IATA CARGO WEBINARS

13 October 2020

Cargo Operations

Today's session will begin shortly

IATA CARGO WEBINARS

13 October 2020

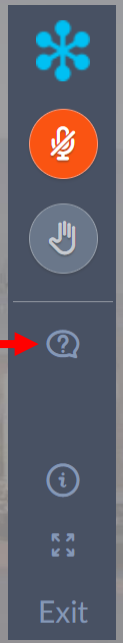
Cargo Operations

Welcome

IATA CARGO WEBINARS

Microphones have been muted

Please submit your questions through the **Question box** and **send to Everyone**



The webinar is being recorded and will be made available afterwards, including the PPT slides.

IATA

- Participants are cautioned that any discussion regarding matters such as fares, charges, division or sharing of traffic or revenues, or concerning any other competitively sensitive topics outside the scope of the agenda is strictly prohibited.

- As a result, questions pertaining to individual policies or commercial decisions and/or being subject to bilateral commercial discussions between airlines and their suppliers or customers will not be answered.

Agenda

- Welcome Address
- Capitalizing on air cargo & managing through crisis
- Opportunities as we emerge from the crisis
- Sustainable air cargo operations
- Panel and Q&A with our experts
- Wrap up

Biographies are available on the IATA Website

Welcome Address

Brendan Sullivan
Head, Cargo Operations
& E-Commerce
IATA

Capitalizing on air cargo & managing through crisis

Robert Fordree

Executive Vice President – Cargo

Menzies Aviation

Covid-19 and Cargo:

An insight into how the pandemic is re-shaping our business

Robert Fordree,

EVP, Cargo

October 2020

Industry leading services across the **world**

Cargo tonnes
1.5M

Flights handled
1.2m

Passengers served
200m+

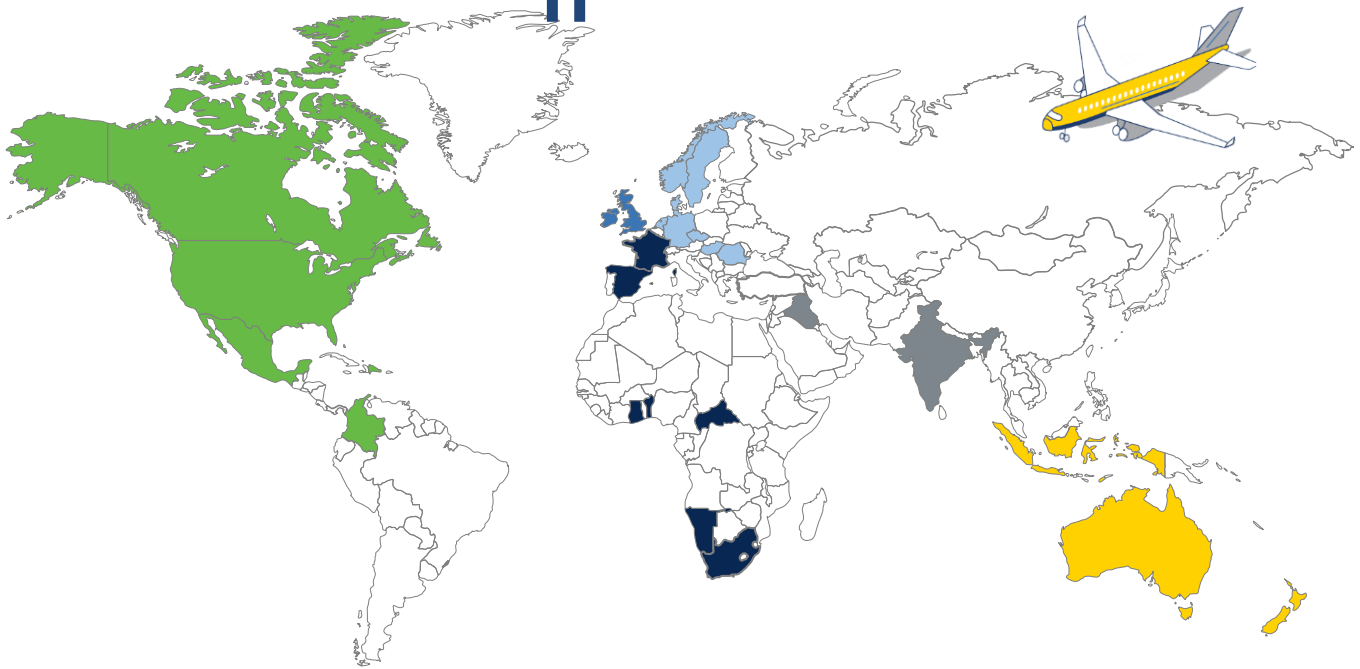
Litres fuelled
34bn

Lounge guests
1.5m

Global locations
202

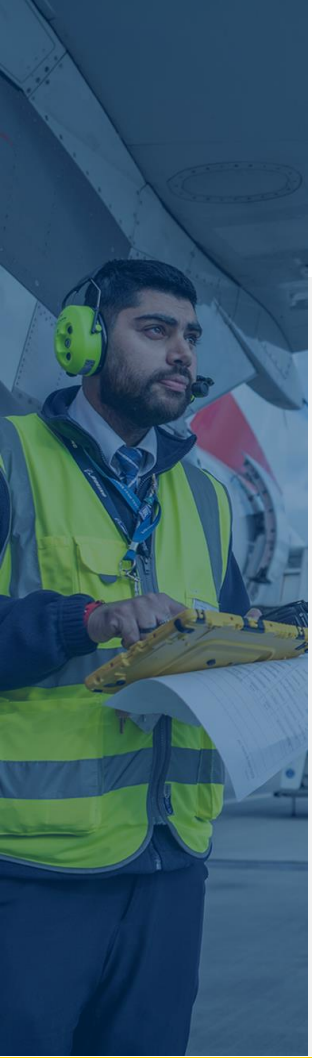
Revenue by region

AMERICAS	39%
SOUTHERN EUROPE & AFRICA UNITED KINGDOM & IRELAND NORTH & EAST & WEST EUROPE MIDDLE EAST, CENTRAL& SOUTHERN ASIA	47%
OCEANIA & SOUTH EAST ASIA	14%



Building strong customer **relationships**

Our business is founded upon the strong relationships we have with our customers. We work with major global and regional airlines and service providers, including but not limited those listed below:



Returning to the new normal

It is widely acknowledged that there will be no return to the 2019 business model based flight schedules and cargo volumes. Differing global markets have differing expectations and forecasts for this year and into the next

Menzies Aviation 5 point plan for a safe return to work

- Communication
- Operational Processes A New Normal
- Social Distancing
- PPE Supply
- Disinfected working environments

All providers had to immediately react to the dramatic downturn in business with global lockdowns, this included a reduction in employees (in many cases through government support schemes) and the consolidation of work into smaller facilities, in order to get back to work we have adopted the above 5 point plan to do so safely.

Cargo Handling Facilities

Cargo Handlers are successful when they have a facility that is using its full capacity either with one key customer or a combination of customers with complementing schedules to avoid peaks of operation and bottlenecks for collections and/or deliveries at the same time.

CARGO

If we compare our operations to jigsaw puzzles the graphic shows a perfect puzzle. This would be:

- 4 Customers
- Schedules for arriving departing aircraft and/or trucks at different times throughout the day.
- Cargo volumes that maximise the use of the warehouse floor space but do not give large peaks of activity or signfcant downtime.
- Teams will be engaged throughout the day with a steady workload making them more productive.

This would be a carefully constructed, designed and planned out optimum Cargo Handling business. This takes a long time to ensure the right business is secured during often very competitive commercial discussions.

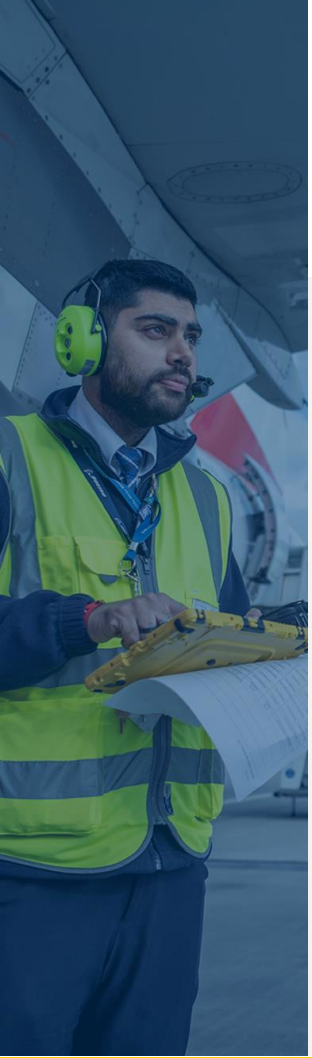
Cargo Handling Facilities – Post COVID19

CARGO with COVID19 impact

In this example the carefully constructed business model of capacity utilisation has been severely impacted by a number of factors from COVID19:

- Increase in piece counts largely due to PPE
- Change in Carrier schedules, Some have increased cargo with pax/freighters. Some are not operating at all
- This leads to large peaks in activity and extended periods of unproductive work
- Short, medium and long term forecasting to return to ‘optimum’ capacity utilisation remains very challenging due to the uncertainty of carrier schedules.

This means the previously perfect jigsaw puzzle now has pieces that are different sizes and shapes than before and the puzzle no longer fits together so well

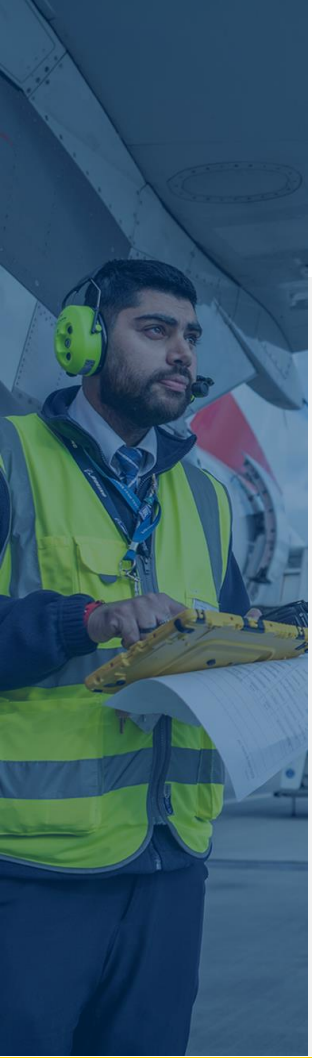


LHR Puzzle – A case study

On 1st September 2020 Menzies Aviation secured a new large scale airline contract at LHR. We experienced some well documented operational congestion issues. This is what happened ….

Pre – Covid19 (March 2020)	During Covid19 (Jun-Aug 2020)	2-3 weeks prior to new contract start up (Aug 2020)
Planning completed. Existing customers volumes and new customer volumes Adequate capacity	Existing customers dramatic volume reduction. New customer increased volume. Adequate capacity	Existing customers volumes start to return. New customer volumes still increasing Capacity issue

- Existing customers who were not operating announced a return to scheduled operations.
- These schedule operations in some cases were using bigger aircraft.
- In addition without passengers the cargo payload was significantly greater.
- The result was capacity utilisation 30-40% above terminal capacity and significant peaks of operation particularly over the weekends.

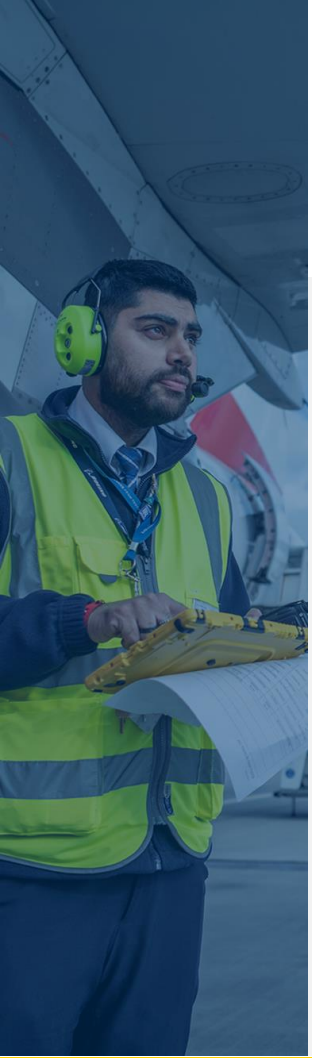


LHR Puzzle – A case study continued …

The unprecedented volumes from all customers resulted in delays to import breakdown and excessive door queues for deliveries and collections.

Actions taken to address:

Customer relocations to alternative handling facilities	Over 50% of existing customer volumes were relocated to alternative handling locations. This to protect their business from the terminal congestion and to also help to alleviate some of the peaks experienced.
Increase in labour	All employees previously on furlough returned to work and additional labour to support import breakdown.
Management oversight	A Senior Management support team overseeing all operational activity and customer engagement



Putting into place the perfect handling jigsaw puzzle

The global cargo business has a continued challenge to wrestle with, what will cargo volumes look like in 1, 3, 6 and 12 months time. How do you plan?

Will cargo volumes currently handled on larger aircraft without passengers continue long term?

If cargo volumes are greater from multiple customers how do you manage warehouse capacity requirements on a temporary basis when you don't know how temporary it will be?

How do you manage your labour requirements when volumes can change exponentially from day to day and week to week?

Opportunities as we emerge from the crisis

Dr. Suraj Nair
Founder & CTO
SPEEDCARGO

IATA

SPEEDCARGO Technologies

Dr. Suraj Nair

Founder and CTO

13 October 2020

speedcargo

transforming airfreight. transforming logistics.

The Air Cargo Industry

US $6 TRILLION in value of goods

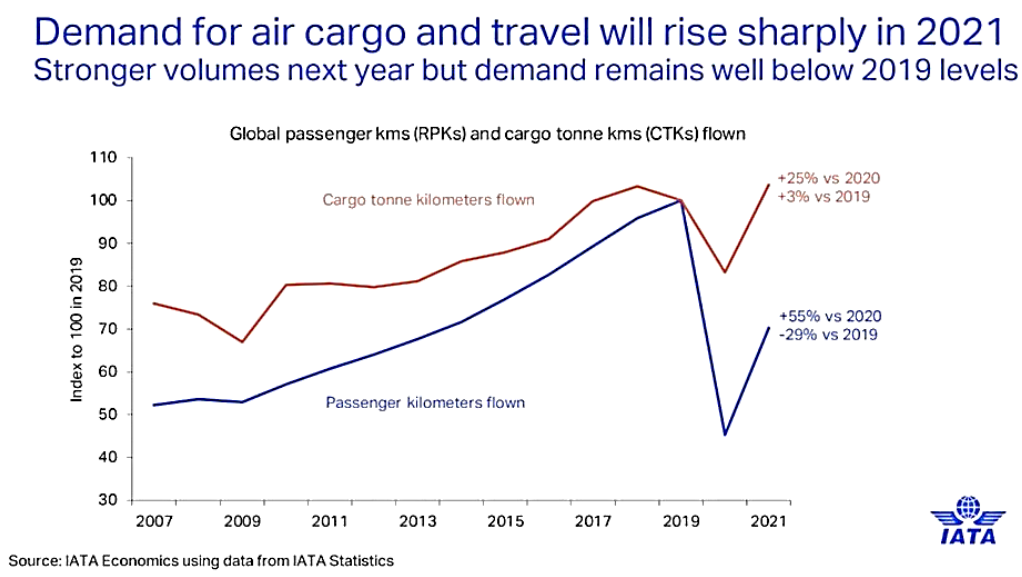
GLOBAL TRADE
1% by volume
35% by value

68 MILLION jobs

Revenue
US $102 Billion in 2019
US $138 Billion ~ 2021

Air-freight Industry Trends

Cargo revenue and volume on upward trajectory in the past 5 years, expected to return to growth by 2021



Historical trend: 2015-2019

5.79% Cargo industry revenue CAGR

2.92% Freight tonnes CAGR

IATA Forecast: 2020F-2021F

7.76% Cargo industry revenue CAGR

0.89% Freight tonnes CAGR

Air Cargo Struggle– 30 years Innovation Gap

Load Factor

	DIGITISATION	OPTIMISATION	AUTOMATION
AIR CARGO	 		
	Inaccurate/incomplete data	Underutilized capacity	Slow and inefficient handling

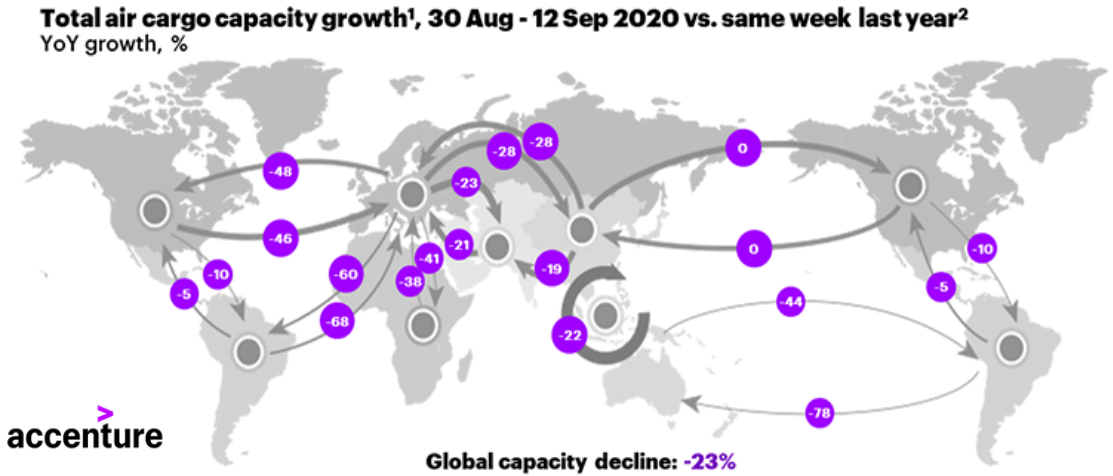
CAPACITY UTILIZATION

50%
by weight

While pricing is volumetric, accurate and complete data is usually available only for weight

This current capacity optimisation process operates in a single dimension using Cubic Meter Volume (CBM) instead of 3D optimisation

COVID-19 Impact



How can Airlines **optimise existing Capacity**?

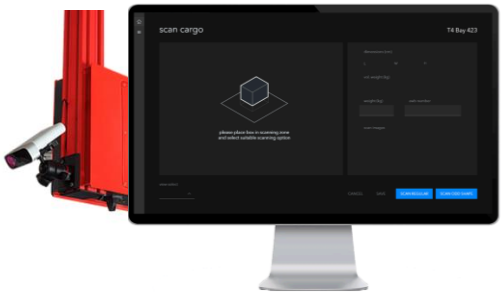
Can Airlines and Terminal Operators continue to operate status-quo **when Capacity returns**?

<u>Digitisation, Capacity Optimisation and Automation</u> key in reviving Air Cargo Economics!

SPEEDCARGO Solutions

DIGITIZE

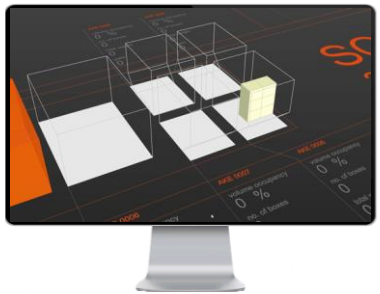
cargo eye



Cargo digitisation system

OPTIMIZE

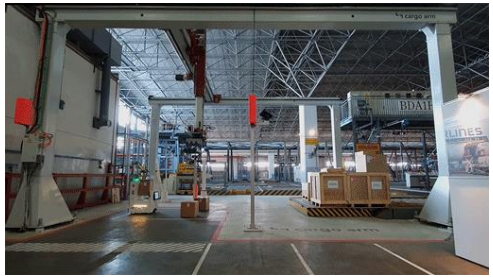
cargo mind



Real time capacity optimisation engine

AUTOMATE

cargo arm



Automated cargo handling system

CARGO EYE

Instant, accurate dimensioning

Instant dimensioning

~2sec/scan, uninterrupted workflow

Digital cargo records

verification of claims and traceability

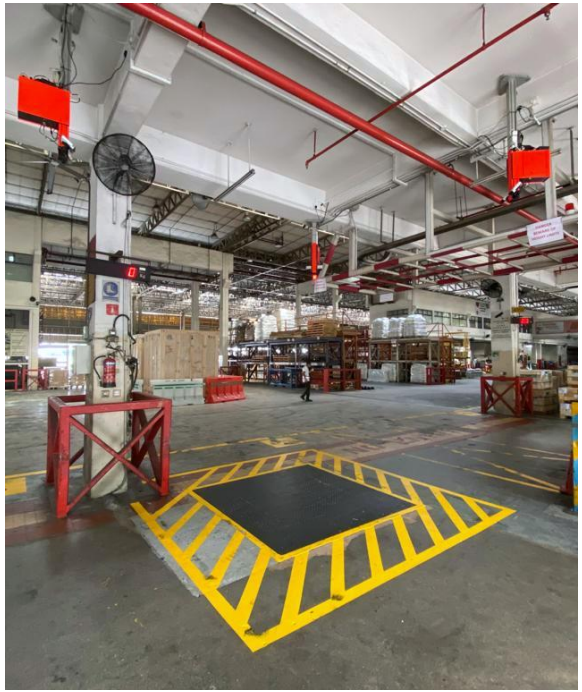
Seamless data integration

API based data integration with existing cargo management systems

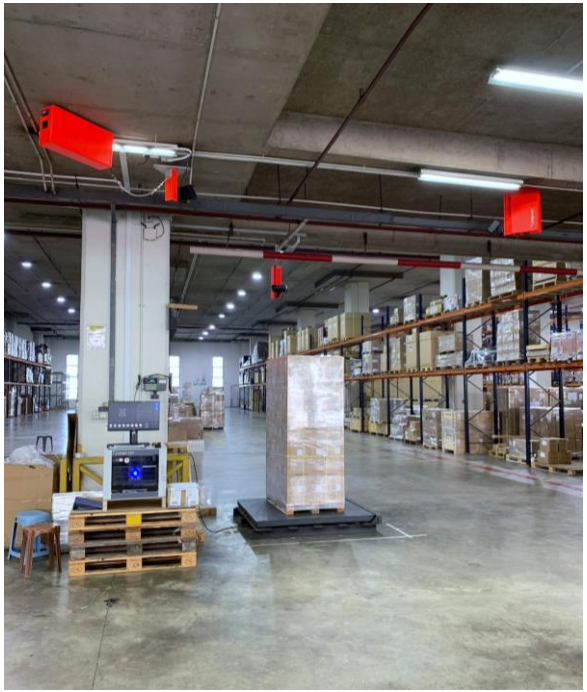
Verified by Industry Leaders

Installations in Singapore

Cargo Terminal Operations



Large Freight Forwarder



Airline/Ground Handler

Video

https://youtu.be/ftRQAaG5EhU

CARGO MIND

A real-time capacity optimization engine

Capacity optimization

Revenue optimization

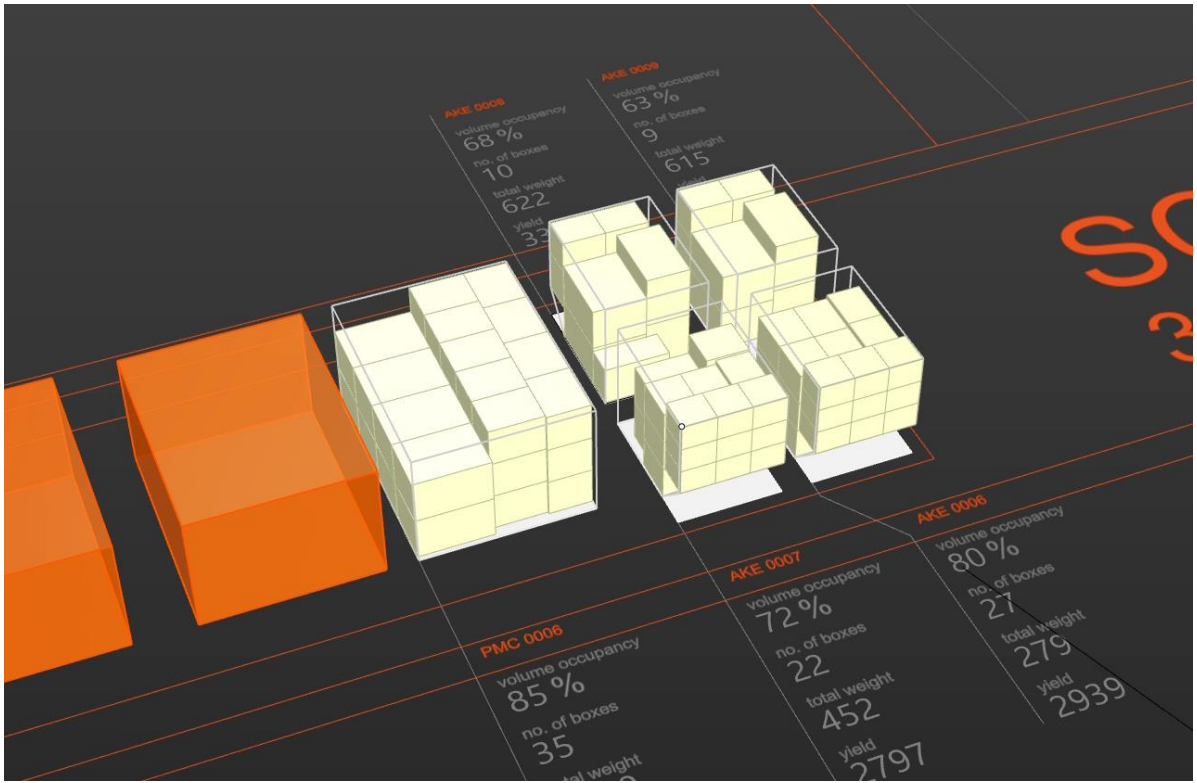
Deep-tech algorithms maximize the utilization of cargo capacity

Multiple ULDs planned simultaneously

Adhering to the regulations and standards for safe ULD build-up

Free up to 30% capacity for additional business*

*verified by large air cargo carrier after trials with CARGO MIND

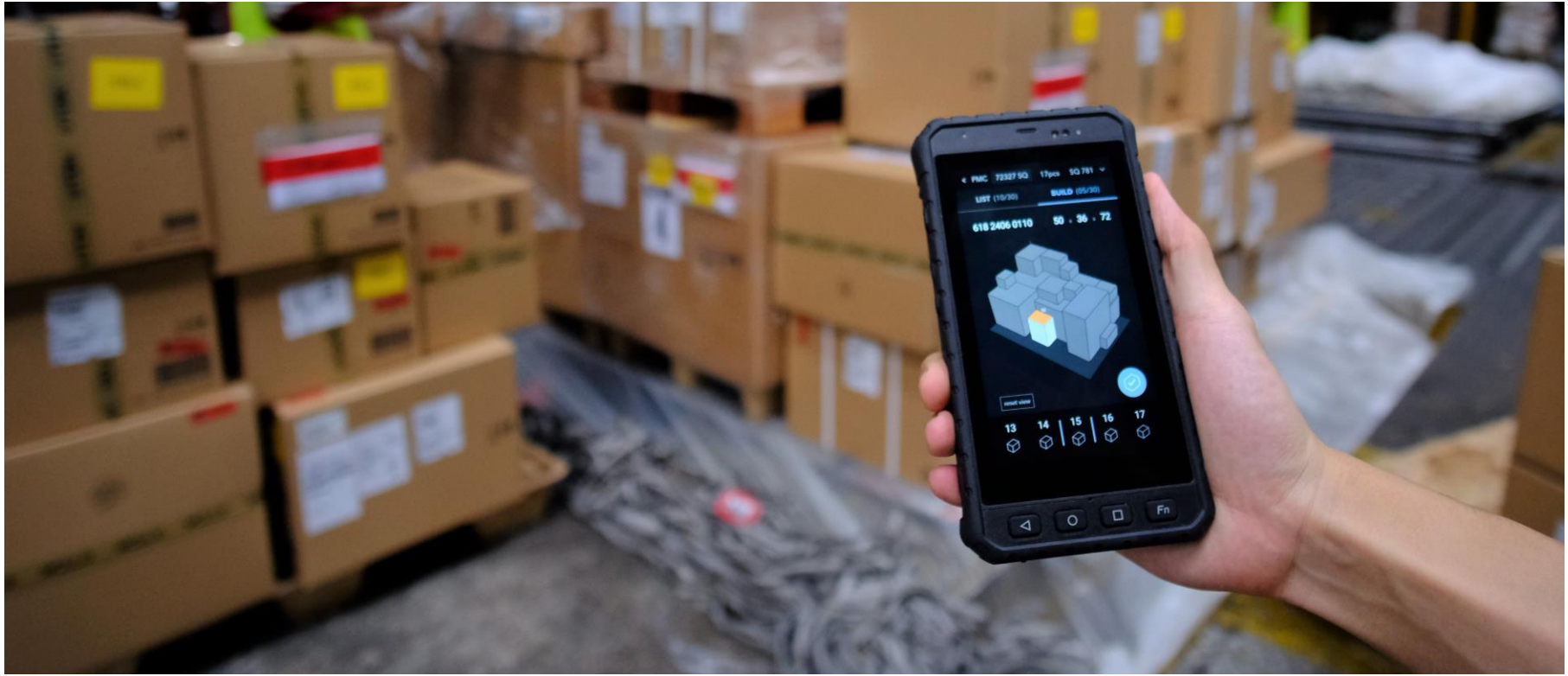


Video

https://youtu.be/qjpy7_X-DiM

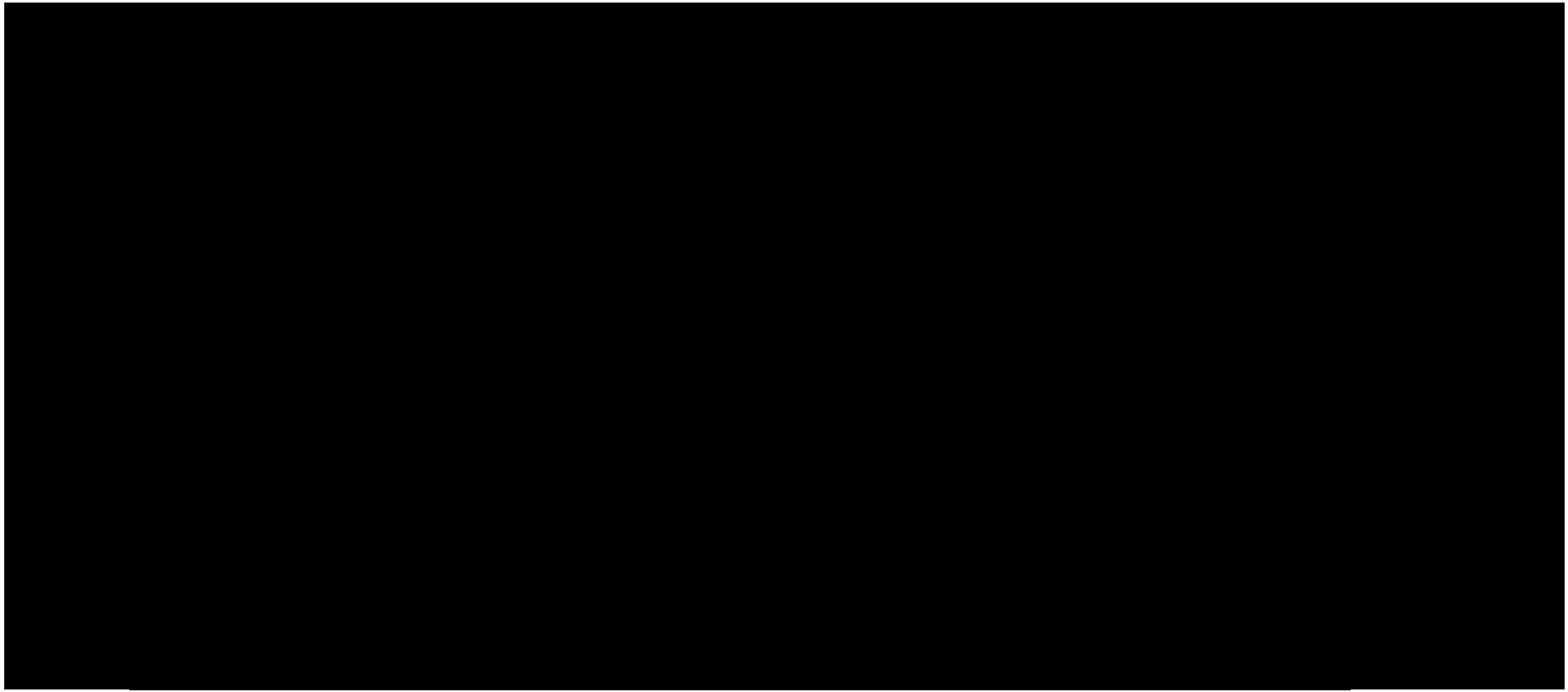
Assemble

Plug-in enabling manual build-up of ULDs planned using CARGO MIND



Video

https://youtu.be/FL4V6MRdUsE



CARGO ARM

End-to-end automation for air freight handling

Swiss-made industrial robot

Gudel

24x7 operations

Low maintenance, MTBF 8-10 years

High payload

Current payload 500kg

Can be configured up to 3.6 tons

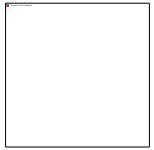
Grippers suite

vacuum and fork grippers to handle cargo of various materials and dimensions

Video

https://youtu.be/rxa5MoeRCwA

SPEEDCARGO Solutions



INCREASE CAPACITY & THROUGHPUT

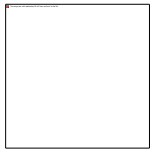
of cargo terminals within existing footprint

INCREASE RELIABILITY OF DELIVERY

improved quality of cargo handling

INCREASE WORK HEALTH SAFETY

accident free workplaces, upskilled jobs



SECURITY / RISK MANAGEMENT

operations secured from threats such as pandemics

Thank You

suraj@speedcargo.sg

speedcargo

transforming airfreight. transforming logistics.

Sustainable air cargo operations

Nadine Mücklich

Project Manager & Researcher

Fraunhofer IML

Sustainability in Air Cargo Operations

Why it is critical to keep investing in innovation

Nadine Muecklich, Fraunhofer IML – Aviation Logistics

IATA Cargo Virtual Events 2020

Fraunhofer IML

FRAUNHOFER GESELLSCHAFT
FRAUNHOFER IML = 100% LOGISTICS

More than 25,000 employees

72 institutes and research institutions

2.3 billion research volume

Development investment and defence research
German federal and state government base funding
Contracts with industry and publically financed research projects

Fraunhofer IML, Dortmund

290 employees

250 post grad students and student assistants

30.7 million turnover, 50% of which from industry and commerce

Prof. Dr. Michael Henke
100% Management
Processes | Organisation

Prof. Dr. Dr. h. c. Michael ten Hompel
100% Technology
Hardware | Software

Prof. Dr. Uwe Clausen
100% Mobility
Humans | Goods

Fraunhofer IML

Innovation: from concept to finished product

Concepts, studies and roadmaps

Demonstrators, proof of concept

Support through to market maturity

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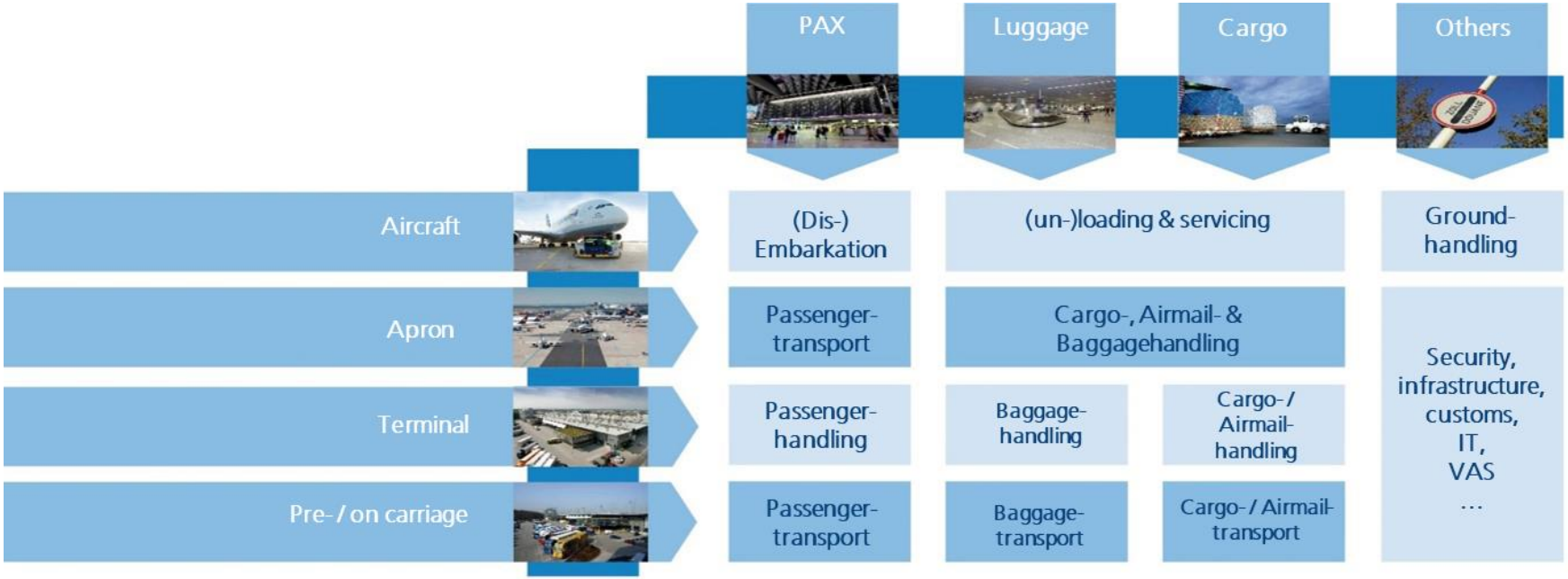
Fraunhofer IML - Aviation Logistics
Frankfurt, Germany



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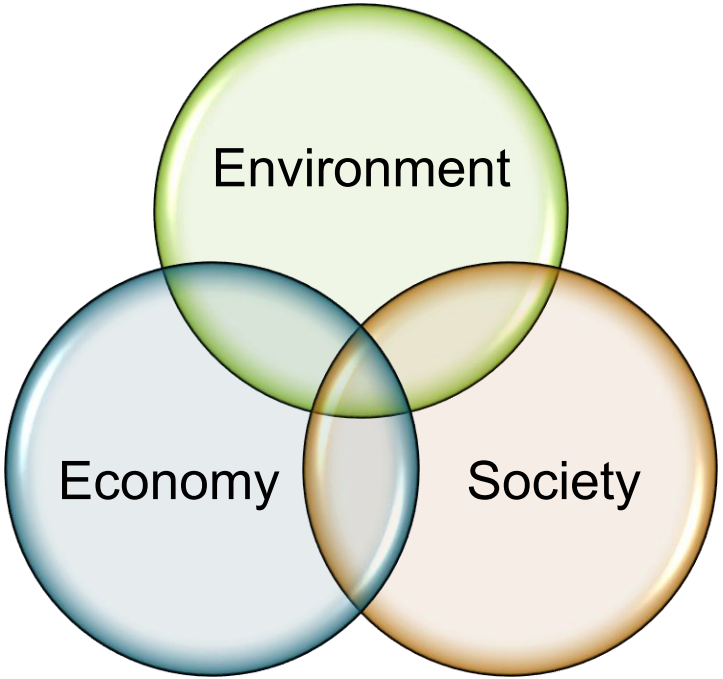
Sustainability – a holistic approach

More than ‚just' going green

- Definition of Sustainable Development
  - … development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- Limitation
  - … limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be both managed and improved to make way for a new era of economic growth.



Source: University of Alberta / UN Report on ‚Our Common Future: report of the World Commission on Environment and Development'

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Sustainability in the Context of a Pandemic

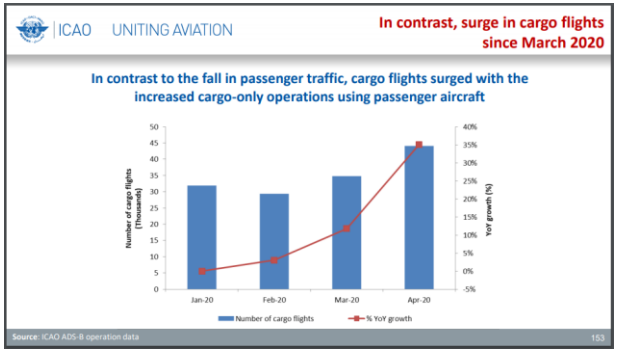
Resilience of an organisation & the industry

- Resilience defintion: „The intrinsic ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions”.
- In busy (good) times: Money, but limited capacity to assign resources to innovation creation
- During corona: No money, but more (additional) capacity to develop and push innovative ideas
  - It is about building strategy and investing in the right things at the right time
  - Anticipate post-COVID19 challenges and future demand
- Sustainable action does not only aim to aid the enviroment, but also the economic development
- Use the resources that are available (esp. use the unused)
- Benefit from own R&D and from funding opportunities

https://erikhollnagel.com/ideas/resilience-engineering.html

COVID-19 and AirCargo

An Extract



- Individual impact dependent on the business model, location, and interdependencies
- Fast adaption to new circumstances during the crisis
  - Low belly capacity available
  - Limited capacity for full-freighter A/Cs & RFS
  - Cargo in pax cabins
- Lots of insecurities for all stakeholders
- In general, low willingness to invest in innovations – everything ‚on hold‘
- But investments in innovations help to recover and even benefit from the crisis

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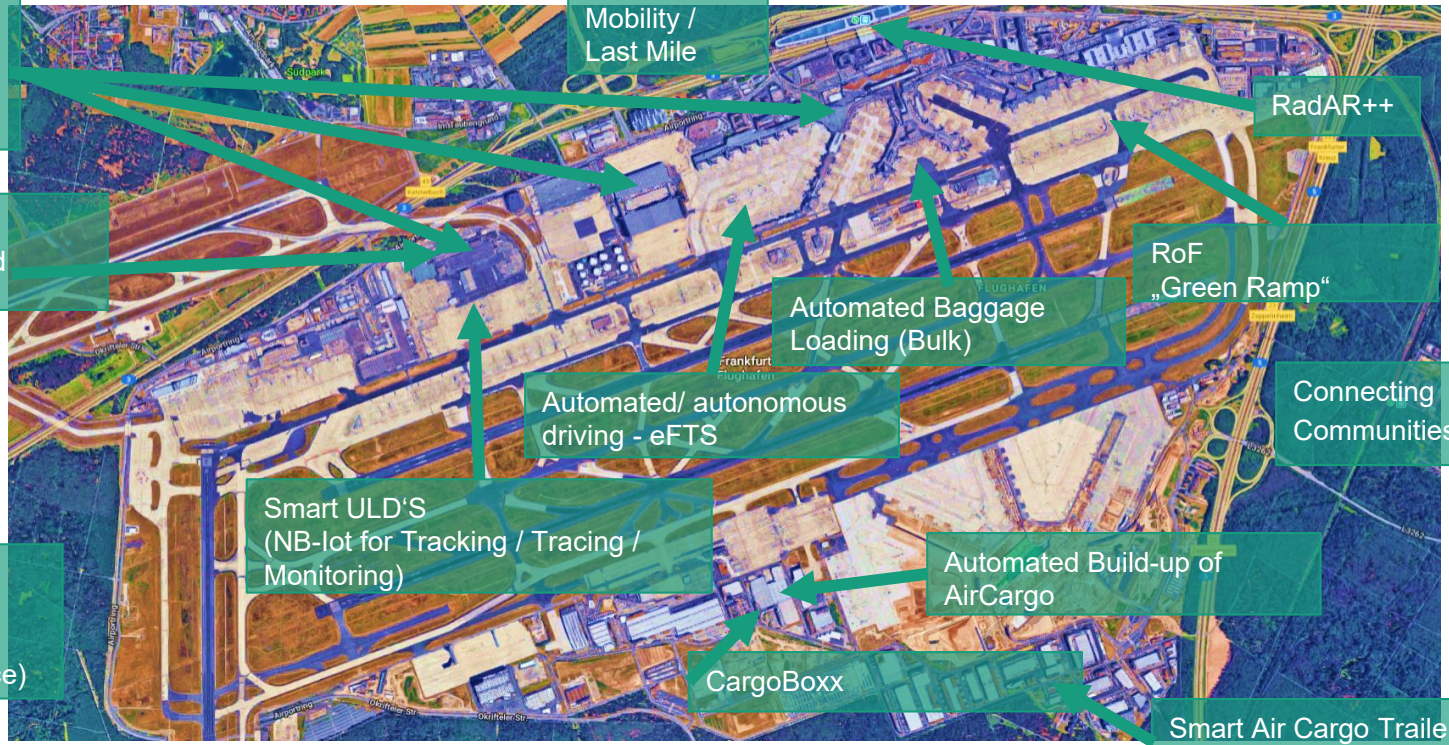
COVID-19 and AirCargo

Innovation during and after the pandemic

- Digitalisation and automation of air cargo processes
  - E.g. OneRecord and eAWB
- New technology to support or subsitute manual processes
  - One step to address the problem of finding personnel
- Contactless processes
  - Less to no live human-human interaction needed
    - At the same time: enhanced efficiency
  - More resilient when facing crisis
- Interconnecting stakeholders in the air cargo processes
  - Enhanced communication of systems

INNOVATION AT/AROUND THE AIRPORT



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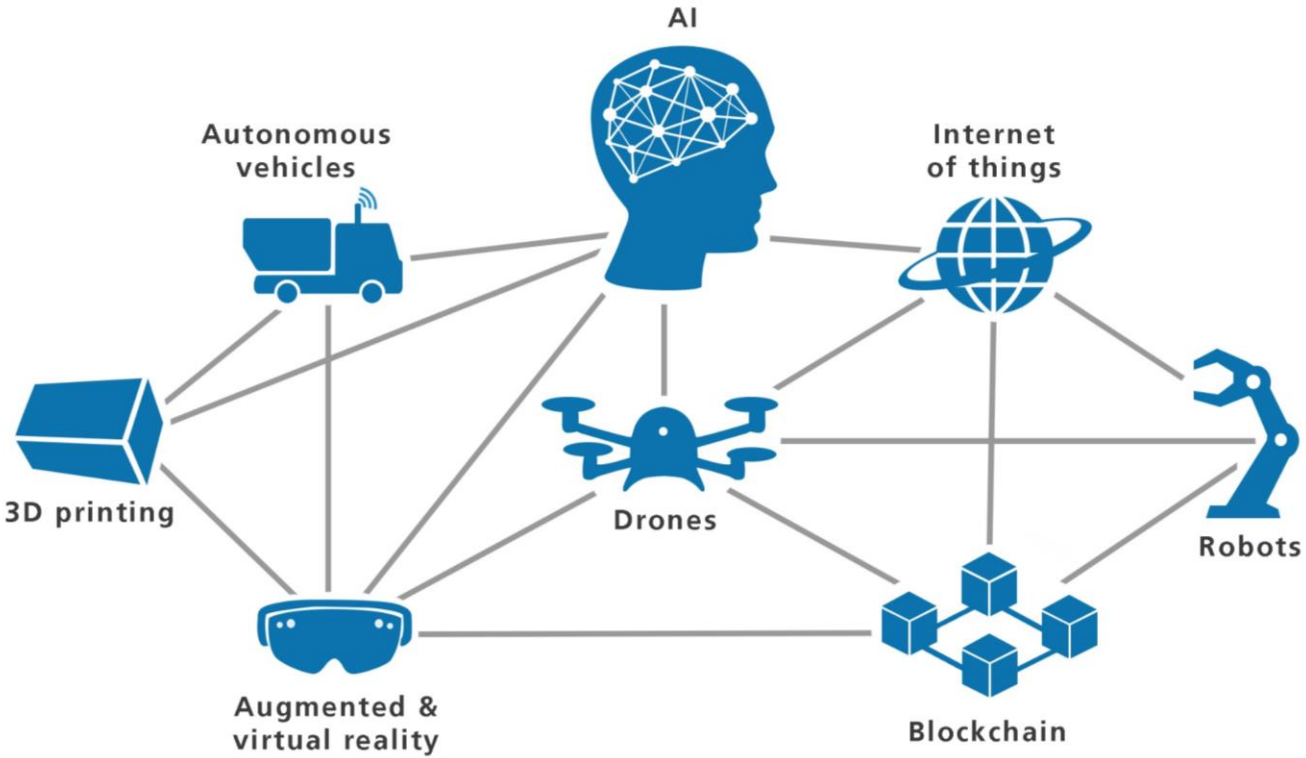
Artificial Intelligence and related Emerging Technologies



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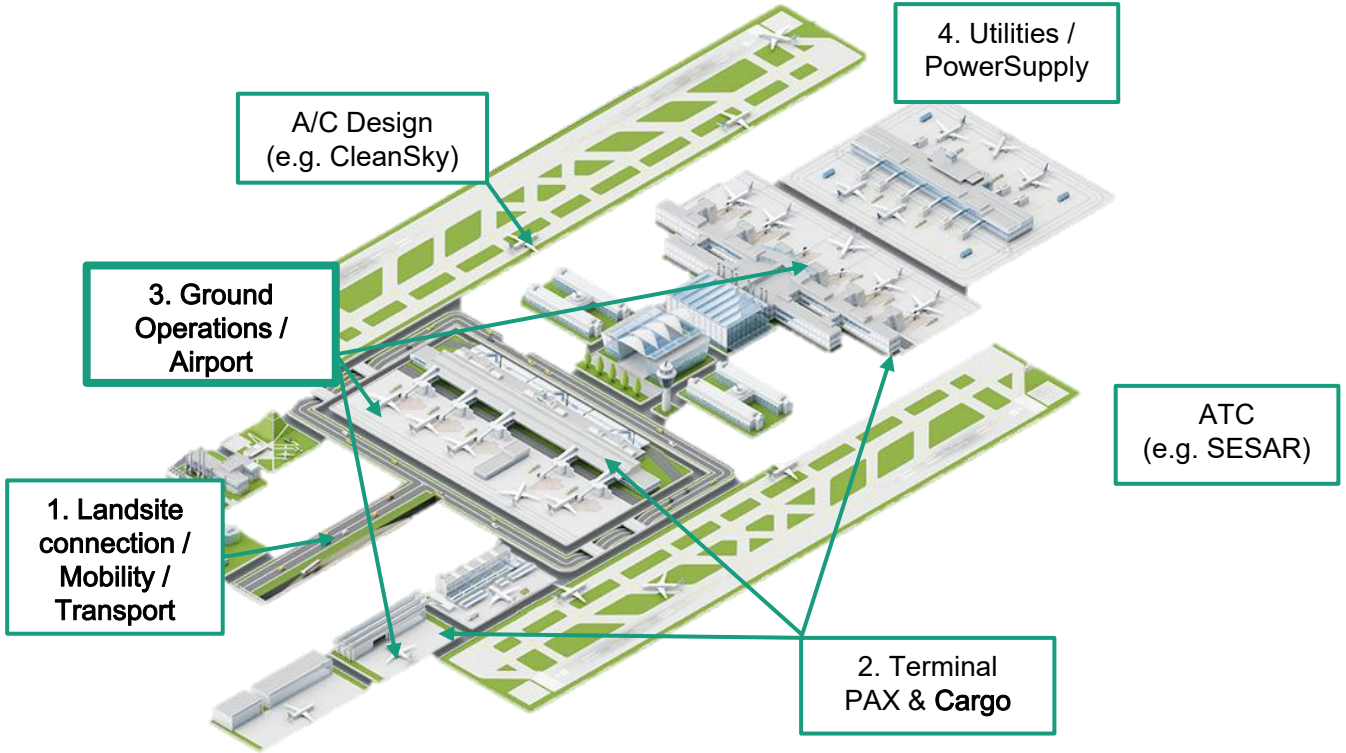
Green Airport Infrastructure & Processes



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Development on the Apron

Current research along the process chain

- Automation of processes & equipment
- Aircraft Handling – Resource Management
- Irregularity Management
- Renew, improve, avoid
  - Renewal of equipment & information systems
  - Improve operational processes (efficicency & effectiveness)
  - Avoid unnecessary pollution by optimized processes & corporate culture

Pictures: TLD, Daimler, Fraport, Aurrigo

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eFTS – Automated Ground Service Equipment

Motivation

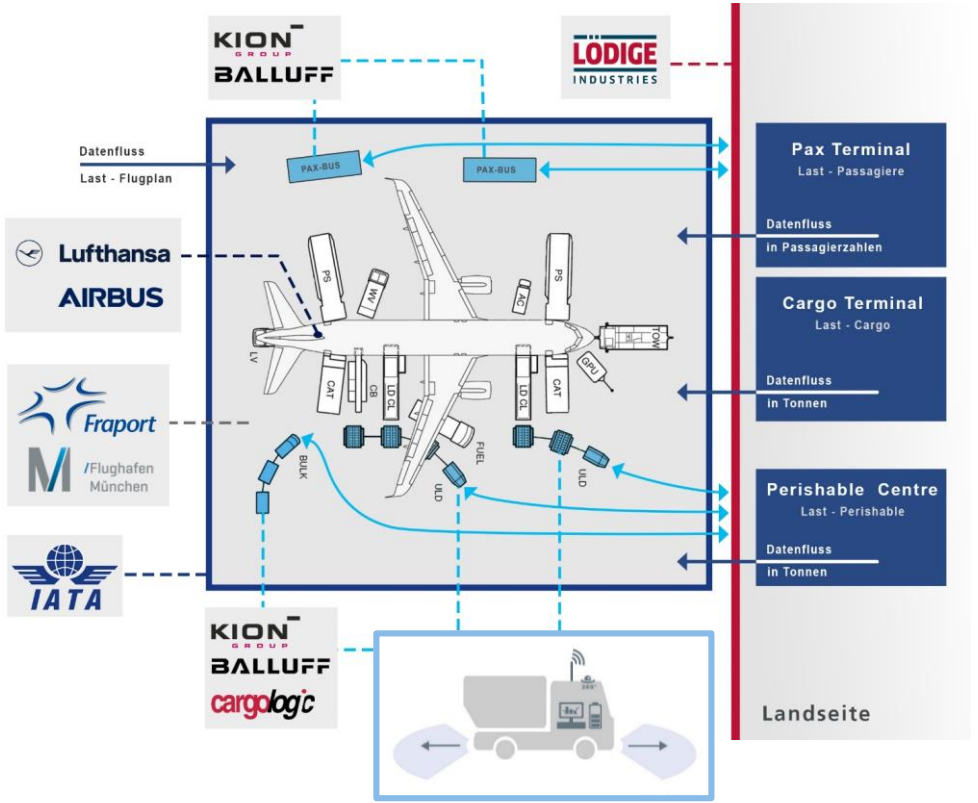
- Determine the potential of electronic transport AGVs on the apron

Key - Findings

- Airport infrastructure highly suitable for the use of autonomous vehicles
- The electrical apron equipment already in use shows that the type of drive does not play a role in automation/autonomization. Therefore, from the emission point of view the electric drive should be given preference at the airport.
- Saving of various costs

Challenges

- Legal & regulatory framework
- High investment
- IT Infrastructure



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Augmented Reality in Air Cargo Handling

Implementation Strategy

1. Training

- Contour
- Pile factor
- Mixed-load prohibtion
- Pallet weight and balance

© ASFS/ Fraunhofer IML

2. Contour check

- Database for contours

© ASFS/ Fraunhofer IML

3. Build-Up

- 3D scan of pieces
- Software

© ASFS/ Fraunhofer IML

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Increased Efficiency

Smart ULD and Equipment Tracking

Intelligent air cargo container:

- monitors environmental influences
- locates itself independently (tracking)
- communicates with surrounding objects and control center
- regularly reports status, location and alarm data

NB-IoT Equipment Tracking:

- Low bandwidth and low throughput data transmission
  → Low energy consumption = long battery life
- Equipment Tracking via GSM Network
  → No extra infrastructure

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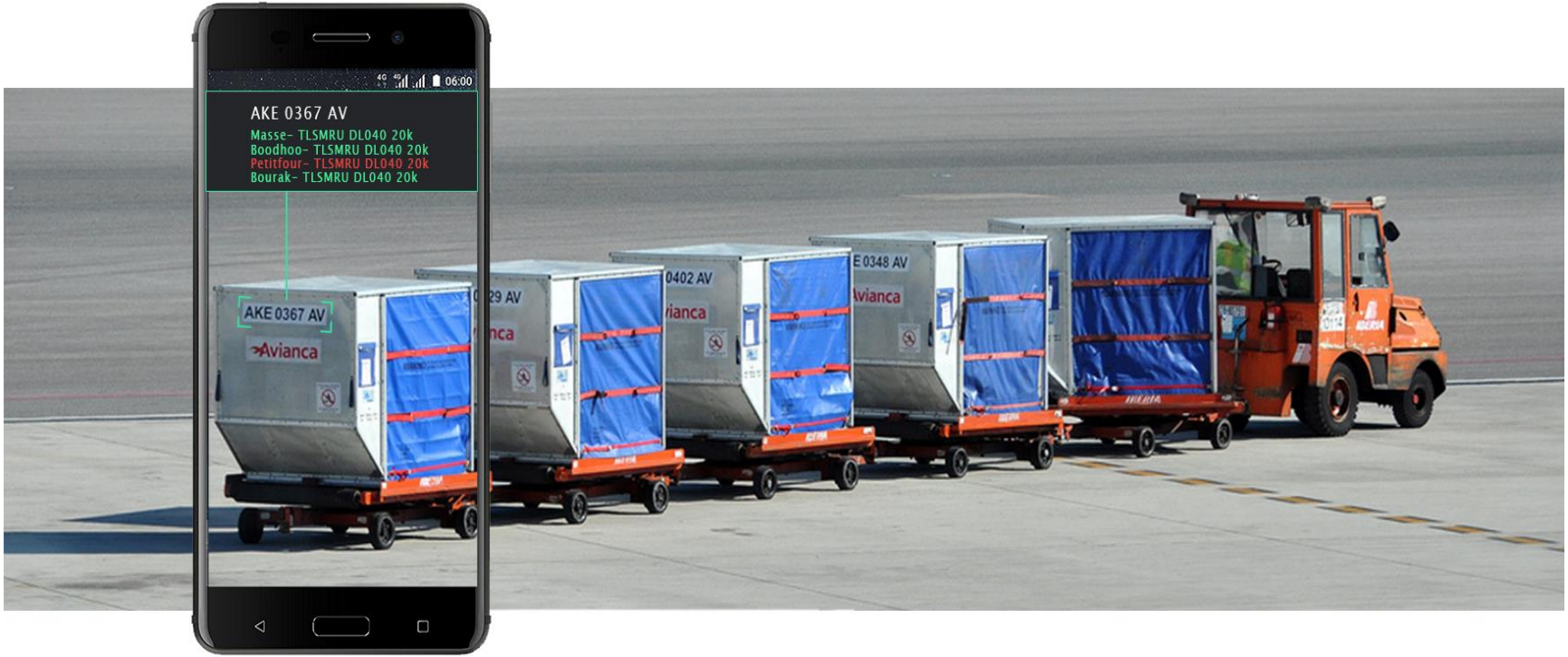
Way to the Future

Industrial Apps to improve Handling



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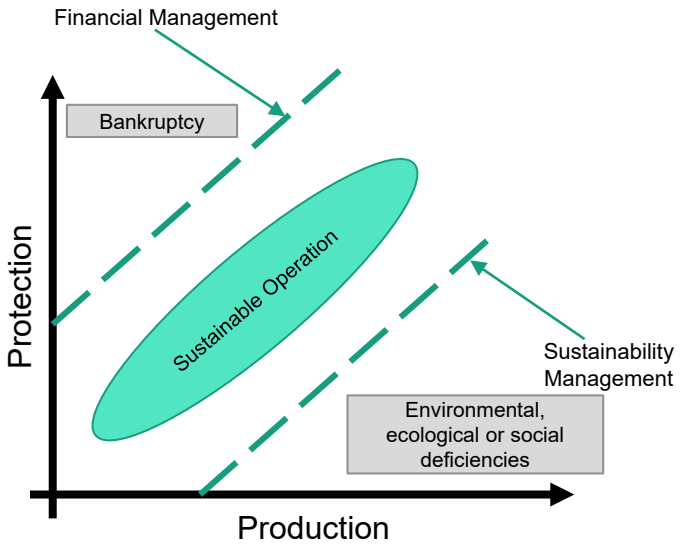
Going Green in AirCargo Operations

- Using ‚newer' equipment with less consumption during the product life cycle
- Increase efficiency of processes
  - Resource Management
    - People, Equipment, Information Management
- Balance reasonably between production & protection
  - Development of a sustainability strategy
  - Don't procrastinate, but also don't get ahead of yourself



Source: Modified Model from James Reason

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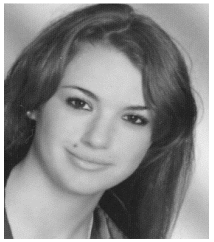
CONTACT



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Panel Discussion
Q&A with our experts

Please submit your questions through the **Questions box** and send to **Everyone**

Moderator:

Brendan Sullivan
Head, Cargo Operations & E-Commerce
IATA

Robert Fordree

Executive Vice President – Cargo

Menzies Aviation

Dr. Suraj Nair

Founder & CTO

SPEEDCARGO

Nadine Mücklich

Project Manager & Researcher

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IATA

Wrap Up

Brendan Sullivan
Head, Cargo Operations
& E-Commerce
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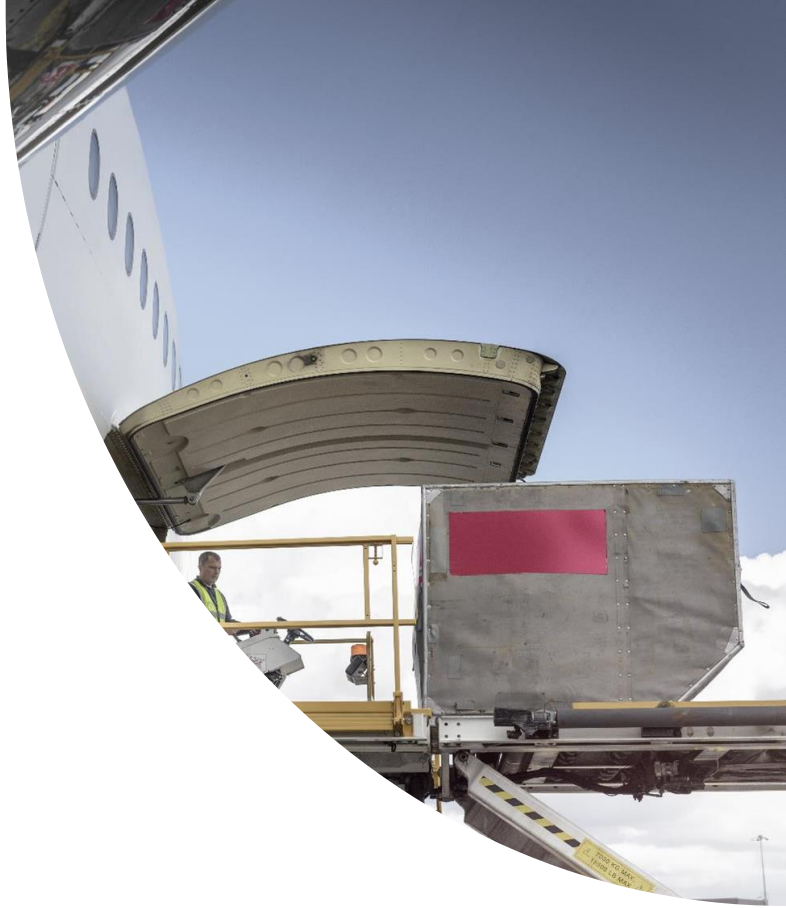

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Thank you

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- Please visit **iata.org/cargo** for all COVID-19 resources
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