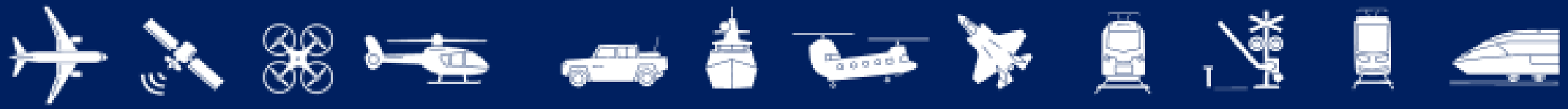
We. Love. Transport.



Passionate about

PLANES. TRAINS. SHIPS. AUTOMOBILES.

Planeetbaan 4, 3rd Floor, 2132 HZ Hoofddorp, The Netherlands

Tel: +31 23 554 2255 | Email: info@adse.eu | Website: www.adse.eu

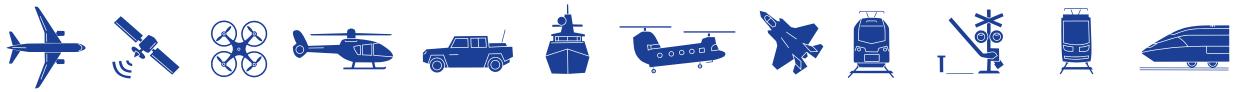
An independent Netherlands-based engineering consulting firm

WE LOVE TRANSPORT!

TRANSPORTATION SYSTEMS OF TODAY AND TOMORROW

SUSTAINABILITY | AUTONOMOUS OPERATIONS | DIGITIZATION

INDUSTRIES SERVED



AEROSPACE | RAIL | MARITIME | DEFENCE

FACTS & FIGURES

- **1996** ESTABLISHED
- **75+** HIGHLY SKILLED PROFESSIONALS
- **WORLDWIDE** CUSTOMER BASE
- **EASA** DOA.21J.481 MAA-NLD-A-21-018

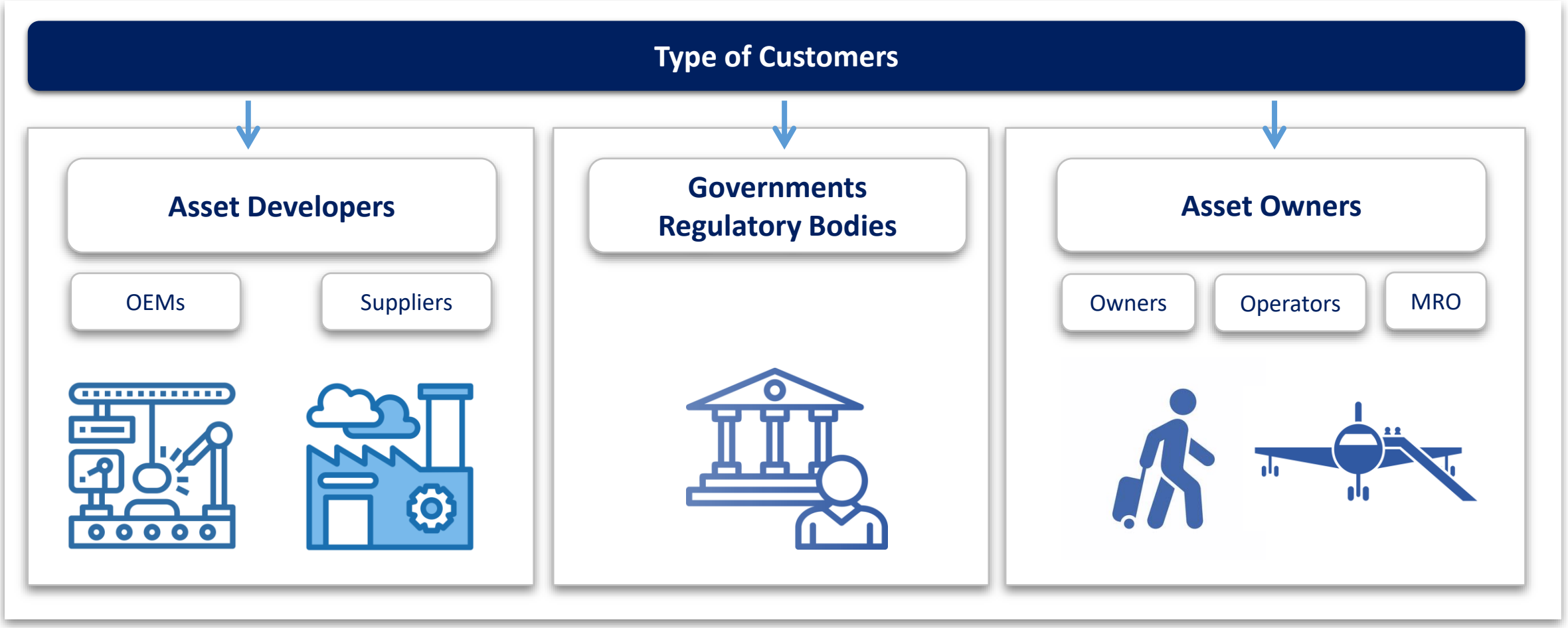
CORE SERVICES

ENGINEERING | CERTIFICATION & COMPLIANCE | TECHNICAL PROJECT MANAGEMENT | CONSULTING

Hoofddorp
The Netherlands

ADSE BV | Company Introduction
Customers

Within our markets we support a large variety of customers ranging from asset developers, governments to asset owners, covering the total system life cycle from design to operation.



ADSE BV | Company Introduction
Trusted by leading companies

ADSE has supported companies worldwide. Here is a selection of our valued customers.

National Collective Business Plan (NCBP)

NG ADSE
CONSULTING AND ENGINEERING

HE LLO NEW DAY

LUCHTVAART
in transitie

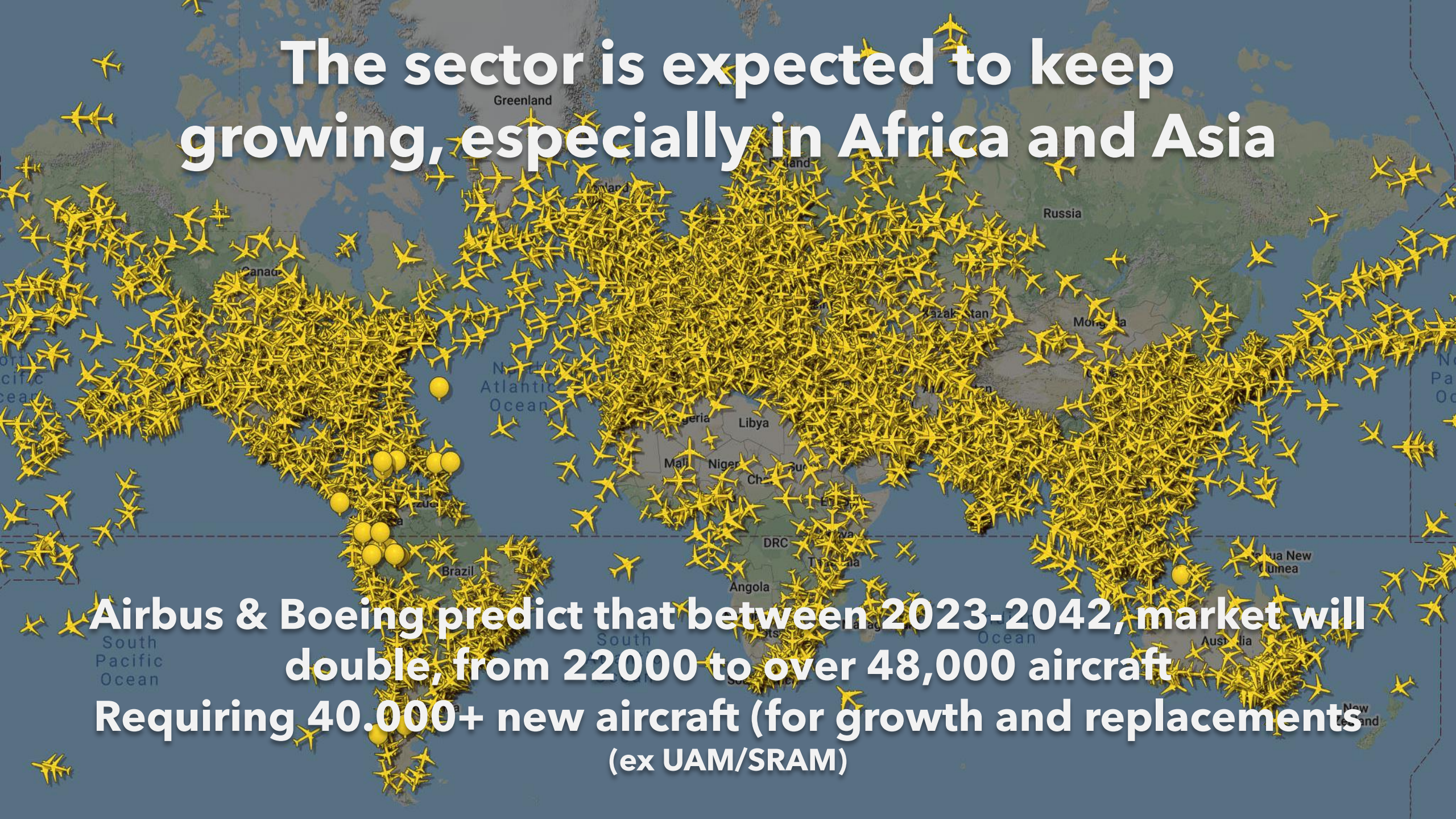
Ministry of Economic Affairs
and Climate Policy
of the Netherlands

Who are involved?


Aerospace as valuable
enabler of international
trade and mobility

However, sector is aware of the need to contribute to **reduction** of **environmental footprint**

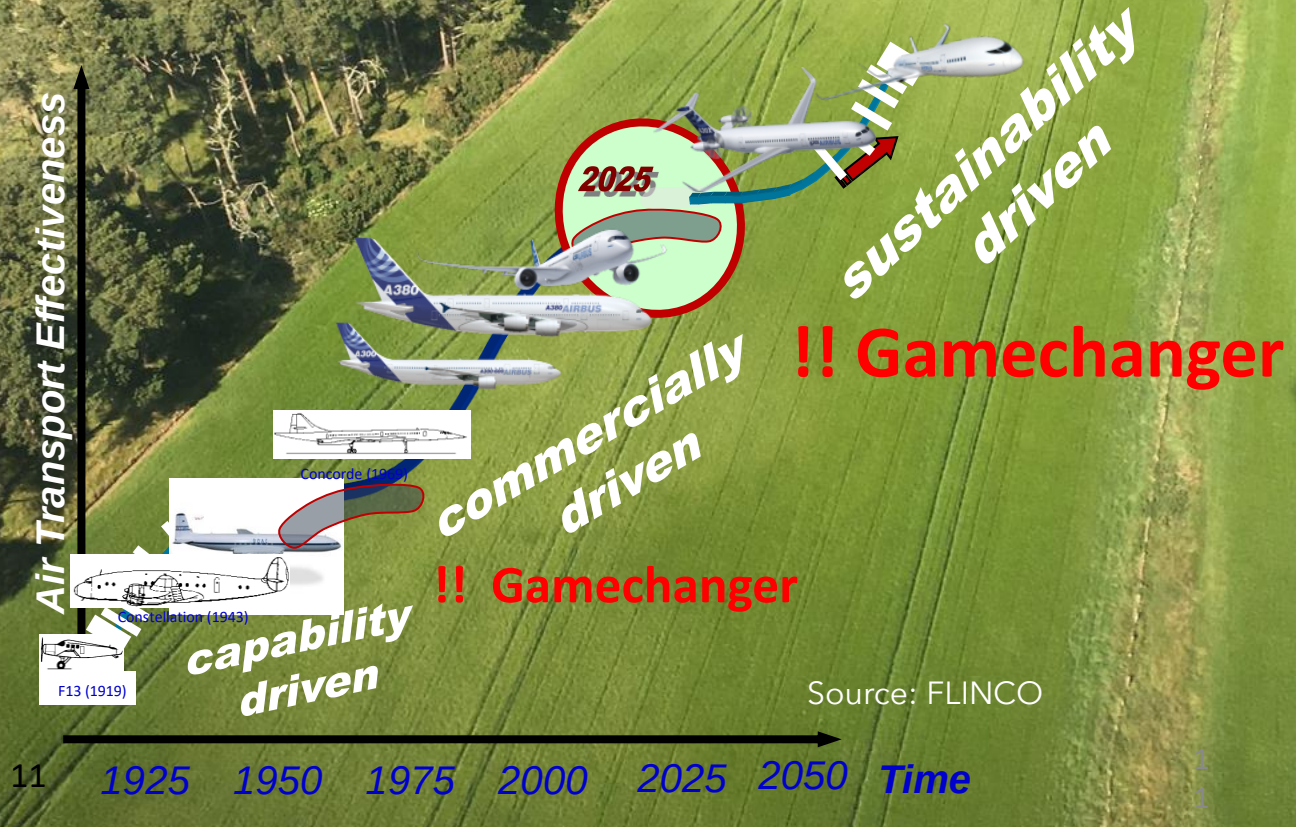
But footprint aerospace is **hard-to-abate**, because of design constraints, such as weight & safety


The sector is expected to keep growing, especially in Africa and Asia
Greenland
Russia
Canada
Libya
Mali
Niger
DRC
Angola
Brazil
South Pacific Ocean
Airbus & Boeing predict that between 2023-2042, market will double, from 22000 to over 48,000 aircraft
Requiring 40.000+ new aircraft (for growth and replacements
(ex UAM/SRAM)

At this moment, aerospace is not the biggest (%) contributor to greenhouse gas emissions

But if we don’t act now, **aerospace** will be the **most emitting sector (80 %)** in **20 years** time

So, in order to make a positive **impact**, and secure the sector's **license to operate**…



…focus on **sustainable & scalable solutions** is key

Understanding the **gamechanger**

Doubling the aerospace market size, while becoming more sustainable

New fuels (SAF, H2, hybrids)
New propulsion systems
Further focus on lightweight
New aircraft configurations
Further optimisation of airline/airport operations

New production/MRO technologies
Circular use of materials
Sustainable processes
Rearranged supply chains
Increased use of digital tools
Industrial automation


We have a unique industrial and knowledge base in the existing supply chains of Airbus and Boeing
Now a huge opportunity arises to become a significant supplier for the sustainable future
We have to renew our cooperation with foreign aircraft manufacturers and systems OEMs

Which opportunities arise?

Development of new scalable and exportable solutions

- **New, sustainable aircraft technologies**
- **Fast, scalable and circular industrial processes**
- **Supporting energy/infrastructure at airports**

How: **National Collective Business Plan**

NCBP Mission: Improving the competitive position and sustainability of the Dutch aerospace sector

Through a Public-Private Market development approach: collaborative innovation and learning by doing


We need to convert knowledge into more business
This means a mindset change within the NL-ecosystem
Becoming a co-developing partner of sustainable and scalable solutions
Through collaboration between industry, government and knowledge institutions to develop export markets

How we work now in NL

Work in knowledge ecosystems

- Cooperation in R&T projects

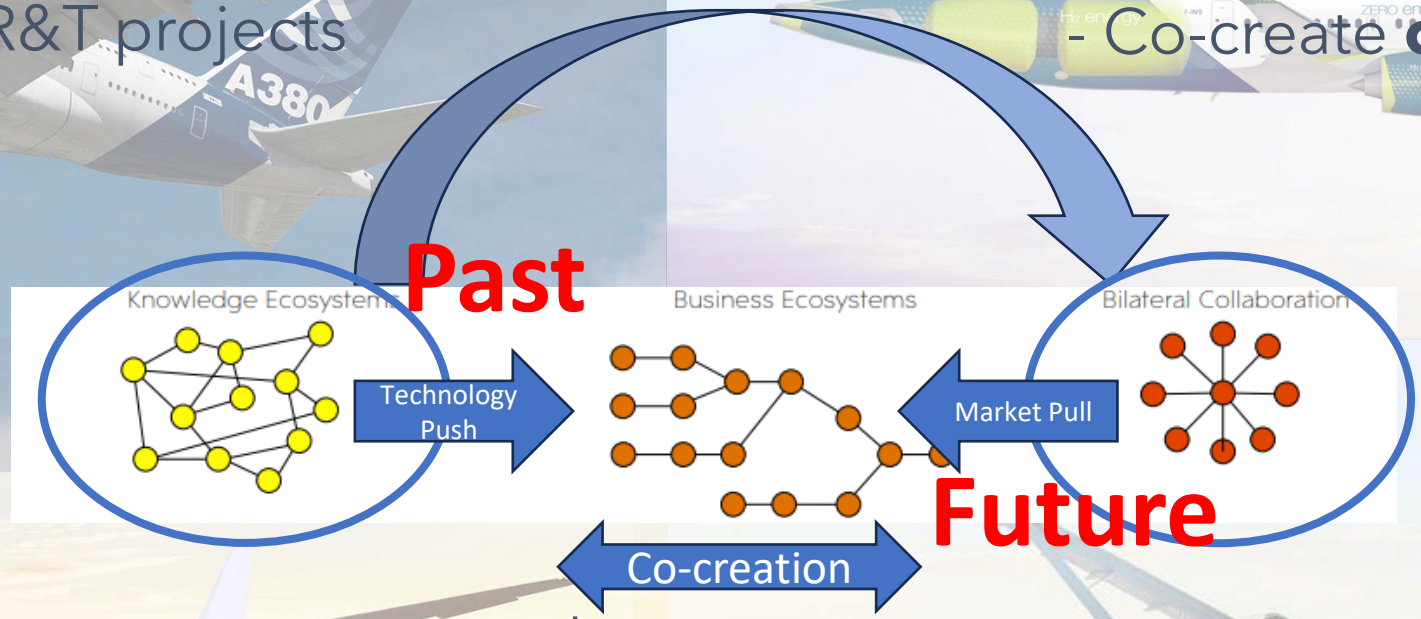
- Then wait for OEM specs to respond with individual offers **(bilateral collaboration)**

What to change/add

Add business ecosystems

- Co-create **collective value propositions**

- Jointly with customers
- To grow NL share in future programs



Closing the gap between R&T and contracts

NL Goal #1: Doubling our market share in a growing market, e.g. 5 % in the total life cycle costs of future aircraft programs

NL Goal #2: A more than proportional contribution in reducing environmental impact by the aerospace sector

NL Goal #3: strengthening the NL business ecoystem (aerospace and cross-sectoral)

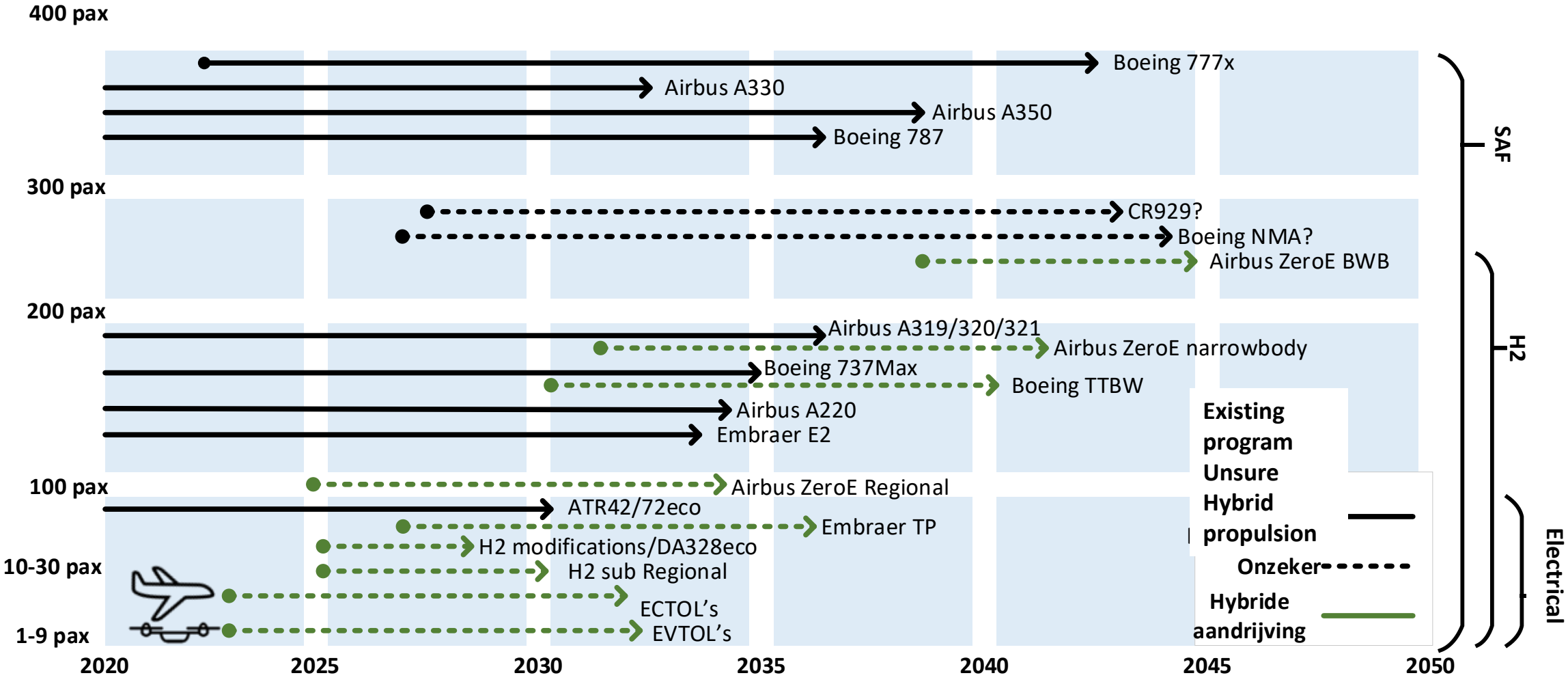
Long-term strategic goals

Anticipate future aircraft programs by **Airbus** and **other OEMs** (Embraer, Boeing)

Develop collective value propositions for **aircraft technologies and industrial work packages**

Develop collective value propositions regarding **airports, operation** and **(energy) infrastructures**

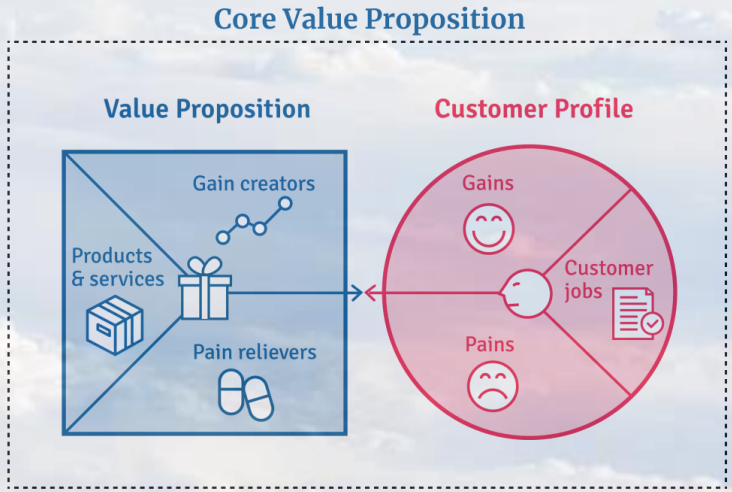
Not that many opportunities to join a new program
But when in it – business for many years

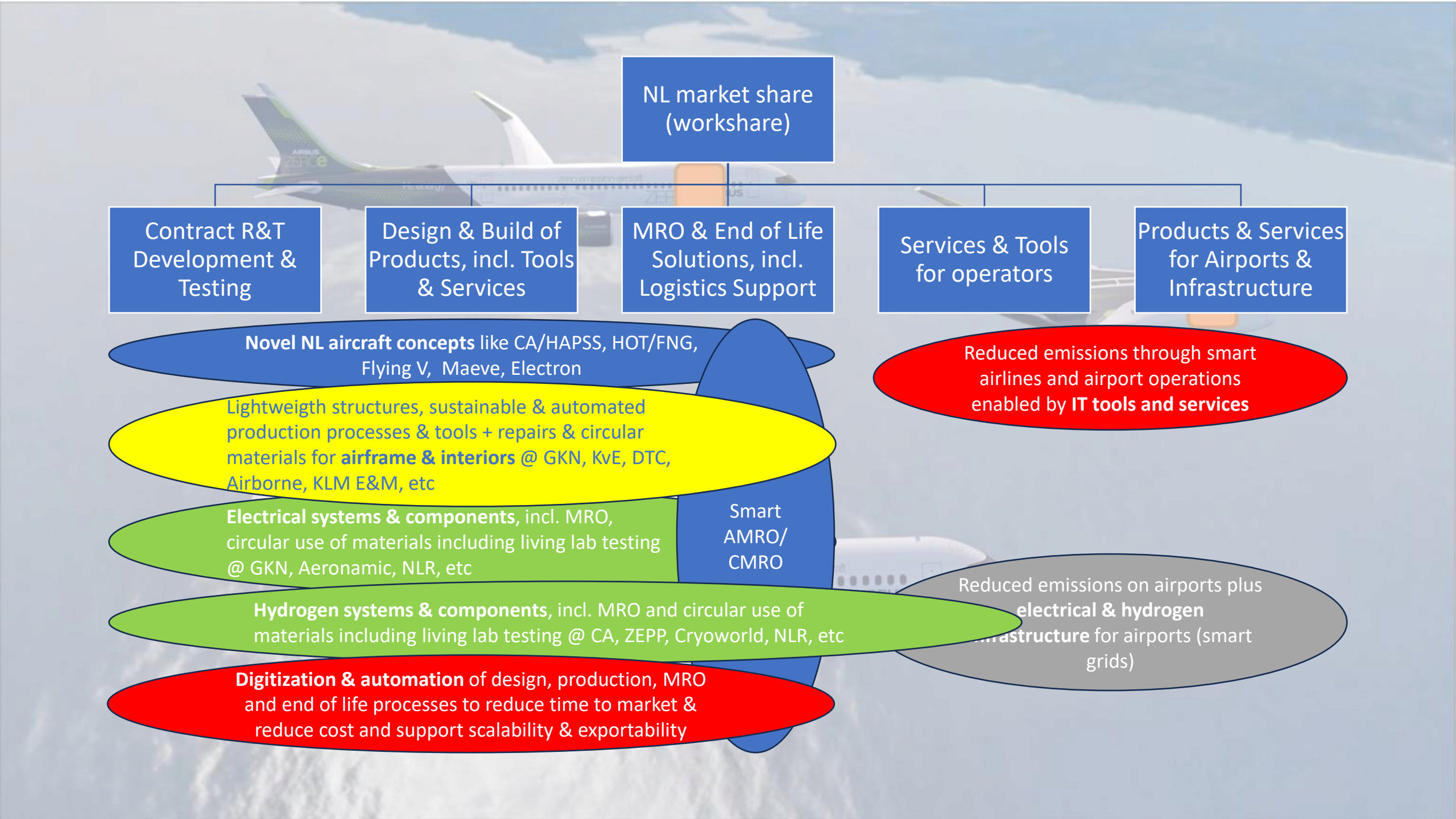


Building **collective value propositions**

Elements in the value chain

Process to design value proposition




NL market share (workshare)
Contract R&T Development & Testing
Design & Build of Products, incl. Tools & Services
MRO & End of Life Solutions, incl. Logistics Support
Services & Tools for operators
Products & Services for Airports & Infrastructure
Novel NL aircraft concepts like CA/HAPSS, HOT/FNG, Flying V, Maeve, Electron
Lightweigth structures, sustainable & automated production processes & tools + repairs & circular materials for **airframe & interiors** @ GKN, KvE, DTC, Airborne, KLM E&M, etc
Electrical systems & components, incl. MRO, circular use of materials including living lab testing @ GKN, Aeronamic, NLR, etc
Smart AMRO/ CMRO
Hydrogen systems & components, incl. MRO and circular use of materials including living lab testing @ CA, ZEPP, Cryoworld, NLR, etc
Digitization & automation of design, production, MRO and end of life processes to reduce time to market & reduce cost and support scalability & exportability
Reduced emissions through smart airlines and airport operations enabled by **IT tools and services**
Reduced emissions on airports plus **electrical & hydrogen infrastructure** for airports (smart grids)

First business opportunities

Memorandum of Understanding (MoU) with Airbus

Five areas, identified by the OEM

NAG –Airbus MoU to align R&T and explore business

5 concrete Airbus opportunities – seeking a collective offer

Coherent approach - no shotgun with partial solutions

Combinations of products and **services** (meeting technology & programs, procurement, manufacturing, etc. needs)

Lightweight structures & materials

Alternative propulsion & power systems

Digital hub for digital twinning & innovative enabling processes

Smart Aircraft/airport operation & MRO

Circular cabin interior

How: engagement with Airbus and key suppliers; and other OEMs and stakeholders

With Airbus and selected 1st tier suppliers (airframe, wiring, interior) and crucial 1st and 2nd tier Original Equipment Suppliers (systems & engines)

Involve NL partners from outside aerospace (High Tech Systems/IT/Energy) and start ups

Start

EXPRESSED INTEREST PHASE

- Increase and follow up scouting missions to explore ideas
- Early focus on business potential

Develop

COMMON UNDERSTANDING PHASE

- Iterative co-creation approach prior to technology/supplier selection
  - understand needs (technical, workshare, supply chain)
  - create and assess value propositions (technology (performance/environmental), industrial, program/economic)
- Achieve involvement of from Program Management, Procurement, Industrial, next to Engineering and R&T

Create

HANDSHAKE PHASE

- Create innovative cooperation models (with buy-in form Program Management, Procurement and Industrial)
- Identify realistic workshare options for cooperation on design, certification, industrial, repair, end of life aspects

Support from NL government to address blocking points in NL and international policies and regulations and access to decision makers

That is why a collective approach is necessary