Technology and application

Internet of information
- Copy information

Internet of value
- Store, move, transact assets
Blockchain – Trust by witness

- Transactions can be payments (Bitcoin)
- Transactions can include smart contracts (Hyperledger/Etherium)

Source: IBM
Smart contracts characteristics

• Self-executing logic containing rules for a type of transaction
• Invoked by end-users, systems, devices, through triggers
• Runs network transactions, if valid, added to blockchain
Let’s talk airfreight
Now

- **Shipper**
  - Book cargo
  - Verify and inform

- **Forwarder**
  - Verify and Book
  - Verify and confirm

- **Airline**
  - Verify and confirm

- **Consignee**
  - Verify

- **Warehouse**
  - Verify and sign

- **Forwarder**
  - Instruct pick-up

- **Trucker**
  - Verify and confirm
  - Pick up cargo

- **Airport**
  - Drop Cargo
  - Verify and sign
Now

Efficiency drivers:

- Copy information electronically
- Print paper faster
Think asset and value

instead of information
Blockchain differentiator

• Distributed instead of point to point. Transactions are broadcasted.
• Access to data is granted, not the data itself
• Assets can be digitized and attached to smart contract
Let’s make assets and contracts

Smart contract

Condition: Shipped prior {date}
Condition: Compliance check by {some party}

If conditions met:
swap ownership of goods with payment obligation
Execution

Shipper

Forwarder

Goods

Compliance auditor

Ledger
Execution

Smart contract

Condition: if GPS tracker of cargo report location {somewhere} at {sometime}

If conditions met:
Express fee applies
If condition not met:
Normal fee applies
Execution
Swapping assets

**Smart contract**
- Condition: Shipped prior {date}
- Condition: Compliance check by {some party}

If conditions met:
swap ownership of goods with payment obligation
Execution

Flight Info
Goods
Driver
Ledger
Execution

Smart contract

Condition: if GPS tracker of cargo report location {somewhere} at { sometime} 

If conditions met: Express fee applies
If condition not met: Normal fee applies
Summary

• No manual checks needed to be made if someone can pick up or delivery cargo
• Automatic swap of assets
• Distribution of most current information available to everyone
• Secure, trust embedded
• Remove paper from the complete process
At the end
Wassilios Lytras

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wassilios.lytras@gatechain.com
@Gatechain_com
Thank you to our Networking Break Sponsor

GACA
الهيئة العامة للطيران المدني
General Authority of Civil Aviation
Save the dates!

6th IATA e-Cargo Conference
Geneva, Switzerland, 19-20 September 2017

IATA DRONESLAB
Barcelona, Spain 3-4 October 2017
Drones: Game Changers of the Air Cargo?

Svilen Rangelov
Co-Founder & Chief Executive Officer
Dronamics
DRONES: REINVENTING AIR CARGO REINVENTING TRADE
ABOUT ME

ONE HALF OF THE RANGELOV BROTHERS

LEADING A SMALL TEAM OF EXPERIENCED AEROSPACE ENGINEERS

WORKING ON UNMANNED CARGO AIRCRAFT SINCE 2014

Mentions & Features

TechCrunch

Inc.

Forbes

Awards

WINNER

POINERS FESTIVAL
1,600 STARTUPS
90 COUNTRIES
Vienna, 2015

TOP 30

HELLO TOMORROW
3,000 STARTUPS
90 COUNTRIES
Paris, 2015

TOP 50

KAIROS GLOBAL SUMMIT
500 STARTUPS
50 COUNTRIES
Los Angeles, 2015
DRONES CAN:

Be more fuel-efficient than cargo airplanes
Enable same-day international delivery
Empower communities worldwide
Revolutionize e-commerce
Reinvent trade
THE SPEED OF TRADE

1. COMMUNICATION

Graph showing the increase in speed from Phone & Fax, Letters & Catalogs to a much faster rate.
THE SPEED OF TRADE

COMMUNICATION

PHASE 1: Replicate existing model on the internet (letters become emails, catalogs become websites)

Email & Web

Phone & Fax
Letters & Catalogs
1. COMMUNICATION

PHASE 1:
Replicate existing model on the internet (letters become emails, catalogs become websites)

PHASE 2:
Make the whole system P2P, add video, eliminate boundaries (Skype, VR)
THE SPEED OF TRADE

2 PAYMENT

Credit Cards 1st gen
Wire Transfers / Checks
THE SPEED OF TRADE

2 PAYMENT

Phase 1: Replicate existing model on the internet (credit card payments move online, bank transfers become PayPal)

Paypal & CC online

Credit Cards 1st gen Wire Transfers / Checks
THE SPEED OF TRADE

2 PAYMENT

Phase 1: Replicate existing model on the internet (credit card payments move online, bank transfers become PayPal)

Phase 2: Make the whole system P2P, eliminate boundaries (Bitcoin)
THE SPEED OF TRADE

3 TRANSPORTATION

Trucks, Trains, Ships, Airplanes
THE SPEED OF TRADE

3 TRANSPORTATION

Phase 1: Gains from de-regulation (FedEx’s Next Day Delivery, international trade tariff reductions, customs unions etc.)

Integrators & regulations (i.e. service innovations)

Trucks, Trains, Ships, Airplanes
THE SPEED OF TRADE

3 TRANSPORTATION

DRONES / Autonomous Vehicles

Integrators & regulations (i.e. service innovations)

Phase 1: Gains from de-regulation (FedEx’s Next Day Delivery, international trade tariff reductions, customs unions etc.)

WE’RE HERE NOW

Phase 2: Make the whole system P2P (DRONES!)
AIR – FAST BUT EXPENSIVE

THE 1%

1% → 30+% of traded goods
1% → 30+% of global trade by value

$ (currency)

Air, Road, Rail, Sea

Time

Air, Opportunity

CONFIDENTIAL & PROPRIETARY

DRONAMICS.COM
BIG OPPORTUNITY IF AIR IS CHEAP

THE 1%

Air
Opportunity

$:

AIR
DRONES
ROAD
RAIL
SEA
TIME
GROWTH SOURCE: E-COMMERCE

PARCELS ARE SMALL
- THEY DON’T CARE HOW BIG
THE AIRPLANE IS

PARCELS ARE NOT HUMANS
- THEY DON’T CARE IF THERE
IS A PILOT ON BOARD

PARCELS NEED TO BE
DELIVERED FAST & CHEAP
“I’LL WAIT MORE AND PAY MORE”

DOES NOT EXIST
THE INTERNET SPOILED US

Now it’s all about on-demand.
THE 3 LAWS OF ON-DEMAND AIR CARGO

1. SMALLER AIRCRAFT = HIGHER RESOLUTION

2. UNMANNED = HYPER-MOVABLE

3. CHEAPER TO OWN AND OPERATE (per FTK)
THE 3 LAWS OF ON-DEMAND AIR CARGO

1. SMALLER AIRCRAFT = HIGHER RESOLUTION

52.4% FULL = 98.9% FULL!
THE 3 LAWS OF ON-DEMAND AIR CARGO

2. UNMANNED = HYPER-MOVABLE

ASSETS GO WHERE THE DEMAND IS (e.g. B & D)
THE 3 LAWS OF ON-DEMAND AIR CARGO

3. CHEAPER TO OWN AND OPERATE (PER FTK)

- FUEL COSTS
- OWNERSHIP COSTS
- LABOR COSTS
THE BLACK SWAN

LAW #1: SMALLER
PAYLOAD
350 KG
770 LBS

LAW #2: UNMANNED
RANGE
2,500 KM
1,500 MILES

LAW #3: CHEAPER
COST
20%–50%
cheaper / FTK

Illustration only, not actual design
SO LET’S LOOK AT SOME DRONES...

1-5 KG
<50 KM

200 – 2,000 KG
300 – 3,000 KM

20,000+ KG
3,000+ KM

LAST MILE

FEEDERS / POINT-TO-POINT

FREIGHTERS / SHIPS
... OR MOVABLE WAREHOUSES?

<table>
<thead>
<tr>
<th>Last Mile</th>
<th>Feeders / Point-to-Point</th>
<th>Freighters / Ships</th>
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<tbody>
<tr>
<td>1-5 KG</td>
<td>200 – 2,000 KG</td>
<td>20,000+ KG</td>
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<tr>
<td>&lt;50 KM</td>
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</table>
FEEDERS / POINT-TO-POINT

LAST MILE

1-5 KG
<50 KM

200 - 2,000 KG
300 - 2,500 KM

FEEDERS / POINT-TO-POINT

20,000+ KG
3,000+ KM

FREIGHTERS / SHIPS
THE 3 LAWS ARE VALID HERE TOO

SMALLER, UNMANNED, CHEAPER THAN A DELIVERY VAN
... AND HERE ...

SMALLER, UNMANNED, CHEAPER

THAN A 16-WHEELER
... AND HERE ...

SMALLER, UNMANNED, CHEAPER

THAN 16-WHEELERS & FREIGHTERS
... AND HERE

SMALLER, UNMANNED, CHEAPER THAN LARGE FREIGHTERS
THE OLD MODEL

BEFORE:
- ORIGIN
- TRUCK
- AIRPLANE
- HUB
- AIRPLANE
- TRUCK
- DESTINATION
ON-DEMAND AIR CARGO

MODALITY: REDUCED

TIME: REDUCED

COST: REDUCED

COMPLEXITY: REDUCED
ON-DEMAND AIR CARGO

CUSTOMERS: HAPPY!
THE FUTURE IS AGILE

BEFORE

DOZENS OF UNITS

DOZENS OF AIRPORTS

MANAGEMENT VIA TRADITIONAL METHODS

MANNED ATC

AFTER

THOUSANDS OF UNITS

HUNDREDS OF AIRFIELDS

MANAGEMENT VIA AUTOMATION

AUTOMATED ATC
CHALLENGES

HOW TO PRODUCE THOSE THOUSANDS OF UNITS
HOW TO OPERATE THOSE HUNDREDS OF AIRFIELDS
HOW TO INTEGRATE THIS MANAGEMENT VIA AUTOMATION
HOW TO REGULATE THIS AUTOMATED ATC
"I’LL WAIT MORE AND PAY MORE"

DOES NOT EXIST
Uberization of the Air Cargo Industry: Myth or Reality?

Panelists:
- Celine Hourcade, Head Cargo Transformation, IATA
- Laurent Petitmangin, VP Marketing, Digital & Communication, Air France KLM Martinair Cargo
- Wojciech Soltysiak, Chief Technology & Innovation Officer, Champ Cargosystems S.A.

Moderator:
- Remo Eigenmann, Lecturer, Zurich University of Applied Sciences
«Uberization» of the Air Cargo Industry

*Definition in the context of this track:*

“To modify a market or economic model by the introduction of a cheap and efficient alternative using digital technology”
Uberization of the Air Cargo Industry: Myth or Reality?

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Closing Remarks

Cormac Whelan
Chief Executive Officer
Mercator
Save the dates!

6th IATA e-Cargo Conference
Geneva, Switzerland, 19-20 September 2017

IATA DRONESLAB
Barcelona, Spain 3-4 October 2017