

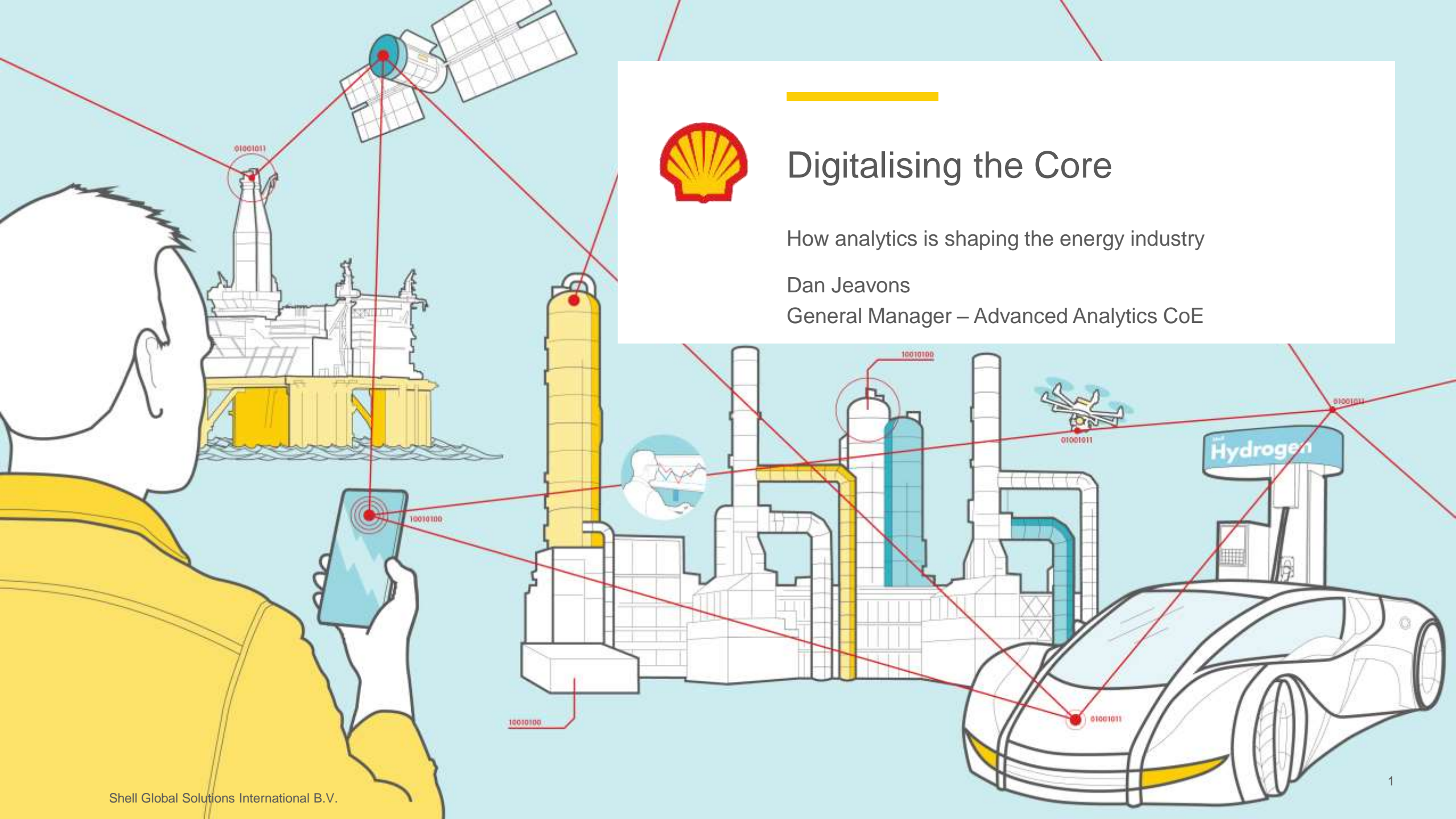


# Digitalising the Core

How analytics is shaping the energy industry

Dan Jeavons

General Manager – Advanced Analytics CoE



**92,000**

Average number of people  
we employed

**\$21 billion**

Cash flow from operating  
activities

**30 million customers**

Served every day through 43,000 Shell-branded retail stations

**30.9 million tonnes per annum**

LNG liquefaction volumes

**2%**

Our share of the world's  
oil production

**70+**

Number of countries  
in which we operated



**50%**

Share of our production that was  
natural gas

**1%**

Our share of global supply of  
energy

**3.7 million**

Our production of crude oil  
and natural gas, in barrels  
of oil equivalent a day



**57.1 million**

Tonnes of LNG we sold

**\$1.0 billion**

spent on R&D

**\$102 million**

Spent on voluntary social  
investment worldwide

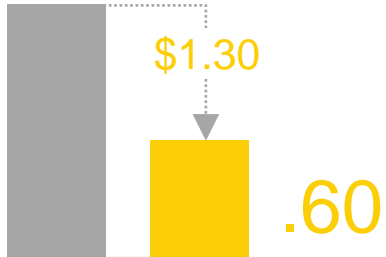
**1 million tonnes**

Amount of CO<sub>2</sub> captured by Quest  
CCS facility in 2016

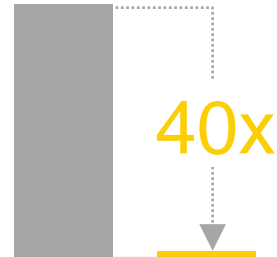
# A Transformation in the World of Data

Technology is becoming **faster** and **cheaper** over the past ten years

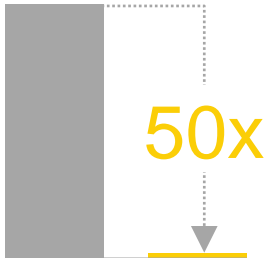
## COST OF SENSORS



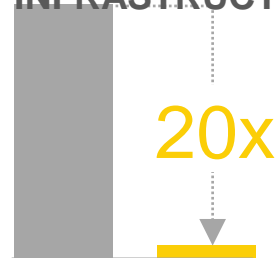
## COST OF BANDWIDTH



## COST OF PROCESSING POWER

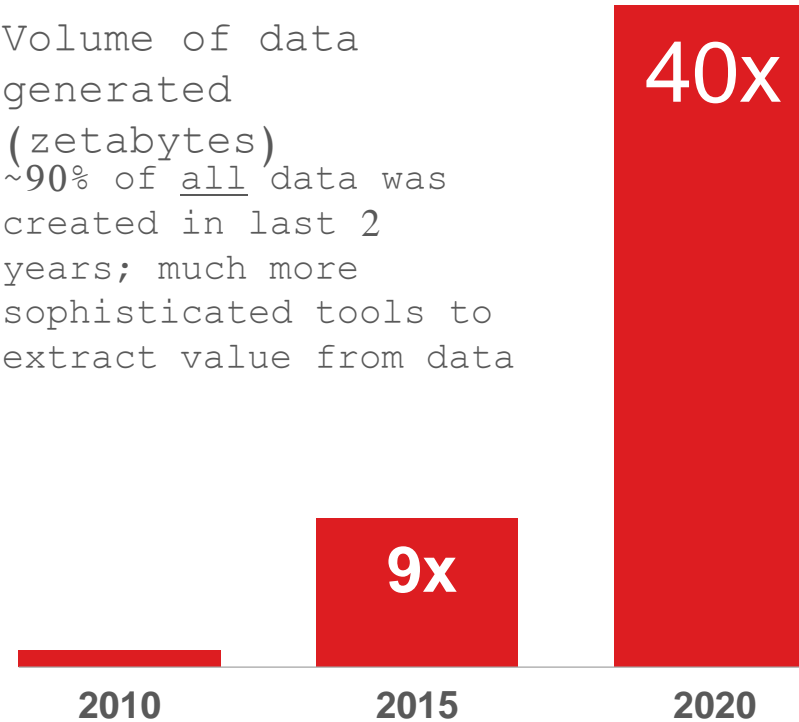


## COST PER MB OF CLOUD INFRASTRUCTURE

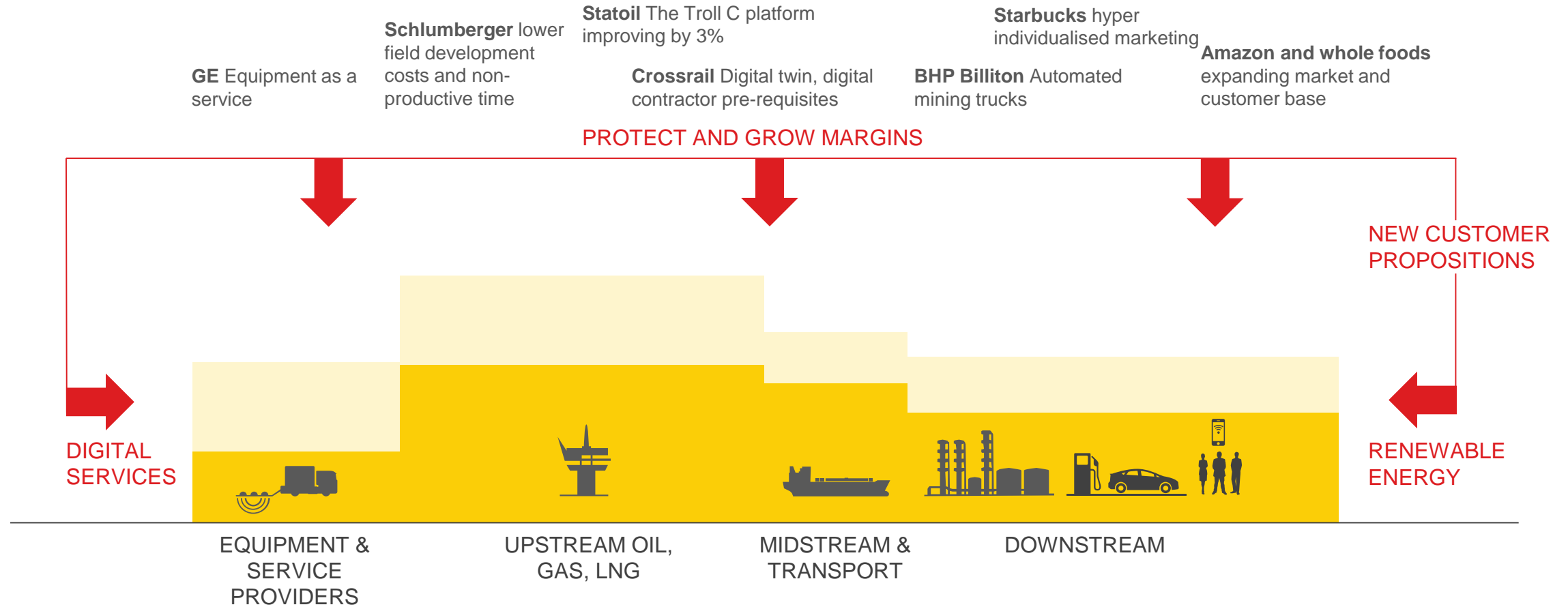


Data is **growing exponentially**

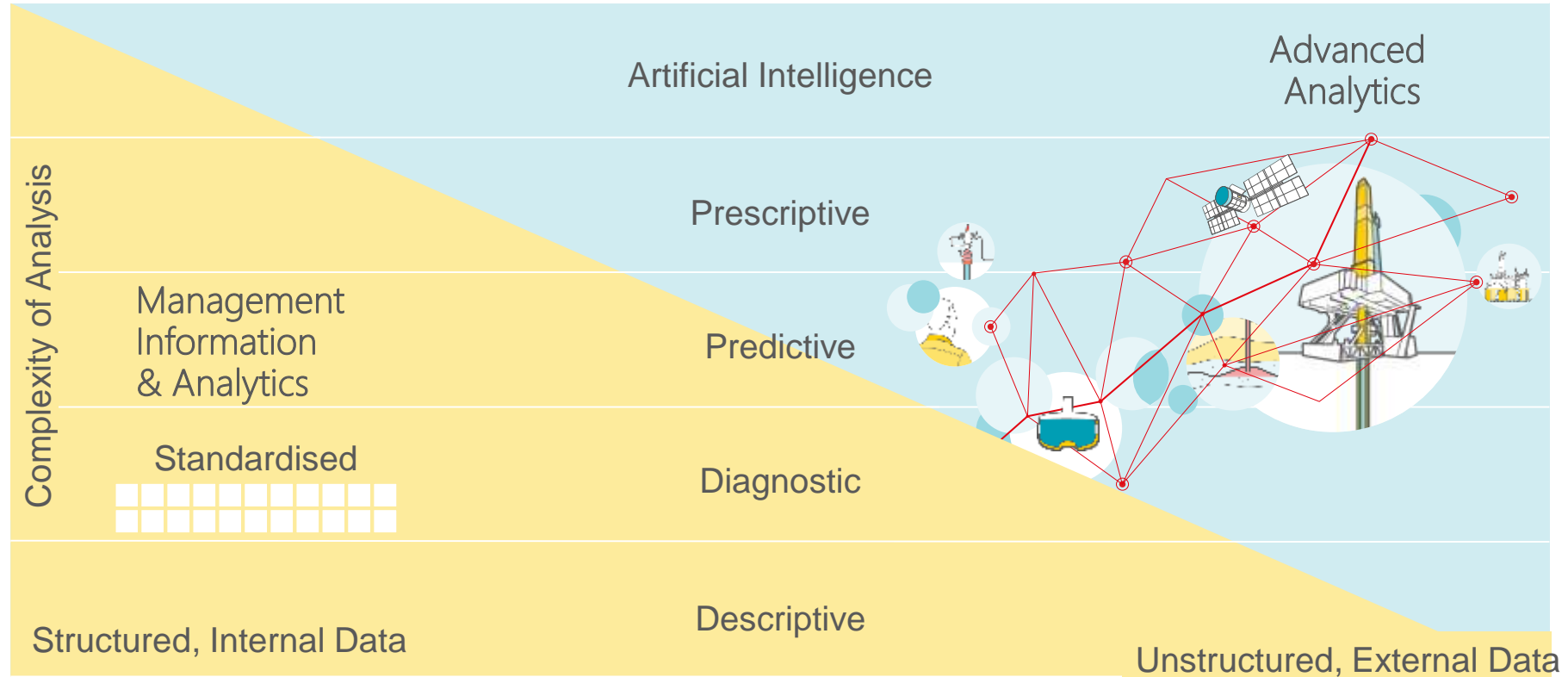
Volume of data generated (zettabytes)  
~90% of all data was created in last 2 years; much more sophisticated tools to extract value from data



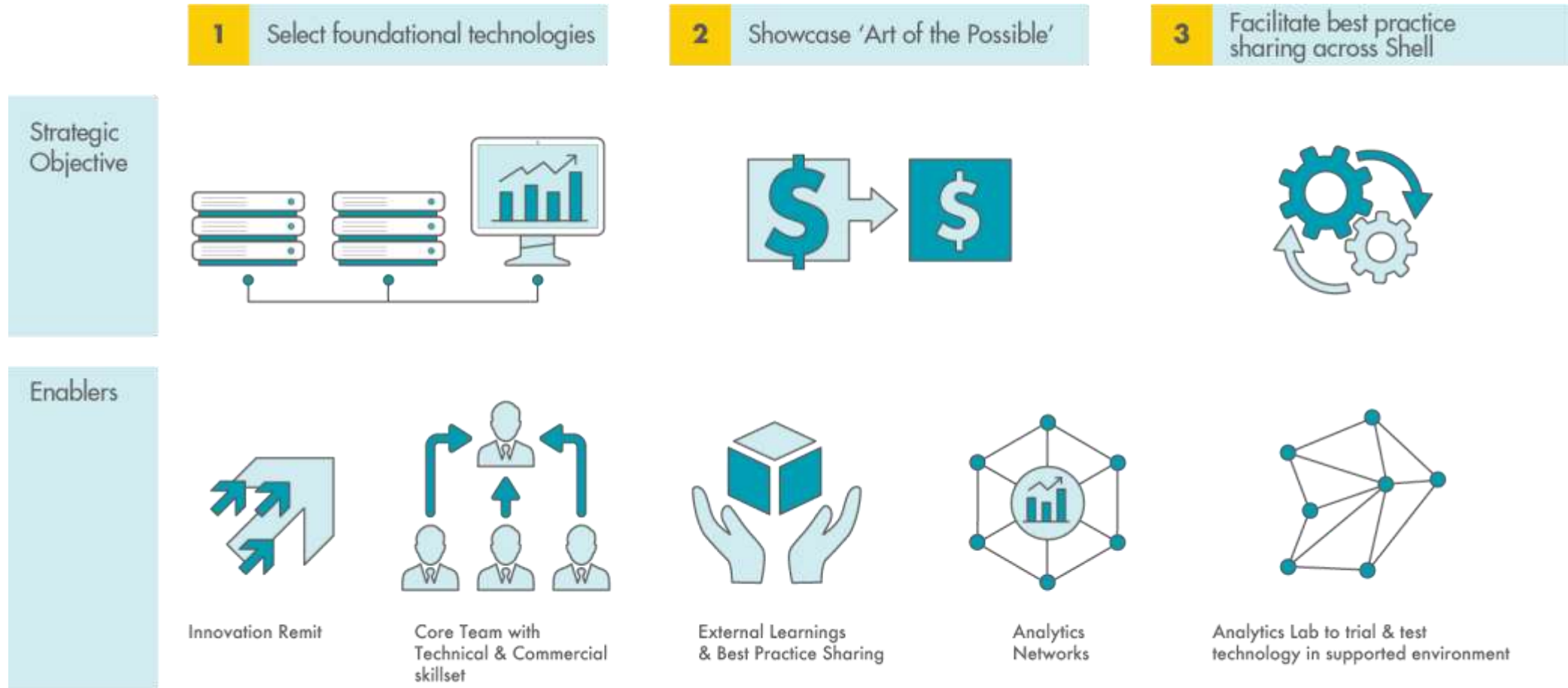
# Profit pools are shifting, challenging traditional models and creating new opportunities

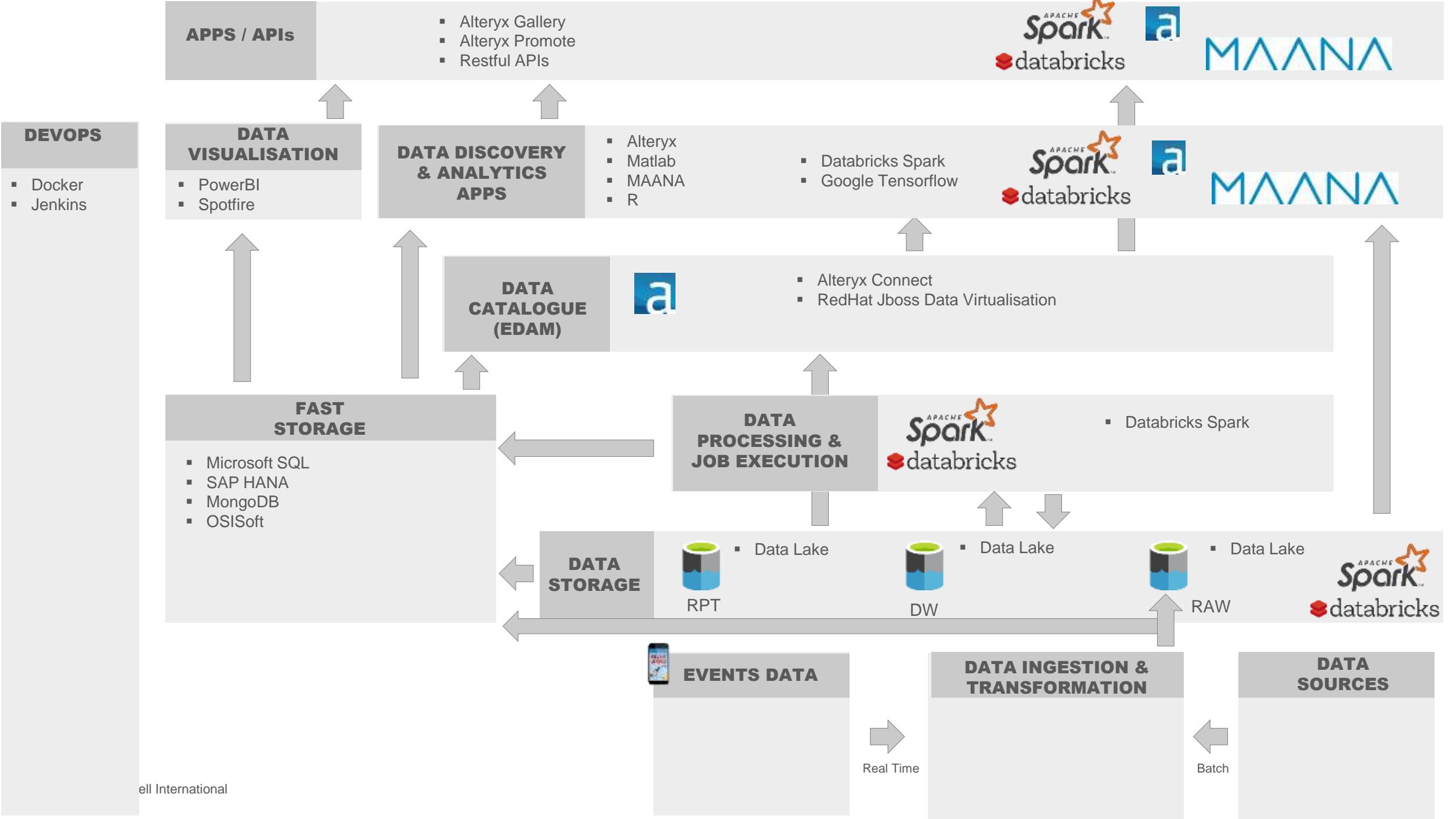


# An Analytics Framework



# The Role of the Advanced Analytics CoE







# Making the most of existing data

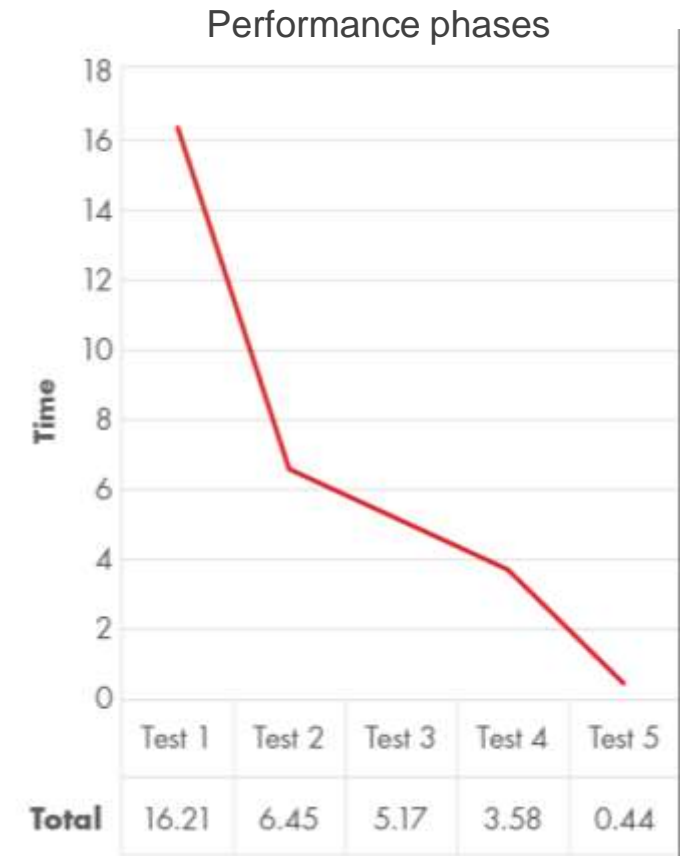
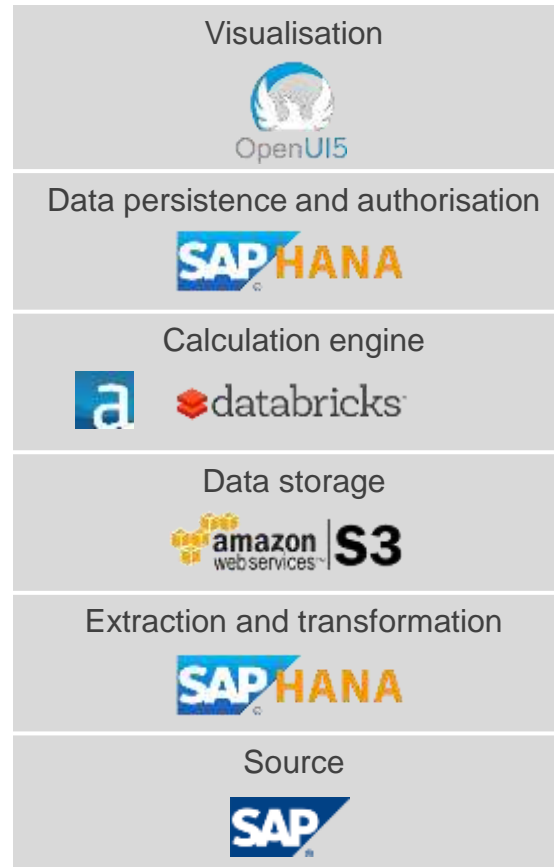
## Rightsizing inventory





## Scaling into a global tool

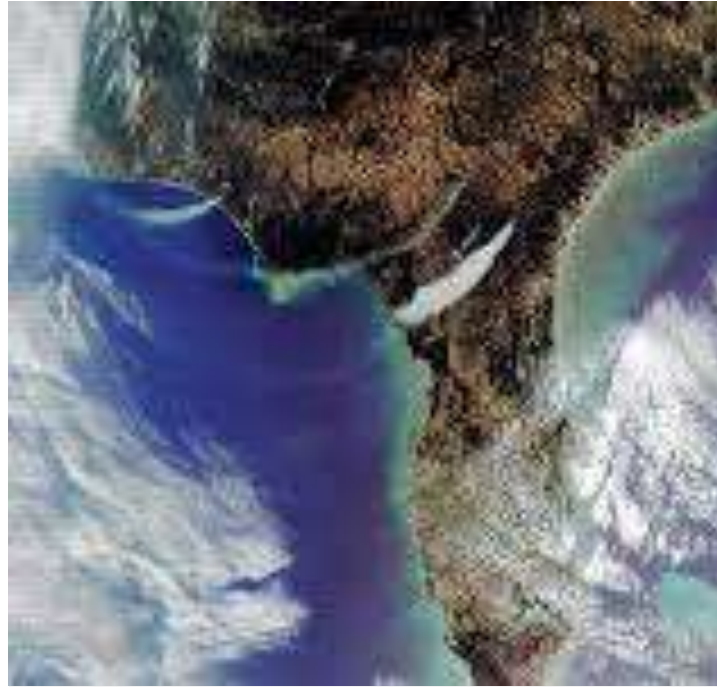
- Accessible architecture
- Running 10,000 simulations per inventory item across all materials took 48 hours
- **Leveraged Databricks Spark capability to scale algorithms linearly**
- **With Databricks support, reduced simulation time from 48 hours to less than an hour**
- With SAP HANA, users can get real-time answers without pre-processing



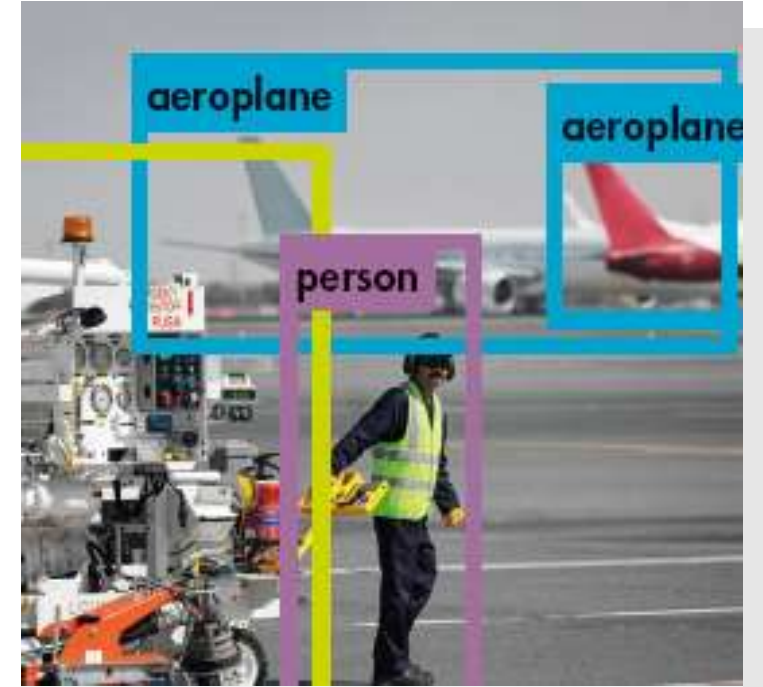
Now we are “live” with Databricks & Spark, what next?



EMOBILITY



WEATHER FORECASTING



MACHINE VISION

