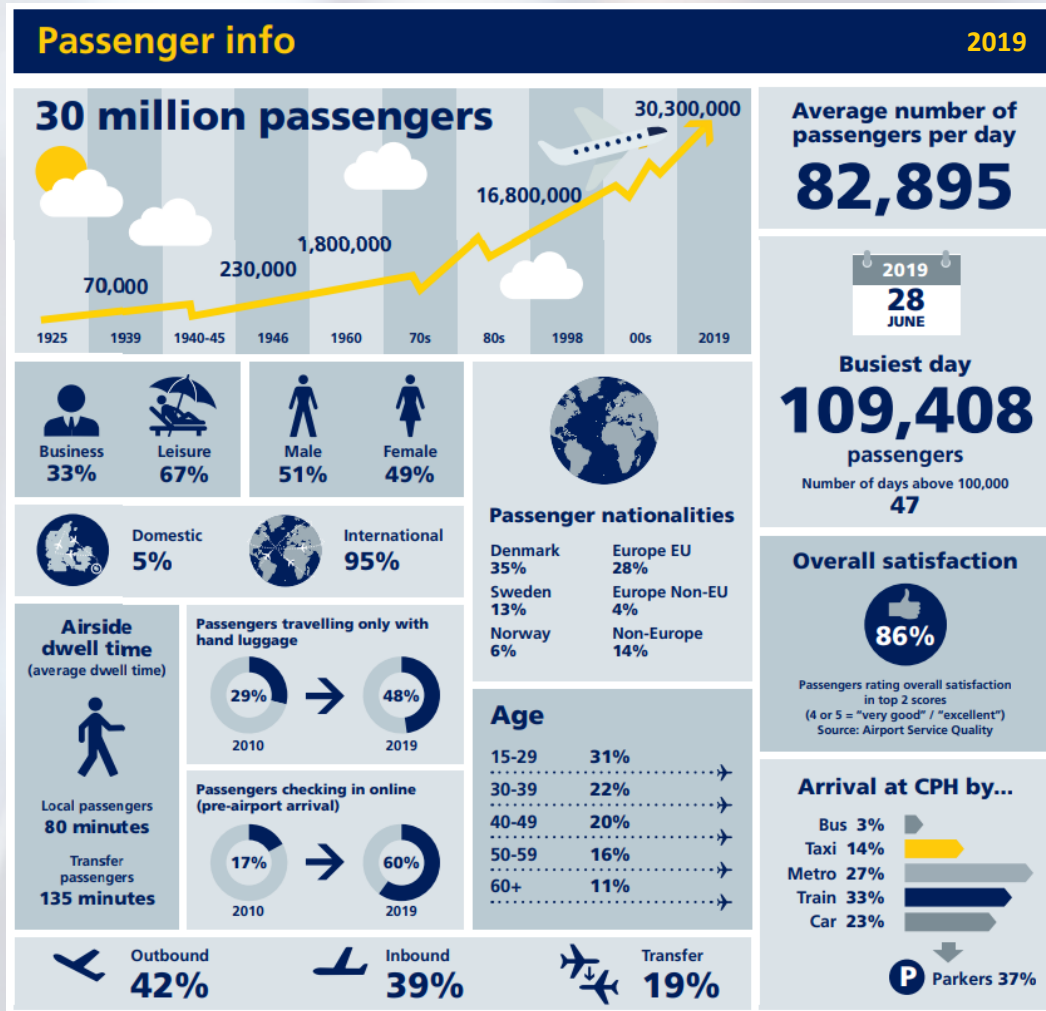


Christian Poulsen
COO/CIO
Copenhagen Airports

→ How we built the foundation for a smart airport eco-system

How we built the foundation for a smart airport eco-system to meet our digital ambitions



- How CPH makes **smarter, faster and proactive decisions** with intelligent use of data and machine learning
- How CPH ensures that **ideas come alive** in a safe and secure manner, faster than ever before
- How CPH is leveraging its extensive domain knowledge to generate new revenue streams through **commercializing and scaling**
- How CPH ensures it **efficiently uses existing resources**, allowing for CPH to increase throughput and raise passenger numbers significantly
- How CPH has executed a comprehensive and robust transition plan, **mitigating risks** on multiple levels – technical, organizational and financial



→ CPH Process and conclusion

CPH PROCESS AND CONCLUSION

In 2019, after a decade of collaboration, Netcompany and Copenhagen Airports were happy to announce a new joint venture - **Smarter Airports**. With the vision and purpose of developing a new market-leading digital platform for efficient and sustainable operation of the airports of the future.



Smarter Airports was established in 2019 by Copenhagen Airports and Netcompany as a joint venture with the purpose of delivering a new market-leading digital platform for efficient and sustainable airport operations of the future.

We combine the best of two worlds in order to challenge status quo and deliver world class agile services that adds true business value – **for airports by airports**



Domain Knowledge & Business Expertise



Operational & Commercial Excellence



Safety, Compliance & Governance

CPH is an industry recognised leading international airport with 30 million passengers per year. It offers in-depth domain knowledge and expertise on how to develop and operate an efficient and modern airport. CPH has been awarded the title of Europe’s most efficient airport 14 times in 16 years. It is not something that just happens. It requires focus and innovation.



+7,300 Engineers & Data Scientists



Trusted Partner Across +50 Sectors (public & private)



+2,500 Successful Transformation Projects across 6 countries

Netcompany is leading the way for the next generation of IT consulting by reinventing IT delivery with its focus on business value, speed and guaranteed delivery. Netcompany not only brings an unprecedented track record of successful IT implementation to the collaboration – but also the ability to consult and challenge airports’ ability to leverage modern technologies.

AIRHART IS THE CORE OF A LONG-TERM STRATEGIC PARTNERSHIP

The AIRHART platform will **continuously evolve** with new flexible solutions which can be configured to fit a wide range of business needs.

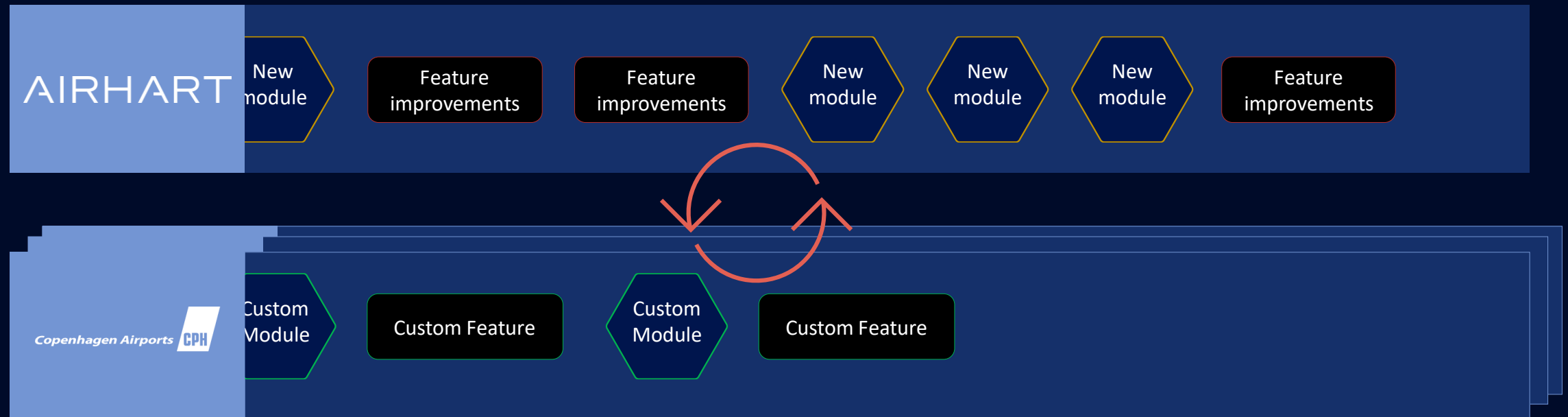
The roadmap includes **innovative new modules** covering new business areas, as well as smaller improvements to existing modules.

Custom modules or features are developed in separate client-specific roadmaps. Custom modules can **benefit the whole AIRHART community**.

This way AIRHART stays relevant and the **innovation engine** allowing AIRHART users to deal with changing needs and requirements.

CPH and Netcompany have invested heavily in the AIRHART platform making sure that the platform is **build for scaling** and commercialization.

The parties are in the venture for the long run with a 15-20 year horizon – both with equal **“skin in the game”**





→ How we reduced risks

BUSINESS CASE DRIVEN AND RISK REDUCING APPROACH



01 - Business Case

A series of strong value drivers delivering tangible business value across the CPH value chain

03 - Operational Risk

A stable and safe implementation and roll-out of a new platform is vital for keeping CPH running and minimize the risk and potential downtime.

- Shadow Deployment
- Synchronized Production
 - Gradual Takeover
 - Decommissioning

02 - Organizational Risk

Ensure the proper roll out in the airport eco-system though communication, training and education on product and processes.



→ Benefits leveraged by the smart airport eco-system

AIRHART VALUE DRIVERS



Capabilities

→ Operational Excellence

Integrations- / Data-
platform

→ Eco-System

→ Single Source of Truth



Unified UI

→ Human Factor

→ Standardized processes

Configurable data
model

→ Time to market

→ Hypothesis-driven business
development

New Opportunities

→ Passenger Experience

→ Diversification of revenue

→ Innovation power

→ Sustainability



Cloud Operations

→ Scalability / Resilience



At CPH we made a bold move and are getting rid of our old core legacy system replacing it with a modern, flexible and modular platform enabling CPH to transition, scale and develop in sync with changing needs and requirements.

**Christian Poulsen**

COO, Copenhagen Airports

CONNECT ALL STAKEHOLDERS IN ONE PLATFORM

Features must be available for stakeholders across the **entire eco-system** before airports gain the full benefits of improved situational awareness and better collaboration.

Situational awareness | 3,000 users

Our platform is tailored to all essential stakeholders such as:

- **Airport operations** | ~500 users
- **Facility management** | ~100 users
- **Ground handlers** | ~1,500 users
- **Authorities** | ~150 users
- **Airlines** | ~150 users
- **Other** | ~600 users

In CPH the total number of users will be ~3,000 across 43 different organizations



SELECTED DIRECT BUSINESS BENEFITS FROM AIRHART

Improve Departure Sequencing & On-time Performance

- Predicted Off-Block Time (POBT) from Turnaround Management AI module to vastly improve manual observations and inputs
- Schedule aircraft start-up time optimally
- Reduce on-ground congestion and delays

Accurate Real-time Staff Allocation

- Combine IOT sensor data with AIRHART to base staff allocation in checkpoints on actual passenger flows (e.g., pax leaving aircraft) rather than flight on-block times
- Just-in-time allocation reduces overall need for staff

Adapt Fast To New Needs

- Configure new data entities, fields and logic without IT involvement
- Reduce IT resources
- Easy evaluation of innovation concepts (“Fail fast”)

Increase Aircraft Stand Utilization

- Accurate data from Turnaround Management AI module
- Shorter and more dynamic buffers to be applied in stand allocation algorithm
- Additional traffic accommodated on each stand
- Postpone investments in new stand capacity

Improve Arrival Baggage Performance

- Detection of baggage delivery vehicles leaving aircraft stand allows for accurate estimation of first bag/last bag
- Better allocation of racetracks and better passenger information
- Higher utilization of each racetrack
- Postpone investments in new racetrack capacity

Improve Ground Handling Standard Operating Procedures

- Rich data model with full audit trail and version history
- “Who knew what when?” and “Who changed what and why?”
- Adjust and follow-up on procedures
- Reduce ground handling resources





→ Questions