



Driven by data

Why we need a Modern Enterprise Data Analytics Platform

**SHAPING THE FUTURE OF
AUTOMOTIVE INDUSTRY
AND MOBILITY**

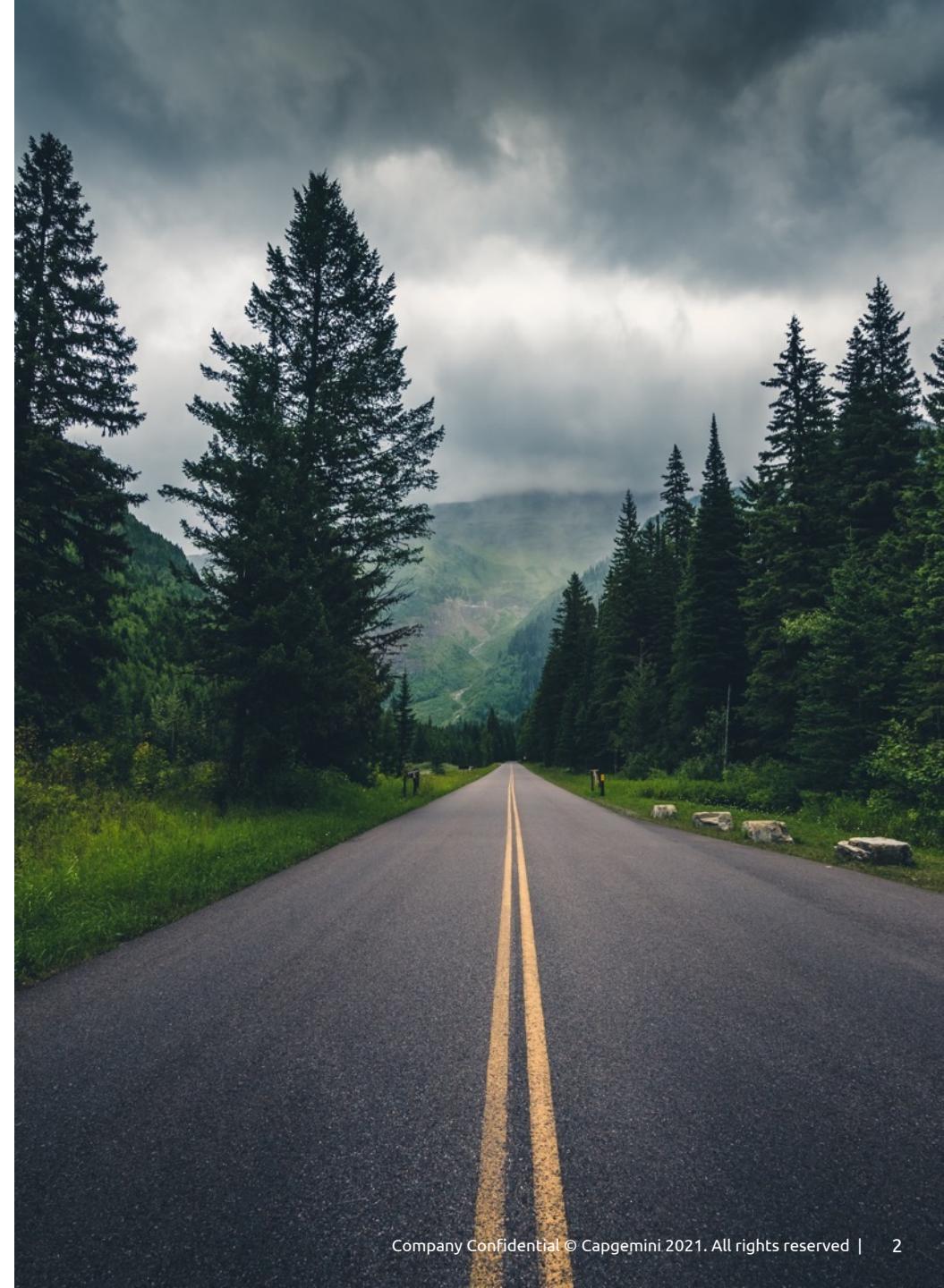
**GET THE FUTURE
YOU WANT**

AGENDA

Why we need it

How to design it

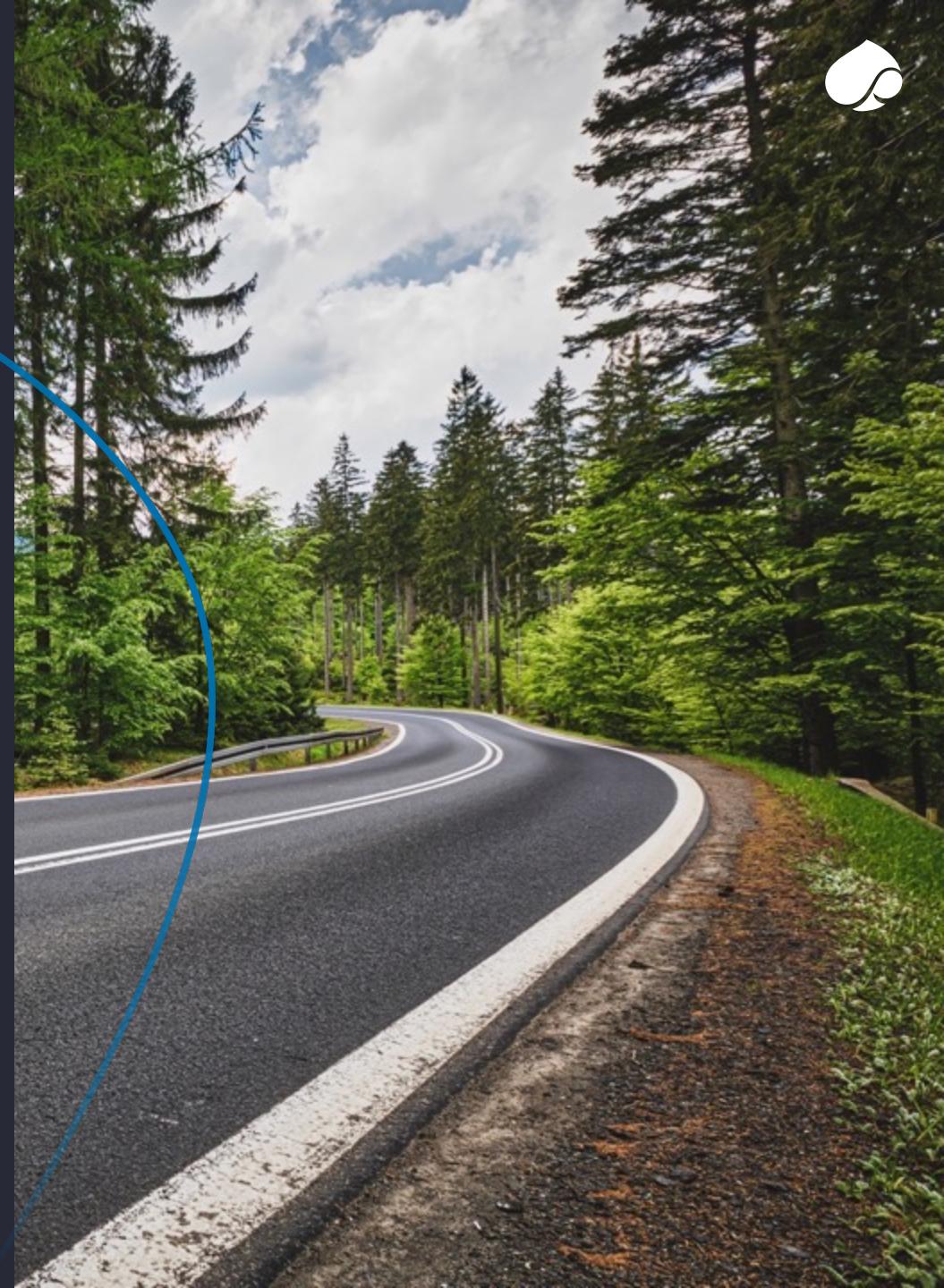
7 Patterns for the Implementation





1

WHY WE NEED A MODERN DATA & ANALYTICS PLATFORM

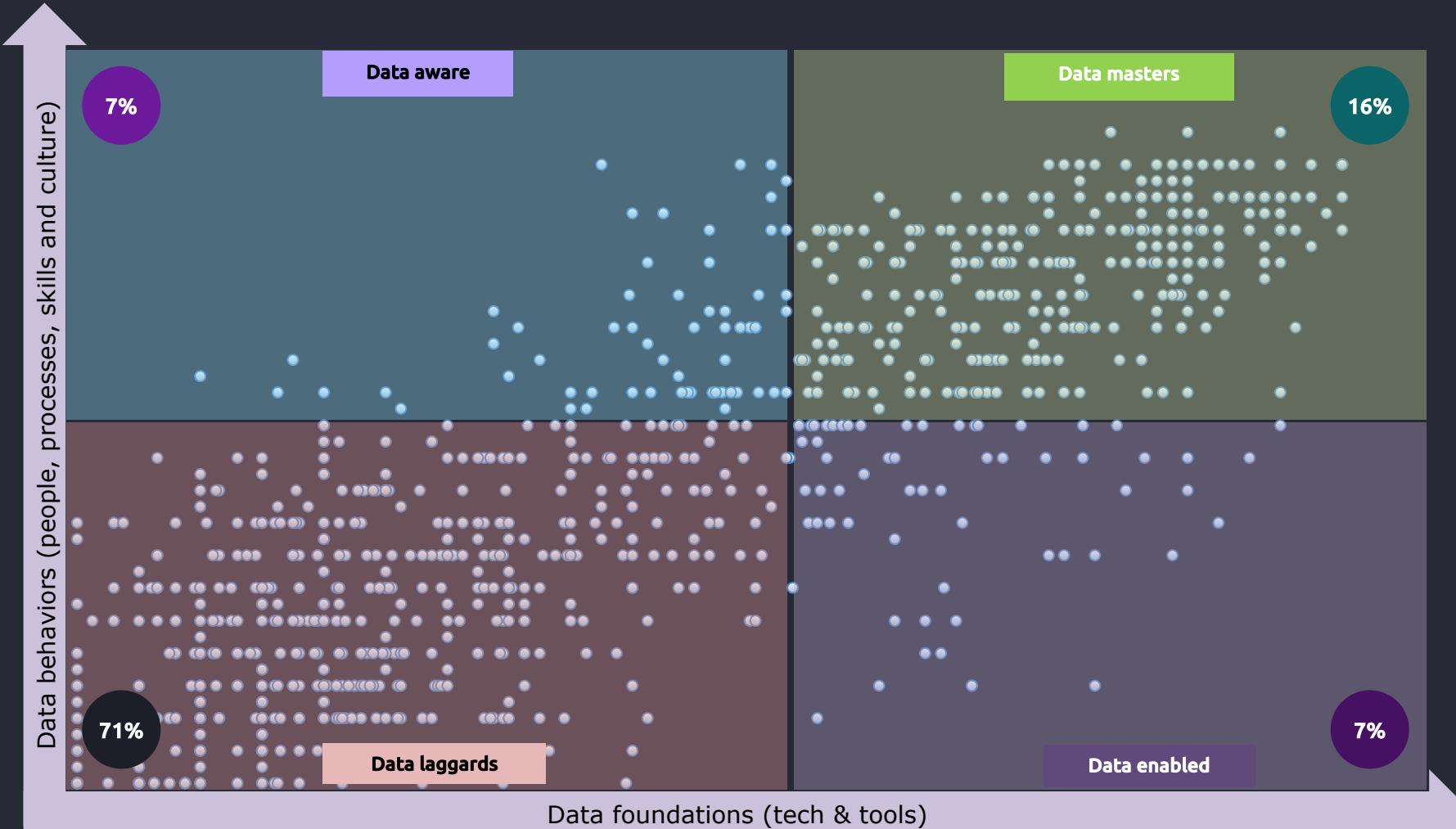




ON THE JOURNEY TOWARDS DATA-POWERED ENTERPRISE



ONLY ABOUT ONE IN SIX ORGANIZATIONS GLOBALLY CAN BE CATEGORIZED AS A DATA MASTER



Source: Capgemini Research Institute, Data-powered enterprises survey, August 2020, N=500 global technology executives, N=504 global business unit executives, N=50 technology executives in retail, N=50 business executives in retail. Percentages are rounded off to the nearest integer and do not sum to 100.



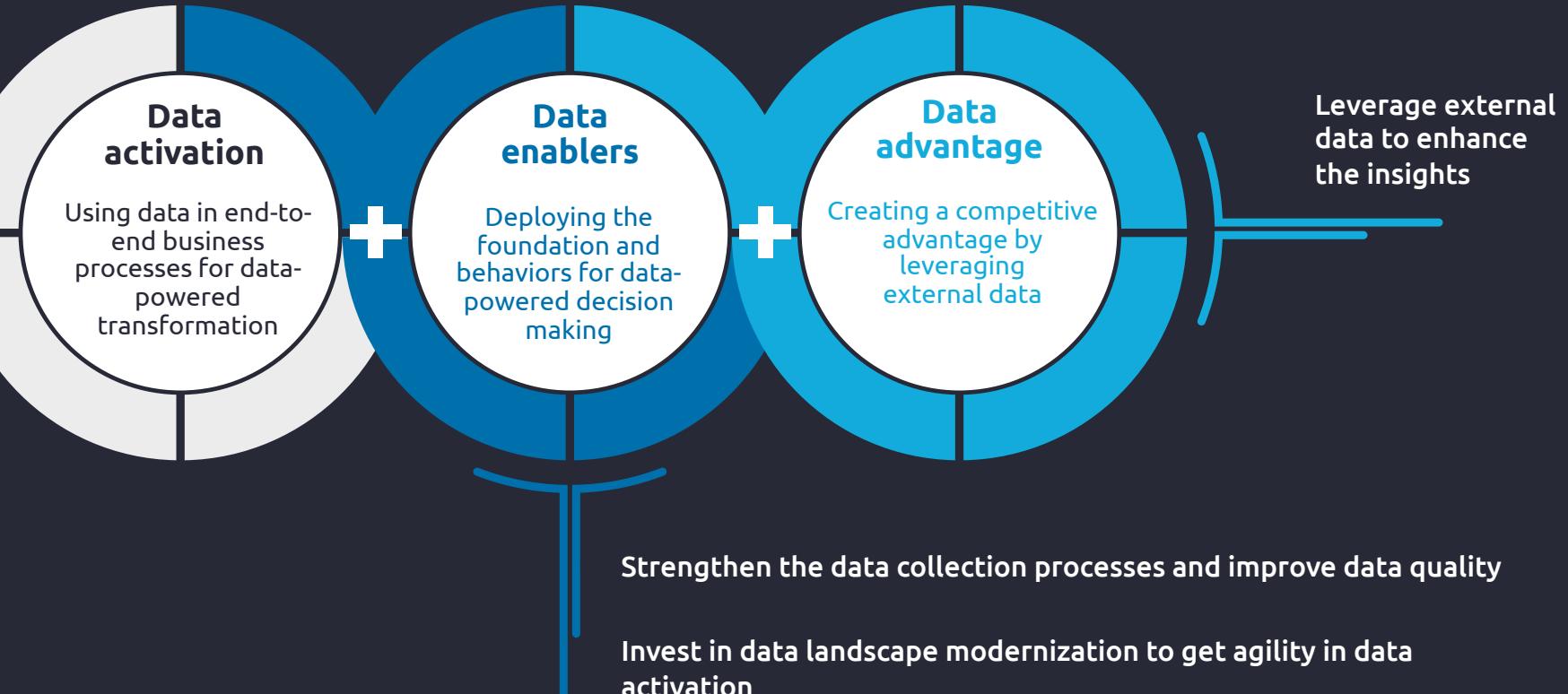
THREE AREAS OF FOCUS TO BECOME A DATA-POWERED ENTERPRISE

Align the data and analytics strategy with the business strategy

Build data trust among the business users

Establish an AI and analytics CoE to assist business teams

Foster a data-powered culture by strengthening data citizenship



Source: Capgemini Research Institute Analysis.

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WHY A “MODERN” DATA & ANALYTICS PLATFORM?



8%

Of total energy demand in
2030 by the ICT

<https://www.nature.com/articles/d41586-018-06610-y>

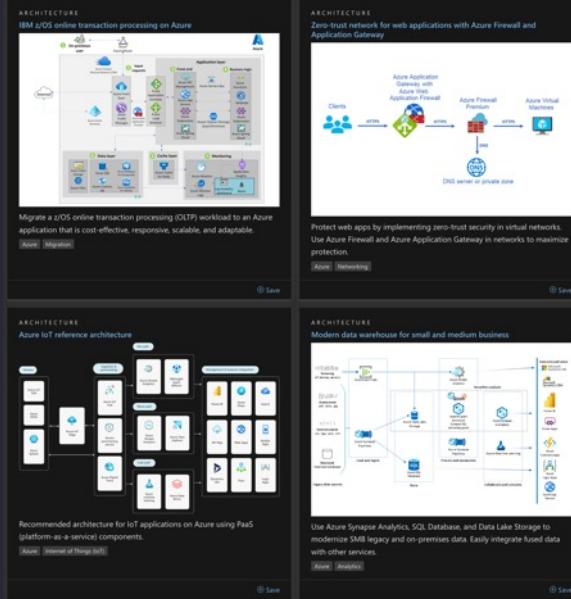


1bn metric tons CO₂

can be saved through cloud
computing from 2021 to 2024



THE READY-TO-USE SOLUTIONS ARCHITECTURES ARE JUST THE BASIS



1-6 (48)	REFERENCE ARCHITECTURE DIAGRAM	REFERENCE ARCHITECTURE DIAGRAM	REFERENCE ARCHITECTURE DIAGRAM
AWS DevOps Monitoring Dashboard	Change Data Capture Using AWS Database...	Machine to Cloud Connectivity Framework	
Reference architecture for automating the process of ingesting, analyzing, and visualizing continuous integration/continuous delivery (CI/CD) metrics.	Reference architecture series that enables customers to migrate databases using on-going replication, ingest real-time changes from source databases through streaming services, and create data pipelines to build transactional data lakes.	Deploy a solution that provides secure factory equipment connectivity to the AWS Cloud.	
PDF		PDF	
August 2021	August 2021	July 2021	

Machine learning with structured data: Training the model (Part 2)

In this tutorial, you create a wide and deep machine learning (ML) prediction model using the TensorFlow high-level Keras API. You train the model on AI Platform using the CSV files...

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Machine learning with structured data: Deploying a web application (Part 3)

In this tutorial, you use the prediction API to drive online predictions for a web application running on App Engine. This tutorial is the final part of a three-part series. It assumes that you...

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<https://docs.microsoft.com/en-us/azure/architecture/browse/>

https://aws.amazon.com/architecture/reference-architecture-diagrams/?achp_addrccs5

<https://cloud.google.com/architecture>



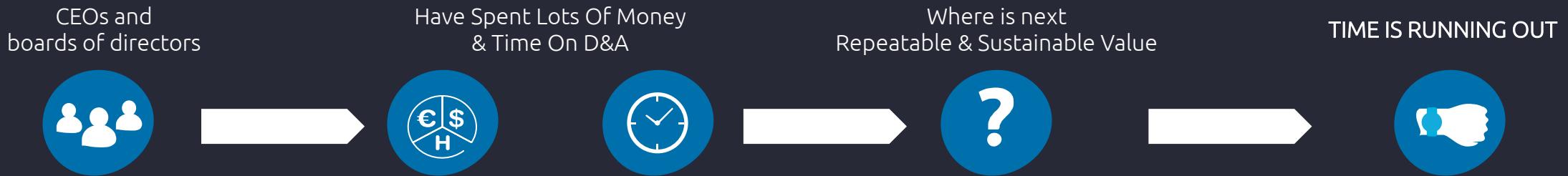
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HOW TO DESIGN A MODERN DATA & ANALYTICS PLATFORM



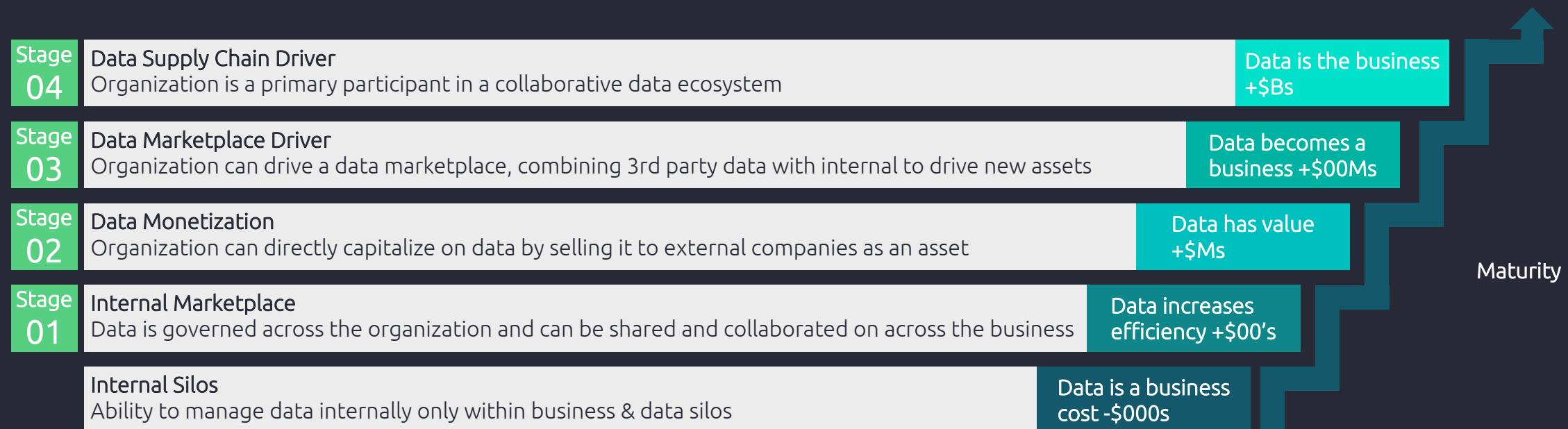


THE FOCUS IS NOW ON VALUE



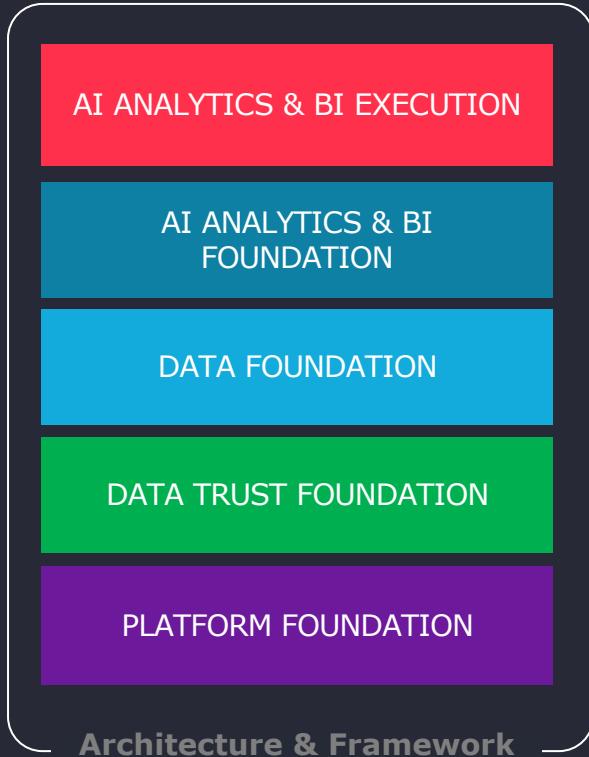
By **2022, 30%** of CDOs will partner with their CFO to formally value the organization's information assets for improved information management and benefits.

Gartner: Top Priorities for IT : Data & AI Leaders – Leadership Vision 2021





ENTERPRISE DATA & AI PLATFORM CHARACTERISTICS



Discoverable



Addressable



Trustworthy
(defined & monitored SLO)



Self Service



Inter Operable
(governed by open standards)



Secure



ADDITIONAL REQUIREMENTS TOWARDS A WELL ARCHITECTED PLATFORM



Reliability

- Platform availability during business hours → 24/7
- Automatic run of applications in other regions
- Data Reliability key for data-driven business



Cost Optimization

- Optimizing cloud consumption costs
- Lowering TCO of overall IT landscape



Performance Efficiency

- Mission critical information must be available when needed
- Capability of scaling infrastructure for specific cases (scale in/out/up/down)



Sustainability

- Lowering total resource consumption of IT Infrastructure
- Reducing carbon footprint towards company's sustainability goals



A PARADIGM SHIFT IS NEEDED ...

FROM



Centralized Ownership & Governance



Monolithic



Pipeline as first-class concern



Data as a by-product

TO



Decentralized Ownership & Federated Governance



Distributed



Domain as first-class concern



Data as a product



... AND THE LANGUAGE NEEDS TO CHANGE, TOO.

FROM

INGESTING

EXTRACT | LOAD | ONBOARD

FLOW DATA THROUGH PIPELINES

CENTRALIZED LAKE | WAREHOUSE |
PLATFORM

TO

SERVING

DISCOVER | CONSUME | LINK

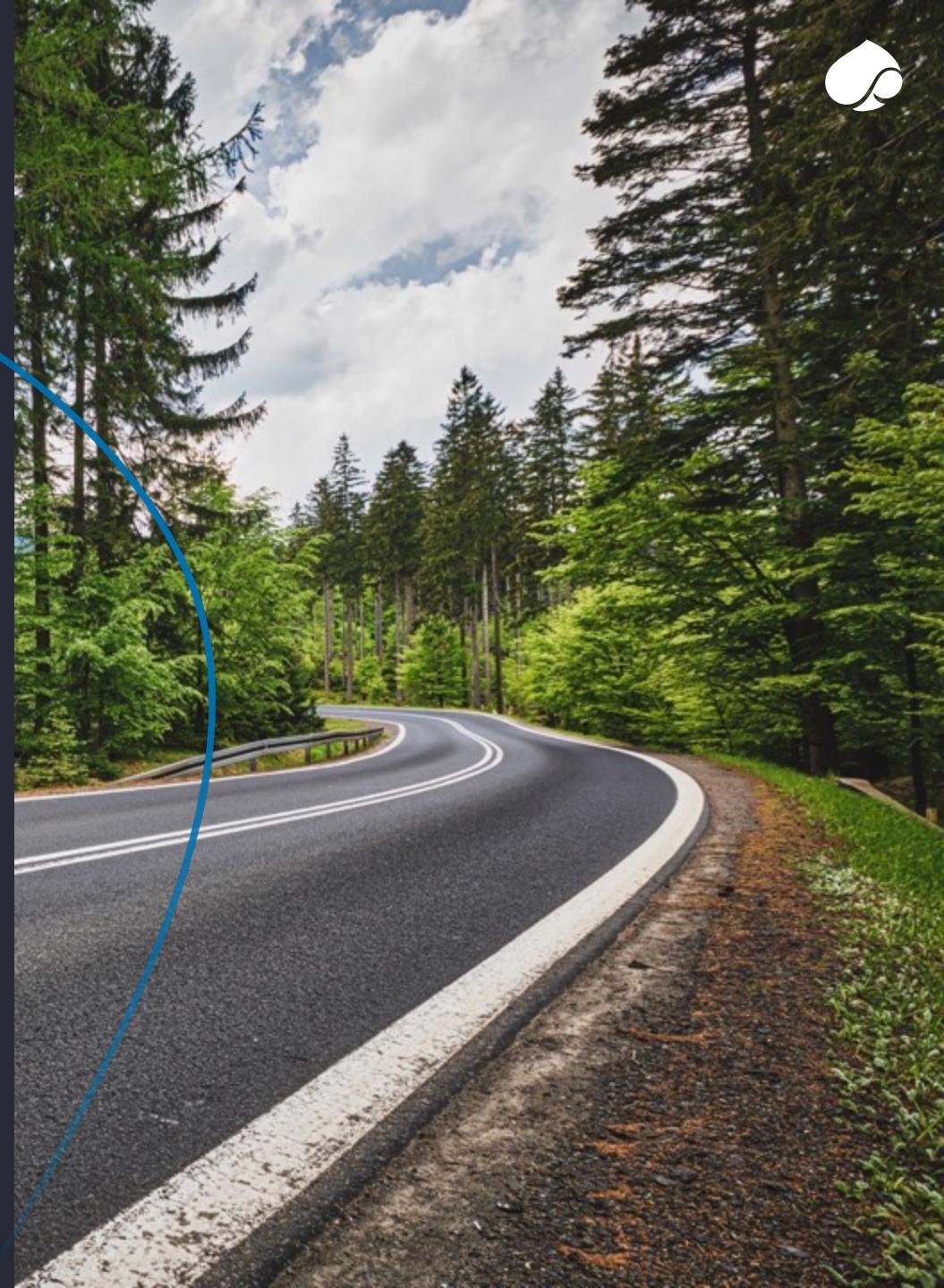
PUBLISH DATA VIA POSTS

ECOSYSTEM OF DATA AS PRODUCTS

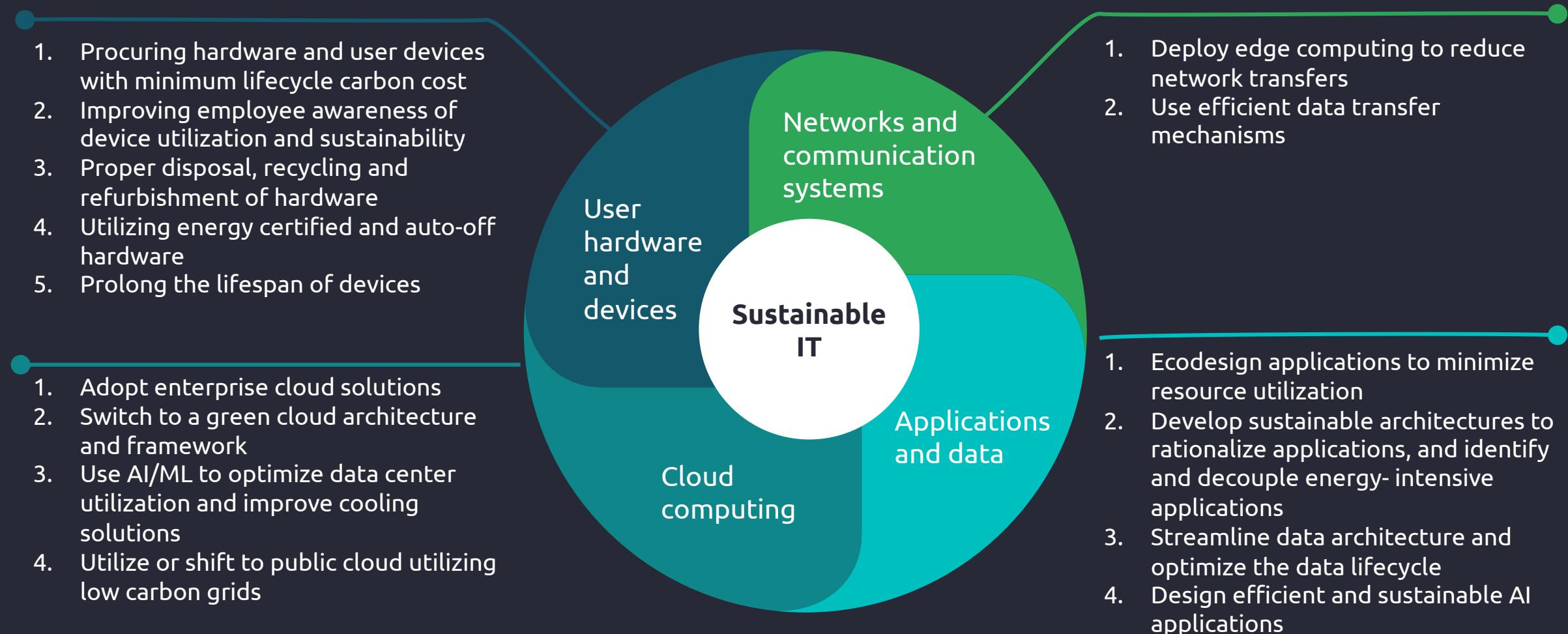


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7 PATTERNS FOR THE IMPLEMENTATION OF THE PLATFORM



SUSTAINABLE IT – APPLYING AN ENVIRONMENT-FOCUSED APPROACH ACROSS THE ENTERPRISE IT LANDSCAPE



Source: Capgemini Research Institute.

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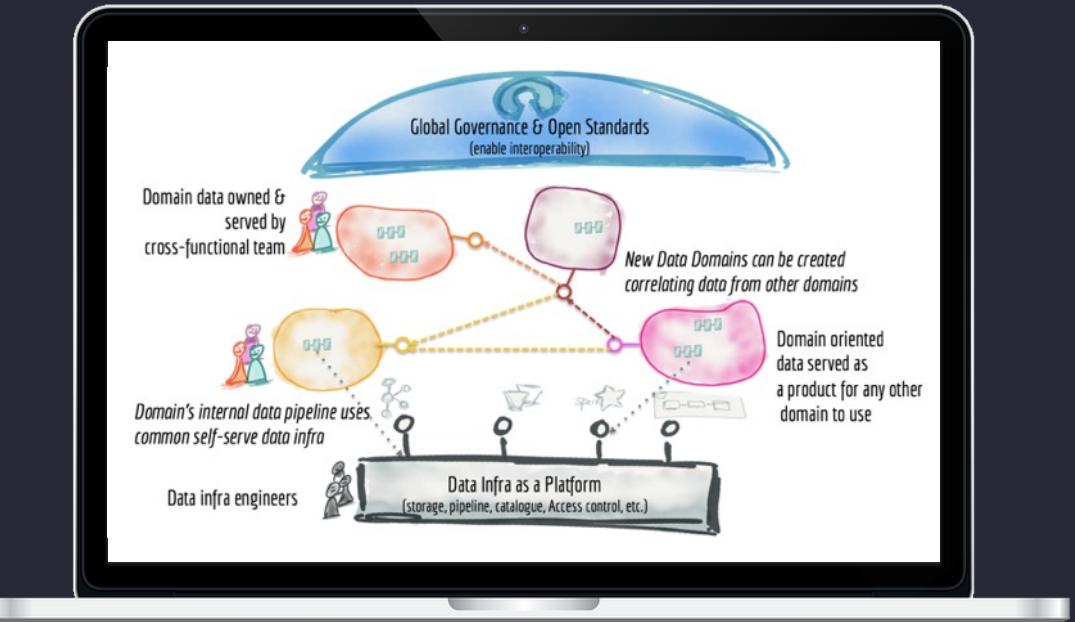
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7 PATTERN FOR THE IMPLEMENTATION OF THE PLATFORM (1/3)

Extending to the Mesh

- Data Mesh is the application of Core Principles for a modern Data & Analytics Platform for the Enterprise, but your organization might not need it!



(Data) Sharing is caring

- Enable sharing of data throughout common interfaces with network of partners & suppliers (Gaia-X, Catena-X)
- Reduces duplication of data, saves resources, efforts and money
- Improves process efficiency

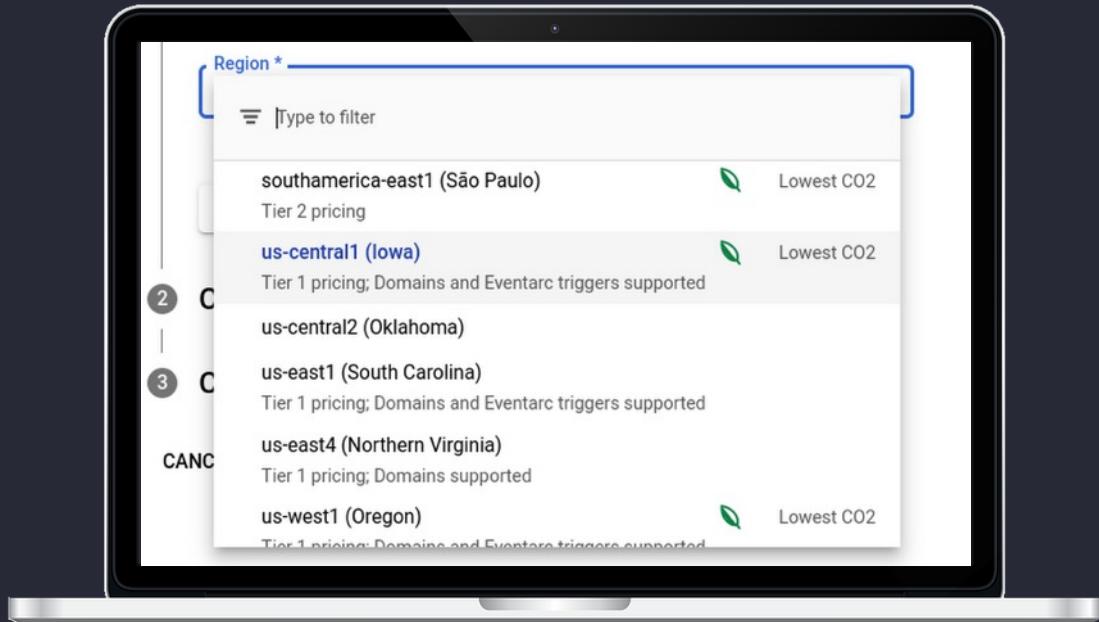




7 PATTERN FOR THE IMPLEMENTATION OF THE PLATFORM (2/3)

Put on Reliability & Sustainability

- set it up with proper regional distributing & location close to user / lowest CO² impact
- Reduces Risk on DC outage & CO² emission
- Increases performance & user satisfaction



AI on the edge

- Getting results at the scene of the event
- Reducing overall data transfer, resource consumption and saving costs
- Increased reaction time

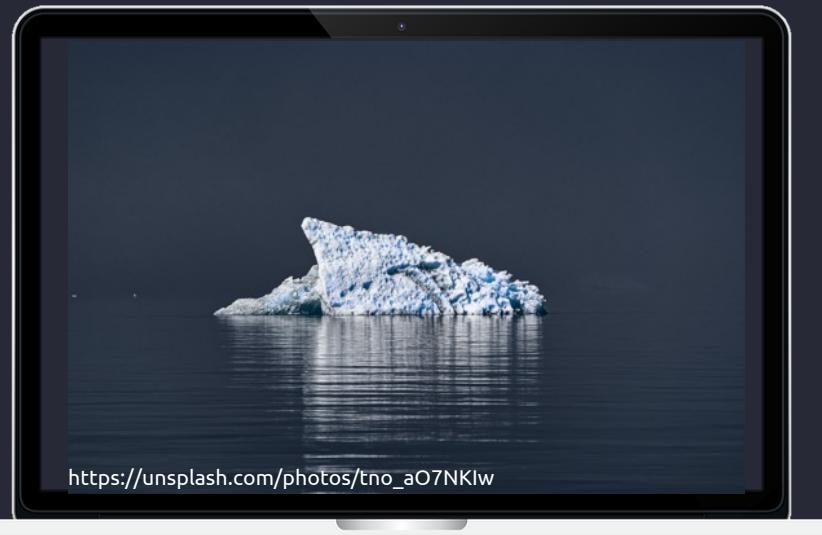




7 PATTERN FOR THE IMPLEMENTATION OF THE PLATFORM (3/3)

Have the RIGHT data at hand

- Have the right amount, granularity, actuality of data available
- Consume instead of produce



Choose the language wisely

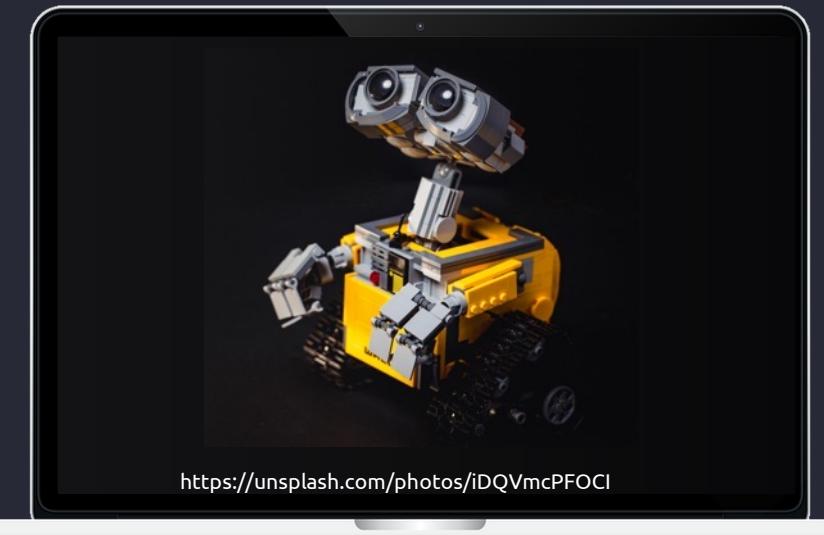
- Choose right Programming Language , consider Energy, Time, Memory and Employee Knowledge(*)
- Decision probably different for
 - Different use cases
 - Phases of Application Maturity

https://www.researchgate.net/publication/320436353_Energy_efficiency_across_programming_languages_how_do_energy_time_and_memory_relate

(*) can be trained

Automation to the max

- Increase Automation rate in infrastructure, deployment, etc.
- Reduce manual effort
- Reduce human risk
- Increase efficiency





4

SUMMARY



DATA-POWERED ENTERPRISE WITH A SUSTAINABLE IT ARE KEY FOR FUTURE SUCCESS

Data Ecosystem has many benefits

- Potential financial benefits of up to 9% of annual revenue
- Savings of up to 1bn metric tons CO²
- Future = DevOps + Sustainability + Data + Security + Business + Finance



7 Patterns for the Implementation of the Platform

- Extending to the Mesh
- (Data) Sharing is caring
- Put on Reliability & Sustainability
- AI on the Edge
- Have the RIGHT data at hand
- Choose the language wisely
- Automation to the max



GET THE
FUTURE
YOU WANT

A large, white, sans-serif text block reading "GET THE FUTURE YOU WANT" is centered against a dark background. Behind the text, several thick, light blue curved lines are drawn, creating a sense of motion and connectivity.



About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 270,000 team members in nearly 50 countries. With its strong 50 year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fuelled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.



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