ESG Transformation: Existential Risk or Opportunity?

October 2022

PIDX Conference

pwc

Who's with you today...

Brian Henry
Managing Director ESG, Ent. Strategy & Value
T: +1 (281) 254-5971
E: brian.j.henry@pwc.com

Overview

Brian is a Managing Director in PwC's ESG Transformation practice and is based in Houston, TX. With over 25 years of industry and consulting experience, he enjoys helping clients in the Energy and Pharmaceutical and Life Sciences industries from strategy to implementation of digital transformation related to ESG, climate risk, decarbonization, governance and management systems and compliance.

Relevant experience

- Led cross functional team of SMEs and technologists to design/implement cloud-based carbon tracking / reporting platform for Scope 1 - 3 emissions. Integrated disparate technologies across value chain resulting in improved transparency, efficiency and gaining operational insights.
- Led multi-year, design, build and implementation of a cloud-based EHS / ESG platform deployed globally in over 50 countries & 14 languages. Involved aligning corporate policies, standards, SOPs and change management as part of GMP, and ultimately ISO 14001 certification.
- Led Compliance Assurance process / team for large business unit of a global energy company. Integrated team was comprised of Operations, EHS, environmental and sustainability SMEs.
- Worked with corporate governance on strategies, roadmaps and cross-functional implementation plans to sustainably achieve commitments related to supplier diversity, value chain optimization, carbon emissions, product carbon footprint, natural resource conservation and biodiversity protection.

Abstract

The ESG journey - specifically decarbonization - is a primary concern for Energy companies across the globe. Ambitious Net Zero targets are being published, though the most impactful, cost-effective pathways to decarbonization remain unclear, and progress is slow. Some have understandably taken a wait and see approach; opting to provide basic disclosures and reporting - and no more. But is there an operating model aligned with a technology stack that leads to increased brand and shareholder value? An approach to decarbonization that treats ESG as a value-creation opportunity - and not just as an existential risk?

Key Takeaways

- Your ESG strategy and road map should fully incorporate the potential impacts of emerging global ESG policy and regulations (SEC, ISSB, CSRD, etc.) as well as the rising expectations of stakeholders
- The road to decarbonization is a team sport - forming the right internal and external alliances, true teaming and fostering true collaboration are table stakes
- Your ESG technology architecture is a critical enabling factor for growing business value, by providing the carbon operating system and ledger capabilities that enable data-driven, physical and transition risk scenario analysis, and proactive decision making

ESG trends are making waves

This is our moment to build a future where sustainability and a socially responsible focus is at the heart of business. It's about smarter business for a stronger world. It's about capturing new possibilities to turn theory into action.

ESG Trends & Demand Signals

Racial and gender **inequities**

Growing income and **wealth gap**

Ageing population **declining births**

Disparate **health** and wellness outcomes

Planet under pressure

Polarization and nationalism

Disruptive **tech** and reskilling

Declining trust in institutions

Driving Stakeholders to Demand Action from Companies

79%

Global investors say how a company manages ESG risks is an important factor in investment decision-making[1]

86%

Want to **work** for companies that care about ESG issues[4]

51%

of global CEOs say they've made a net zero commitment - or are working towards making one[2]

~80%

Consumers are more likely to **buy** from companies that support ESG initiatives[5]

23%

CFOs say they plan on increasing investment in ESG issues.[3] Are you?

Sources: 1: PwC's 2021 ESG Investor Survey, PwC, 2021. 2: PwC's Global CEO Survey. PwC, 2022. 3:PwC's Executive Pulse, March2022; 4: PwC's ESG Consumer Intelligence Series, 2021. 5: Ibid.

Unlocking the value potential of ESG requires an integrated approach from your strategy to your foundation in data and technology

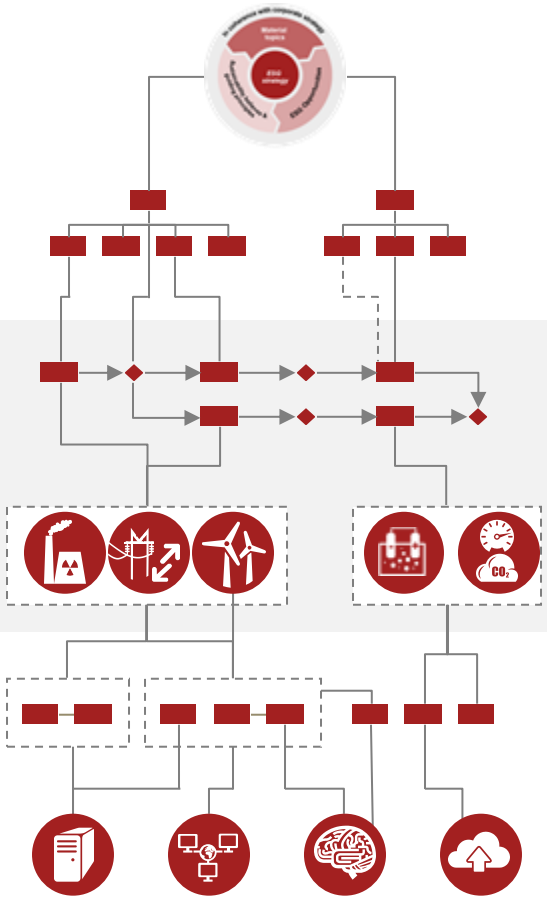
1 Strategy

2 Organization structure

Business processes

Capabilities

3 Data & technology



Top-down

- Align your stakeholders' expectations with your business strategy
- Identify and allocate capability adjustments to business processes and functions
- Integrate ESG related procedures into the company's policy management system

Bottom-up

- Status-quo analysis of current tool landscape and business functions
- Define tool gaps and identify solution requirements

Your strategy must align with the needs of your stakeholders

Investors

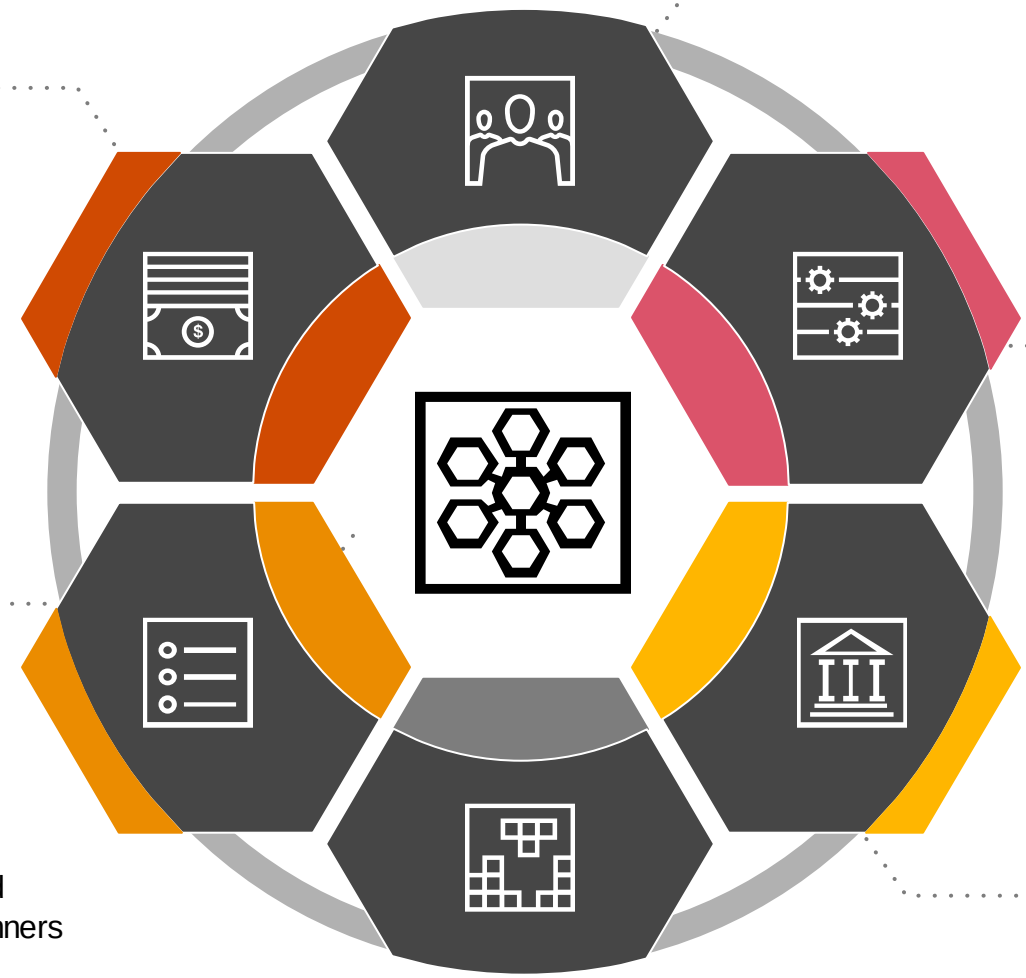
Investors are increasingly factoring ESG into their decisions, seeking to shift portfolios and understand systemic risks

Regulators

Major regulatory changes to promote ESG/net zero will affect companies across geographies - including market-based (dis)incentives and disclosures (C&I, carbon pricing and taxes)

Inorganic Opportunities

Business and customer segments will disrupt significantly by 2030 - customer behaviours and demands are changing and ESG will create winners and losers



Customers

Demand low impact inputs and define required ESG information/approved vendors)

Internal operations

Successful net zero delivery will drive enterprise-wide transformation. For example performance management vs the carbon GPAs

Lenders

Banks are scrutinizing exposures to carbon-intensive assets or ESG laggards; many restricting or ceasing financing of new projects

Organizations are adopting a range of ESG strategic postures – from defensive to offensive…

Value creation

Value consumption

ESG posture

Do-nothing
costs are rising

Do-something
benefits are also rising

Defense

Reporting-led

- Risk-orientation
- Disclosure/reporting on non-financial KPIs

Leaning-in

Operations/Transformation-led

- ESG in the value chain to improve disclosed metrics
- Quantify risks to business

Offense

Strategy-led

- ESG as value creation strategy
- Profits with purpose
- Quantify impact on others

How do you get there from here?	Reporting and transparency	Net zero/value chain decarbonization	ESG digital value creation	Sustainability-oriented corporate strategies

Framing the possibilities based on your ambition and deciding the plays and associated value across the ESG playing field

Strategy & Growth

Climate & Operations

Digital & Reporting

Defensive Plays

Mitigating risk
Obeying regulations

Offensive Plays

Proactive transformation
Value creation through ESG

- Brand Health
- Sustainability Driven Growth
- Baseline Emissions
- Net Zero Strategy
- Supply Chain Resilience
- Execute Decarbonization Initiatives
- Gap Analysis
- Reporting Strategy
- ESG Technology Reporting Landscape
- Data Sourcing & Automation

Defense → Leaning-In → Offense

The right governance and organizational model is necessary to support your ESG strategy

Risk

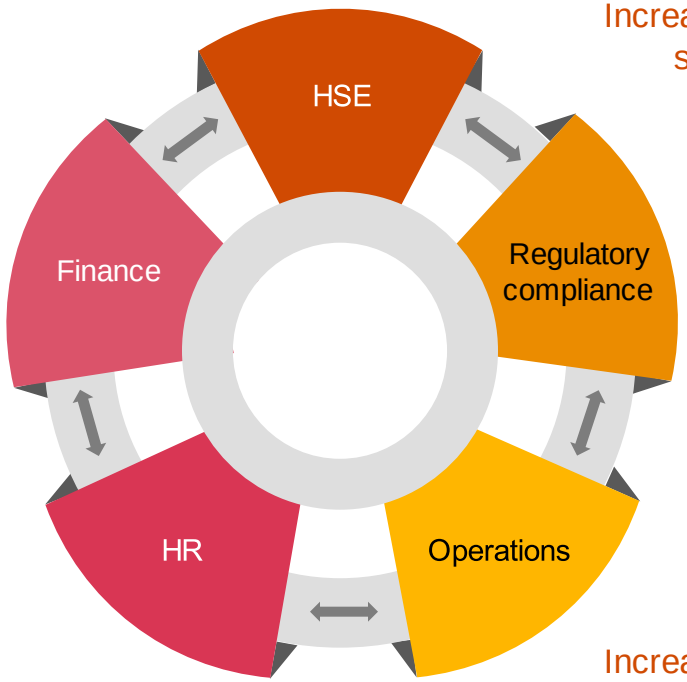
- Financial risk
- Legal risk
- Operational risk (short- and long-term)
- Reputational risk

Defensive approach → **Offensive approach**

- Top-line growth
- Operational efficiency
- Improved business resilience
- Improved financial stability

Value

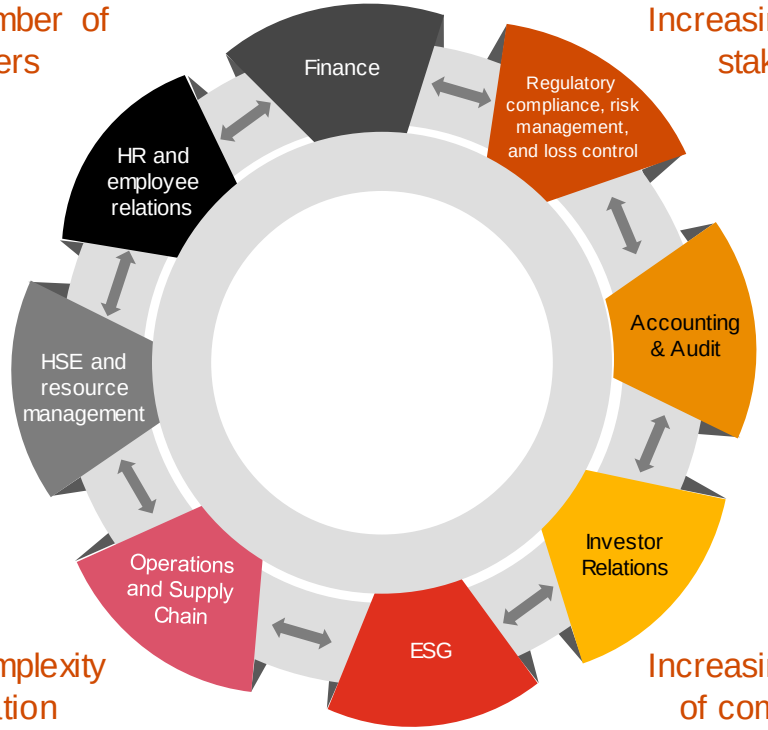
Compliance Model



Increasing number of stakeholders

Increasing complexity communication

Risk Management Model



Increasing number of stakeholders

Increasing complexity of communication

Value Driver Model

The Value Driver Model provides an opportunity to take full advantage of value creation opportunities presented by ESG

Value Driver ESG Model

- Reduced rate of incidents
- Improved staff productivity
- Greater staff retention rates

- Improved ROI from company investments
- Increased access to capital

- Reduced reputational risk
- Reduced legal and compliance costs/penalties

- Increased long-term competitive edge and market leadership
- Improved internal and external process efficiencies

- Better market reputation and relations with customers/clients
- Improved customer/client retention

- Improved internal data processes and efficiencies
- Advanced analytics and predictive emissions modeling

- More robust corporate strategy
- Greater innovation
- Increased competitive edge
- Greater public trust

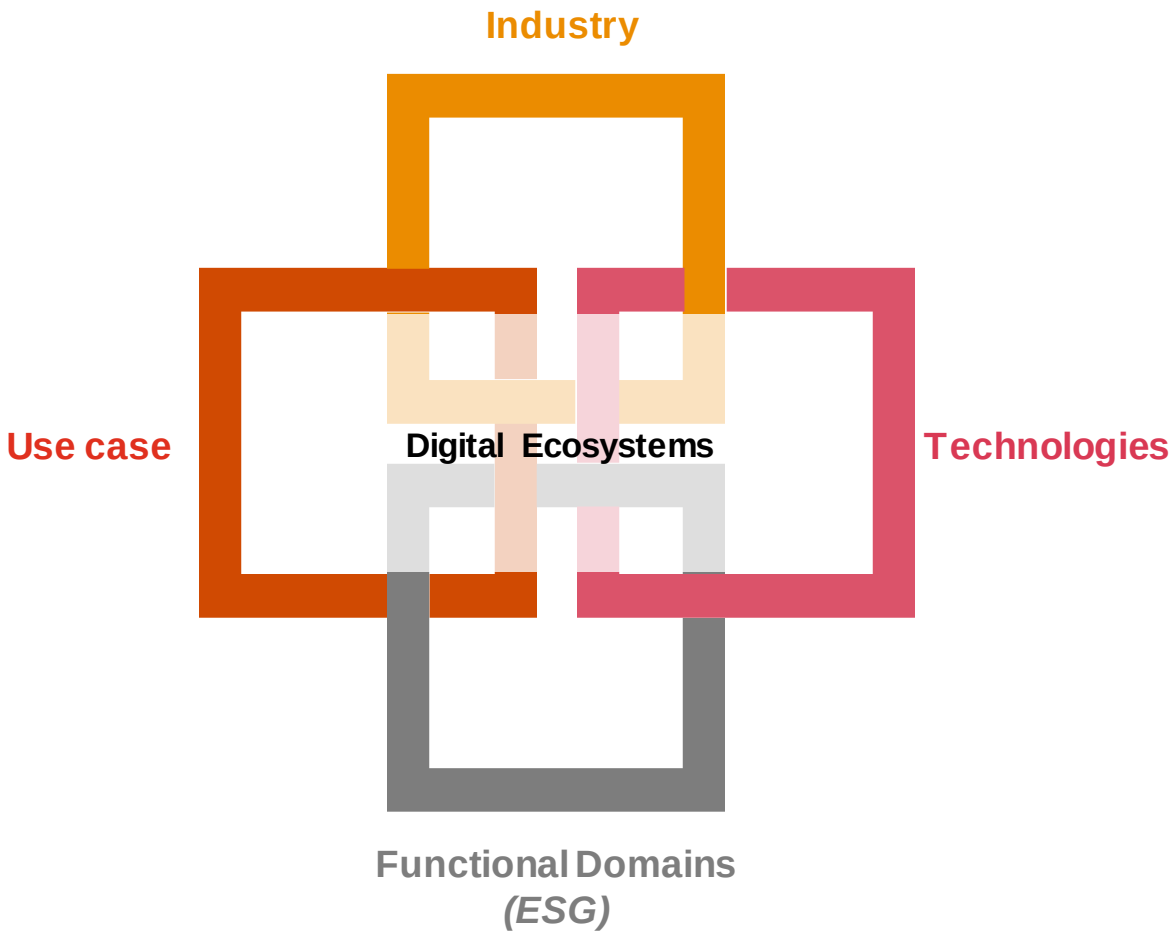
- Reduced costs/redundancies - reduced resource usage
- Greater supply chain efficiencies
- Better risk management

- Improved process efficiencies
- Greater reporting transparency

- Reduced environmental footprint
- Long-term business resilience
- Improved climate adaptation

- Better access to financing
- Improved ROI
- Improved investor retention

Your ESG technology architecture is the foundation from which your can enable data-driven, proactive decision making



As we set our digital technology vision, we have considered fundamental guiding principles:

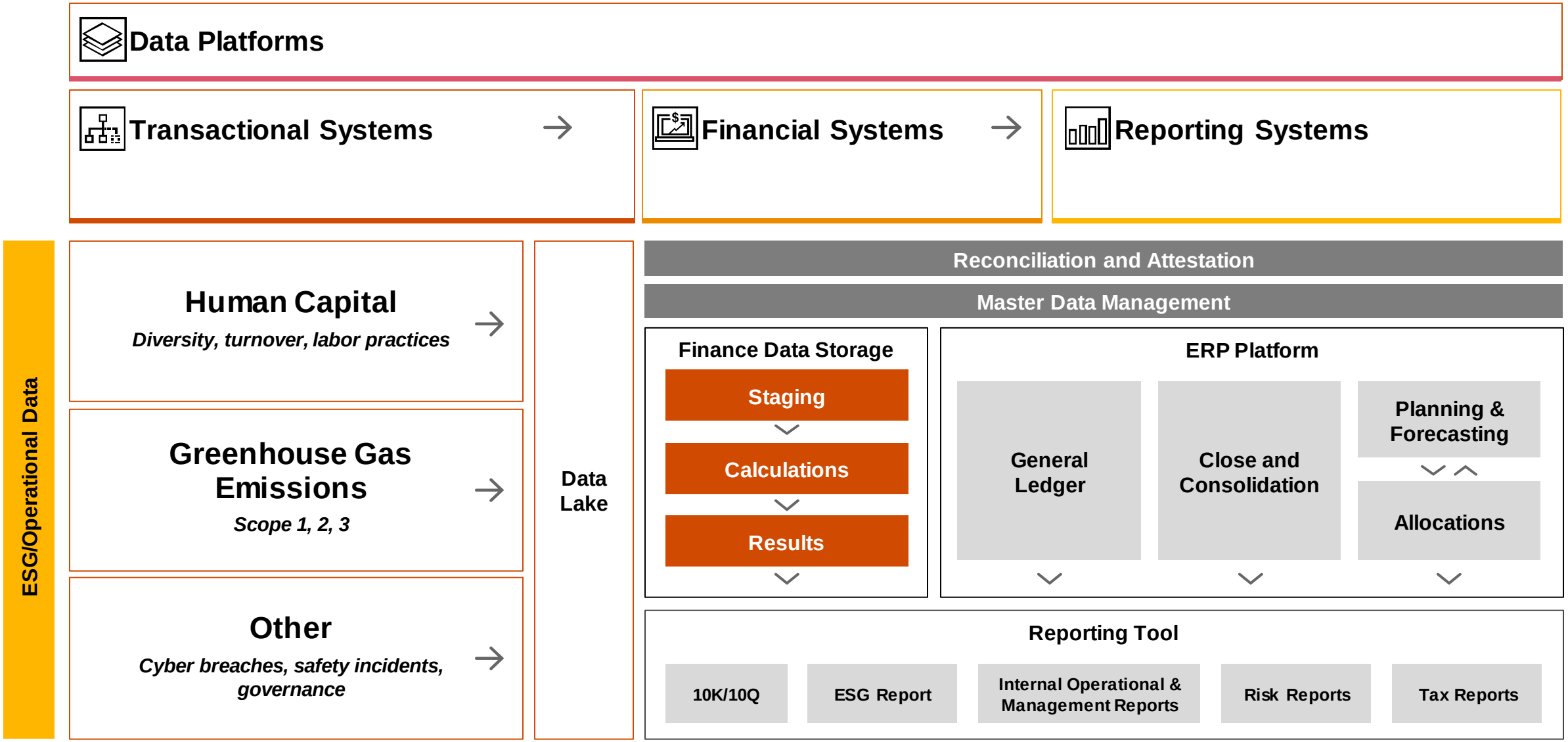
- Coherent with your broader technology strategy
- In line with the fundamental digital ecosystem of Sectors
- Leverage existing and core go-to-market motions across value chains/issues

Companies should tackle their ESG challenges through an integrated ecosystem of digital solutions

Digital solution landscape is broken into multiple archetypes

ERP	CSP	Analytics Platforms	GRC	EHS	ESG Reporting	GHG Mgmt. Systems	Industry Groups
Provide an integrated and continuously updated view of core business processes, containing both ESG specific functionality & interoperable with other ESG/source solutions	Technology platforms that have developed specific functionality based on components available within those platforms to deliver specific ESG business capabilities	Analytics platforms that have been adapted to analyze ESG related data, using common analytical tools (e.g., artificial intelligence, geospatial analysis)	GRC platforms that have been extended to provide oversight of commitments and metrics associated with ESG	Full-suite platforms that are designed to manage the collection, processing and reporting of ESG related data and serve as systems of record to manage transactional data across multiple ESG capabilities	Reporting platforms designed specifically to support the reporting of ESG metrics and support sustainability reporting	Platforms that manage greenhouse gas data collection and calculation, focused around reporting	Industry associations that are developing data models, standards or common ways to exchange ESG related data

Example ESG data and technology architecture ecosystem



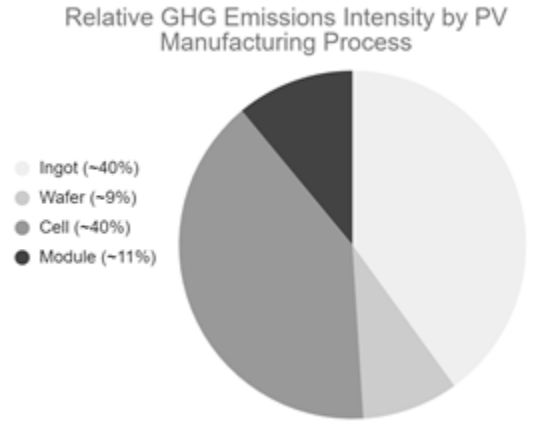
Solar PV Manufacturing LCA Results and Analysis

For Discussion Only

Summary of Issue: Across the solar PV life cycle, the Upstream phase (raw material extraction & production, module manufacture, system/plant component manufacture, and installation) is responsible for **~65% of GHG emissions** (NREL). According to UNECE, for polysilicon PV, silicon production, cell manufacturing, and module assembly are responsible for the majority of GHGs (UNECE).

Cause of Issue:

- Energy mix used in production impacts overall carbon emissions associated with solar panels (UNECE).
  - "The reliance on polysilicon from coal-fired electricity in the supply chain undermines many of the environmental benefits of solar" (WEF).
  - At the end of 2020, 40% of polysilicon global capacity was in China, specifically the Xinjiang region (BNEF), which is heavily reliant on coal power (CSIS).
- For polysilicon PV, ~40% of carbon emissions come from the electricity required for solar-grade silicon refining (UNECE).
  - ~95% of modules sold today use silicon (Energy.gov).
  - Silicon is the mineral most heavily used in PVs (3,948.3 kg/MW) (IEA).
- In CIGS (thin film) PV production, the majority of carbon emissions come from installation ~30%, as thin film panels do not use silicon (UNECE).
- According to several manufacturers, 95-98% of GHGs come from Scope 2 emissions (LONGi , Jinko, Canadian).



Canadian Solar has indicated that the Ingot and Cell have the highest GHG emissions intensity. It is assumed that other manufacturers may have a similar breakdown (Canadian Solar).

Interventions to decrease GHG emissions in solar PV:

Near Term:

- Utilize thin film panels where feasible. Despite having a lower efficiency than crystalline PV, thin film technologies can decrease life-cycle GHG emissions as they do not utilize silicon (UNECE).
- Utilize panels that are produced & manufactured in locations with low carbon grids (WEF).
- Utilize suppliers with GHG tracking and emission reduction plans in place (e.g., RE100 members and those that are committed to Science Based Targets).

Long Term:

- Track the carbon cost of manufacturing and transportation (EPRI).
- Encourage manufacturers to innovate to increase the durability of solar PV and infrastructure (UNECE).
- Ensure panels are recycled at end-of-life. Bulk material in solar panels (glass and metal parts) can be recycled after disassembly and sorting, which can reduce life-cycle GHG emissions and emissions of future panels that incorporate the recycled material (UNECE).

Future Trends: It is expected that due to the evolution of background electricity mixes and industrial processes that between 2020 - 2050 lifecycle GHG emissions will decrease as follows: by 17% for poly-Si ground mounted, 14% for CIGS ground-mounted (UNECE).

Graph Source: Canadian Solar

Thank you!

www.pwc.com