

IBM Consulting **Green IT and Sustainability** **on Azure**

Client Presentation

IBM Consulting



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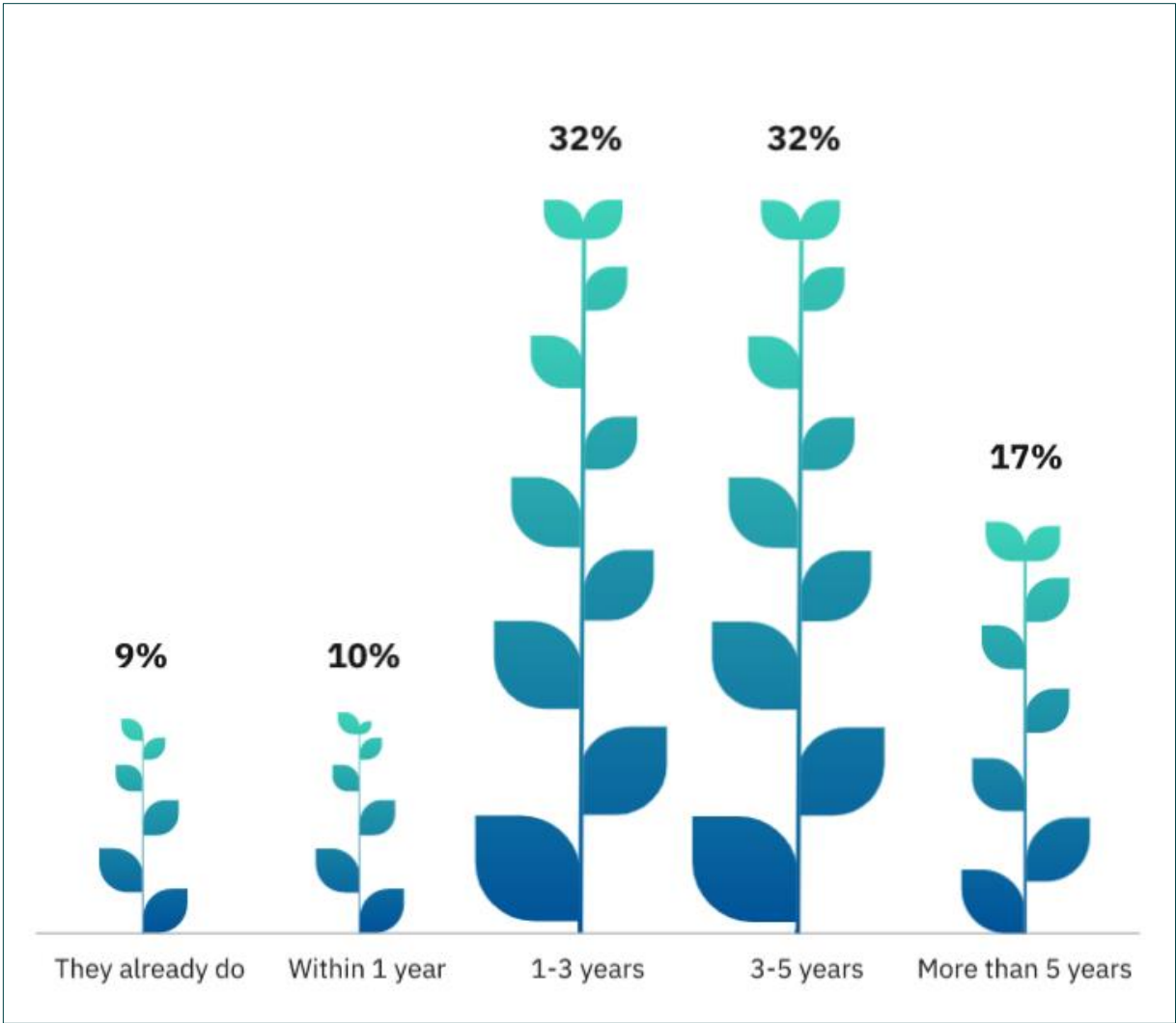
“There has never been a more vital moment for CEOs to embrace sustainability as a core aspect of the enterprise. It’s clear that environmentally minded organizations are set up for long-term success – and **the time to act is now.**”

37%

more CEOs in 2022 rate sustainability as a top priority, compared to 2021

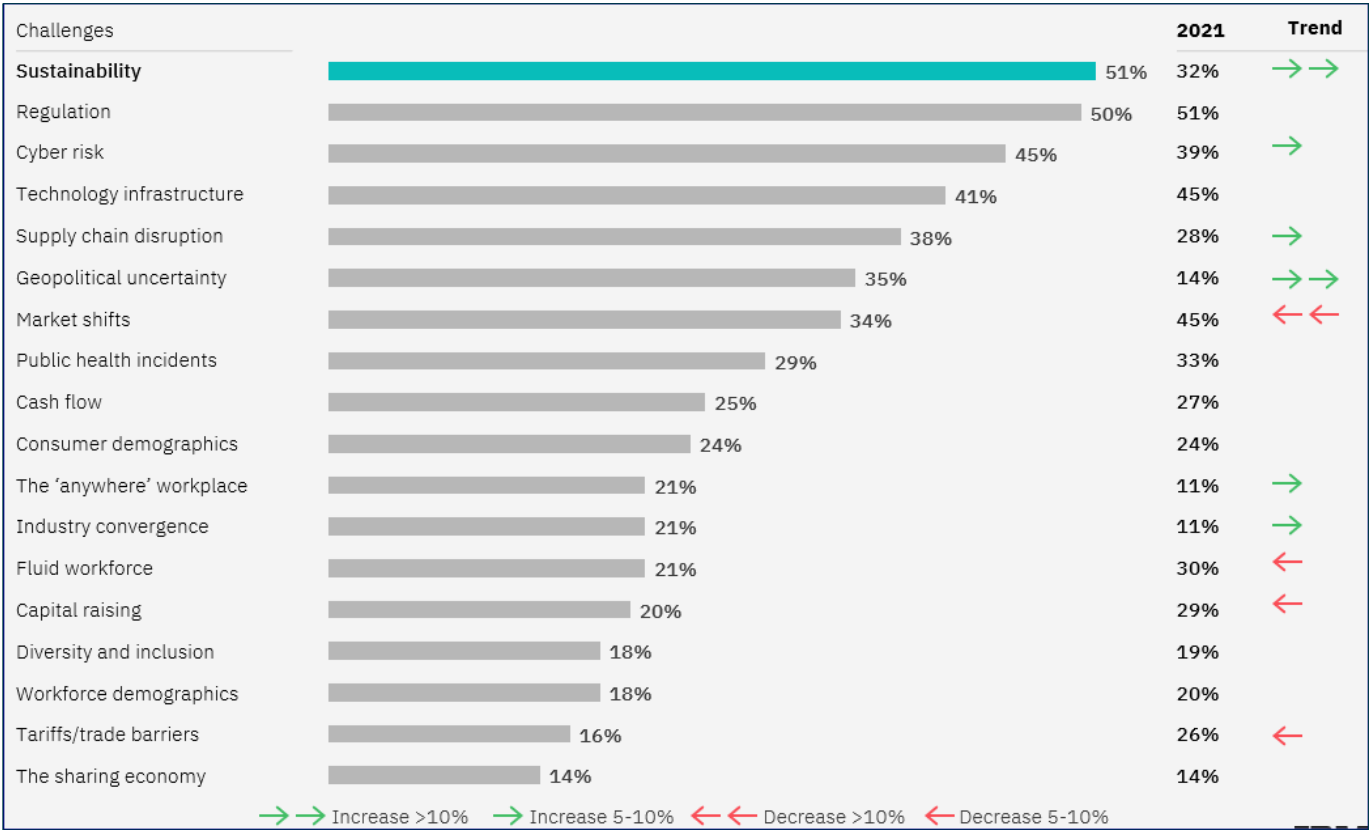
83%

of CEOs expect sustainability investments to produce improved business results in the next 5 years

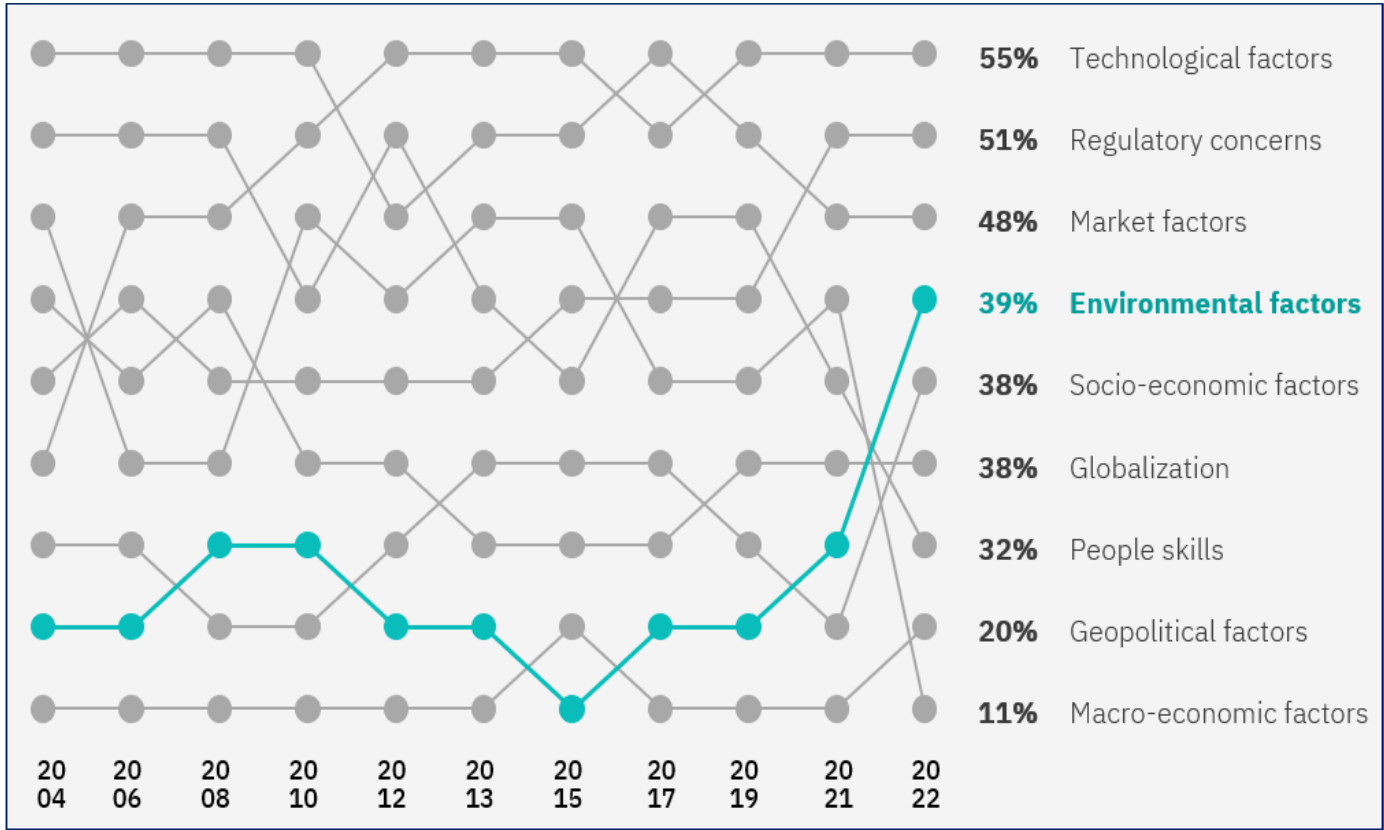


Organizations **face challenges** in pursuing the target objectives and are under pressure to **improve transparency in sustainability practices**

Expected greatest challenges for organization over the next 2–3 years



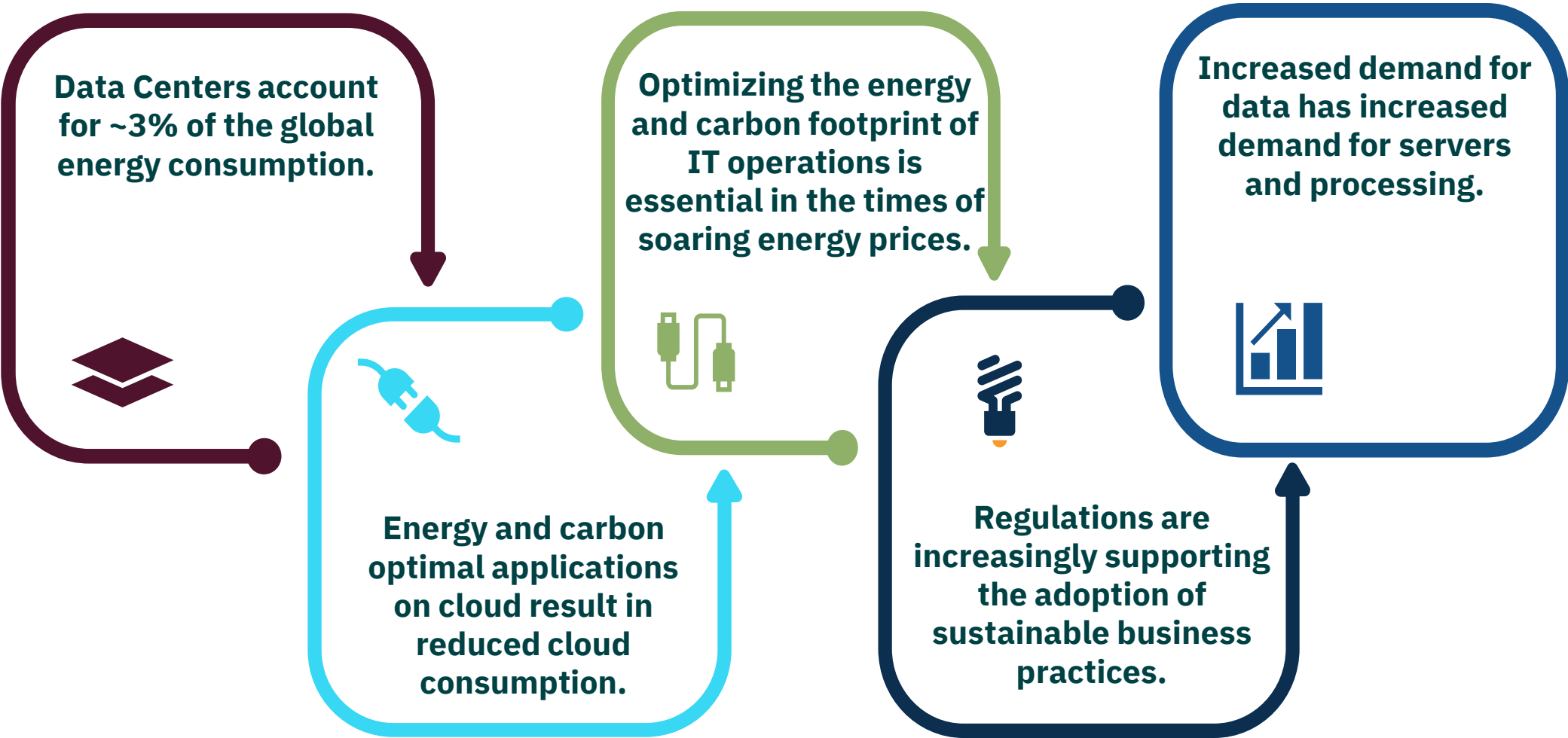
Most important external forces to impact an organization's enterprise over the next 2–3 years



Source: IBM Business Value, “[The CEO Study - Own your impact: Practical pathways to transformational sustainability](#)”

IT is committing itself to **sustainability** and **Green IT** is critical for businesses to meet their net zero goal, in turn saving on operating costs

Key drivers to embark on IT decarbonization journey



IT sustainability can be achieved by optimal consumption of **Compute, Storage and Network**

Major Sources of Emissions

Data Centers

The global power capacity of data centers has grown by 43% in the last 3 years while server utilization rates remain between 12%-18%. NRDC estimates that increasing server utilization along with other technically feasible improvements could reduce energy consumption by 40%

AI & Big Data Analytics

Increased demand for data and usage of AI has created increased demand on servers. Switching from one programming language to another can reduce the energy consumption of an application by up to 50%

Security

Adding security features to software can increase its energy needs. As data infuses ever more business processes and decisions, the need for security grows accordingly, but it needs to be balanced with energy consumption requirements

Key IT Resources Consuming Energy - Remediation

Compute

Storage

Network



Applications

- Use Green Coding & Design principles to ensure applications are designed for energy and carbon efficiency



Data

- Minimize data movement and network hops
- Infuse sustainability Design Principles to reduce IT resource consumption



Platform

- Right sizing of the platform can reduce energy consumption while ensuring business continuity



Operations

- Optimize the use of resources; Schedule IT workloads
- Use economies of scale to reduce your footprint energy carbon

IBM Sustainability Capabilities and Offerings



Current Challenges

Carbon Assessment of IT Estate

Complex carbon accounting

In order to reduce the carbon footprints of data centers, applications, and infrastructure, IT organizations must have tools with which to accurately measure their carbon emissions.

Opaque benchmarks

Organizations need context in the form of benchmarks—internal and external key performance indicators (KPIs) that give them a sense of their performance and their progress.

Ambiguous analytics

Once organizations can easily, affordably, and accurately measure and benchmark the carbon footprint of their IT estate, they will have a better sense of where they are and where they want to go.



Solution Framework

An Integrated and Continuous Process

Quantify

Energy and CFP per workload, tenant, VM, container, Service, etc.

Assess

Identify hotspots and applicable strategies and calculate potential savings.

Optimize

A set of controllers to dynamically optimize the carbon footprint and a transformational roadmap through Migration & Modernization

Operationalize

Continuously monitor, report and insight on resource consumption & IT KPIs for sustainability



The Path Forward

A Strategic Partnership with IBM

Green IT Strategy

- Carbon Footprint Measurement for IT Estate
- IT Sustainability Maturity Assessment
- IT Sustainability Strategy, Roadmap/Blueprint / CoE

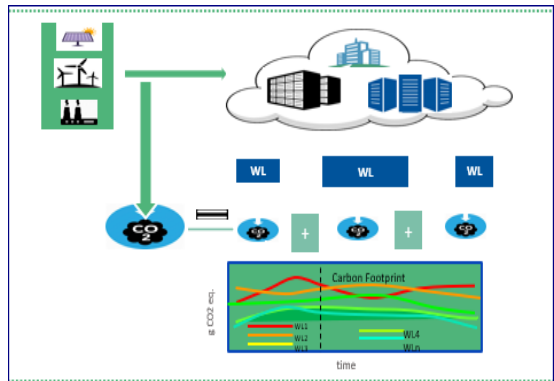
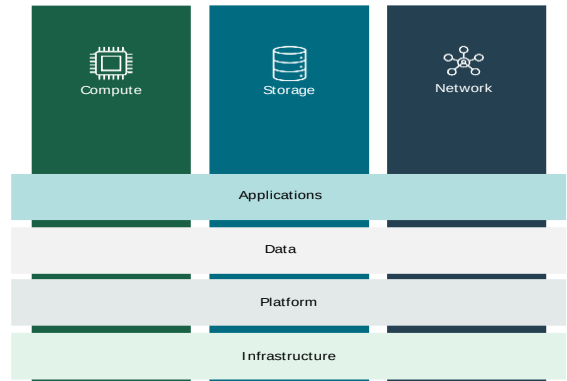
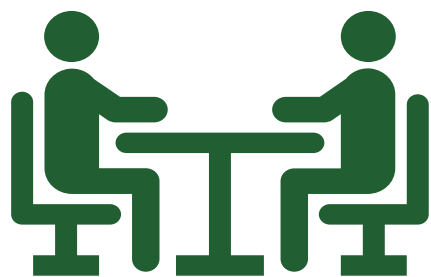
Green IT Transformation

- Green Coding
- Application Build & Integration (designed for sustainability)
- Application & Data Migration (designed for sustainability)
- Application & Data Modernization (designed for sustainability)
- Platform optimization

Green IT Operations

- Sustainable IT Operations (SusOps)
- Sustainability AI Ops & Sustainability Engineering
- Sustainability Quality Engineering

IBM Consulting helps clients **assess** cloud journey through a sturdy **Sustainability Assessment Framework on Azure**





Discuss & discover

Assess the client’s IT estate across Platform, Data, Applications, Operations, People and Culture areas



Determine gaps

Analyze and identify hotspots in client’s current IT estate



Analyze & provide actionable insights

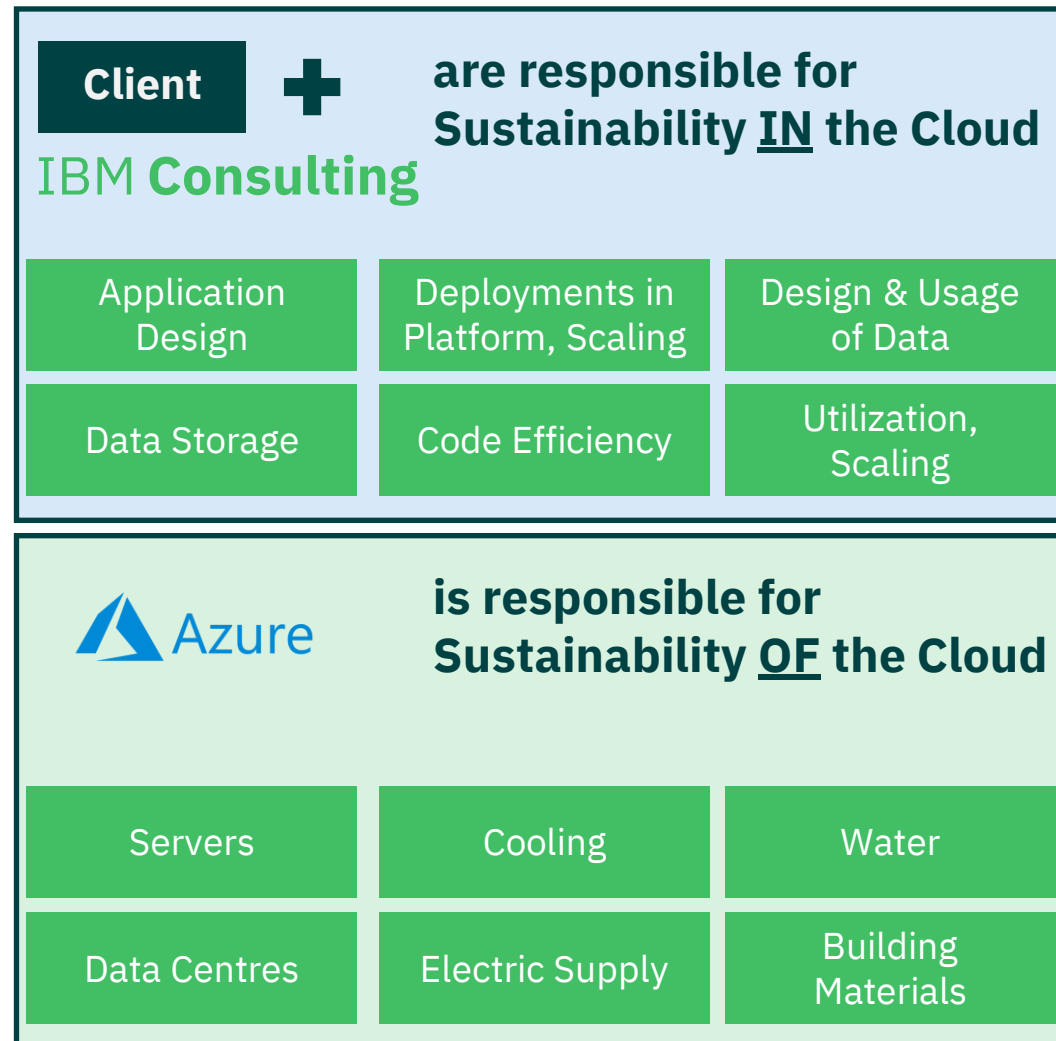
Provide tangible corrective recommendations to meet the desired sustainability state



Transform

Demonstrate commitment to client’s transformation journey as trusted partner

Environment Sustainability is a shared responsibility

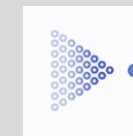


IBM will work with client as the Service Integrator in their sustainability journey with a set of tools and accelerators:



Enterprise Sustainability Strategy

- **IBM Green IT & sustainability Risk Assessment Framework:** Provide with Sustainability Maturity and Risk Identification, Recommendations & Mitigations
- **Nordcloud Klarity** – Measurement of Carbon footprint on Azure
- **Sustainability Advisor** – Web/ Excel based tool to provide Cost vs Sustainability benefit
- **Enterprise Sustainability Assessment** – Excel based enterprise level sustainability maturity assessment tool
- **Candidate Microservice Advisor** – Automate the discovery and design of microservices
- **Turbonomic** – Identify idle workload in VM, Storage, Database, etc.



Sustainable Computing

- **Delivery Curator** – Generate modernization workbook
- **Pre-Fabricated Design Principles** – Technical guidance for carbon efficient designs for different journeys



Sustainable IT Operation

- **Turbonomic** – Resource optimization
- **Nordcloud Klarity** – Workload optimization
- **Envizi** – Carbon accounting dashboard for business use cases



IBM Assets



Partner Assets

FMCG Major

Client Success Story

IBM Consulting helped the US unit of a Global FMCG client in transforming its product portfolio by focusing on high-growth categories that meet changing consumer needs, including pet care, coffee, premium bottled water, consumer health and infant nutrition.

Client is committed to:

- achieve net zero emissions by 2050,
- make all their packaging reusable or recyclable by 2025, and
- invest more than \$3 billion globally over the next few years to accelerate this work.

IBM is their trusted partner in this journey.



Client Pain Points

- Meet net zero objectives at organization level to become carbon neutral by 2035
- Not sure how IT can play a role for meeting net zero goals
- Sustainable by Design is a cultural shift and want to enable green behavior at workplace
- Not having Green Reference Architecture to drive the sustainable objectives to technical community and considering sustainability as non-functional requirements

Client Value & Business Outcomes

- Actionable insights and recommendations to improve architecture the heavily used B2B conversational AI app and make it more sustainable
- API specific improvements
 - Bot UX optimization
 - Workflow optimization
 - DevOps microservices
 - Azure focused improvements
 - Design consideration & best practices

IBM Value & Differentiation

- Deep knowledge and technical eminence of sustainable design & architecture
- Green IT assessment framework for Azure, a unique solution for IT sustainability
- Well defined and ready to consume sustainability design principles addressing all aspects of reference architecture
- High impact solution that optimizes highly used B2B chat bot app

Delivery Solution Highlights

- Understand and clarify
- Client priorities and requirements
 - Interactions and interviews with Client team for better understanding of enterprise architecture
- Assess
- Client Bot application architecture review (as-is) in detail
 - Possible areas of improvements
 - Trade off analysis of improvement options along with security and cost implications
- Recommend
- Architecture or design changes needed to make Bot application more sustainable in nature.
 - Roadmap for injecting Green IT best practices, design techniques and implementation approach

