



# SUSTAINABILITY

**LEAFS**

08. November 2023



# YOUR CAPGEMINI SUSTAINABILITY TEAM FOR TODAY



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# AGENDA

- 01 Commit:** Sustainability – More than a regulatory burden
- 02 Act and monitor:** Realizing the strategy – The real challenge
- 03 Connect:** Synergies – Your focus areas and our expertise

# AGENDA

- 01 Commit: Sustainability – More than a regulatory burden**
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- 03 Connect: Synergies – Your focus areas and our expertise**

# WE HAVE COMMITTED TO FOLLOW AMBITIOUS INTERNAL AND EXTERNAL SUSTAINABILITY TARGETS



We have a dual sustainability ambition:

1. become **net zero by 2040** and carbon neutral by 2025 for our own operations, and across our supply chain by 2030
2. help our clients **save 10 million tCO<sub>2</sub>e by 2030**



# OUR INTERNAL SUSTAINABILITY INITIATIVES REFLECT THE IMPORTANCE THE TOPIC HAS FOR US

Introduction of a mandatory **upskilling program** for **all employees** as part of the **Capgemini Sustainability Campus**



Reduction of our global **green house gas emissions** by **47%** between 2019 and 2021



Transition to **100% renewable electricity** until **2025**

Awarded as one of the „**World's Most Ethical Companies**“ by **Ethisphere** for the last **10 years**

Reaching **net zero** until **2040**

Developed a **carbon calculator** to **minimize** our own CO<sub>2</sub> emissions on projects



Read more about the **sustainability initiatives** of the **Capgemini Group** in our **sustainability reports**



# WITH OUR E2E SUSTAINABILITY PORTFOLIO WE ALSO SUPPORT OUR CLIENTS TO MEET THEIR TARGETS



**Commit**

**Net zero strategy & new business models**

*Purpose, commitments, transformation path*



**Act**

**Sustainable products & services**

*Product and service development*

**Sustainable operations**

*Manufacturing, supply chain, circular economy*

**Sustainable IT**

*Devices, apps & infrastructure*



**Monitor & Report**

**Data for net zero**

*Data strategy for net zero, sustainability data hub, ESG performance & reporting*



# FIRMS HAVE GONE BEYOND VIEWING SUSTAINABILITY AS JUST A REGULATORY BURDEN



Many companies have largely understood the importance of **sustainability** as a **business opportunity** and have **committed** to embark on **net zero journeys**.  
Now it's time to **act** on that commitment and start the road to net zero!



# AGENDA

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- 02** **Act and monitor:** Realizing the strategy – The real challenge
- 03** Connect: Synergies – Your focus areas and our expertise



# FOREFRONT OF SUSTAINABLE AVIATION

***LIFE*** Cycle Optimization for **Aerospace** ©  
Leading the Way in Safe & Sustainable Aircraft Lifecycle Management



**How the idea happened**



Solution presentation



Solution ambition



## WITH THE GROWTH OF SERVICITIZATION, CIRCULARITY CAN BRING SIGNIFICANT VALUE TO THE AVIATION INDUSTRY



**20%** of aircraft components are older than 20 years old and more than **50%** are leased



**90%** of aircraft components can be recycled



**> 30%** of parts Remarketed per Aircraft



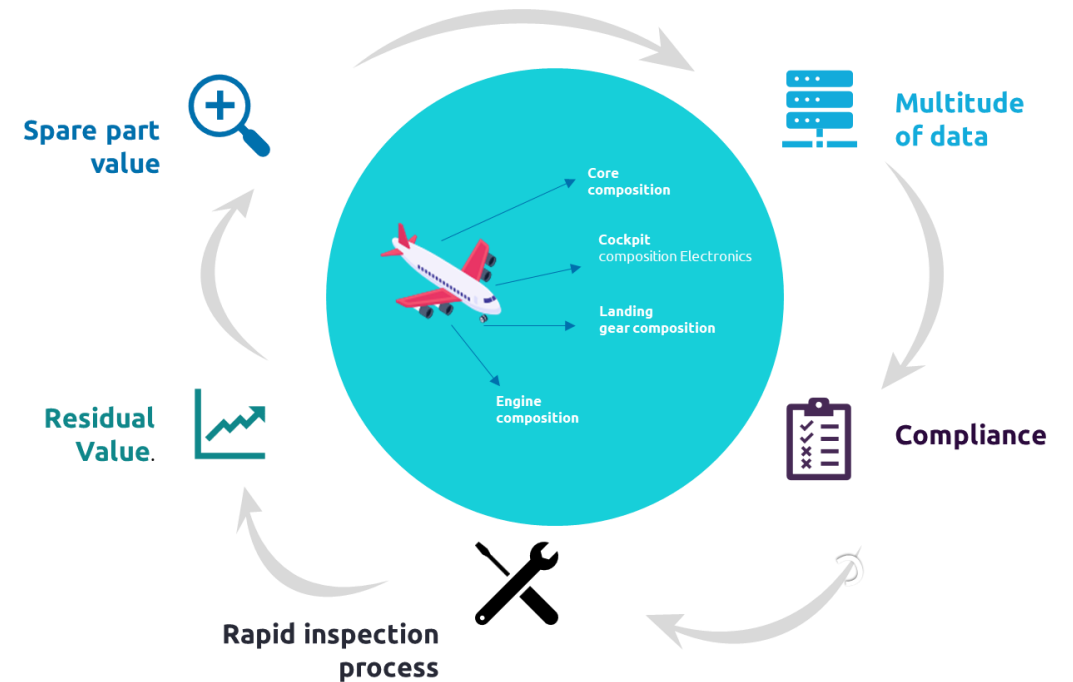
**≈ 200 tons of CO<sup>2</sup>** saved per dismantled A/C



**≈ 70 tons of raw materials** avoided with only circularity!



# DATA CAN ACCELERATE TRANSITION IN AN INDUSTRY WHERE INFORMATION TRACEABILITY IS FRAGMENTED



**Aircraft does not fly with parts but with papers... let's retrieve  
a full traceability to enhance utilization boost reuse and  
improve maintenance strategy**



How the idea happened



**Solution presentation**



Solution ambition

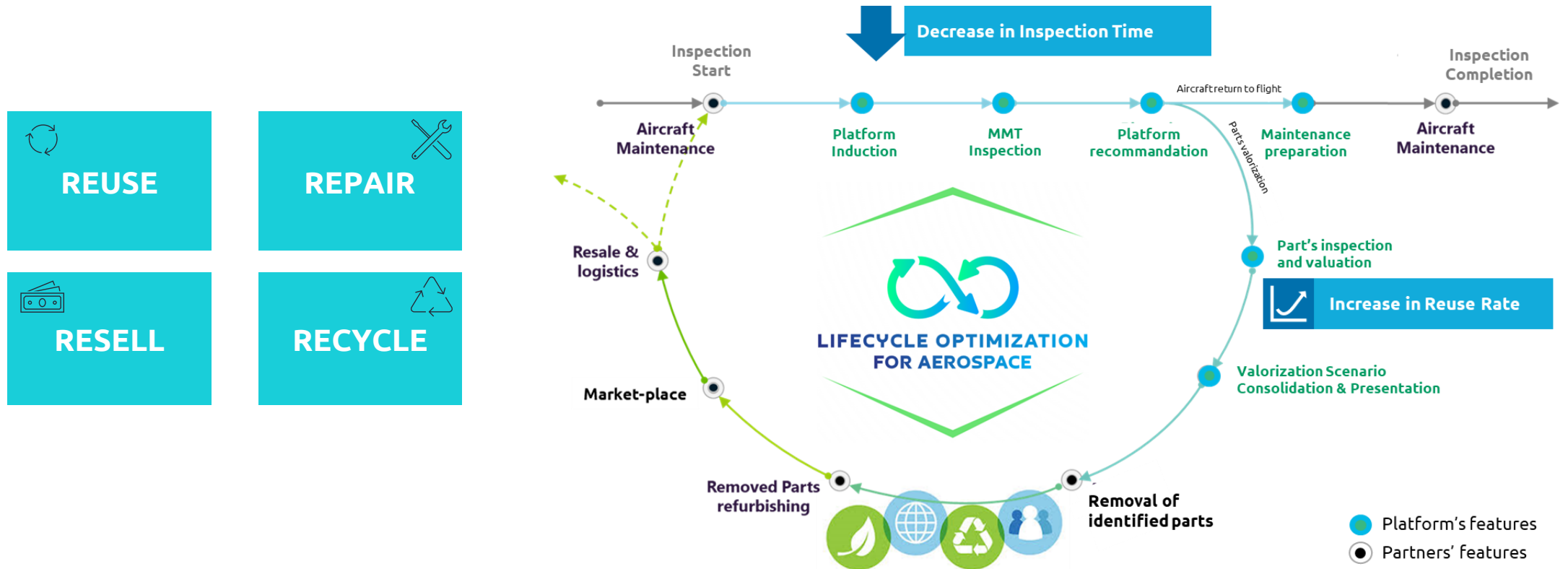


# CIRCULAR VALUE CHAIN TO PROMOTE LIFECYCLE OPTIMIZATION



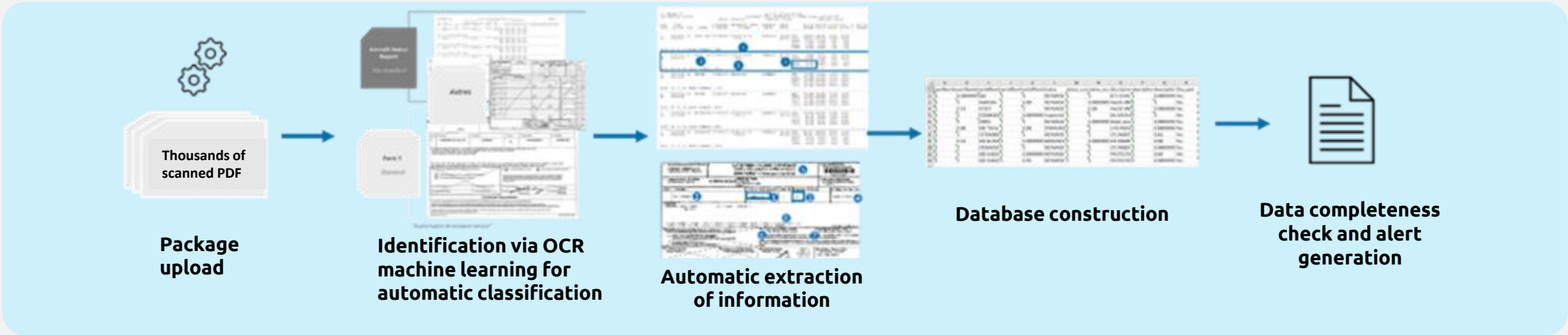
LIFECycle optimization for Aerospace is a **Capgemini developed tool** that uses OCR, NLP and an industry specific Machine Learning model to consume aircraft parts history, **increase reuse rate** and **promote circular economy**.

The tool intervenes in **4 key business models** and establish a **positive value chain**.

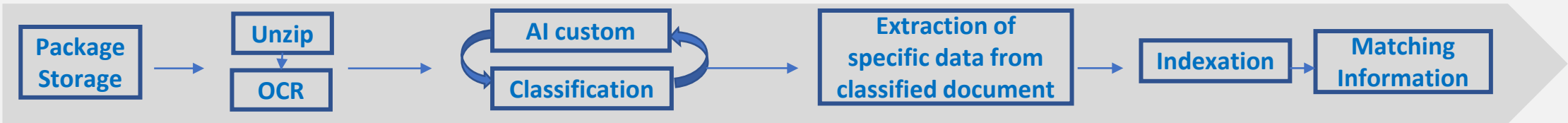






## Automation Process




## Technical Workflow


S3 Object storage built to store and retrieve any amount of data from anywhere




**Amazon Textract**  
A fully **managed machine learning service** that automatically **extracts printed text, handwriting and other data from scanned documents.**



**& BERT model**  
Sagemaker is a set of tools for creating, training and deploying your own Machine Learning models. The algorithm **BERT is** deployed using serverless inference. This is **one of the most powerful models in NLP**. It has the advantage of being pre-trained and requires little data for high reliability.



**Amazon Textract**  
Retrieve the data from Textract Forms Tables and Queries and parse it using NLP tools such as Jaccard's distance and regex (regular expression)

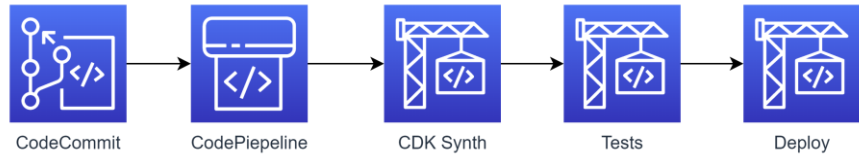


Retrieve the results from Textract and Sagemaker respectively to **index the data for each page on OpenSearch.** (OpenSearch is a distributed search & analytics suite)

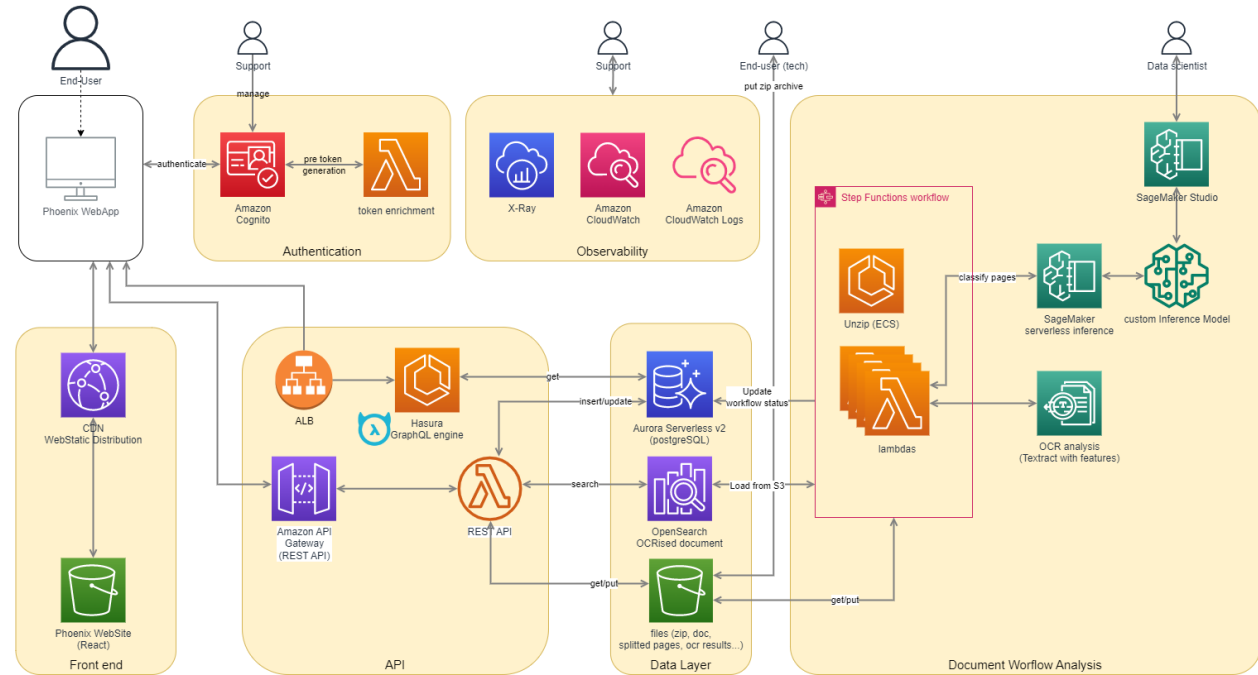




## Automation



## HLD



Serverless Infrastructure fully automated with Cloudformation and Cloud Development Kit (CDK)

Full Agile arrangement of team with the 1<sup>st</sup> MVP in 7 Sprints (21 weeks)

CI/CD Pipelines for all infrastructure with full test coverage



# MAN-MACHINE TEAMING TO TRANSFORM AIRCRAFT INSPECTION



The platform is built on AWS's Cloud. Artificial Intelligence and Machine Learning (Natural Language Processing) services have been specifically developed and trained on data models based on ASD\* standards.

**Top MVP Results**

	<b>84% to 99% reliability in document classification</b>		
	<b>70% to 87% data correctly extracted</b>		
	<b>30% time saving in analysis</b>		



# UNIQUE KPIS DEVELOPED BY CAPGEMINI TO FOSTER CIRCULARITY



The lifecycle optimization tool will propose, based on the in-service data collected, additional indicators to help consider different approaches and promote circularity in the decision

**REPAIR INFORMATION**

**Repair score** **8 / 10**

**Based on availability of:**  
 6/10 maintenance teams  
 9/10 technical documentation  
 5/10 and price of part  
 7/10 part can be dismantle

1 **Repairability Index**

**EURO CRITICITY**

**Average score** **4**

**Based on:**

- Acces to ressource
- Ressource dependency
- Sustainable impact

2 **Euro criticism**

**CARBON FOOTPRINT**

**Continue to use this part save**  
**234 T of CO2**

3 **Carbon Footprint Saved**

### Component Valorization

Phoenix | Global search | Select project | Search | Dashboard | Jensen Villarreal

#### Status list

Project: A330-200F | Phoenix International Airline | Manufacturer: Airbus | MSN: 1231567891234567891234 | Owner: Capgemini | Hours: 55813 | Cycle: 34529 | Estimated delivery date: 17/01/2023

Status selection: Full inventory | Elements: 15 223 PNs | Date: 17/01/2023 | Consistency check fail: 235 | PNs/SN with no documents: 43 | Export

Analyse	PN	SN	Consistency check	Number of matching pages	Ecology Index
<input type="checkbox"/>	Jensva 32169-136	4328	<span style="color: green;">✔</span>	4 documents found	Good
<input type="checkbox"/>	Jensva 32169-136	4328	<span style="color: green;">✔</span>	4 documents found	Good

Documents found | Consistency detail | Environment

**REPAIR INFORMATION**

Repair score **8 / 10**

Based on availability of:  
 6/10 maintenance teams  
 9/10 technical documentation  
 5/10 and price of part  
 7/10 part can be dismantle

**EURO CRITICITY**

Average score **4 / 5**

Based on:  
 • Acces to ressource  
 • Ressource dependency  
 • Sustainable impact

**CARBON FOOTPRINT**

Continue to use this part save **234 T of CO2**

**PART DETAIL**

Materials composition: 84% can be recycled

- 32% Aluminium
- 23% Steel
- 15% Ti
- 15% Fibre
- 12% Composite
- 9% Vilsa

Estimated use: 2002 - 2014 - 2017 - 2019 - 2021 - 2023

Estimated price: 29,435 \$

Life of part - Price - Carbon footprint

### Consolidated View

Phoenix | Global search | Select project | Search | Dashboard | Jensen Villarreal

#### Global view

Project: A330-200F | Phoenix International Airline | Manufacturer: Airbus | MSN: 1231567891234567891234 | Owner: Capgemini | Hours: 55813 | Cycle: 34529 | Estimated delivery date: 17/01/2023

DOCUMENT PACKAGE: Total package documents: 20 321

STATUS LIST: Total classified pages: 17 634 | PH / SN identified: 218 | Need review: 20

ENVIRONMENTAL IMPACT ESTIMATION: Do not change parts view: 523T of CO2 / years | Euro criticity: 4

### Dashboard

ENVIRONMENTAL IMPACT ESTIMATION: Global LLP Lifetime & budget: 75% - 20M | Reduction of carbon impact: 523T of CO2 | Euro criticity: 4

OVERVIEW: 20MS Estimated price: 75% used

Engines: 84% | APU: 78% | Landing gear: 15% | Propeller: 53%

LLP WITH GOOD CARBON FOOTPRINT ?????

Material	PN	SN	Lifetime	Euro criticity	Carbon footprint if changed
Engine	32169-136	4328	90%	4	123 T CO2
Engine	32169-136	4328	90%	4	123 T CO2
Engine	32169-136	4328	90%	4	123 T CO2
Engine	32169-136	4328	90%	4	123 T CO2



How the idea happened



Solution presentation



**Solution ambition**



# AS AN AIRLINE

Tackle the traceability issue in :

Aircraft Pre/Purchase Inspections  
Aircraft Redelivery Inspections  
Aircraft Major Maintenance  
Parts provisioning  
...



and connect your ecosystem

Maintenance Information System  
MRO Enterprise Resource Planning  
Customer Relationship Management  
Supply Chain Management  
Flight Operations System  
Aircraft Records History  
...

**TO:**

**Transform papers in data to smooth Aircraft transactions, improve the way you prepare major maintenance phase and multiply part provisioning opportunities.**



# AS AN OEM

## Tackle the traceability issue in :

Maintenance Quotation Interface  
Maintenance work package preparation  
Predictive Maintenance algorithm  
Used parts valorization and resale  
...



## and connect your ecosystem with your client's tools

Maintenance Information System  
MRO Enterprise Resource Planning  
Customer Relationship Management  
Supply Chain Management  
Maintenance Data lake  
...

## TO:

**Transform papers in data to improve OEM's MRO competitiveness & reactivity, recover in-service information and develop new opportunities on USM market.**



# **LIFE** Cycle Optimization for **Aerospace** ©

Leading the way in safe & sustainable aircraft lifecycle management

## ▶▶▶ - 50% Inspection Costs

Benefits cost reduction per aircraft on records inspection via digitization and robotization automation process

## ▶▶▶ +20/25% Parts Remarketed

More parts will be made attractable to the market via a more accurate consolidated view of historical records.

## ▶▶▶ +10/15% Residual Value

The platform will multiply alternatives to the aircraft owners with ageing aircrafts no more considered as a problem but an opportunity for sustainable add-on sales.

Capgemini engineering  
FLEET TECHNICAL SUPPORT



**THIS DIGITAL PLATFORM IS MERELY AN EYE OPENER  
ON WHAT CAPGEMINI CAN ACCOMPLISH IN THE  
CIRCULAR ECONOMY FIELD!**

**WE WILL LEVERAGE FROM OUR EXPERIENCE IN  
AEROSPACE TO DEVELOP NEW CIRCULAR ECOSYSTEMS  
AND PLATFORMS FOR MANY OTHER INDUSTRIES**






**THANKS**

# SALESFORCE NET ZERO CLOUD

Harnessing Data to Support  
Your Net Zero Commitment

Capgemini 



  
**BREITLING**  
1884



# CARBON ACCOUNTING FUNDAMENTALS: QUESTIONS WE HAVE TO ASK OURSELVES



## Collect & Transform

- What do you need to know: Collect and aggregate data from across the digital ecosystem



## Calculate

- How to measure: Convert data on various sources into a standard unit to measure greenhouse gas emissions
- Which emissions factors to apply



## Report & Monitor

- What has happened: What to measure, can be measured, should be measured
- What is happening: Analyze past performance to produce valuable insights. Examine historical performance metrics currently being monitored



## Forecast

- What will happen: Control and lead for purpose by modelling scenario analysis that can help business users understand multiple aspects of sustainability



# PROJECT CONTEXT: REPORTING CHALLENGES THE CLIENT WAS FACING

The client has already begun its Net Zero journey: carbon emissions are partially measured, SBTi setting and Ecovadis supplier engagement are in progress, and CDP in progress.

## DATA SOURCE & COLLECTION



- Missing data
- Lack of carbon accuracy
- No follow-up of key indicators
- Many data sources

## DATA TOOLING & ARCHITECTURE



- Missing architecture centralizing carbon data
- No tools in place allowing interactive, up-to-date reporting

## PROCESS & ORGANIZATION



- Manual processes (Excel files) with some limits
- Not all internal and external Breitling stakeholders involved

## REPORTING & MONITORING



- Only annual-based carbon dashboard reporting
- Lack of visibility to commit to SBTi targets and monitor climate reduction actions
- Need to comply to an increasingly complex ESG normative landscape



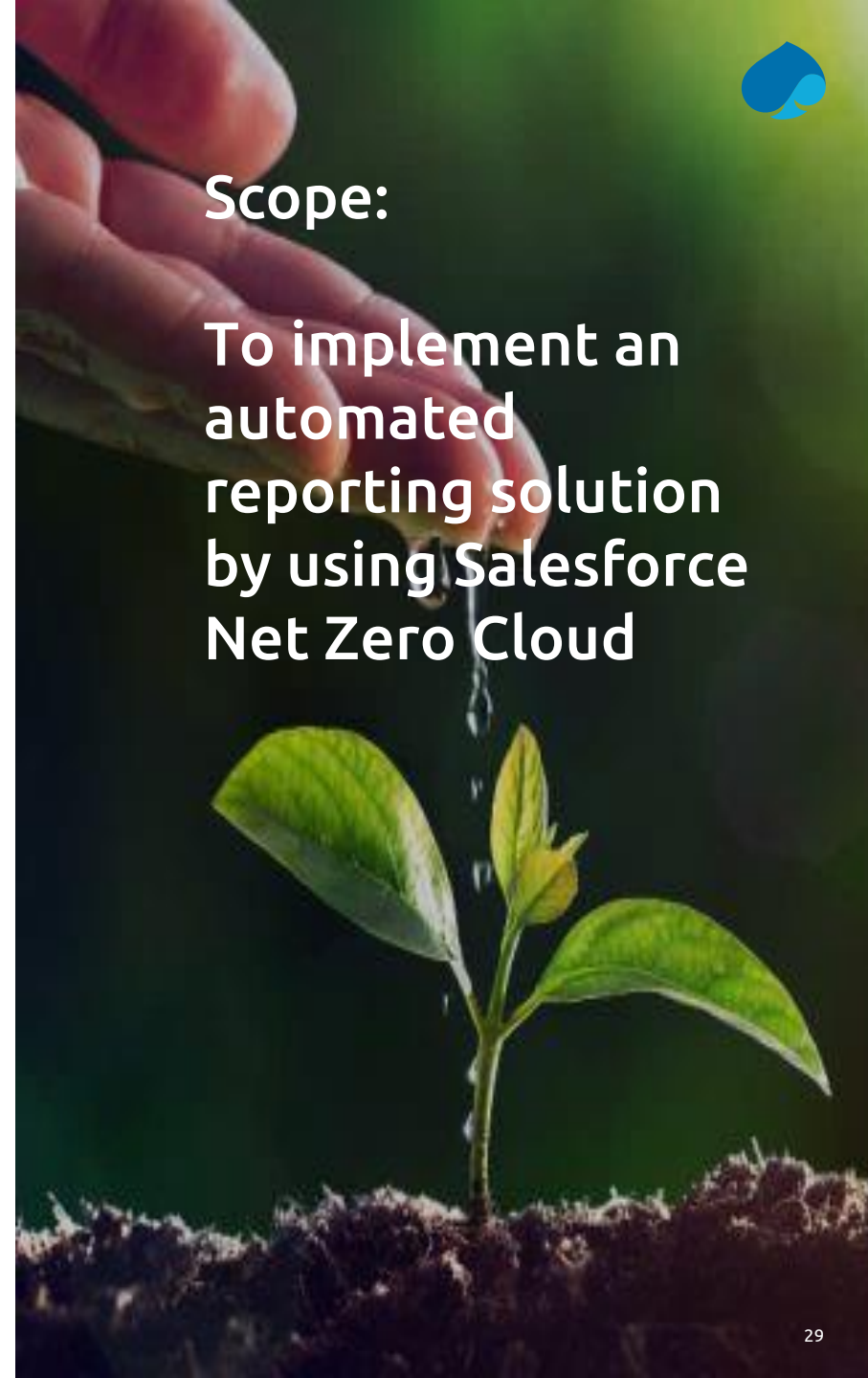
# PROJECT SCOPE: WHAT WE WERE TRYING TO ACHIEVE TOGETHER

Deploy an automated solution for sustainability data reporting by using Net Zero Cloud from Salesforce to:

- Capture, validate and process the carbon data from scopes 1, 2 and partially 3
- Enable reporting and analytics, without manual intervention, to generate insights and simulate climate impact scenarios on a quarterly/monthly basis
- Empower the organization to put sustainability at the center and drive change with internal and external stakeholders such as suppliers, partners and employees
- Report annual data by end of May 2022

Scope:

To implement an automated reporting solution by using Salesforce Net Zero Cloud



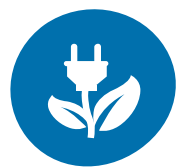
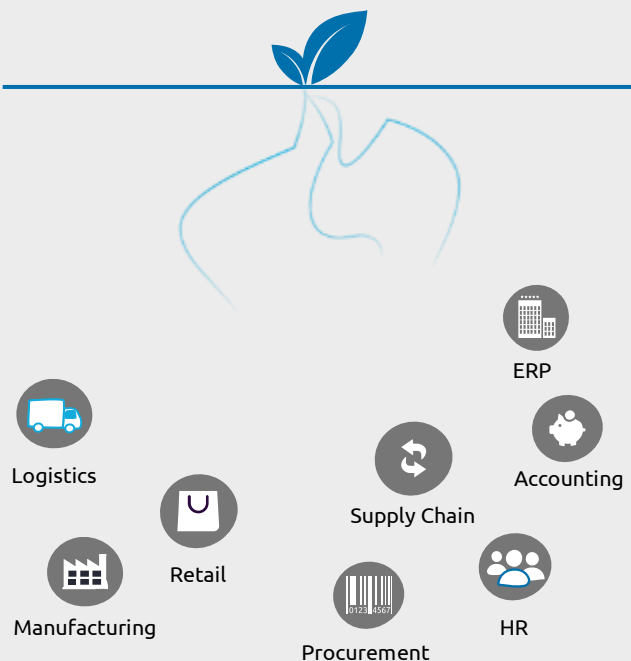


# OUR CAPGEMINI APPROACH: SUPPORTING BREITLING'S NET ZERO JOURNEY REALIZATION



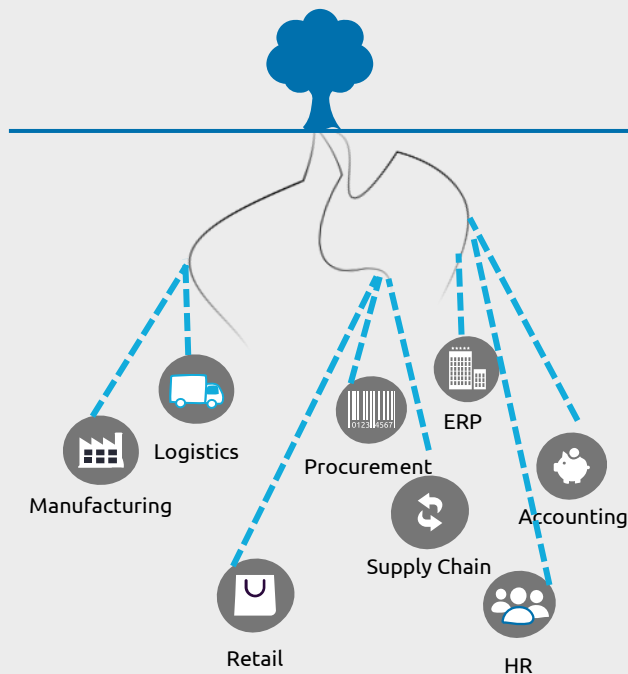
**“Plant the seeds”**  
One Place

Start the journey to collect, transform with Data Inventory & Data Mapping to calculate Carbon Footprint



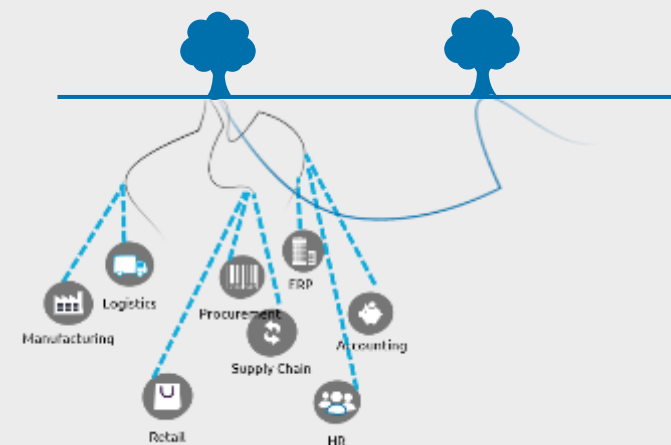
**“Nurture the roots”**  
One Ecosystem

Connect to IT ecosystem, with integration and extend Carbon Database Sources



**“Grow the trees”**  
One Connected World

Connect & engage partners, suppliers and customers.





# THE SOLUTION: MAIN FUNCTIONALITIES IMPLEMENTED IN NET ZERO CLOUD

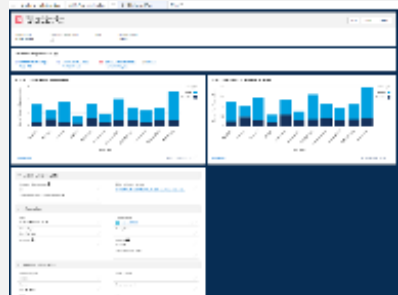
## Import Flow & Field Mapping

- No code
- Import Wizard
- Custom Objects
- Flows



## Lightning Page Customization & Graphs

- For each NZC object
- Normalized format of all Lightning Pages
- Augmented user experience



## Custom Emissions Factors & GHG Category Mapping

- Scope 3 Procurement Hub
- Helped client calculate average emissions factors from procurement data

**Project Procurement Calculator - Scope 3 Data**

How do you calculate Scope 3 Data?

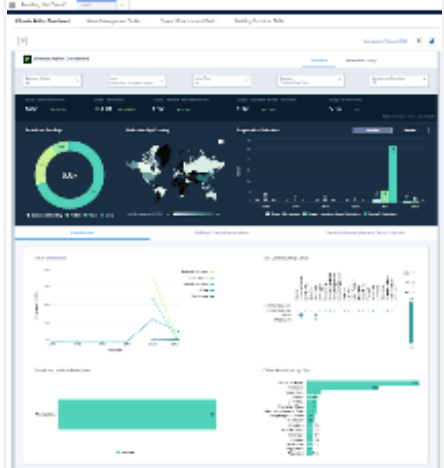
How do you calculate Scope 3 Data?

How do you calculate Scope 3 Data?

How do you calculate Scope 3 Data?

## Climate Action Dashboard

- Up-to-date data
- Drill-down options



## Breitling Emissions Table

- Built with Tableau
- 100% custom
- Automatic calculation updates
- From 3 weeks to 1 minute to see the data

Category	Value
Category 1	1000
Category 2	2000
Category 3	3000
Category 4	4000
Category 5	5000
Category 6	6000
Category 7	7000
Category 8	8000
Category 9	9000
Category 10	10000

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# DISCOVER SOME OF OUR STUDIES TO LEARN MORE ABOUT OUR PERSPECTIVE ON SUSTAINABILITY



We have positioned ourselves as thought leaders in sustainability by publishing numerous studies covering the following topics:

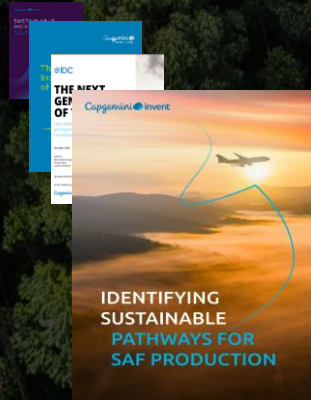
## Strategy and business model



## Data and technology



## Mobility



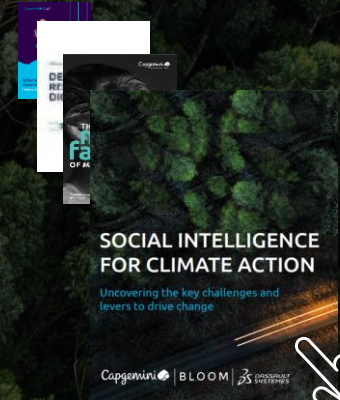
## Energy and utilities



## Financial services



## Customer experience



For more Capgemini research and insights in the area of sustainability visit our internal think tank, the [Capgemini Research Institute](#).



# FEEL FREE TO CONNECT WITH US TO DISCUSS ANY SUSTAINABILITY TOPICS YOU ARE CURRENTLY WORKING ON



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