

# ALPEX<sup>®</sup>

**Tooling systems for composites und ihr Beitrag zur  
Kreislaufwirtschaft in der Luftfahrt**

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Chief Business Development Officer (CBDO)

18. Dezember 2023 Haus der Forschung, Wien





# ALPEX Technologies GmbH

At a glance

**20 YEARS**

of experience in the  
composite industry

**~65**

skilled employees

**~10 mio.**

Annual turnover

Private owned SME, Mils, Austria

ISO 9001 & EN 9100 certified

~70% skilled employees > 5 years

~50% skilled employees > 10 years

~75% of the turnover 2023 in aviation industry

~10% annual investment in R&T



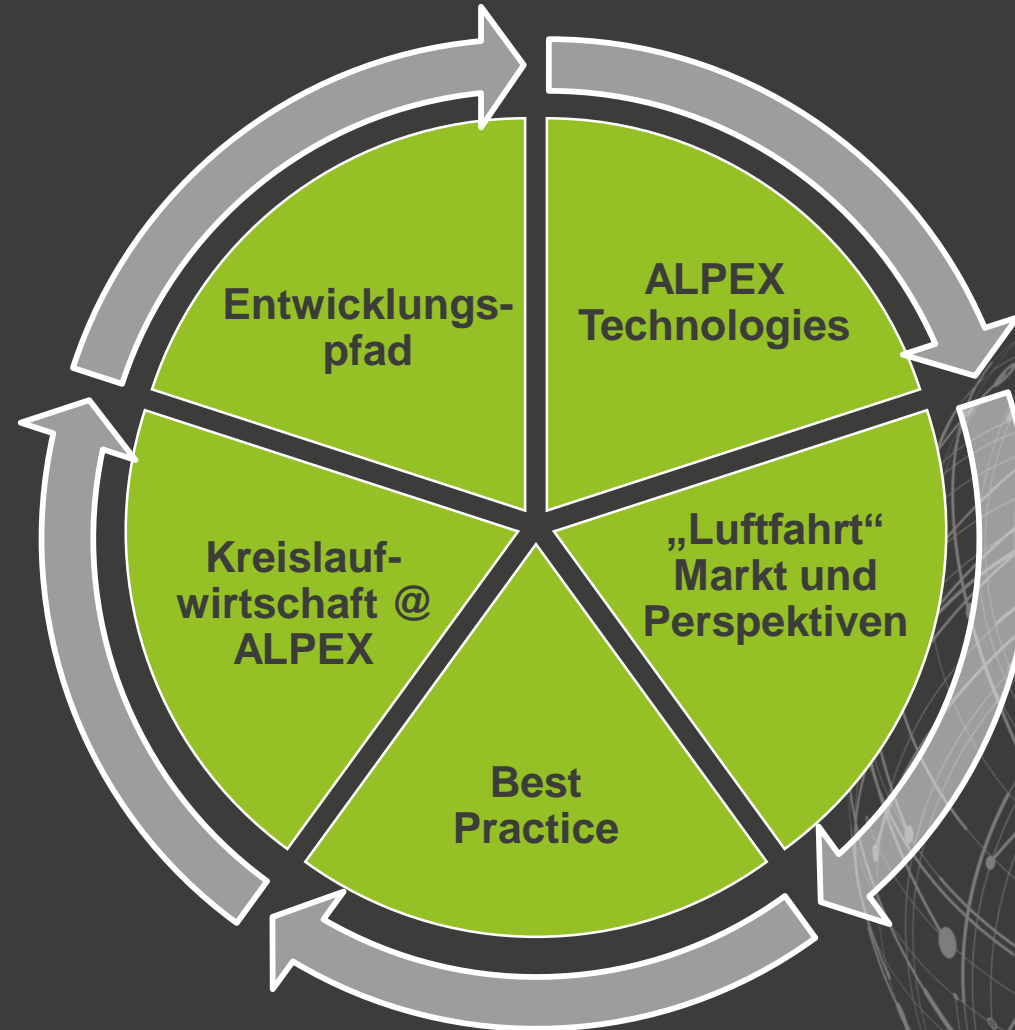
Manufacturing & Administration



Engineering, Assembly & QA

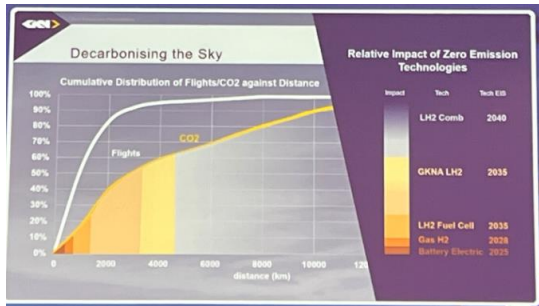
# Agenda

„Cradle-to-Cradle“ bzw. „ALPEX-to-ALPEX“



# „Luftfahrt“ Markt und Perspektiven

Wie ist die Stimmung am Markt?



90% ALLER FLÜGE BIS GROB 3000KM („A320“)

LUFTFAHRT BEINAHE AUF DEM NIVEAU VON ENDE 2019 - PRE-COVID



The infographic '#TakeOffToZero' promotes climate neutral aviation 'made in Germany'. It features the text 'High-tech for the "revolution in the sky"... ...needs strong and continuous government support!' and four icons representing: 'New propulsion systems & alternative fuels', 'Digitization of air traffic management and development & production processes', 'Smart materials & aerodynamic structures', and 'Systems & Cabin'. The IATA logo is in the top right corner.

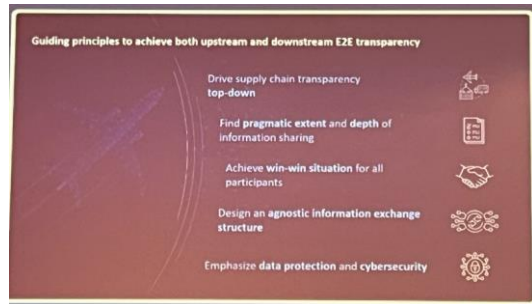
KLIMANEUTRALE LUFTFAHRT ALS AKTUELLES KERNTHEMA

RESILIENZ DER LIEFERKETTE ALS AKTUELLER SHOWSTOPPER

The infographic 'Collaboration initiatives to adapt and prepare the future together!' features the text 'Standardisation and transparency to bring supply chain performance to the next level' and an image of an airplane. At the bottom, it lists logos for ZeroM, Aero Excellence, NextEra, AXESS, and AIRBUS.

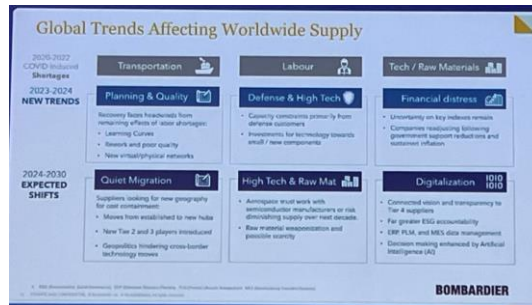
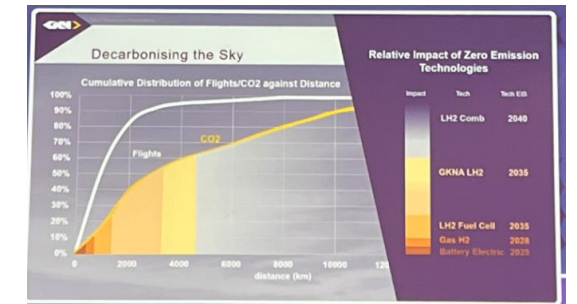
# „Luftfahrt“ Markt und Perspektiven

Wie ist die Stimmung am Markt?



TRANSPARENZ IN DER LIEFERKETTE VON OEM ← TIER-X

90% ALLER FLÜGE VERURSACHEN 50% DER CO2 EMISSIONEN



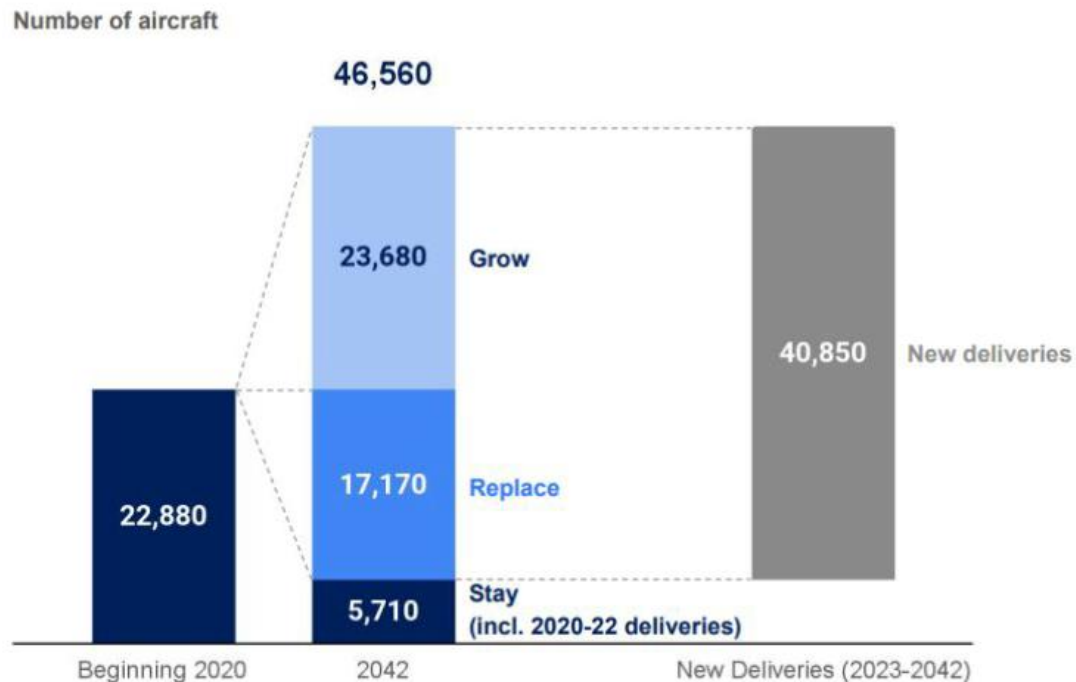
DIGITALISIERUNG UND TECHNOLOGIE ALS ERWARTETE „KEYS“



# „Luftfahrt“ Markt und Perspektiven

Wie ist die Stimmung am Markt?

## Demand for 40,850 new passenger & freighter aircraft

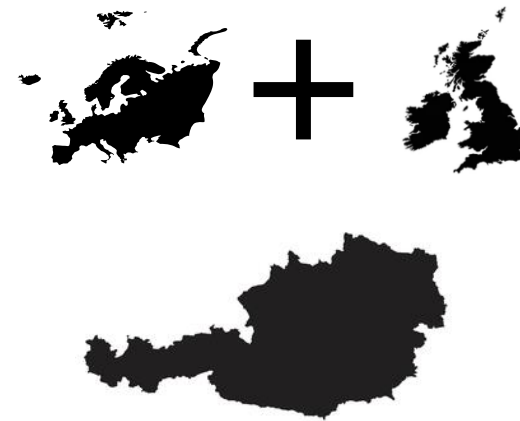
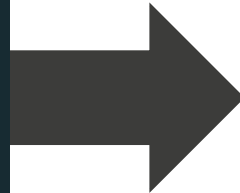
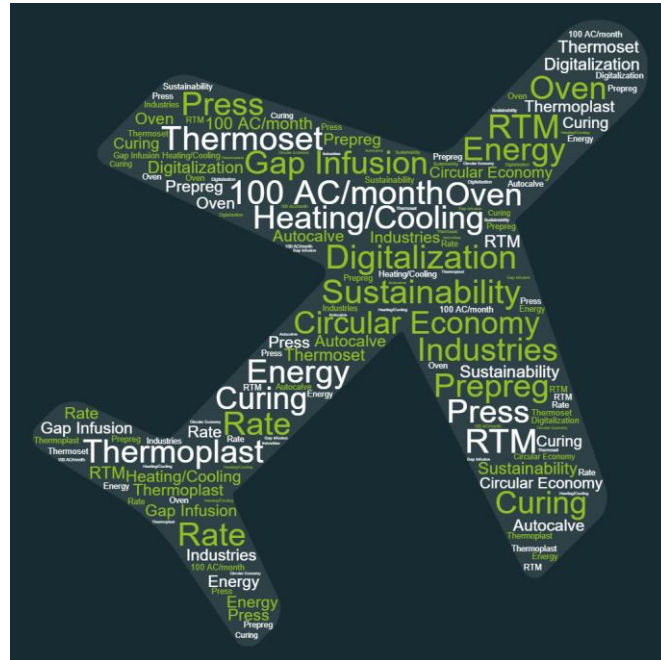


**RATENERHÖHUNG**  
IST KEINE ZUKUNFTSMUSIK –  
WIR STECKEN MITTEN DRIN!

**AIRBUS**

# Best practice “made in Ipex”

Frage #1 muss lauten: Was ist unser Beitrag?

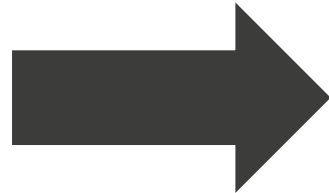


“Klimaneutrales Fliegen braucht Technologieentwicklung”



# Best practice “made in Ipex”

Frage #1 muss lauten: Was ist unser Beitrag?



Welche Themen wollen wir als **Konsortien** bearbeiten und wie wollen wir uns in Österreich gemeinsam am Luftfahrtmarkt positionieren

**ALPEX**<sup>®</sup>

Welchen Beitrag können **einzelne Einheiten** leisten? Welchen Beitrag kann ALPEX Leisten?

“**Klimaneutrales Fliegen braucht Technologieentwicklung**”

# Best practice “made in Ipex”

## Vision

## Trendsetting Technologies

# For the tooling systems of tomorrow

We are the technology leader in the development of **innovative manufacturing systems for the industrial production of composite components.**

In order to continuously expand our market position in the future, we are constantly working on new research and development projects.

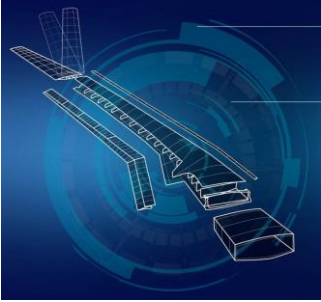
In doing so, we make a **significant contribution to the digitalization of composite manufacturing processes.**

In our research work, we are pioneers in the development of technologies for the **production of BIO composite** components.

**“Klimaneutrales Fliegen braucht Technologieentwicklung”**

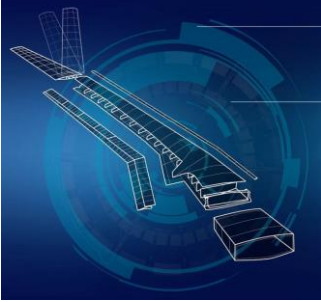
# Best practice “made in Ipex”

## Next Generation Spar Manufacturing



# Best practice “made in Ipex”

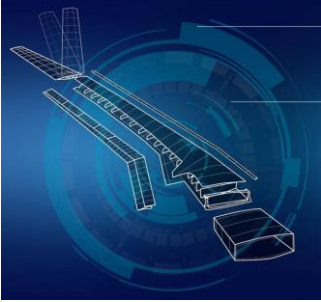
Next Generation Spar Manufacturing





# Best practice “made in Ipex”

## Next Generation Spar Manufacturing



# Best practice “made in Ipex”

Next Generation Spar Manufacturing

**LARGEST EVER CLOSED MOULD  
WING COMPONENT USING RTM**

**20%**

**weight saving of CFRP component**

**25%**

**reduction in manufacturing cost**

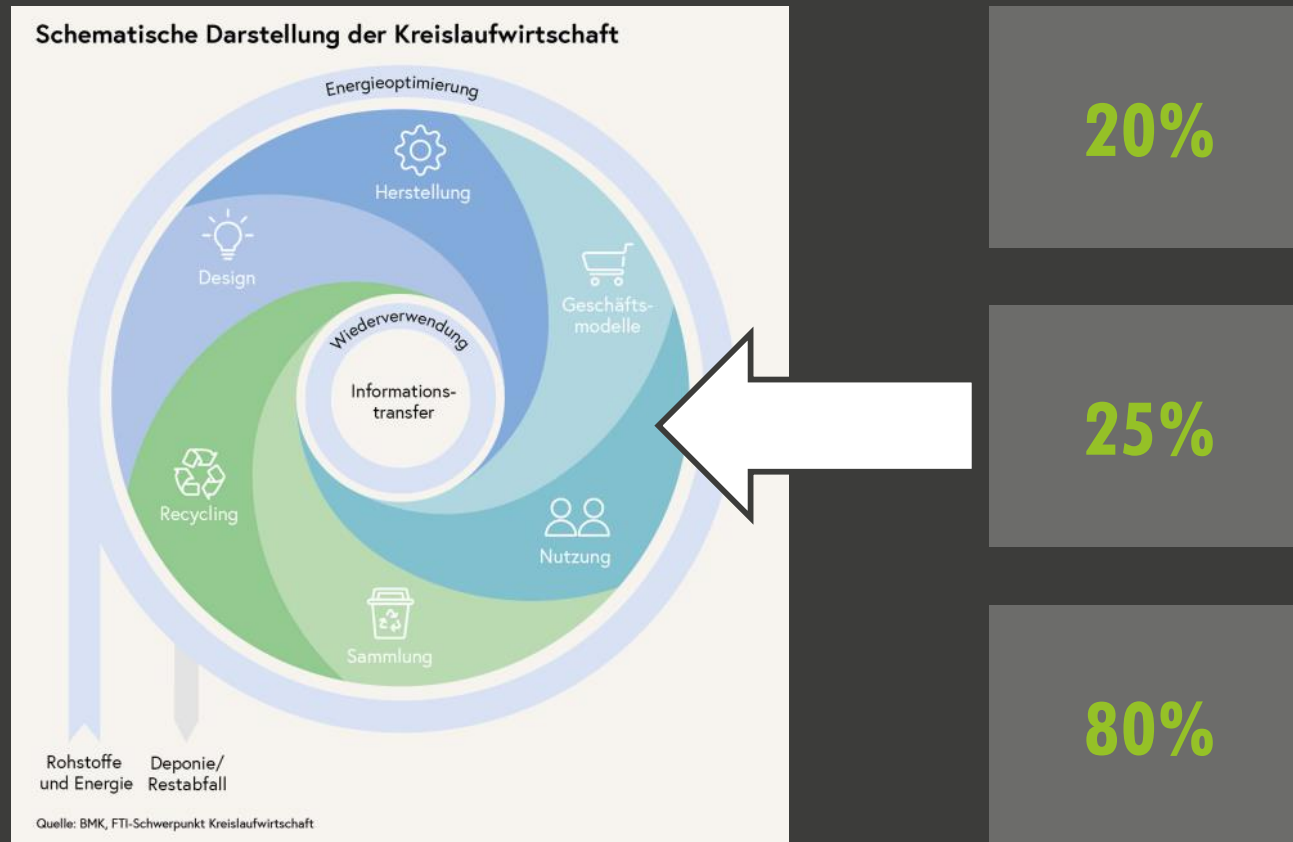
**80%**

**reduction in energy consumption**



# Kreislaufwirtschaft @ALPEX

Wie gliedern wir uns ein?



weight saving of CFRP component

reduction in manufacturing cost

reduction in energy consumption

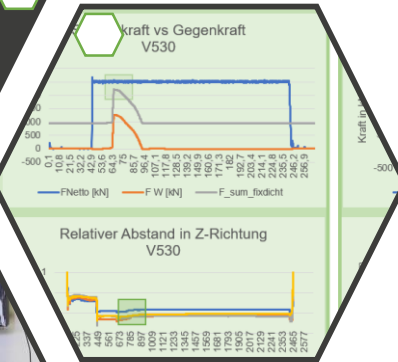
# Kreislaufwirtschaft @ALPEX

Neue Geschäftsmodelle

## Software and Solutions

Documentation and reporting

Remote service and support



360° ECO SYSTEM Integration

Process regulation equipment

Data visualization equipment

RTM Tool condition monitoring and process monitoring equipment

## Hardware and Equipment

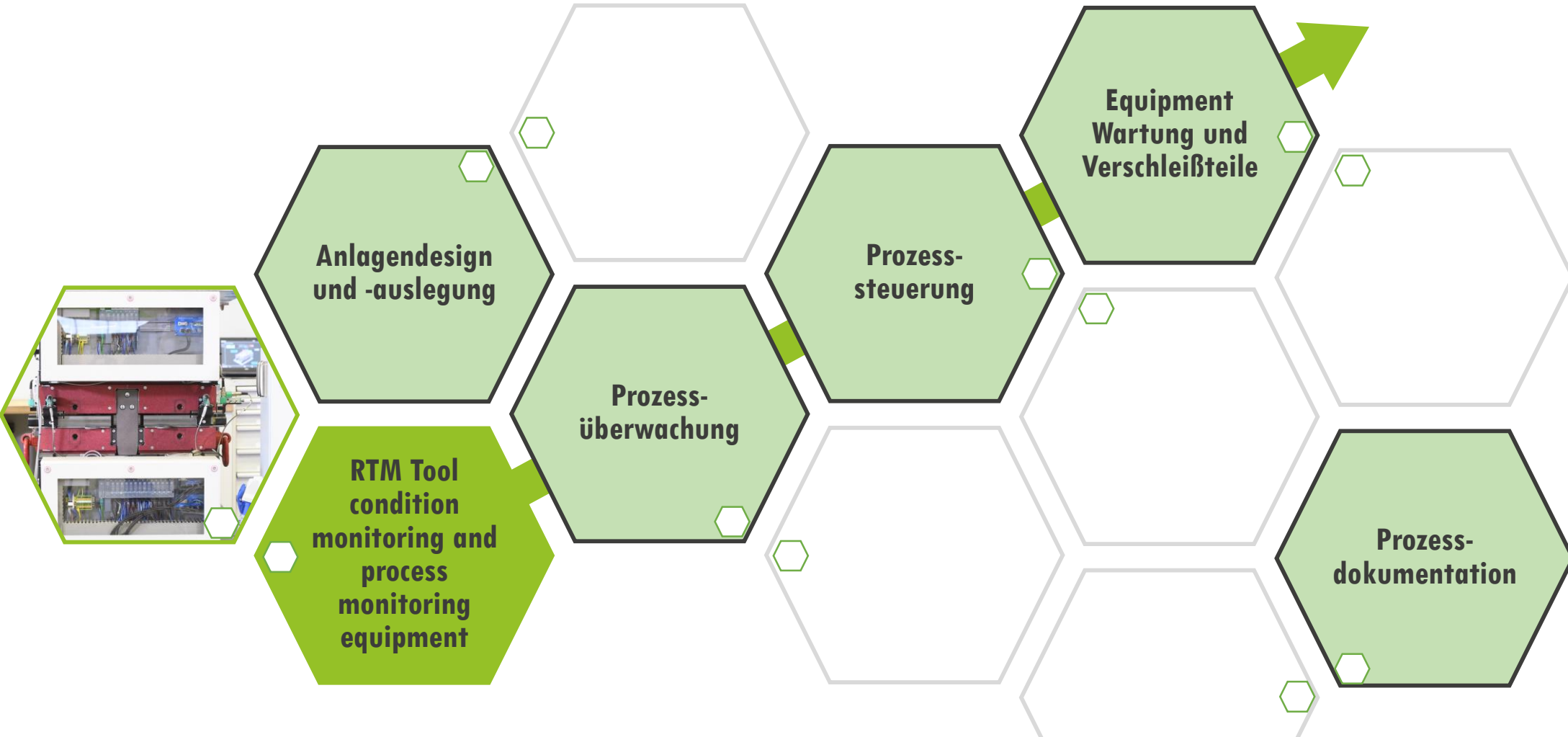
# Kreislaufwirtschaft @ALPEX

Neue Geschäftsmodelle



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Neue Geschäftsmodelle



Hardware and Equipment

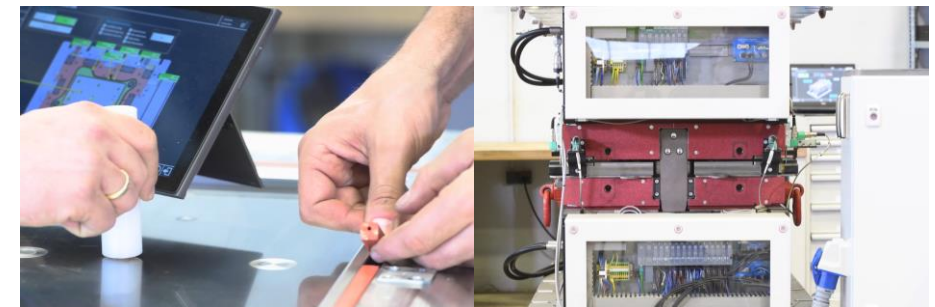
# Entwicklungspfad

... an outlook



**INNOVATION** | HP-RTM / C-RTM / ... X-RTM AND  
2K AEROSPACE RESIN SYSTEM

**INNOVATION** | PREDICTIVE SERVICES THROUGH DIGITALIZATION



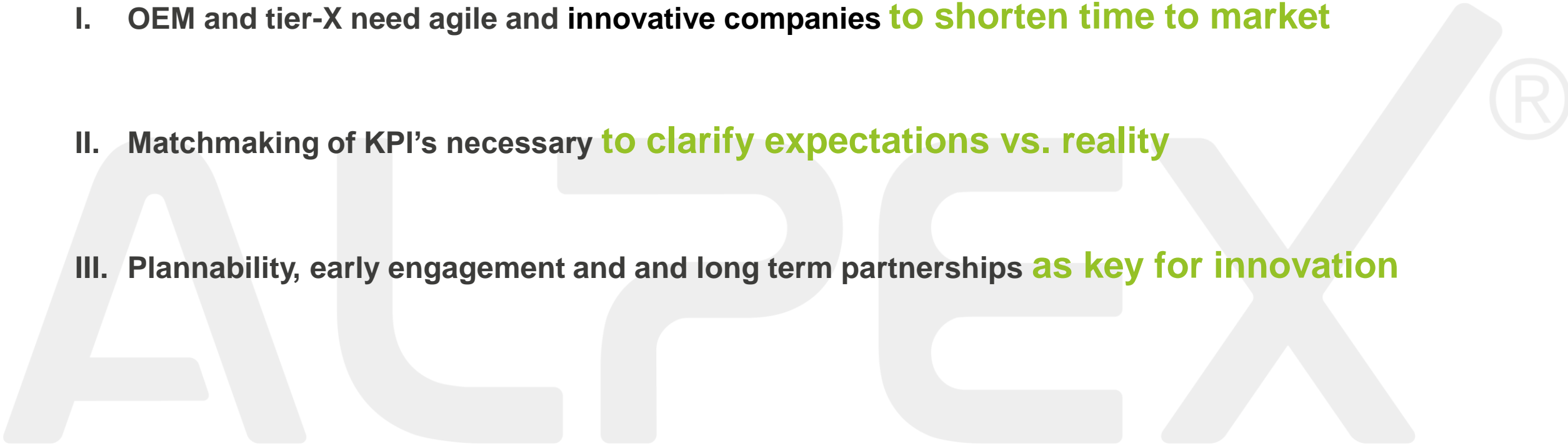
# Entwicklungspfad

## Key-enabler

I. OEM and tier-X need agile and innovative companies **to shorten time to market**

II. Matchmaking of KPI's necessary **to clarify expectations vs. reality**

III. Plannability, early engagement and and long term partnerships **as key for innovation**





# Entwicklungspfad



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