# Digital Transformation
## Steady Green, Clear Blue Sky, and Turbulences

# After the time of uncertainty, here comes the green light

Amid financial stress, Europeans determined to keep their travel spend – The headline of many newspaper quotes

## Time of uncertainty

the lost: $84B

## Now

The industry agenda rebuffed

**During the 2 years of COVID-19, aviation industry faced many hardships**

- The loss for airlines in 2020 is a staggering $84 billion – more than three times the losses during the Global Financial Crisis.
- Aviation CIOs faced severe budget cuts
- Much of the government aid provided is in the form of debt, which could exacerbate airlines' financial challenges

**Steady green light is back on for technology investment**

- Aviation CIOs recognize the need to invest strategically into technology as the aviation industry is replete with legacy applications that are financially difficult to maintain.
- The pandemic spurred cross-industry collaboration and data monetization opportunities
- Industry Agenda rebuffed: Energy Transition, Net-Zero, Innovation & Autonomous Technology

# However, we just don't know about the clear air turbulence

The Triple Squeeze

The Triple Squeeze is the term coined by Gartner, describing the three major forces that are impacting business decisions:
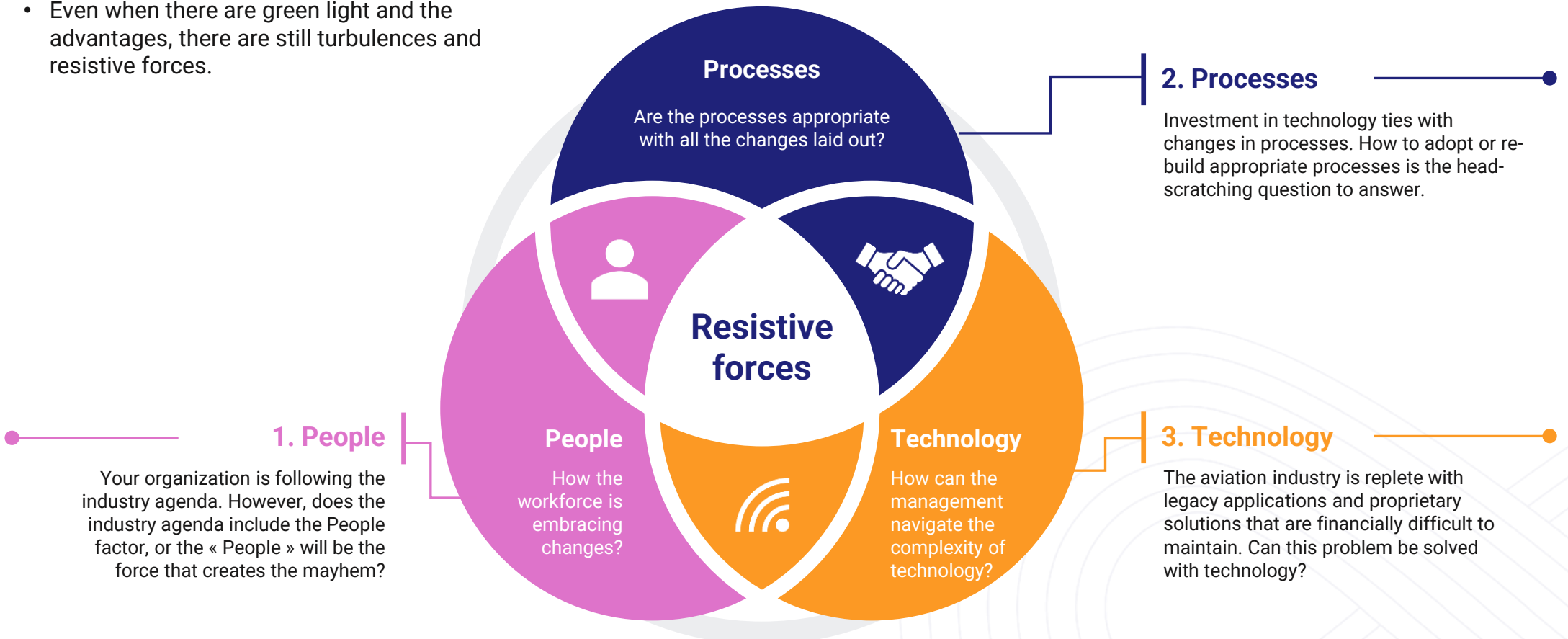
**Economic Pressure**

**Scarce Expensive Talent**
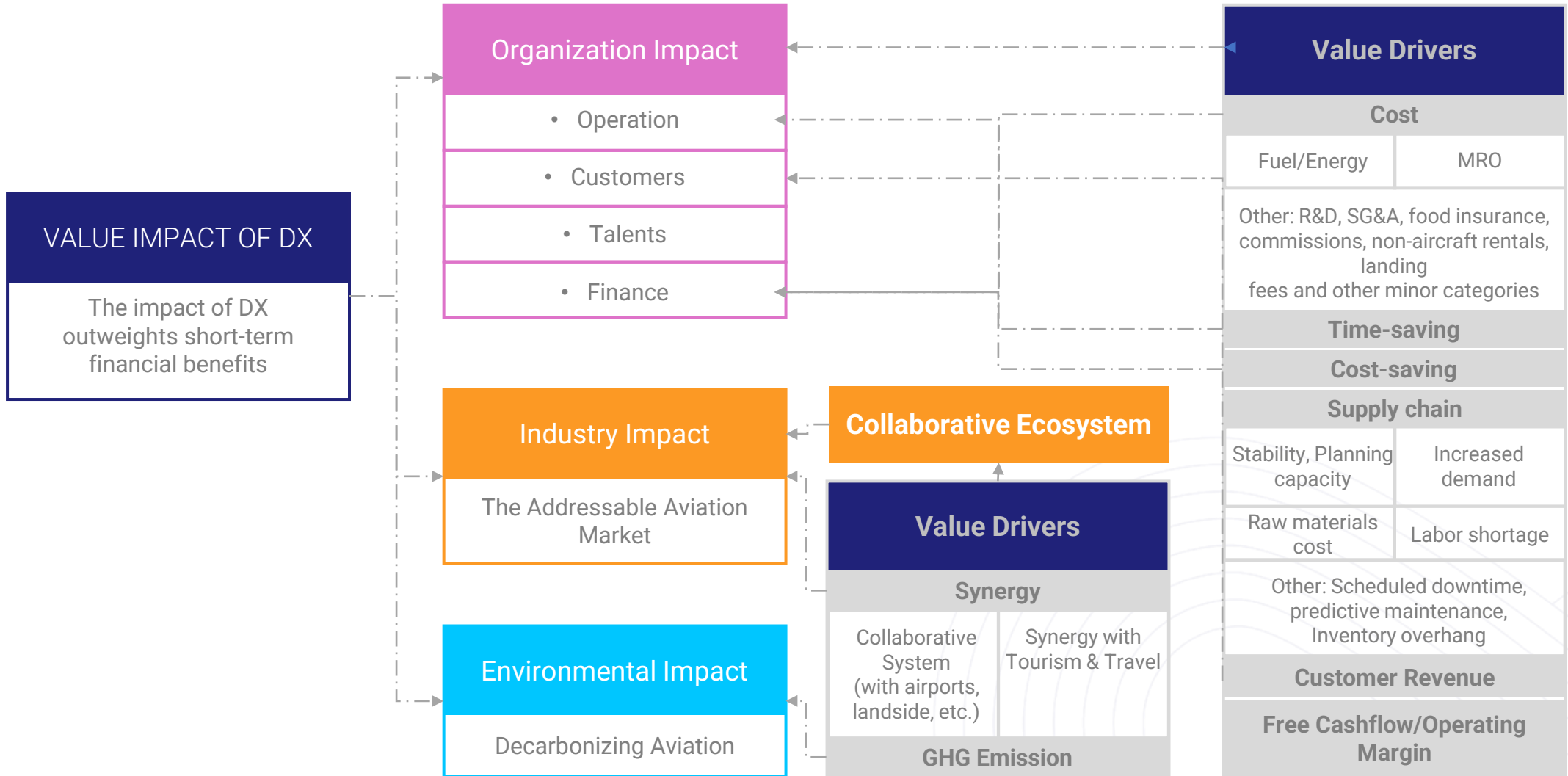
**Supply Chain Challenges**

# The resistive forces coming from your own organization

- Even when aviation CIOs are well aware of the importance of investing in technology, there are turbulences when adopting changes.

- Even when there are green light and the advantages, there are still turbulences and resistive forces.

**Processes**

Are the processes appropriate with all the changes laid out?

**Resistive forces**

**People**

How the workforce is embracing changes?

**Technology**

How can the management navigate the complexity of technology?

## 2. Processes

Investment in technology ties with changes in processes. How to adopt or re-build appropriate processes is the head-scratching question to answer.

## 1. People

Your organization is following the industry agenda. However, does the industry agenda include the People factor, or the « People » will be the force that creates the mayhem?

## 3. Technology

The aviation industry is replete with legacy applications and proprietary solutions that are financially difficult to maintain. Can this problem be solved with technology?

# Investing in DX: One step backward, two steps forward

Why would organizations invest in Digital Transformation in the midst of economic hardship?

## VALUE IMPACT OF DX

The impact of DX outweights short-term financial benefits

## Organization Impact
- Operation
- Customers
- Talents
- Finance

## Industry Impact

The Addressable Aviation Market

## Environmental Impact

Decarbonizing Aviation

## Collaborative Ecosystem

### Value Drivers

| Synergy | |
|---|---|
| Collaborative System (with airports, landside, etc.) | Synergy with Tourism & Travel |
| GHG Emission | |

## Value Drivers

| Cost | |
|---|---|
| Fuel/Energy | MRO |
| Other: R&D, SG&A, food insurance, commissions, non-aircraft rentals, landing fees and other minor categories | |
| Time-saving | |
| Cost-saving | |
| Supply chain | |
| Stability, Planning capacity | Increased demand |
| Raw materials cost | Labor shortage |
| Other: Scheduled downtime, predictive maintenance, Inventory overhang | |
| Customer Revenue | |
| Free Cashflow/Operating Margin | |

# Our story with EASA: MRO in the new age

VIRTUA: Case Study For Aviation Safety Standards

**EASA** European Union Aviation Safety Agency

**FPT**

The management of approved aircraft parts or components using blockchain technologies would have an impact on the entire lifecycle of such certificates, from their issuance by production organizations (POA) to the changes made by design or maintenance organizations.

## 01

### Execution

Build a long list of relevant standards and regulations covering tender specifications' key areas, and identify industries who initiate this type of study and the chosen approach
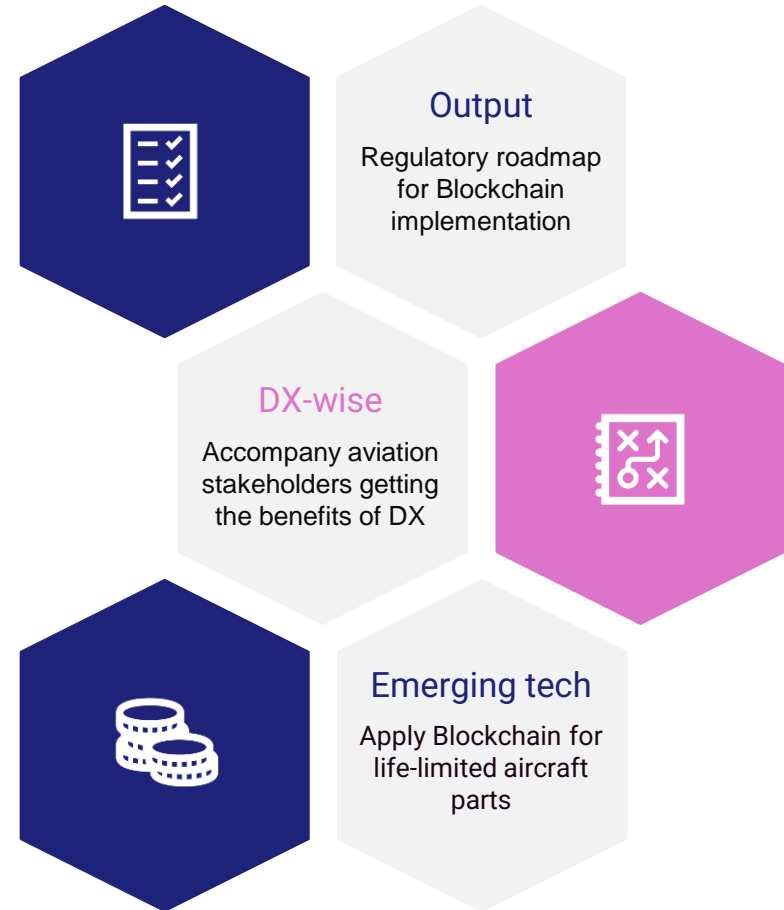
**READ OUR FULL STORY**

## 02

### Solution Evaluation

Screening & listing: Initial screening of blockchain digital solutions for aviation and relevant other sectors, and assessment of 10 selected blockchain digital solutions according to a structured framework.

### Output
Regulatory roadmap for Blockchain implementation

### DX-wise
Accompany aviation stakeholders getting the benefits of DX

### Emerging tech
Apply Blockchain for life-limited aircraft parts

# Digital Transformation needs a starting point: Data, data, and data

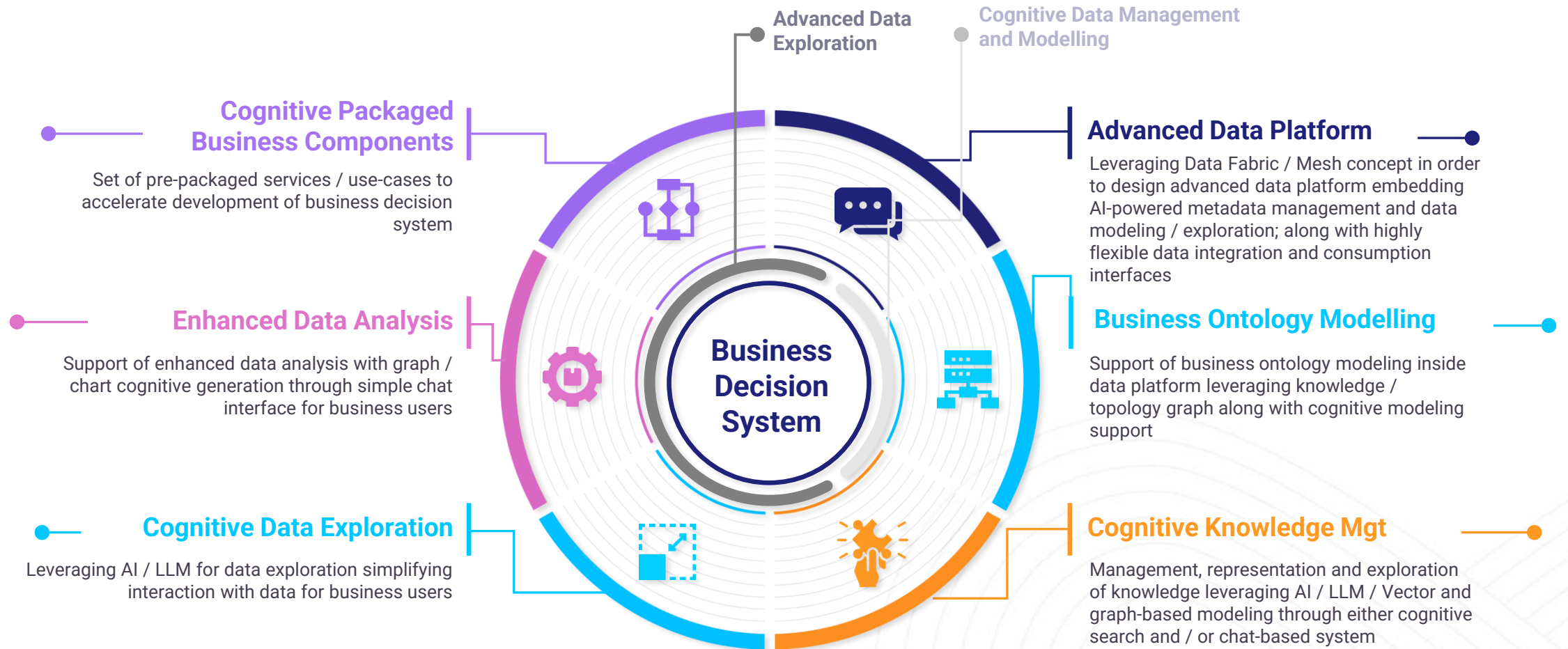The vision is ambitious. Where is the starting point?

**Is this familiar?**
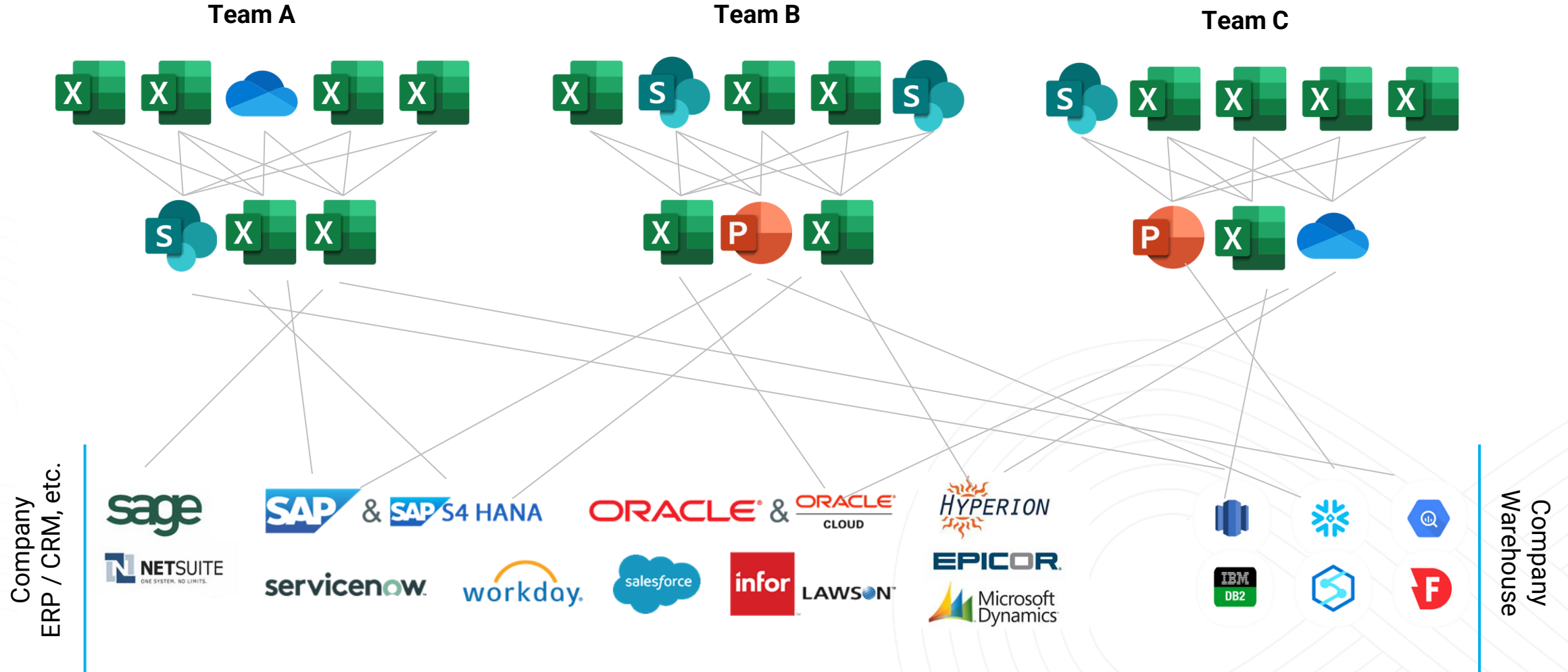
# Business Decision System

How to leverage all your internal and external 3rd party data and information to take the best decision

Advanced Data Exploration

Cognitive Data Management and Modelling

## Cognitive Packaged Business Components

Set of pre-packaged services / use-cases to accelerate development of business decision system

## Advanced Data Platform

Leveraging Data Fabric / Mesh concept in order to design advanced data platform embedding AI-powered metadata management and data modeling / exploration; along with highly flexible data integration and consumption interfaces

## Enhanced Data Analysis

Support of enhanced data analysis with graph / chart cognitive generation through simple chat interface for business users

**Business Decision System**

## Business Ontology Modelling

Support of business ontology modeling inside data platform leveraging knowledge / topology graph along with cognitive modeling support

## Cognitive Data Exploration

Leveraging AI / LLM for data exploration simplifying interaction with data for business users

## Cognitive Knowledge Mgt

Management, representation and exploration of knowledge leveraging AI / LLM / Vector and graph-based modeling through either cognitive search and / or chat-based system
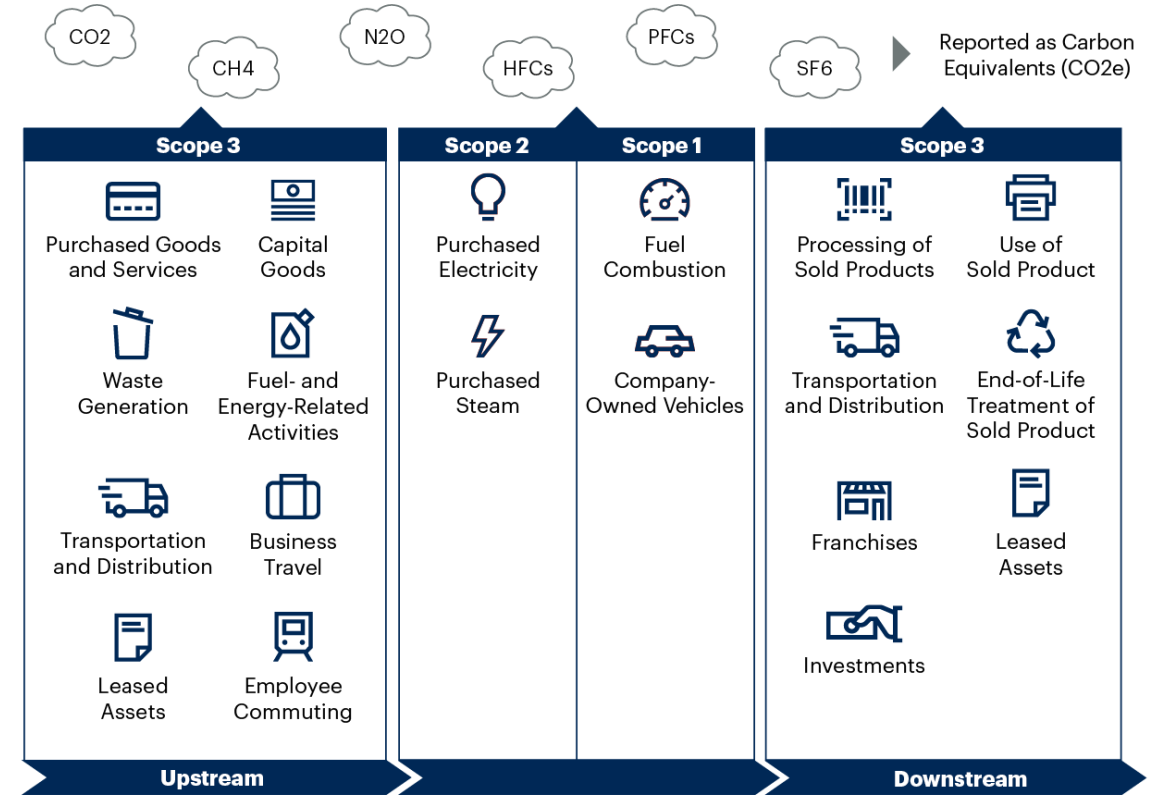
# Decarbonizing Aviation: Understanding the GHG Emission

In 2016, ICAO adopted the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to address CO2 emissions from international aviation.

## GHG Emissions Scopes 1-3

CO2  CH4  N2O  HFCs  PFCs  SF6  ▸ Reported as Carbon Equivalents (CO2e)

| Scope 3 | | Scope 2 | Scope 1 | Scope 3 | |
|---|---|---|---|---|---|
| Purchased Goods and Services | Capital Goods | Purchased Electricity | Fuel Combustion | Processing of Sold Products | Use of Sold Product |
| Waste Generation | Fuel- and Energy-Related Activities | Purchased Steam | Company-Owned Vehicles | Transportation and Distribution | End-of-Life Treatment of Sold Product |
| Transportation and Distribution | Business Travel | | | Franchises | Leased Assets |
| Leased Assets | Employee Commuting | | | Investments | |

Upstream ▸ ▸ Downstream

Source: Gartner
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Gartner

**Scope 1 (direct GHG emissions):** GHG emissions generated by assets that the business owns or controls directly, through the use of fossil fuels or chemical processes in manufacturing.
**Scope 2 (utilities indirect GHG emissions):** GHG emissions from electricity, steam, heat or cooling that is purchased to be consumed by owned or controlled equipment.
**Scope 3 (corporate value chain GHG emissions):** GHG emissions from sources owned or controlled by other entities across the value chain, including but not limited to materials suppliers, logistics suppliers, travel suppliers, franchisees, employees and customers.

The skies have traditionally symbolized limitless potential, yet they also carry the burden of an undeniable carbon footprint.

While hydrogen energy is deemed to be the solution to aviation's Scope 1 GHG emission, it contributes to indirect warming.

Innovation is key. What are the actions to take?

# Environment Sustainable Goal

Leveraging data management and valorization to answer environment sustainable goal

### Data Integration and Collaboration

Platform integrates diverse data sources and facilitates interdepartmental collaboration for a comprehensive view of the environment.

### Data-Driven Decision Making

Decision-makers utilize evidence-based policies and scenario modeling to address environmental challenges effectively.

### Scalability and Future-readiness

The platform is scalable, adaptable to emerging technologies, and integrates evolving sustainability goals for long-term environmental management.

### Real-time Monitoring and Analytics

Platform provides timely and accurate environmental information, leveraging advanced analytics techniques for proactive management.

### Stakeholder Engagement and Citizen Empowerment

The platform promotes transparency, citizen participation, and feedback to empower employees/citizens in contributing to sustainability.

### Leveraging AI, Language Models, and New Technologies

Platform harnesses the power of AI, language models like GPT, and emerging technologies to analyze vast amounts of data, derive meaningful insights, and unlock innovative solutions for environmental management and sustainable development

# Thank you!