

Web Summit 2021

Sustainable technology for a sustainable business

Wytse Kaastra

Sustainability Services Europe Lead
Accenture

Ambitious Sustainability Development Goals (SDG's) have been set – Every business will become a Sustainable business

Sustainability and Technology driving the Twin Transformation



**SUSTAINABLE
DEVELOPMENT GOALS**
17 GOALS TO TRANSFORM OUR WORLD



**THE TIME
IS NOW
FOR SUSTAINABILITY
TRANSFORMATION**



Sustainability is on top of the agenda of companies, governments. Europe is leading the way globally with massive transformation in the next decade.

Investments

THE EUROPEAN UNION GREEN DEAL

The Green Deal was unveiled in December 2019 with an aim to reach climate neutral status by 2050. It is estimated to generate +1% GDP growth and create 700,000 new green jobs by 2030

GOALS OF THE EU GREEN DEAL



ELEMENTS OF THE GREEN DEAL



50 policies to be rolled out over the next 3 years that would revamp rules and regulations to meet ambitious climate goals

- UK government to set in law world's most ambitious climate change target, cutting emissions by 78% by 2035 compared to 1990 levels
- for the first time, UK's sixth Carbon Budget will incorporate the UK's share of international aviation and shipping emissions
- this would bring the UK more than three-quarters of the way to net zero by 2050

Investors set the pace on corporate climate action

Concerned investors are starting to make corporate laggards take real action on climate change, but for some investors, they are not moving fast enough.

Fit for 55

Major shifts

From...

Internal Combustion Engine (ICE)

Coal & Gas

Fossil based raw materials

Linear supply chains

Grey Hydrogen

(partial) Free CO2 emissions

Centralized systems

Fossil jet kerosine

Mass agriculture

To... (in 10 years)

eMobility

wind, solar & Nuclear power

Decarbonisation of Industries

Circular cradle to cradle

(blue), pink and green hydrogen

CO2 pricing (ETS) and 55% reduction

Hybrid and decentralized systems

Clean` bio jet fuels & electric

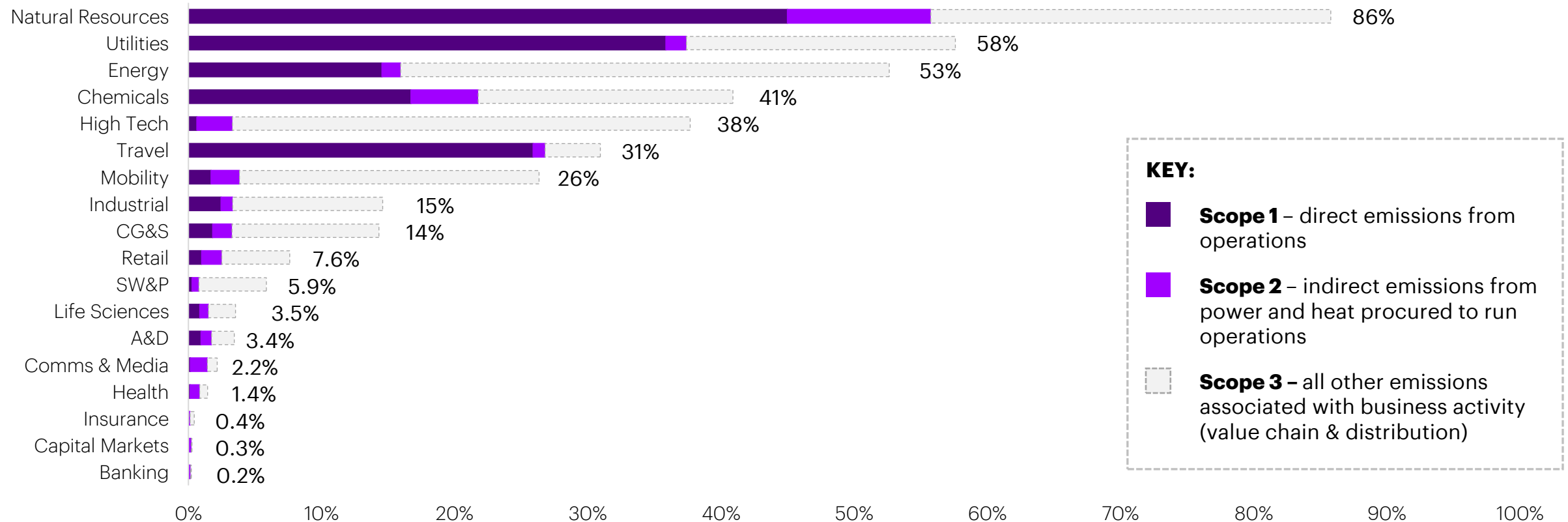
Bio & circular agribusiness

CO2 pricing/taxation will drive business re-invention

A moderate increase in the price of carbon would have a significant impact on operating margins for incumbents in many industries – thus changing the economics of sustainable alternatives

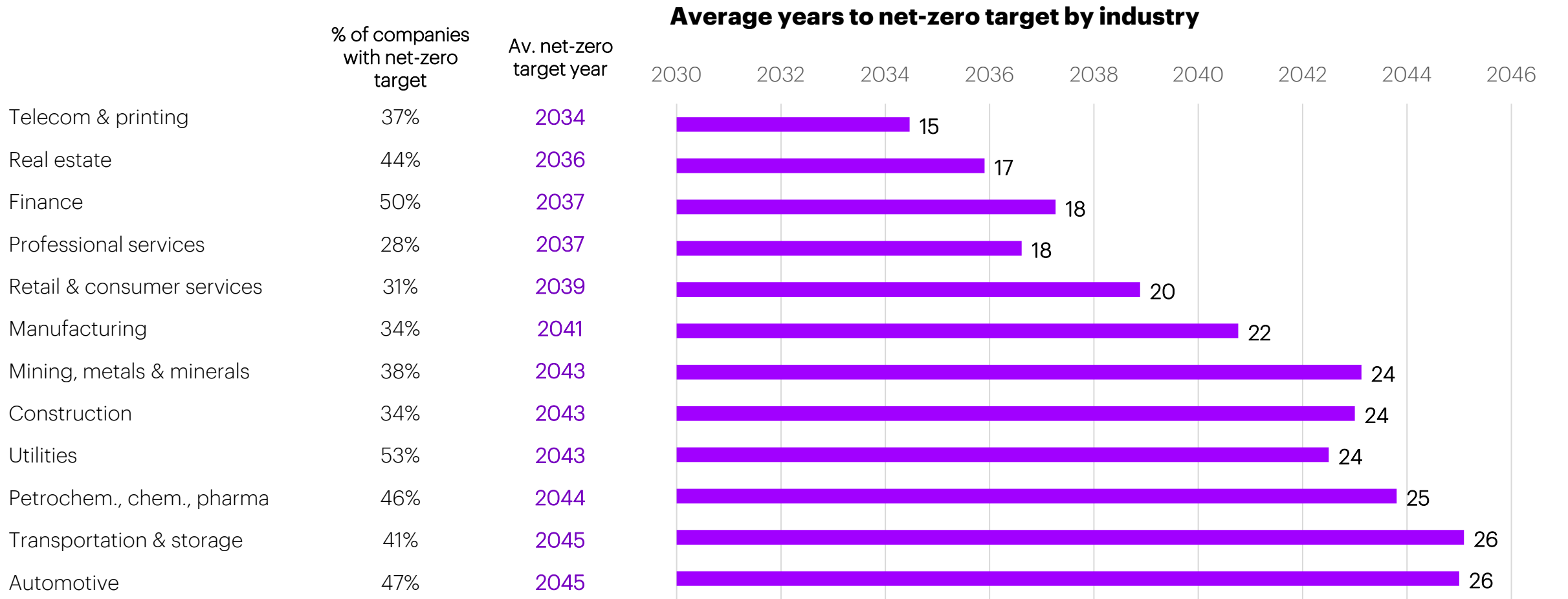
CARBON PRICE IMPACT¹

Proportion (%) of total industry operating margin that is at risk in the event of a \$40 average carbon price for Scope 1 and 2, and \$20 price for Scope 3



Many carbon-intensive companies have net-zero targets close to 2050, while many in services sectors aim for around 2035

Within industries, between 31% to 53% of companies have set a net-zero target

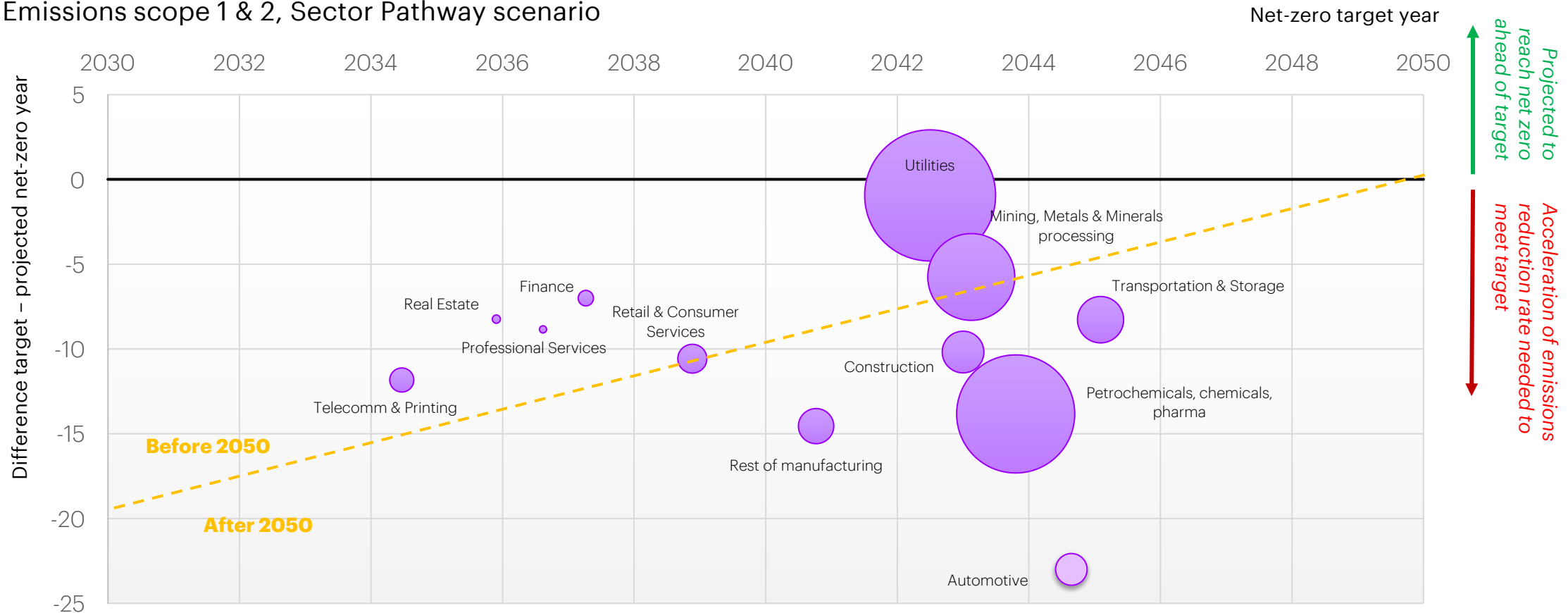


...but some targets are not yet ambitious enough

The utilities sector would reach net-zero in line with their own net-zero targets in the sector pathway scenario, while other sectors will need to accelerate emissions reduction by more than a factor 2 to 3

Net-zero year vs difference between target & projected net-zero year

Emissions scope 1 & 2, Sector Pathway scenario



Entire markets and business models will be transformed

We envision the full transformative impact of sustainability on a set of markets,

Tomorrow's '**Sustainable Breakthrough Markets**' are already emerging. ...

- Be close to achieving **NET-ZERO EMISSIONS**
- **IMPROVE CONVENIENCE** for consumers and businesses, by focusing on the delivery of human needs and wants
- Use radical **NEW TECHNOLOGIES** (digital, physical and biological) to address needs
- Be **INHERENTLY COLLABORATIVE**, demanding the convergence of traditionally distinct industries
- Result in **NEW VALUE CREATION** and a **VALUE SHIFT** away from legacy business models and modes of operation

'Sustainable Breakthrough Markets'...



Mobility

Where traffic and air pollution are gone



Air Travel

Where sustainable aviation fuels power fuel-efficient aircrafts



Construction

Where materials are clean and circularity is designed in



Home Heat

Where net zero heating is standard, and people are energy prosumers



Food

Where sustainable proteins are the norm



Fashion

Where the supply chain is circular and powered by renewables

A Global CEO perspective

The 2021 United Nations Global Compact-Accenture CEO study on Sustainability. 100 CEO interviews and surveys amongst 1200 CEO's, in 113 countries and 21 Industries are signaling a “call for Action” at COP 26



Source: The United Nations Global Compact-Accenture CEO Study on Sustainability 2021.

10 critical change levers

Climate leadership in the 11th hour

1. Align National Determined Contributions to a 1,5° warming trajectory
2. Enhance global cooperation on a Carbon Pricing mechanism
3. Meet and exceed 100 bn\$ Climate financing for the Global South
4. Establish common standards for biodiversity protection and circular economy
5. Stimulate, simplify and facilitate public/private collaboration
6. Implement ESG measurement & data standards
7. Acceleration & simplification of planning & permitting (<24 months)
8. Establish Sustainable procurement at all levels aligned with the 2030 goals
9. Increase investment, efforts and collaboration in Clean Technology R&D
10. Education and (re)-skilling



How can Technology help organizations meet their sustainability agenda?



The transition to a sustainable future is an interplay of Finance, Technology (Digital, Bio, Physical) and Human creativity

SUSTAINABLE BREAKTHROUGH MARKET

Supply scaling

Project finance, public co-funding & loans, IPOs, M&A, green bonds

- Manufacturing & distribution capacity (e.g., battery mega-factories, urban farming, labs for cultured meat)
- Upgrades of existing assets (e.g., CCUS installations, biofuel refineries, organic cotton farms)
- New business units to scale new business models (e.g., multi-modal mobility)

Demand enablement & Customer Adoption

Government subsidies, tax incentives, public procurement

- CO2 pricing mechanism
- Public procurement schemes (e.g., bio-preferred programme, public fleet electrification, low—embodied carbon construction procurement)
- Subsidies and fiscal benefits for sustainable products (e.g., EV purchase grants, enhanced capital allowances)
- Bans and taxation of unsustainable products (meat tax, textile waste bans, urban low-emission zones)

Infrastructure development

Project finance, government subsidies, public investment, development finance, global funds

- Distribution infrastructure (e.g., EV charging network, CCUS pipeline and storage, district heating, Power grids, Hydrogen)
- Waste processing, recycling facilities and reverse logistics infrastructure (e.g., robotic disassembly facilities, chemical recycling plants, secondary material marketplaces)

Innovation

Public R&D funding, corporate R&D investment, seed, private VC, corporate VC

- New materials (e.g., new concretes, new fabrics, new proteins, new battery types)
- Digital design solutions (e.g., digital twins, 3D printed products)
- Biotech engineering (e.g., genetic/cellular engineering)
- Service design (e.g., user experience, as-a-service business models)

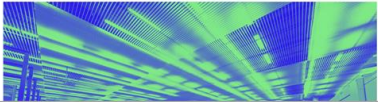
TODAY'S MARKET



Digital Technology as key enabler

Businesses will need to use technology as a vehicle for being more sustainable

Sustainability in Technology...



MIT Technology Review

Artificial Intelligence / Machine Learning

Training a single AI model can emit as much carbon as five cars in their lifetimes

Deep learning has a terrible carbon footprint.

by Karen Hao Jun 6, 2019

The artificial intelligence industry is often compared to the oil industry: once mined and refined, data, like oil, can be a highly lucrative commodity. Now it seems the metaphor may extend even further. Like its fossil-fuel counterpart, the process of deep learning has an outsized environmental impact.


In a new paper, researchers at the University of Massachusetts, Amherst, performed a life cycle assessment for training several common large AI models. They found that the process can emit more than 626,000 pounds of carbon dioxide equivalent—nearly five times the lifetime emissions of the



How to stop data centres from gobbling up the world's electricity

The energy-efficiency drive at the information factories that serve u

Climate change: Can sending fewer emails really save the planet?



Email Type	Carbon Footprint
Spam email	0.3g CO ₂
Regular email	4g CO ₂
Email with photo	50g CO ₂

While spam emails can have quite a small carbon footprint, sending images or large attachments can have a much bigger impact. (Credit: Getty Images/Isador Mischak)

FORTUNE

ENVIRONMENT - ENVIRONMENT

The Internet Cloud Has a Dirty Secret

Today, data centers consume about 2% of electricity worldwide; that could rise to 8% of the global total by 2030

... but also unlocks sustainability use cases

How the cloud can make supply chains greener

Aside from net-zero datacentres, cloud computing can do more to tackle climate change by addressing emissions created along global supply chains

The Economist

Nov 4th '19

The **biggest expected benefits** from technology as it relates to corporate sustainability are **increased innovation, internal efficiency and revenue growth.**^(d)

Google Maps to start showing eco-friendly routes

31 March 1 Comment




WORLD ECONOMIC FORUM

Agenda Platforms Reports Events Videos

Global Agenda SDG2020 Sustainable Development Blockchain

3 ways blockchain can accelerate sustainable development



Scale is the name of the game

Sustainable Cloud

As a key lever of decarbonization, cloud migrations can deliver a double helix effect of shareholder & stakeholder value

Shifting from on-prem to public cloud can **reduce carbon emissions by more than 84% and energy usage by 65%**

Migrations to public cloud can **reduce CO2 emissions by 59 million tons per year**, the same as taking 22 million cars off the road

98% carbon reduction potential from optimizing apps for cloud architecture

22 million

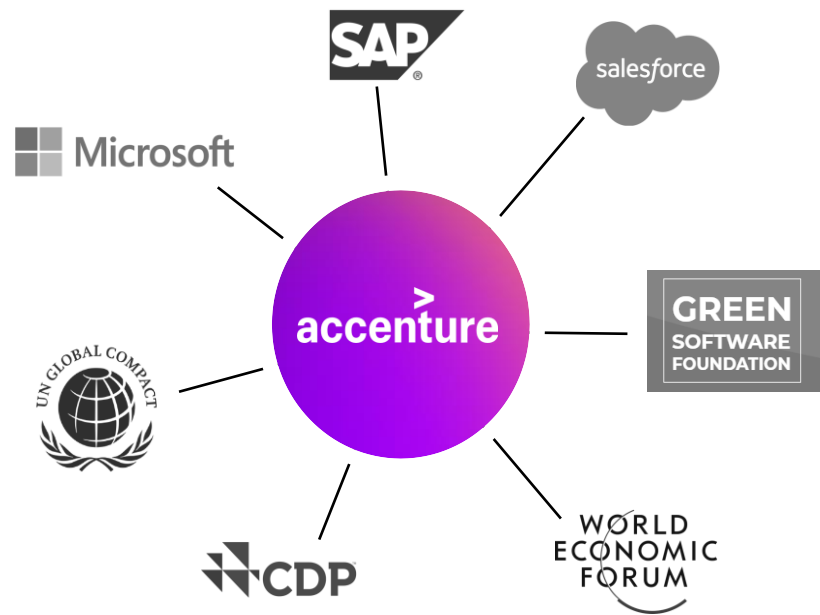
car-equivalents of carbon reduction from migrations to public cloud





Sustainability at Scale

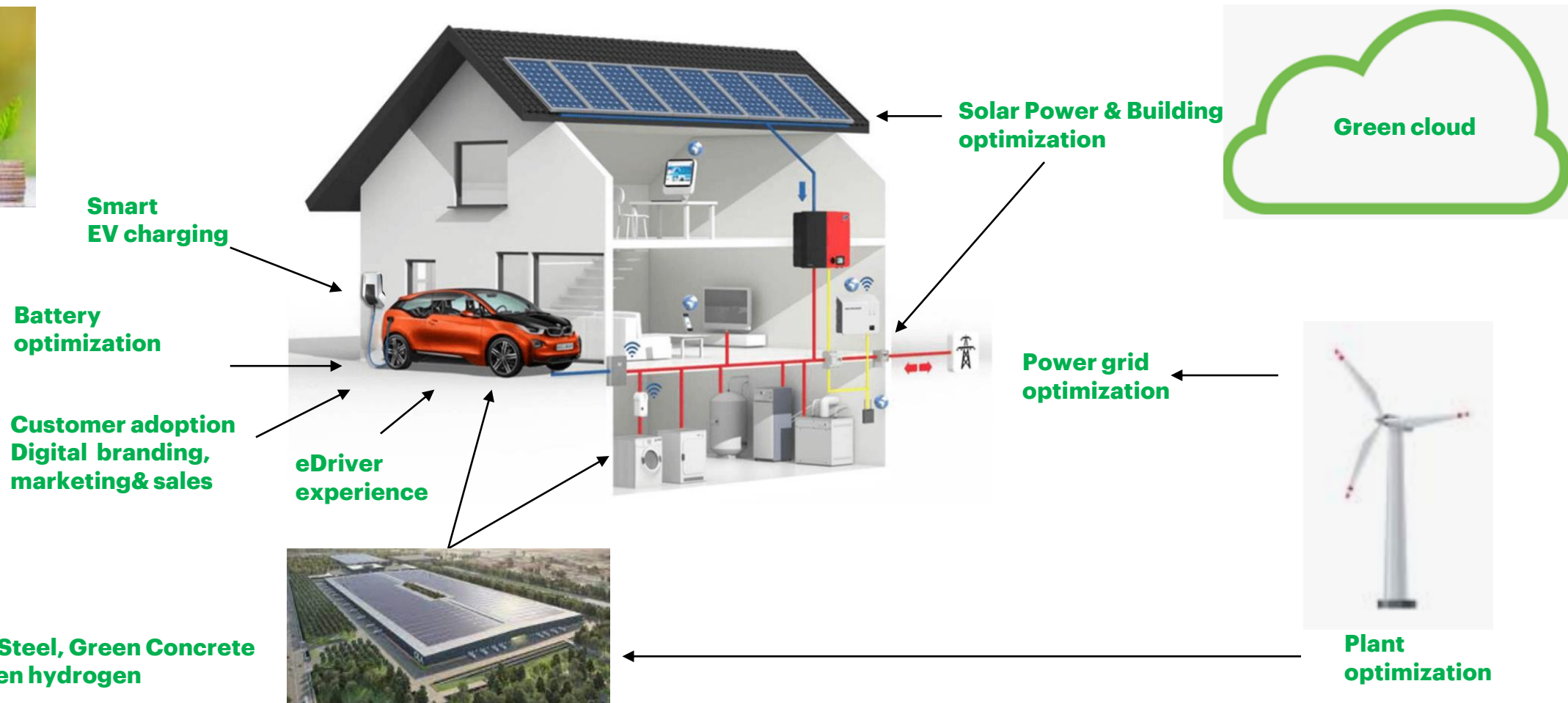
We help our clients collaborate with strategic partners to raise the bar and support market demand for responsible economies



Digital & Data enabling Sustainability growth and re-invention – eMobility case

ESG and Carbon regulatory framework (Global, EU)

Green Finance



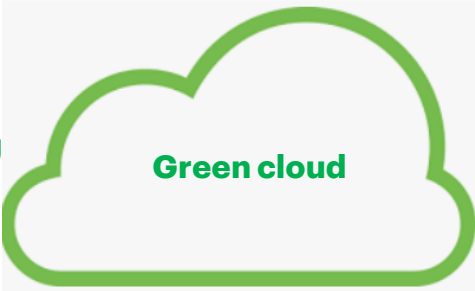
Smart EV charging

Battery optimization

Customer adoption
Digital branding,
marketing & sales

eDriver experience

Solar Power & Building optimization



Power grid optimization



Plant optimization

Green Steel, Green Concrete
By green hydrogen



Supply chain CO2 Track & Trace

ESG, Carbon emission data and Measurement



THANK YOU

Wytse Kaastra

Sustainability Services Europe Lead
Accenture