# Energy Strategy Summit 2020

## Strategy for technology

30th June 2020
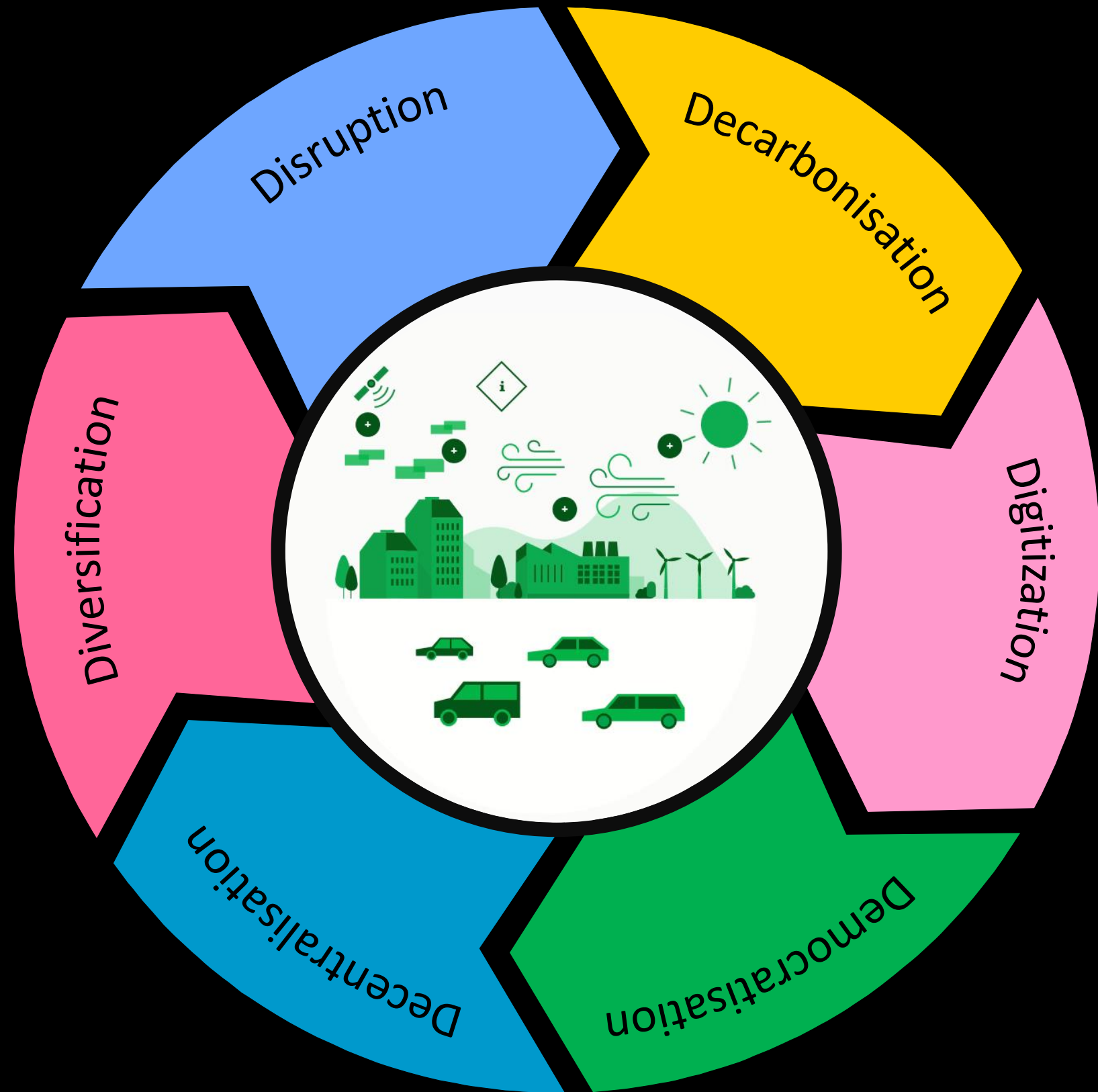
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**6-D for future energy systems**

Cross industry business networks drive transition and environment effects.

http://www.research.ibm.com/green-horizons/interactive/

Disruption
Decarbonisation
Digitization
Democratisation
Decentralisation
Diversification

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# Data is what fuels digital transformation ...
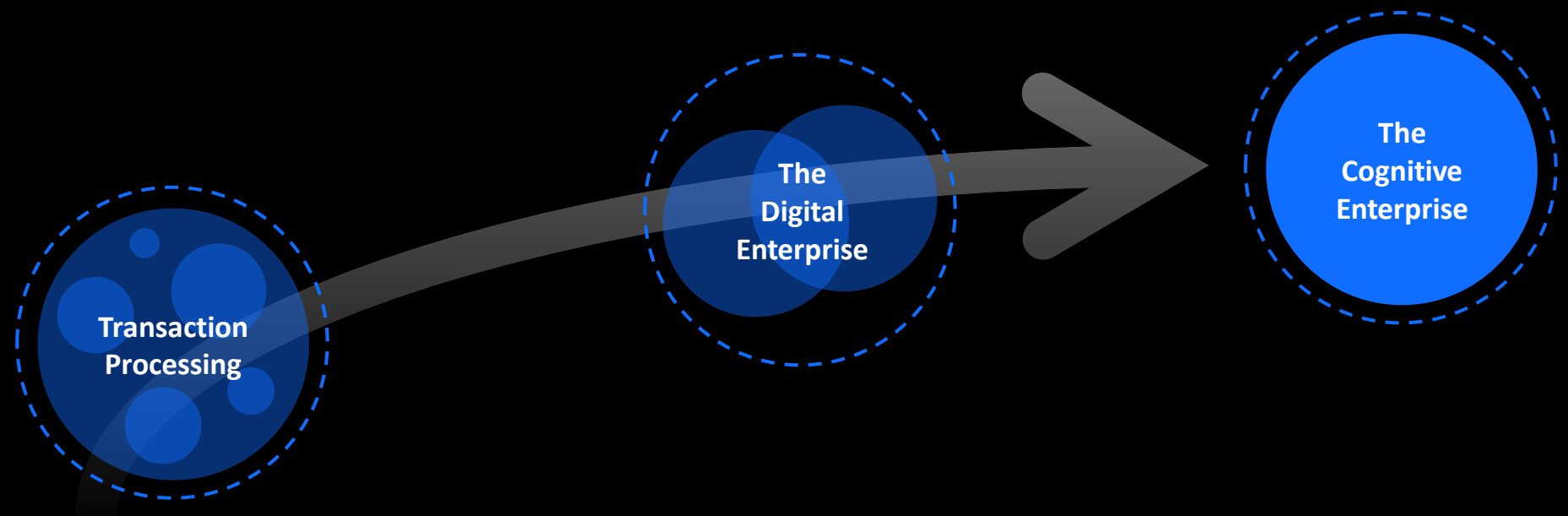
Yet, only **15%** get
what they need from
their data

# There is no AI without IA

**81%**
do not understand
the data required for
AI

**80%**
of data is either
inaccessible, untrusted or
unanalyzed

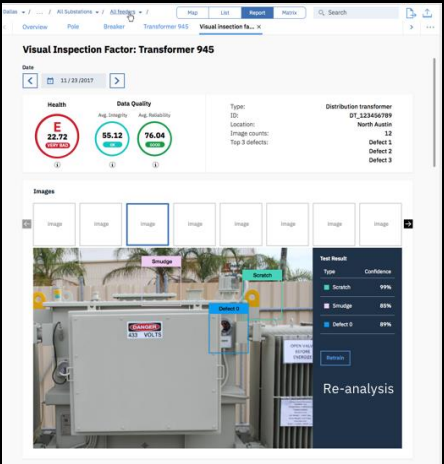## ... and is amongst the key factors towards a Cognitive Enterprise.

**Transaction Processing**

**The Digital Enterprise**

**The Cognitive Enterprise**

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# Asset Performance Management

*Tony*, Reliability Engineer

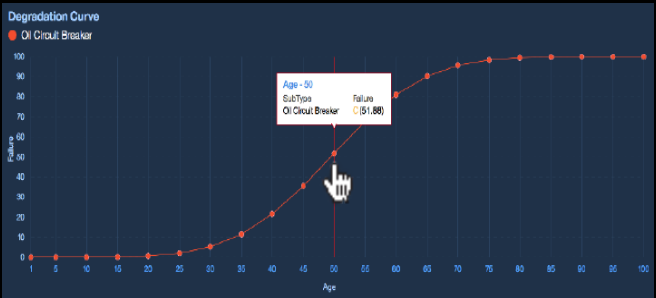Investigates asset condition and prioritizes required asset work

1. Find which assets require attention



2. Investigate what's happening with the assets



3. Unlock unstructured data to get additional insights



4. Understand asset health and criticality



5. Assess how asset failure probability and remaining life will evolve over time



6. Prioritize asset work



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# Vegetation Management

**Massive Geospatial temporal data**

- Satellite, and aerial imagery
- Weather
- Soil moisture
- Foliage, etc.
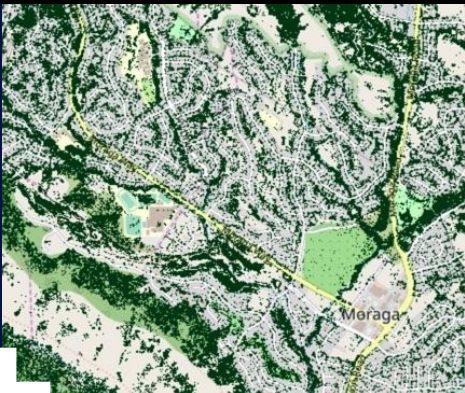
**Combined with customer data**

- Asset inventory
- Condition and location
- Historical outage data

Multi-project management

Switchable background maps

Scores and recommended actions

Corridor and corridor segments supporting multi-zone concept

Filter panel and layer selector

Electricity assets

Vegetation information

Preview cards for detailed information
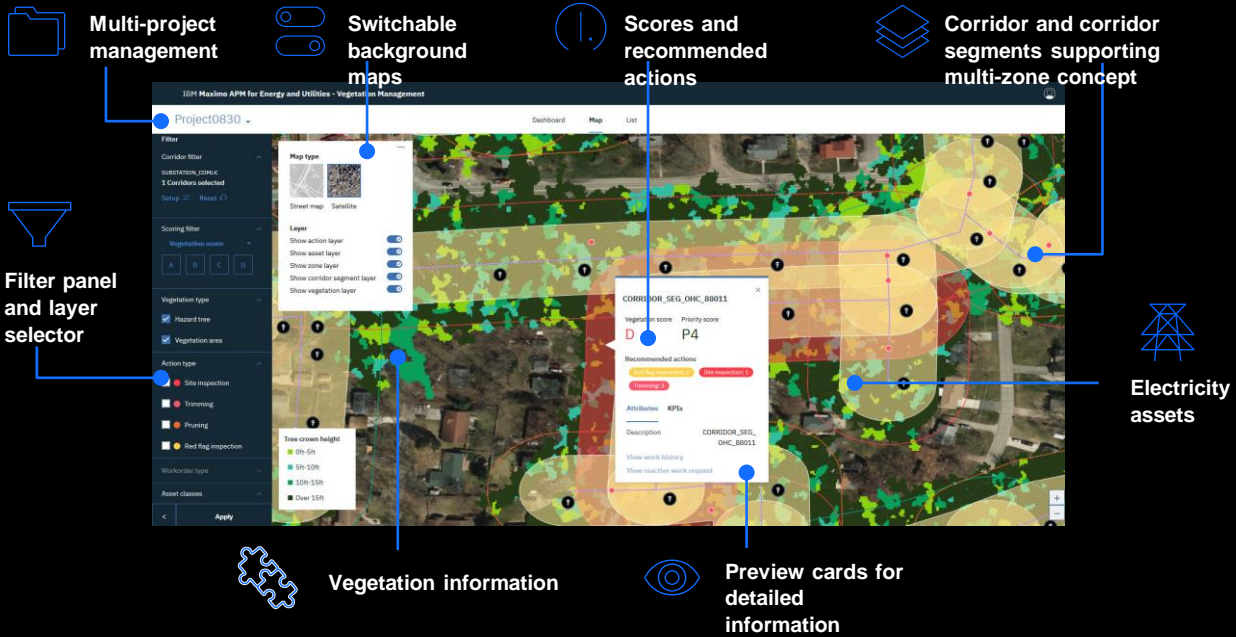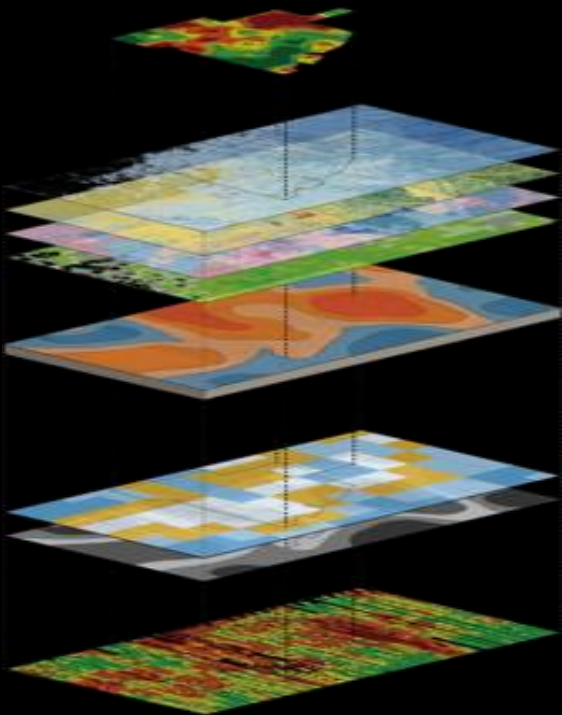
IBM AI principles and ethics as well as pragmatic guidance differentiate our business model from other market participants and are supposed to drive trust in and acceptance of AI solutions

# Principles

*"Every organization that develops or uses AI, or hosts or processes data, must do so responsibly and transparently. Companies are being judged not just by how we use data, but by whether we are trusted stewards of other people's data. Society will decide which companies it trusts."*

-Ginni Rometty, IBM Chairman, President and CEO

**Purpose**
The purpose of AI is to augment human intelligence

**Ownership**
Data and insights belong to their creator

**Transparency**
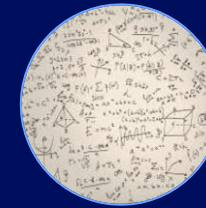AI systems must be transparent and explainable

# Ethics



**FAIRNESS**
Is it fair?

**EXPLAINABILITY**
Is it easy to understand?

**ROBUSTNESS**
Did anyone tamper with it?

**ASSURANCE**
Is it accountable?

**Practical solutions, e.g.**
Watson OpenScale

AI Fairness 360 Open Source Toolkit

Everyday Ethics for Artificial Intelligence – A practical guide for designers & developers

IBM

# Data Is Oxygen!

**Improved forecasting**
IBM's windpower forecast models demonstrated significant improvements in accuracy compared to current models. Increases ranged from 5 to 15 MW per wind farm, which equated to US$300–400K in savings per year.

**Cut equipment purchases**
A fleet-management company saved US$9.5M by achieving 100% availability with fewer vehicles.

**Better use of resources**
An electric utility distribution company improved productivity 14% by better use of resources.

**Reduced plant downtime**
A power-generation utility reduced planned overhauls by 5% and eliminated 5% of forced outages, saving US$4.6M annually.

**Improved asset utilization**
A large OEM reduced overhaul times from 56 days to 21 days.

**Better forecasting**
IBM's hydropower forecast models improved accuracy significantly compared to current models. Increases ranged from 47% to 72% per hydro facility, which equated to US$1–6M in savings per year.

**Reduced inventory costs**
A power company reduced inventory by 26%, and an electric and water utility achieved 25% in inventory reduction and US$33M in savings.

**Reduced operating costs**
90% of C-level executives representing 15 countries and 13 industries say weather insights could reduce annual operating costs by 2% or more.