Understanding the Implications of Environmental, Social, and Governance Criteria on Capital Projects

By: The University of Houston Foresight Program

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EXECUTIVE SUMMARY: OVERVIEW & KEY FINDINGS

The client asked Houston Foresight for help in exploring the future of environmental, social, and governance (ESG) criteria on capital projects with a timeframe set to 2030. The main purpose was to explore and illuminate the possible outcomes of ESG so that the client's members will be better informed / equipped for this future.

The principal components of the project are:

What are the implications of Environmental, Social, and Governance criteria on capital projects… and what can we do to position ourselves for success?

- Framing and Scanning
- Research and Interviews: Trends, Stakeholders, Plans
- Drivers
- Scenarios
- Recommendations: Issues, Strategic Options, and an Integrated Strategic Approach

FRAMING: THREE HORIZONS

The timeframe is an ~10-year projection to 2030, which is typical of foresight projects. The Three Horizons model is a useful way to think about timeframe. In short:

- **Horizon One**: the short-term "baseline" or continuity future of roughly the next 5 years in which the current system or way of doing things in a domain largely prevails.
- **Horizon Two**: the mid-term future of "transition" from 5-10 years out in which the existing system is breaking down and new approaches are making inroads.
- **Horizon Three**: the long-term future from the next ten years and beyond in which a "new system" will eventually take root.

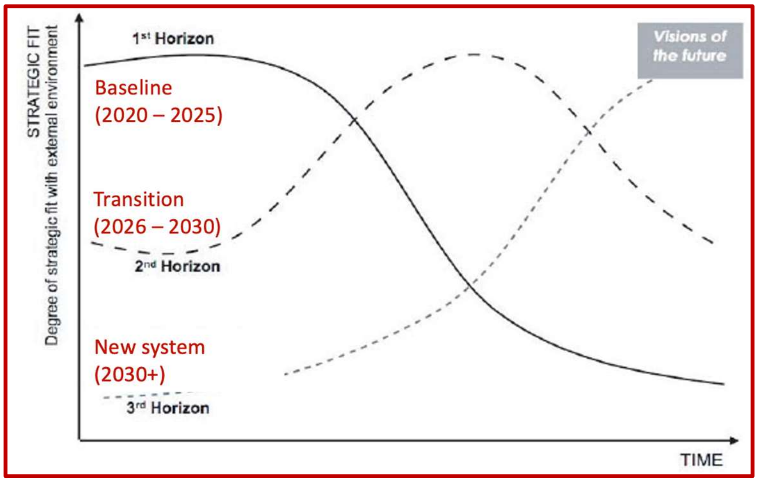


Figure 1. Three Horizons

FRAMING: THE DOMAIN MAP

With the focal question and timeframe set, the domain map establishes the key categories to explore. The domain map is a visual representation of the topic organized by categories and sub-categories. It provides a guide for the research to ensure that key aspects of the domain are adequately covered. The six primary domain categories are:

- **Environmental** focuses on the "E" in ESG criteria. This category includes subtopics such as climate change strategy, resource management, waste and pollution, carbon footprint, and more.
- **Social** focuses on the "S" in ESG criteria. This category includes subtopics such as safety, human rights, working conditions, employee relations, diversity, and more.
- **Governance** focuses on the "G" in ESG criteria. This category includes subtopics such as leadership structure, board corruption, internal controls, compliance, and more.
- **Capital Project Lifecycle** focuses on the life of a capital project, including acquisition of equipment and resources, materials, logistics, emerging technology, and project management.
- **Alternatives** focuses on collecting and analyzing alternative measures and / or derivatives of ESG.
- **Financial** focuses on the financial aspect of ESG criteria, including perspectives around investing, market factors, reporting standards, and financial instruments and tools.

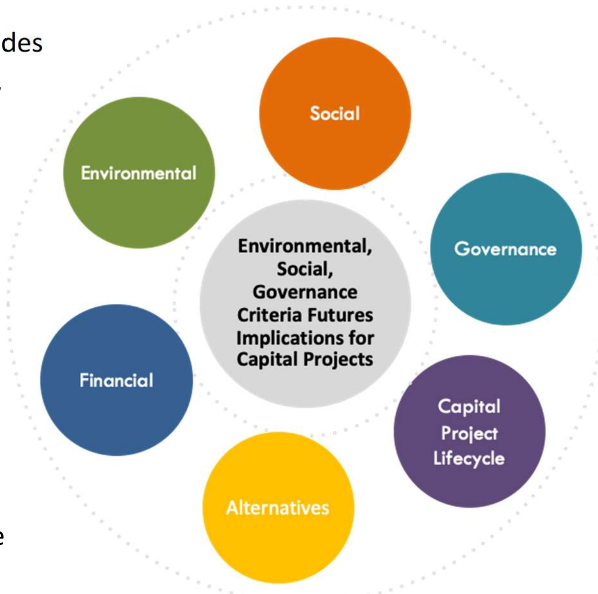


Figure 1. Domain Map

SCANNING

Over 200 scanning hits were collected into our Diigo library. A “scan hit” is an individual piece of information that captures a signal of change.

The figure shows a scanning hit example and the top 10 tags of popular topics from the scanning.

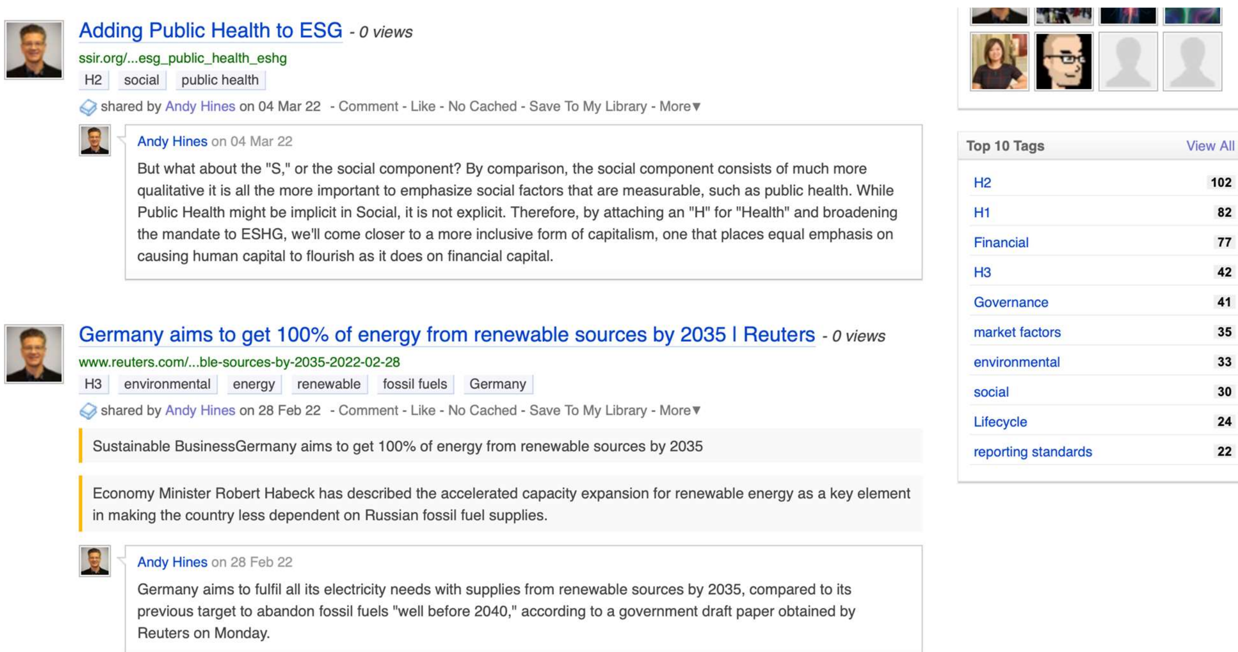


Figure 3. Scanning Hits

RESEARCH & INTERVIEWS

The horizon scanning is supplemented by secondary research to provide inputs to scenario building. The research inputs are focused on looking for specific types of information about the future, whereas scan hits capture any kind of signal of change. The specific inputs identified for this project were:

- **Trends** are changes already underway and expected to continue into the future.
- **Issues** are the current controversies or conflicts going on regarding the domain.
- **Plans** are the announced intentions of key stakeholders in the domain.
- **Projections** are publicly available forecasts that others have done on the domain.
- **Interviews** key stakeholders are interviewed using a set of futures-oriented questions.

EIGHT DRIVERS OF CHANGE

Drivers are the key themes shaping the future of the domain, in this case ESG. They are thematic clusters of related changes identified from the horizon scanning, research, and interviews that are driving or shaping significant change in the domain. The drivers encompass cross-cutting changes that are central building blocks for the scenarios. The eight drivers identified for this project were:

01 ESG Demands from Everywhere

Pressure to behave more responsibly is coming from "everywhere:" citizens, governments, NGOs, workers, and organizations themselves.

02 Internal Conflicts on ESG

Within organizations, different generations and cultures are making it difficult to align on a cohesive ESG strategy.

03 Tech Enabling ESG

A suite of smart technologies -- AI, Big Data. IoT, Blockchain, etc. -- are helping to facilitate ESG data gathering and reporting.

04 Regulatory Ramp

A wide range of approaches for ESG are published, considered and implemented.

05 Good on E, Less on S & G

After many years of pressure on the environmental aspect, organizations are overly focused on the E at the expense of the S (social) and (G) governance aspects.

06 Trustiness

Phenomena like fake news, conspiracy theories, and politically biased reporting are contributing to a lack of trust in information and organizations.

07 ESG: Fact or Fiction

Some studies show those adopting ESG perform better financials, but others suggests it's greenwashing, create uncertainty around whether to adopt.

08 Innovation Applied to ESG

Innovation such as new building materials, renewable technologies, and new governance models are being applied to ESG.

SCENARIOS OF ESG 2030

The scenario archetype technique selected for the project relies on identifying a set of drivers whose future outcomes will be projected in each of the four archetype patterns (baseline, collapse, new equilibrium, transformation). A key assumption underlying this technique is to view the domain as a "system," operationally defined as "the current way of doing things." Four patterns characterize the plausible movements of a system over time:

Figure 4. Scenario descriptions

- **Baseline** - *baseline extrapolation of present into the future.* Present trends continue within the system without any major disturbances, what we call the baseline future. The current system continues to grow in the sense that its present trends continue.
- **Collapse** - *system stuck in dysfunction.* A key point is that collapse does not necessarily suggest the apocalypse, but the system regresses or dips into a level of dysfunction, e.g., economic stagnation or recession as the norm. Of course, it could also be an outright collapse as well.
- **New Equilibrium** - *challenge to system leads to compromise to save existing way of doing things.* The key notion here is one of challenge and response. The system is challenged and responds in a way to save itself. It's based on the notion that systems are stable and will tend to – and want to – return to baseline after being disturbed. They will actively seek this return to stability and be willing to make some compromises in order to preserve the essence of the system, e.g., bailing out the banks at the onset of the Great Recession.
- **Transformation** - *can't save the system, so we rewrite the rules of the game.* Transformation entails fundamental change to the system. This transformation could be driven by any number of factors, values, technology, or economics. The key point is that it essentially involves creating new operating rules or guidelines.

IMPLICATIONS, ISSUES, OPTIONS AND STRATEGIC APPROACH

The following steps were taken to develop recommendations for action:

- Brainstorm potential environmental, social, and governance implications of each scenario.
- Cluster related themes from the implications into strategic issues.
- Develop an option or strategic response for each issue.
- Develop an integrated strategic approach that suggests an overall approach or strategic direction across the scenario landscape.

The **implications** provided ideas or raw material from which to construct strategic **issues**, whether a threat or an opportunity. The strategic issues provide a sharper focus on what ought to be addressed. Our experience as futurists suggests that while identifying strategic issues is a good and useful activity, its value is greatly enhanced by exploring what can be done about them, which we refer to as **options**. Options are high-level strategic responses to the strategic issues. The strategic options provide specific potential action responses for each issue. The overall **strategic approach** strategizes how to respond and navigate across the entire scenario landscape and identifies likely and desirable strategic directions or pathways to the future.

In three Implications workshops, we generated implications (specific to E, S, and G) and spent time fleshing out the most important implications out in an Elevator Speech Response. The table below is a list of the 15 most imperative issues / options & responses. In Appendix 3, we have these elevator speeches listed in detail.

We found that the issues with one of three overarching themes:

1. How does this impact the way my company operates and stays competitive?
2. How does this impact the types of projects (and the business) that my company does?
3. How will this impact the way we deliver projects?

We also wanted to suggest whether we believed these tasks to be ones tackled as an industry (with THE CLIENT) vs. considered independently within individual organizations. While we point out which workshop an issue surfaced in, and in which scenario, we may find that an issue, even though it came from a particular workshop and from a particular scenario, it may be relevant to all scenarios and all 3 aspects of ESG.

Which ESG implications workshop did this issue come up? "All" if it came up in all three

In which scenario was the issue found? "All" if the issue is across all 4 scenarios

Category	Issue / Opportunity	Response	Work alone or together?	ESG Workshop	Scenario
Operations and competition	How might we more effectively work together as an industry to meet the ESG challenge?	Come Together: Work with leading organizations like CII to develop an integrated industry response to ESG	Together	All	All
	Should we take the risk and get ahead of ESG standards before it becomes economically evident?	A Step Ahead of ESG by developing an ESG Think Tank	Alone	Environment	B&G Corps
	What do we do about an inability to get the right people?	Thinking outside the box to attract talent	Alone	Social	Wait & See
	How will adopting ESG change company risk profiles?	Risk Management Overhaul: A complete realignment and overhaul of risk management practices, which is necessary to achieve performance improvements.	Together	Governance	B&G Corps
	How can we develop the leadership needed to deal with shifting operating environment as ESG is indicating?	Create a Transformational Leadership program	Alone	Governance	Purpose Matters
	How do we manage external and internal pressure to increase Board and leadership diversity?	A long-term diversity plan with short-term wins	Alone	Governance	Purpose Matters
	How do we manage potential divisions within the company over ESG focus?	Aligning on ESG to attract and retain talent	Alone	Governance	Purpose Matters
	How do we improve our public perception?	Greater transparency. Companies embrace transparency as part of their proactive commitment to ESG.	Together	Governance	B&G Corps

Figure 5. Issues / Opportunities

Which ESG implications workshop did this issue come up? "All" if it came up in all three

In which scenario was the issue found? "All" if the issue is across all 4 scenarios

Category	Issue / Opportunity	Option	Work alone or together?	ESG Workshop	Scenario
Types of projects	Should we pay equal attention to each part of ESG?	Leapfrog to S or G	Alone	All	All
	What's your value/what's your legacy?	Bring the cost of natural capital "on balance"	Alone	Environment	B&G Corps
	How do we differentiate from everybody else?	Above and Beyond ESG: Pursue Bold initiatives, such as Net Zero, B Corp, or G Corps	Together	Environment	Purpose Matters
	What do we do about current climate mitigation activities, such as carbon credit markets that are ineffective?	"All in" on Climate	Alone	Environment	Purpose Matters
	How do we address innovation stagnation?	Doubling Down on ESG Innovation	Together	Social	Wait & See
Ways projects are delivered	How might we address a lack of trust?	Share power with key stakeholders	Together	Governance	B&G Corps
	Will compensation practices at all levels be a barrier to long-term thinking and action on ESG?	Transforming compensation to impact all actors in capital projects by creating short, mid, and long-term compensation opportunities	Alone	Social	Regulatory Cornucopia

Figure 6. Issues / Opportunities con't

In our final workshop, each issue was plotted based on Impact (how important the issue is) and Effort (how difficult it will be to do) by workshop attendees. The plotting of these issues, including reasonings for the placement is in the Issues and Options by Scenario section of the report.

Strategic Approach

A good foresight project provides a sense of direction for moving into the future. It should be emphasized that organizations don't get to choose their scenarios, but rather choose how they will respond to the various scenario possibilities. The logic of scenario planning is to be ready for whichever way the most plausible combinations play out.

After the workshop, the teams analyzed these issues and discovered that there were four cross-cutting issues (robust issues) – the "Big Four" – that were important to address in all four scenarios:

1. Develop a strategy for addressing each part of ESG
2. Decide: Do we partner or do it alone?
3. Prepare for more (and extra difficult) innovation
4. Take extra care of your public perception and younger generation of employees

The graphic below provides a map to guide the strategic approach. We begin in the present and find that we are already close to a Baseline / Collapse future. We say that business-as-usual will lead us into the "Wait-and-See" scenario. We would caution industry companies from forming a long-term plan along "Wait-and-See" as the future appears to be strongly headed towards some sort of ESG compliance.

Or the capital projects industry could choose to focus on the robust four pillars, develop a winning strategy for each, and become resilient and / or flourish in any scenario we find ourselves.

For the other three scenarios, we included a major strategic choice. Developing a plan to address the robust issues should be guided by this major strategic choice.

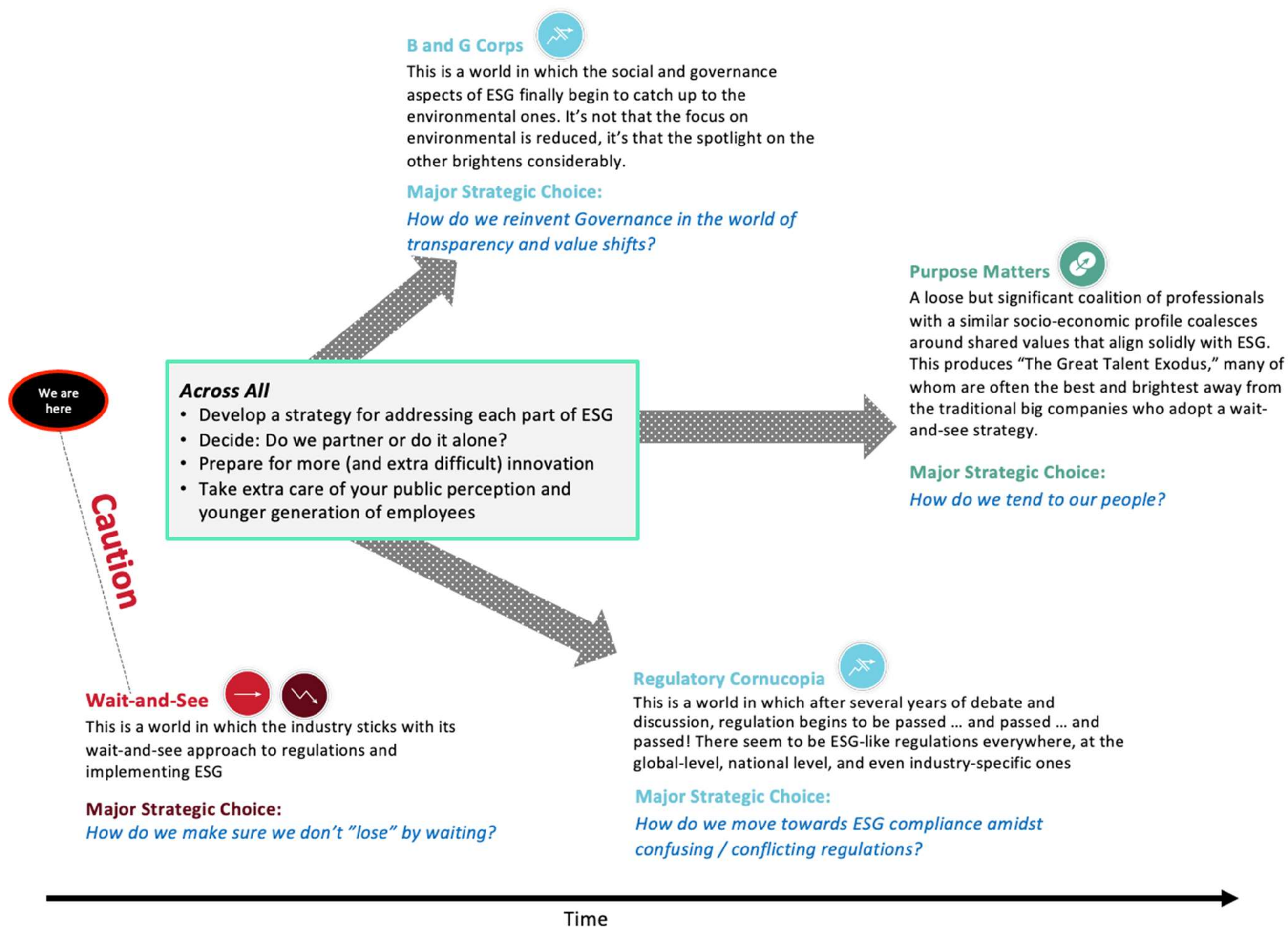


Figure 7. ESG on Capital Industry 2030 Strategic Approach

INTRODUCTION

The client asked Houston Foresight to use scenario planning to help explore the future of environmental, social, and governance (ESG) criteria on capital projects into 2030. The purpose of developing this long-term view was to identify and build support in the present towards a desirable future, as a compelling and positive view of the future can inspire and motivate action in the present. At the same time, the potential for less desirable or negative futures was explored as well. A balanced view of the future includes both:

- Where do we want to go? (positive vision)
- What do we need to avoid? (potential trouble spots)

The project used Houston Foresight's Framework Foresight method for exploring the future, along with a series of exploratory scenario and implications workshops to engage THE CLIENT members around the process. A scenario landscape of four potential futures was developed in order to identify strategic issues, options for responding to them, and begin to build an integrated strategic approach to the future. Houston Foresight Program Coordinator Andy Hines was the PI, assisted by Project Lead Laura Schlehuber, Professor John Sweeney, and students Josh Brockway, Sara Fogarty, Hauson Le, and Kelly Medrano.

The principal components of the projects are:

- Framing and Scanning
- Research: Trends, Issues, Plans, Projections, Drivers, and Interviews
- Scenario Development
- Recommendations: Implications, Options, and Integrated Strategic Approach

While much of the research and fine-tuning of each of these steps was conducted by the Houston Foresight team, The client participated in interviews and in scenario development workshops, as well as multiple implications workshops, to provide expert insight and feedback every step of the way. This not only enhanced the overall project work outcomes but provided The client the opportunity to develop their own strategic thinking and foresight skillset.

FRAMING & SCANNING

The first step is to develop a focal question to guide and focus the project. A scenario planning study is framed around a focal issue. The team chose: **What are the future implications of Environmental, Social, and Governance criteria on capital projects, and what can we do to position ourselves for success?**

The timeframe is an approximate 10-year projection to 2030, which is a typical timeframe for future projects. The Three Horizons model is a useful way to think about timeframe. In short:

- ***Horizon One***: the short-term "baseline" or continuity future of roughly the next 5 years in which the current system or way of doing things in a domain largely prevails.
- ***Horizon Two***: the mid-term future of "transition" from 5-10 years out in which the existing system is breaking down and new approaches are making inroads.
- ***Horizon Three***: the long-term future from the next ten years and beyond in which a "new system" will eventually take root.

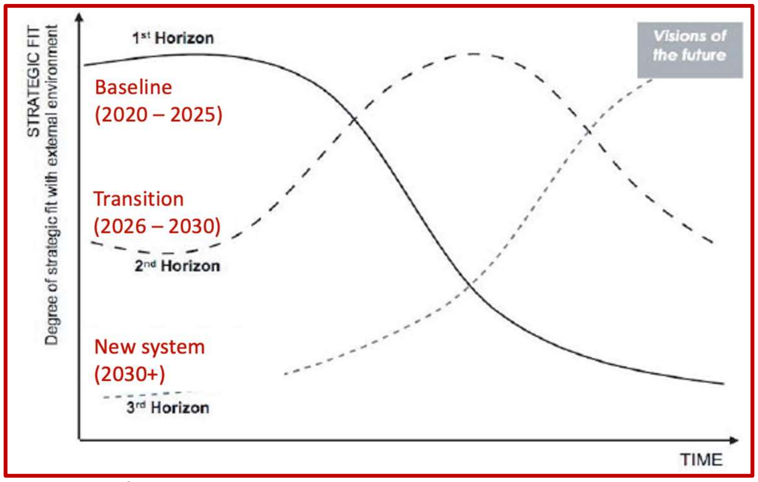


Figure 1. Three Horizons

The 10-year timeframe enables the exploration of a new approach to what ESG might look like, while also mapping the transition pathways.

The geographic focus was domestic (USA), but we also looked globally for relevant examples and insights.

DOMAIN MAP

With the focal question and timeframe set, the team, in collaboration with THE CLIENT, created the **domain map** of the key categories. The domain map is a visual representation of the ESG criteria and capital project problem topics organized by categories and sub-categories. It provided a guide for the research to ensure that key aspects of the topic are adequately covered. The six primary domain categories are:

- **Environmental** focuses on the "E" in ESG criteria. This category includes subtopics such as climate change strategy, resource management, waste and pollution, carbon footprint, and more.
- **Social** focuses on the "S" in ESG criteria. This category includes subtopics such as safety, human rights, working conditions, employee relations, diversity, and more.
- **Governance** focuses on the "G" in ESG criteria. This category includes subtopics such as leadership structure, board corruption, internal controls, compliance, and more.
- **Capital Project Lifecycle** focuses on the life of a capital project, including acquisition of equipment and resources, materials, logistics, emerging technology, and project management.
- **Alternatives** focuses on collecting and analyzing alternative measures and / or derivatives of ESG.

Figure 2. Domain Map

- **Financial** focuses on the financial aspect of ESG criteria, including perspectives around investing, market factors, reporting standards, and financial instruments and tools.

The domain map focuses on the topic of ESG. We also considered the larger context for the THE CLIENT and ESG using STEEP (**s**ocial, **t**echnological, **e**conomic, **e**nvironmental, and **p**olitical) categories to look for forces and factors outside of the domain that may influence its future. Our experience as futurists suggests that many times the most significant changes or disruptions to a domain come from outside of it, such as an economic boom or bust, a regulatory swing, design or style shifts, or a new technological development.

HORIZON SCANNING

Horizon scanning involves the identification, collection, and analysis that capture the "signals of change." A "scan hit" is an individual piece of information that captures a signal of change. They may be news or journal articles, blog posts, videos, reports, etc. The signals have varying degrees of evidence to back them, that is, strong signals of change are supported by multiple and credible sources. In contrast weak signals have less support, and there are typically lots of them. A well-rounded horizon scanning process includes both.

We strove for breadth and depth in our scanning to access a wide range of sources, from specialized outlets like *Fast Company*, *MarketWatch*, and *ESG Today* to international and local media websites like *Reuters*, *AP*, and *Dallas Innovates*. We also indicated which of the three time horizons that the suggested change was projected to take place in.

The domain map provides a framework for organizing and guiding the horizon scanning. Individual team members were assigned responsibility for scanning for changes using the domain map categories above as a guide. More than 200 scanning hits, which included articles, blog posts, videos, reports, etc., were collected into a cloud-based library for annotation. The team met regularly to discuss and probe deeply into their potential implications and interactions. In our age of abundant information, it's less about finding a piece of information that no one else can find and more about understanding the impacts, so that the information can be acted upon in a timely and strategic manner.

The Houston Foresight horizon scanning process uses three basic steps:

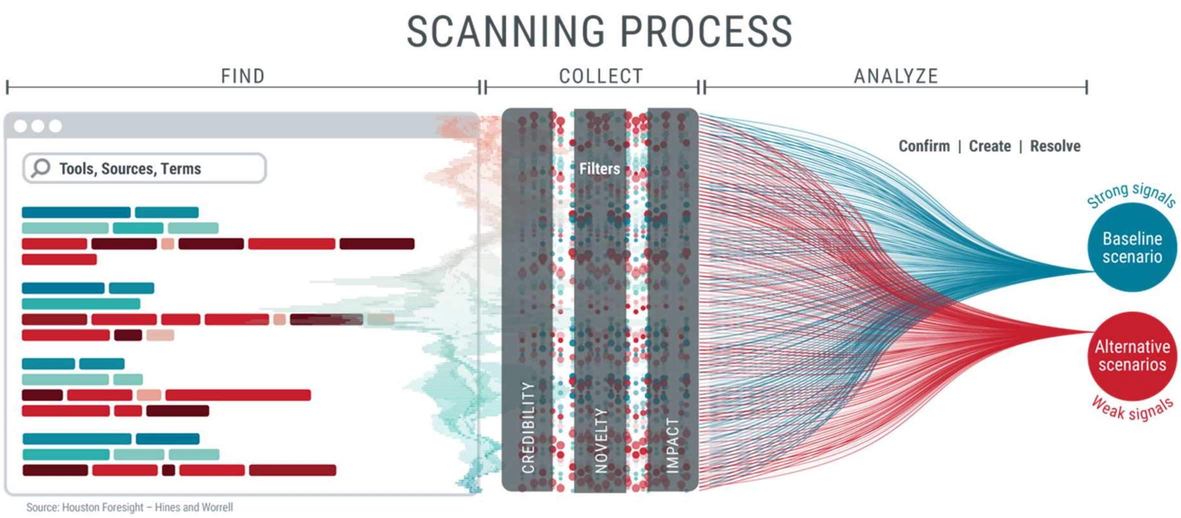


Figure 3. Scanning process graphic representation

- The first, **FIND**, is the process of searching for and identifying potential scanning hits. It uses the domain map categories as jumping-off points to organize the search.

- The second, **COLLECT**, is the process of capturing the resulting scan hits. We use an online, cloud-based bookmarking website or library called Diigo, which captures files or website links in a common location with annotations. Each entry is also tagged based on the domain map categories to ease information retrieval.
- The third, **ANALYZE**, uses a simple triage to decide whether to include a scanning hit in the library. When included, the scanner includes a brief commentary on why they thought it was interesting and relevant. A more detailed evaluation of the hits takes place in crafting the drivers.

Figure 4 shows a scanning hit and the top 10 tags revealed popular topics from the scanning. As we would hope, the tags reflect a mix of domain map categories, suggesting a balanced approach covering key topics.

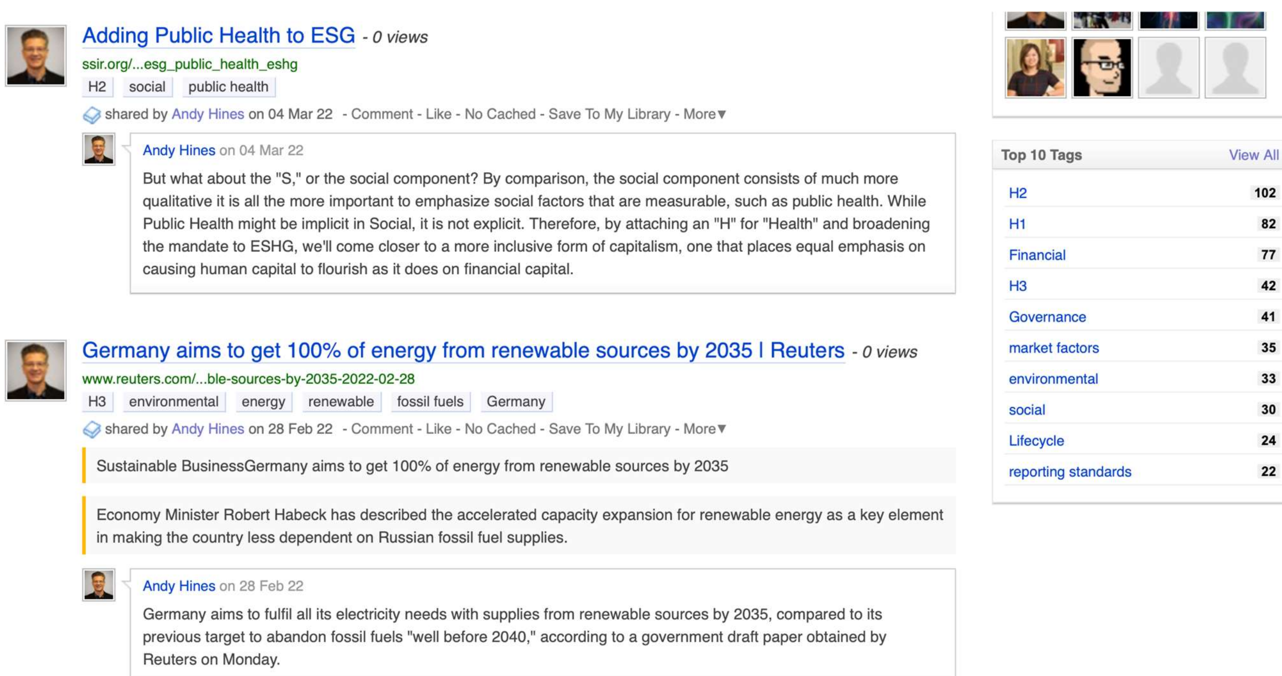


Figure 4. Scanning hit example from Diigo

RESEARCH

The horizon scanning is supplemented by research to provide inputs to scenario building. The research inputs are focused on specific types of information about the future, whereas scan hits capture any kind of signal of change. The specific elements identified for this project were:

- **Current Assessment:** The current assessment summarizes key developments in the present that may suggest future developments.
- **Trends:** Trends are changes already underway and expected to continue into the future.
- **Issues, Plans, and Projections:** Issues are the current and emerging controversies in the domain; plans are the announced intentions of key stakeholders; and projections are publicly available forecasts about or related to the domain.
- **Interviews:** Key stakeholders are interviewed using a set of futures-oriented questions.

CURRENT ASSESSMENT

The current conditions listed below capture key factors describing the present of the domain. They are often referred to as the "hot topics" that people within the domain area talking about. However, for this ESG project we spent extra time exploring the history, current "heat" of ESG, and a few more combinations of data to help understand ESG. The current assessment is used by the research team to ensure that they are properly grounded in what is happening in the present before moving into the future. Links are provided for those that want to dig deeper.

Current Conditions

General

- Companies are being asked to comply with multiple, sometimes conflicting, ESG frameworks. (Link) (Link) (Link) (Link) (Link)
- Many different organizations provide ESG ratings and metrics. (Link) (Link) (Link) (Link) (Link)
- Companies focused on ESG see benefits in efficiency and cost reduction: efficiencies due to resource allocation, employee retention, and regulation in many industries. (Link) (Link) (Link)

Environmental

- The cost of collecting, recycling, separating waste, and breaking it down into other materials can be greater than manufacturing and using new plastic, depending on the prevailing oil price. (Link)
- It is incumbent on us to learn to price natural capital correctly. (Link)

- The total US-domiciled assets under management using sustainable investing strategies grew from $12.0 trillion at the start of 2018 to $17.1 trillion at the start of 2020, an increase of 42 percent. (Link)
- Several recent cases have been brought by private plaintiffs against companies in US state courts under state consumer protection laws for false or misleading sustainability-related claims. (Link) (Link) (Link)
- In May 2021, the Hague District Court ruled that Royal Dutch Shell was required to reduce Shell group carbon emissions activities by 45% by the end of 2030 as compared to 2019 levels. (Link)

Social

- There is risk associated with loss of investment, defecting customers, and an inability to attract and retain top talent for companies not responsive to ESG issues. (Link) (Link) (Link)

Governance

- In 2018 there was $228 billion in impact assets under management globally, with the majority invested in food and agriculture, financial services, and energy. (Link)
- 75% of retail investors surveyed in 2017 said that they were interested in "investments in companies or funds which aim to achieve market-rate returns while pursuing positive social and / or environmental impact." (Link)
- Corporate stockholders have filed a range of derivative actions in the US, alleging inadequate board efforts to promote gender and racial diversity in the workplace. (Link) (Link)

Financial

- "COP26 gives us perhaps the only opportunity we will have to put markets on the trajectory of delivering the Paris Agreement," said Steve Waygood, chief responsible investment officer at Aviva Investors. (Link) (Link)
- The ECB said that it would integrate climate change considerations into its monetary policy framework, including considering issuers' alignment with climate-related EU legislation in its allocation of corporate bond purchases. The Bank of Japan announced that it would launch a lending program likely within 2021 to provide funds at zero interest rate to financial institutions supporting efforts to address climate change. (Link) (Link) (Link)
- In July 2021, the international body Financial Stability Board (FSB) released three climate-related reports, including a roadmap for addressing climate-related financial risks. The FSB noted that actions under the roadmap seek to ensure that all financial risk decisions appropriately take account of climate change. (Link)

Capital Project Lifecycle

- Domini Impact Investments, one of the pioneers in socially responsible investing, plans to press renewable companies on worker protections and rights, as the job market transitions away from oil and gas companies to a low-carbon economy. (Link)
- Calvert Research and Management, one of the biggest socially responsible fund managers, plans to press companies on whether, and how, they are using data to ensure employee wellbeing in the workplace. (Link)
- Companies should understand where they are buying from and openly publish factory lists. It is also important to consolidate their supply chains, understand the actual conditions where they source from, engage with those operators to pay workers a living wage, and enable collective bargaining. (Link)
- Investors are increasingly aware of and concerned about the significant operational, financial, legal, and reputational risks portfolio companies might face in their supply chains. (Link)
- From 2018 through the first half of 2020, 149 institutional investors and 56 investment managers controlling $1.98 trillion in AUM led or co-led shareholder resolutions on ESG issues. (Link)

Alternatives

ESG is followed by other like-concepts such as SRI, CSR, TBL and some newer ones "Stakeholder capitalism," "Climate-related Financial Disclosures (TCFD)," and "corporate citizenship." But unlike SRI, which is based on ethical and moral criteria and uses mostly negative screens, such as not investing in alcohol, tobacco or firearms, **ESG investing is based on the assumption that ESG factors have financial relevance**. In 2018, thousands of professionals from around the world hold the job title "ESG Analyst" and ESG investing is the subject of news articles in the financial pages of the world's leading newspapers.

Name	Start	Description	Relative to ESG
CSR (Corporate Social Responsibility)	1953	It wasn't until the 1970s that CSR truly began to take flight in the United States. In 1971, the concept of the 'social contract' between businesses and society was introduced by the Committee for Economic Development.	CSR aims to make a business accountable
Stakeholder Capitalism	Over 50 years ago	The principle of stakeholder capitalism requires business leaders to define their mission as creating long-term value not only for shareholders but also for customers, suppliers, employees, communities, and others.	The index is a set under ESG
Corporate Citizenship (CC)	Same as CSR. Some say they're the same	Corporate citizenship involves the social responsibility of businesses and the extent to which they meet legal, ethical, and economic responsibilities, as established by shareholders.	Under ESG, focus on S
Socially responsible investing (SRI)	Mid 1990s	(SRI) is about preferences, i.e. an investor's individual values A typical SRI approach uses negative screening to rule out investments in companies that produce or sell harmful substances, like tobacco, and those that engage in damaging activities, such as polluting or violating human rights.	Larger, umbrellas ESG
TBL (the "triple bottom line)	1994	People, planet, profit. A TBL seeks to gauge a corporation's level of commitment to corporate social responsibility.	
ESG	2005	Environment, Social, Governance	I am ESG
DEI (Diversity, Equity, Inclusion)	?	DEI is especially prevalent with younger generations who are shaping the future of the country.	Under ESG, focus on S
Climate-related Financial Disclosures (TCFD)	2023 / 2025	Disclosure climate-related financial risk. UK expects to go beyond the "comply or explain" approach, aiming for mandatory TCFD-aligned disclosures across non-financial and financial sectors of the UK economy by 2025, with a significant portion of mandatory requirements in place by 2023.	Smaller – focus on environment only

Figure 5. Alternatives to ESG

Heat Map

On a global basis, society appears to be on the cusp between self-imposed metrics / measures and full regulations… but that doesn't mean we will ever get to regulation.

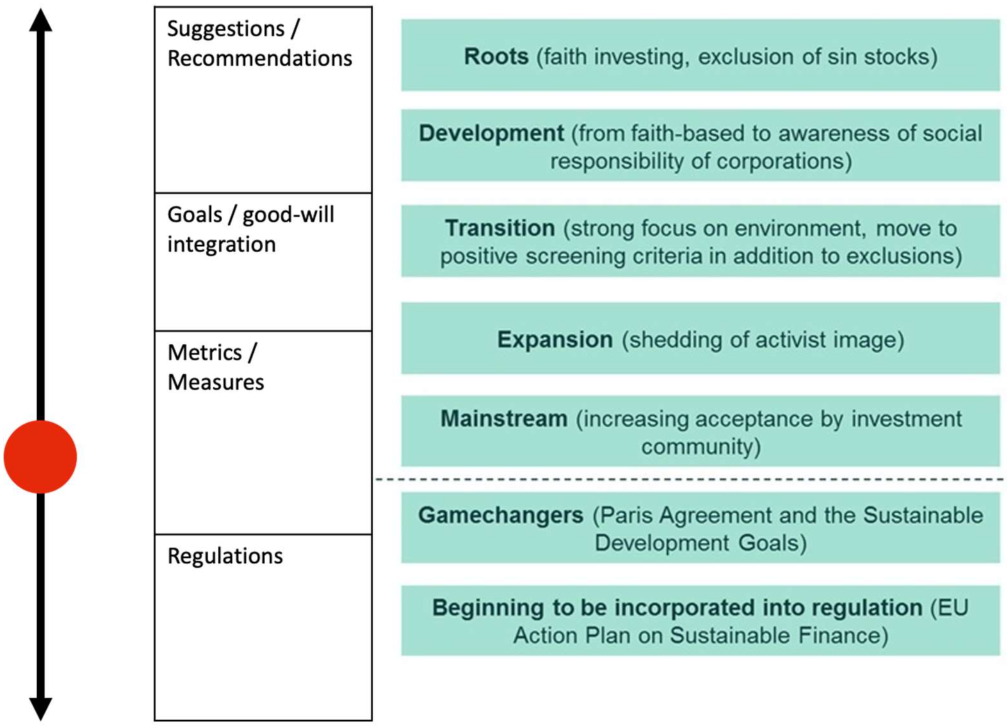


Figure 6. Heat map of ESG (*[Link](#)*)

Finally, a scan of the most popular ESG models included the following topics under E, S, and G:

Environmental	Social	Governance
• Climate change strategy • Biodiversity • Water efficiency • Energy efficiency • Carbon intensity • Environmental • Management system • Resource depletion • Waste and pollution • Deforestation • Renewable fuels • Greenhouse gas emissions • Climate risk • Water mgmt. • Recycling process • Emergency preparedness	• Equal opportunities • Freedom of association • Health and safety • Human rights • Customer & products responsibility • Child labor • Labor Standards/Working conditions • Local community impact • Community Relations • Conflict and controversy • Employee relations and diversity • Employee benefits • Employee engagement • Supply Chain Management • Data Security • Vendor relationships	• Business ethics • Compliance • Board independency • Executive compensation • Shareholder democracy and rights • Bribery and corruption • Political lobbying and donations • Board diversity and structure/governance • Tax strategy and transparency • Pay to performance • Risk Management • Lobbying Activities • Whistleblower policy • Legal Practices • Audits • Internal controls

Figure 7. Popular ESG models

Stakeholders

Stakeholders are actors that have a direct or indirect influence on the domain. By identifying and studying the stakeholders, futurists are able to conceptualize systems and understand the relationships and forces at play that may impact the future.

- **Investors** - fund capital projects and influence the priority of ESG allocation
- **Public** - will be on the receiving end of capital projects and their long-term implications
- **Financial institutions** – set interest rates, funding, equity, instruments, etc.
- **ESG organizations** - develop awareness, resources, and knowledge around ESG related milestones

History

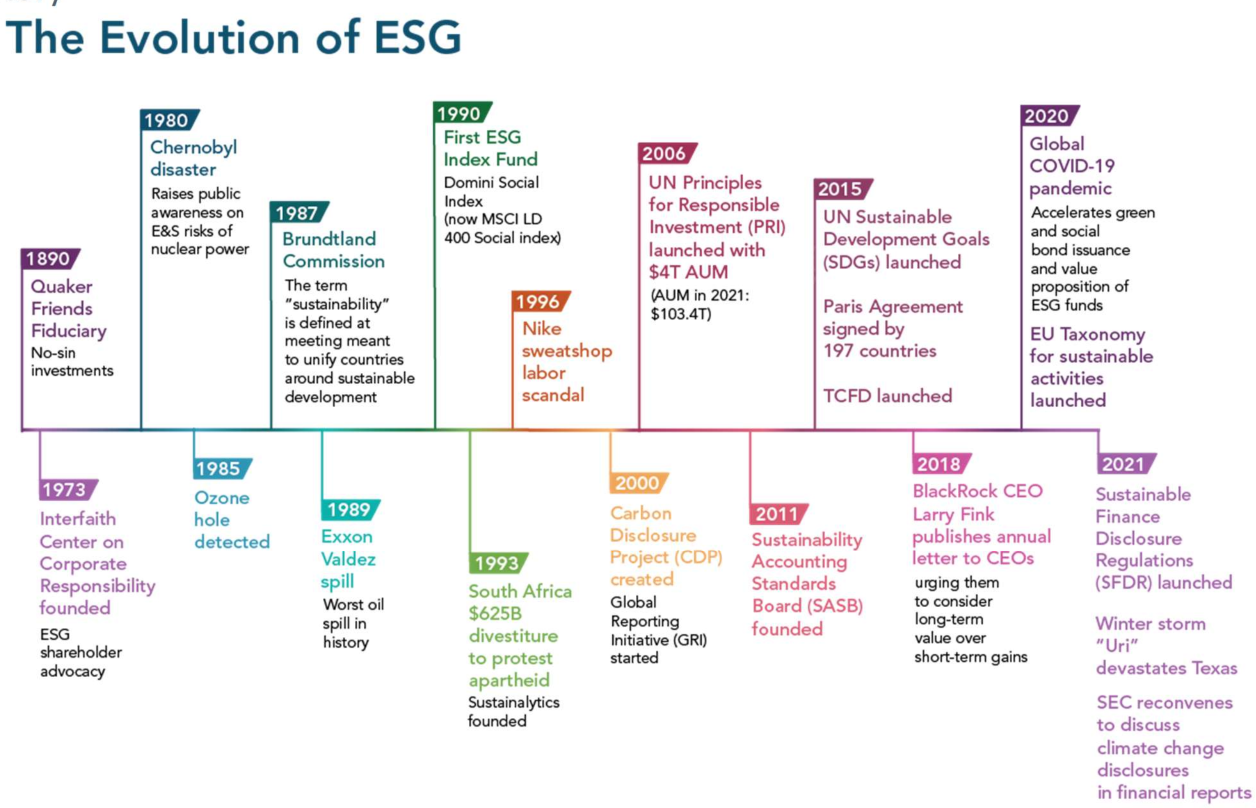


Figure 8. Evolution of ESG (Link)

Evolution of ESG: Investing on Values

The practice of ESG has been around since as early as the 1890s when Quakers excluded "sinful" investments. The term ESG was first coined in 2005 in a landmark study entitled "Who Cares Wins." However, MSCI declares their 1990 Index fund (formally Domini Social Index, now MSCI LD 400 Social Index) was the first ESG index fund. **Over the past 30 years, the movement of ESG has been growing, with E at the lead, S next and G third.**

TRENDS

Trends are statements about a change and the direction it is moving. They are helpful in exploring of the future because they exist in the present and provide a sense of momentum into the future. Team members were tasked with identifying trends specific to the ESG domain using the primary domain map categories as an organizing frame. The team also identified general contextual trends operating outside the ESG domain that are captured in the STEEP (social, technological, economic, environmental, and political) categories. Trends are a key input used to craft the drivers of change that are, in turn, the building blocks of scenarios.

Domain Specific Trends

Environmental

- Usage of traditional concrete is declining. Over 70% of the world's population lives in a concrete structure, and 10 billion tons of concrete is produced every year. It is the most consumed substance in the world behind water, and it is suspected to be an active contributor to greenhouse gas emissions, driving the creation of alternatives. (Link) (Link) (Link)
- Climate crises will continue until better mitigation can be achieved, which will lead to a trend of the average person making more of a connection between their daily lives and climate change, termed as "intersectional environmentalism." (Link)
- Plastics recycling is becoming less profitable, so companies are moving toward their own recycling. The "light-weighting" of packages, making them have less physical material and, more complexity as a result of that design challenge, makes them less profitable to recycle. However, companies can leverage the value proposition with consumers by recycling on their own. (Link)
- Increased advanced building materials that are future proof and eco-friendly. (Link) (Link) (Link)
- Growth in pre-fab and modularization and adoption of BIM (Building Information Modeling). (Link) (Link)
- Increased rules and regulations that must be paid attention to in order to initiate capital projects. (Link) (Link) (Link)

Social

- More stakeholders are making decisions based on companies' sustainability performance, as reflected in the growing market share of sustainability-sensitive investors, the proliferation of codes of sustainable business conduct, and the widening acceptance of voluntary standards for reporting sustainability performance. The focus on the societal, and thus the human rights aspects, are ever increasing. (Link)

- Through all the obstacles women encounter breaking into the construction industry and the image of construction as a male-dominated field, women are finding the benefits like higher pay and opportunity for advancement outweigh any perceived negatives. (Link)
- Pressure is increasing for construction projects to address climate injustice by calling on designers and architects to consider air quality, mitigate extreme heat, and incorporate clean energy and clean economics. (Link)
- Construction contractors are emphasizing their involvement in partnering with communities they are building in as they build the future. Additionally, communities and organizations are approaching capital projects more holistically. (Link) (Link)
- Millennials are altering the construction industry by creating a lack of skilled workers and driving change to use more technology and eco-friendly practices in the industry. (Link) (Link)
- Rising employee activism driving corporations to state a position on social issues. (Link) (Link) (Link)

Governance

- Hundreds of rating and ranking platforms, including the Dow Jones Sustainability Indices (DJSI), EcoVadis, Sustainalytics and MSCI, have sprung up to help asset managers, institutional investors, would-be employees, consumers, and other stakeholders assess, measure, and benchmark a company's ESG performance. (Link)
- ESG reporting is on the rise, and especially trending toward standardizing. (Link) (Link)
- Desire for more data and leveraging technology to measure progress is increasing. (Link) (Link)
- Increasing diversity & inclusion across the industry within the labor force, ownership of construction companies, project opportunities, and leadership. For example, the AGC Culture of Care Initiative committed to by 441 companies. (Link) (Link)
- Less tolerance for the inequity among workers and how that returns to shareholders. The gap between CEO pay growth and median income of workers is a trend getting attention. CEO pay has grown 1000% compared to average workers' income raising 11% since 1978 and the gender gap closure is losing momentum. (Link)
- More reshoring or near-sourcing and solidifying national resilience will be topics for the foreseeable future, creating changes such as demand for industrial real estate, workforce challenges, regulations, etc. Due diligence will need to be done regarding implications before investment. (Link) (Link)

Capital Project Lifecycle

- Cloud-based collaboration tools are a trend across industries and benefits capital projects in communication, change controls, efficiency, and increased productivity. (Link)
- 3D printing is gaining adoption in construction as it is a technology that is not only cost and time effective, but also speeds up the construction rate with reduced power, material consumption, and as a result, reduced waste in building construction. (Link)
- Robotics are emerging more in capital projects for use in autonomous vehicles to deliver materials, building tasks such as bricklaying or painting, drones to assess progress, identify errors, conduct surveying and inspection, and operate construction sites remotely. (Link)
- DDOM or Data Drive Operating Models are proving to be beneficial for capital construction. It increases efficiency, reduces environmental impact, promotes collaboration, and improves working conditions. (Link)
- Increased adoption of Project Software & Technology for cost containment, efficiency, and environmental planning. (Link)
- Digitization in construction project management is accelerating due to increased need for remote work capabilities, doing more with fewer skilled workers, and demand to integrate data. (Link) (Link)
- Enhancing the supply chain with technology to create more efficiency and transparency is gaining momentum. (Link) (Link)

Finance

- Investment management is moving toward “streaming.” Direct Indexing Technology is rising because people want to invest in a fundamentally different way, personalizing it to their values. In the past year there have been a number of purchases of these types of technologies by large financial institutions. (Link)
- Costs are rising for capital projects driving changes in design, material usage, and labor. (Link) (Link) (Link)
- Financial impact of ESG programs is likely to increase as expectations and scrutiny from investors, consumers, employees, and other stakeholders continue to grow, as well as the desire to create easier-to-use ESG metrics and data standards. (Link)
- Traditional metrics are lessening, and a move to hybrid or integrated measurement i.e., linkage of decarbonization or other ESG programs to EBITDA. (Link)
- Consolidation is accelerating in the construction industry. (Link)

STEEP Trends

Social

- Social movements calling for equity, recognition, and even reparations continue to dominate the social landscape.
- The effects of the pandemic continue to be felt as inequalities related to care fuel further calls for social justice.
- More broadly, ongoing social trends – from marriage declining to many seeking to "simplify" their lives – continue to shift urban landscapes.
- Recently, the trend of "activist investors" has taken hold as profitable returns are not enough; social impact has become a valuable asset.

Technology

- Next-generation consumer electronics support constant connectedness through a range of devices, including wearables and the "internet of things," which are driven by the 5G boom.
- Acquiring, storing, and securing data is a top strategic priority across a range of sectors, and while some capitalize on new career opportunities, many face an uphill battle to either up-skill or drop out of the workforce.
- Smart and "green" tech drive a boom in materials and approaches to construction at a variety of scales, including 3D printing, AI, and automation and prediction systems.
- Governments are rapidly digitalizing, although it is clear that they are ill-equipped to deal with trends such as digital media manipulation and the online blurring of truth.

Economic

- Social impact investing gains momentum as shareholders demand change on structural inequities and the normalization of sustainability standards and practices towards a better future for all.
- More broadly, calls for "moral capitalism" grow amidst an increasing awareness of the financial costs of climate change.
- At a national level, an aging workforce compounds the effects of an equally aging infrastructure, and both highlight the forthcoming retirement crisis, talent shortage, and effects of global competition.
- Platforms for collaboration and remote work reorient not just the "knowledge economy" but have broad impacts and effects across a range of sectors.

Environmental

- Climate change dominates all conversations about environmental trends.
- The circular economy emerges as a new paradigm, driving clean tech investment and highlighting the need for low carbon materials and building methods.
- Regulatory and legal contexts become more complex as new forms of "rights" emerge and are ascribed to non-human entities.
- Growing concerns over food and water drive action, and cities are seen as central to the success of zero waste solutions.

Political

- Governments struggle to confront the growing trend of data breaches and privacy concerns as cyberattacks of various scope and scale proliferate.
- Trust comes at a local level, although threats (both foreign and domestic) demand national and transnational cooperation.
- Governing by and through data and "nudge" approaches to policy continue to grow in popularity.
- As government look inward to address challenges at home, a new wave of neo-protectionist policies has the potential to spark further tensions at a global scale.

This list of STEEP trends and their relevant links is found in Appendix 4.

ISSUES

Current and emerging issues may lead to a choice(s) that influences the trajectory of the future. By analyzing these issues, we can explore the different paths the future may take. There are a significant number of current issues across the United States that directly relate to the future of ESG criteria.

- Where will regulation come from? Will the federal government act as a sole authoritative body, or will there be a wide array of regulators locally, within the industry, and internationally?
- Will all parts of ESG take priority at the same time, or will one take the spotlight in the coming decade?
- How do stakeholders measure the impact of ESG policy and new ways of operating? How and will these measures be standardized across regions?
- Are industry players too early or too late in their decision making to commit to ESG-focused initiatives and operations?

- How do players in the construction industry balance commitments to improving ESG measures and their financial cost? In the construction industry, are commitments to ESG worth the financial risk?

PLANS

At all levels of stakeholders, there are a series of plans and initiatives under way that provide potential models for driving the future of evidence from a number of differing perspectives. Plans show how future investments may be directed and point to collective aspirations. They are not always publicly available, but when they are, they provide useful clues to the future.

- Webuild's 2021-2023 ESG Plan aims at achieving a series of specific objectives: a 35% reduction of greenhouse gas emissions (from fossil fuels and electricity) in 2022, compared to 2017 values, a value that includes the consolidation of Astaldi; a continuous decrease in accidents, reaching a 40% reduction in the LTIFR accident rate (i.e. those marked by days of absence) in 2022, compared to 2017; the presence of 20% of women in the positions identified in the succession plan of key roles, by 2023; and finally, again for the same date, €30 million of additional investments for high-impact innovative projects. (Link)

- Lendlease Europe plans to be net-zero carbon by 2025 for scope 1 and 2 emissions and 2040 for scope 3 emissions, additionally plans to use 100% electricity by 2030. (Link)

- Jacobs submitted a supplier engagement scope 3 target that commits that 65% of its suppliers by spend covering purchased goods and services, will have science-based targets by 2025. Renewable electricity by 2030, Jacobs's target submission for scope 1 and 2 emissions is a reduction of absolute emissions 50% by 2030 from a 2019 base year. Jacobs's target submission for scope 3 emissions is a reduction of absolute emissions from business travel and employee commuting 50% by 2030. (Link)

- In May 2021, President Biden issued an executive order directing the Treasury Secretary, in her capacity as the chair of the US Financial Stability Oversight Council (FSOC), to engage with FSOC members (including US federal and state financial regulators) to assess the climate-related financial risk to the financial stability of the US federal government and the US financial system. (Link)

- The European Central Bank said that it would integrate climate change considerations into its monetary policy framework, including considering issuers' alignment with climate-related EU legislation in its allocation of corporate bond purchases. (Link)

- The city of Los Angeles approves 100% clean energy by 2035 target, a decade ahead of its prior goal. (Link)

- A $1.2 trillion bipartisan infrastructure bill passed by the Senate includes $100 million over five years to accelerate the deployment of digital construction technologies such as 3D modeling software and digital project management platforms. (Link)
- JPMorgan set a goal to finance and facilitate more than $2.5 trillion over 10 years to advance climate action and sustainable development, the largest yet commitment among its Wall Street peers. (Link)
- Global financial services company Citi has joined the ranks of Wall Street banks setting ambitious sustainable finance goals, with a new $1 trillion by 2030 commitment. Citi's new sustainable finance target includes a goal to deploy $500 billion to environmental finance by 2030, extending its current commitment of $250 billion by 2025. (Link)

PROJECTIONS

Projections are publically available forecasts relating to the domain or key aspects of it. These third-party forecasts help provide a 'reality check' on both the stakeholders' plans and the research teams' thinking about the domain. Here are some of the projections our teams found during their research.

- **Industry Growth** - US construction industry is projected to grow by 1.8% in 2021 and 3.1% in 2022, before it moderates to an annual average growth of 2.2% over the remainder of the forecast period. This compares to the previous forecasts of 1.4% for this year and 2.8% for next year. The slightly higher growth for 2021 assumes that residential construction will continue to grow over the coming quarters despite ongoing supply chain issues, including the shortage and rise in the price of building materials, especially lumber, a lack of skilled labor and expensive land, which is adding to building costs for new homes, causing project delays and boosting house price inflation. (Link)
- **ESG Investment** - "We are seeing 2022 as the year when ESG not only goes mainstream, but it starts driving markets a lot more," Jefferies Global Head of ESG and Sustainability Research, Aniket Shah, said on Yahoo Finance Live. The majority of the triggers will fall under policy and regulatory adjustments as national governments and central banks take climate change and decarbonization goals more seriously. Other issues, such as biodiversity and supply chain issues, are also becoming increasingly important to the ESG agenda. (Link)
- **ESG Assets** - A new report from Broadridge Financial Solutions, Inc., a global Fintech leader, reveals assets in dedicated environmental, social, and governance (ESG) mutual funds, ETFs, institutional mandates, and private funds are on track to grow from $8 trillion today to as much as $30 trillion by the end of this decade. (Link)
- **ESG Investing Mandates** - ESG and sustainable investing are expected to continue exceptional growth into the future. By 2025, approximately 33% of all global assets under management (not just domestic)

are forecast to have ESG mandates. The industry is expected to increase 433% between 2018 and 2036, resulting in total global assets of $160 trillion. (Link)

- **Workforce Challenges** - A factor compounding labor shortages is a lack of qualified candidates. This skills gap is partly driven by construction industry advances into integrating digital technologies with key workstreams to further enhance productivity, efficiency, and worker safety. Moving into 2022, adapting existing talent strategies and forming new talent management and workforce experience strategies could be critical to navigating workforce challenges. (Link)

INTERVIEWS

The interviews are designed to complement the scanning and research. The twenty interviews were drawn from a mix of The client and selected stakeholders. They responded to a series of open-ended questions designed to encourage strategic thinking. There are no "correct" answers. Instead, the responses reveal the hopes and concerns of respondents that provide valuable input for framing the topics that should be central to the scenario workshops.

To summarize, the key questions raised by the interviewees are sorted by overarching themes:

The risk of investing in ESG; no one wants to fail first

- No one wants to be left behind in a movement of change, but also not to be out front and fail.
- Nobody wants to harm the planet, but it all comes down to business and economics.
- The problem with the industry is that projects are one time, so investing in ESG may be a burden for companies, which is why they are not taking it into consideration.

Interview Questions

1. The focus of this foresight project is ESG criteria and their impact on capital projects - can you briefly describe what that means to you?
2. If I could answer any question for you about the future of ESG criteria and their impact on capital projects, what would it be?
3. Imagine it is 2031. If you looked back at the last ten years, what is the construction industry's biggest environmental triumph? Social triumph? Governance triumph?
4. What would the greatest environmental failure be? Social failure? Governance failure?
5. In regards to ESG criteria, what are one or two critical strategic decisions in the construction industry on the horizon?
6. What is one ESG trend driving change in the construction industry?
7. What is pushing against these trends? What obstacles are in place today? (2021)
8. What should I have asked that I didn't?

Fear of company and industry complacency / not moving fast enough

- If we don't get nimbler, we're going to struggle collectively as an industry. We need to figure out how to expedite the project process.
- There will be no progress if we continue status quo i.e., ambiguity of carbon tax, greenhouse gas management, and not addressing major issues.

People are uneasy about this topic, either because they may not be moving fast enough, or because they aren't sure it's a business-viable road to go down

- What are the unintended or indirect undesirable consequences of the decisions that we make on ESG?
- If we were to play all our cards right in 2021, create new regulations, get people on board with strategy, would we get the results we expect?
- There's no 100% solution for everything, and there are always tradeoffs. If we are not able to cut emissions, it's code red for humanity; offsetting is not enough.

Low morale in companies & lower trust in the industry

- People need to see the impact on a day-to-day basis to stay engaged with ESG.
- The construction industry is built on going after and doing things that have never been done before.
- There is still a perception that individuals just "doing their jobs" are going to have a challenge creating meaningful change.
- Some people think that achieving real sustainability can't be done, so they don't really try hard at it.
- People keep doing things in conventional ways that are more convenient and easier to do.

The industry will only stretch our dollar as far as we look

- ESG needs to be ingrained into strategy and business models.
- Any project has to be future proof.
- It takes 10 years for large companies to build a major project, so planning for the future has essentially already started.

Three Types of Capital: financial, reputational, natural. Who owns which and what are they willing to risk?

- ESG relates to reputation for companies, organizations, and even countries, and their values.
- The construction industry's mindset is driven by cost-consciousness and time.

- A lot of capital projects challenged by communities are based on social issues; better understanding of how to engage with them in assessing issues important to a specific community, considering those pains in the development and planning of projects.
- Large contractors have gone overseas because it's cheaper.
- How do we work within our supply chains - child labor, human rights, etc. How do we get rare metals/resources for energy transition without trampling on people?
- Investing as a society in social projects. Have markup for projects to give back to society - create social conscience.
- Sourcing local - collect, refurbish, and reuse materials. Achieve net zero production. Change our business models to be more circular.

Government needs to tell everyone else what to do (variant on the prisoner's dilemma)

- Government would drive decisions and metrics around the social aspects, risks as well, look at regulations as a floor not a ceiling (same for E and S). Not just about the goals, but what are we doing?
- There needs to be more accountability. No one is thinking in those terms right now.
- This is all happening piecemeal and at different rates, but it needs to be an industry-wide agreement that sets a standard for everyone to meet

Belief in people, but not on paper

- Trying to leave the company better than we got it.
- You can't treat people like a commodity.
- Company accountability has to be taken further. Any company needs to be transparent about their strategy and report performance results.
- Greenwashing - The moment you start reading some of these companies' descriptions, 60% are performative for marketing and communications; the rest are doing something real and tactical. Tangible, quantifiable targets differentiate real reports from greenwashing.
- We're builders. We're changing the way people think about how they live for the better. If they want to have an impact on their world, they can do that through this industry.
- The industry is doing a better job of creating attractive white-collar-type jobs, and less good at attracting blue-collar-type jobs that require manual skills. How do we get the white-collar staff

exposure and understanding of the worksite itself, which they might need to be able to do their job most effectively?

Drivers

The learnings from the scanning, current assessment, trends, issues, plans, projections, and interviews were synthesized into drivers: the key building blocks of the scenarios. Drivers are the key themes of change that are shaping the future of the ESG criteria domain. The drivers may come from a combination of scanning hits, trends, or any other insights derived from the research. The drivers encompass cross-cutting changes that should be central considerations in developing the scenarios and subsequent strategy. The scenarios explore how the drivers could plausibly interact to create different alternative futures. Each driver is defined below.

1. **ESG Demands from Everywhere:** Pressure to behave more responsibly is coming from "everywhere:" citizens, governments, NGOs, workers, and organizations themselves**.**
2. **Internal Conflicts on ESG:** Within organizations, different generations and cultures are making it difficult to align around a cohesive ESG strategy**.**
3. **Tech Enabling ESG:** A suite of smart technologies – AI, Big Data, IoT, Blockchain, etc. – are helping to facilitate ESG data gathering and reporting.
4. **Regulatory Ramp:** A wide range of approaches for ESG are published, considered, and implemented.
5. **Good on E, Less on S & G:** After many years of pressure on the environmental aspect, organizations are overly focused on the E at the expense of the S (social) and (G) governance aspects.
6. **Trustiness:** Phenomena like fake news, conspiracy theories, and politically biased reporting are contributing to a lack of trust in information and organizations
7. **ESG: Fact or Fiction:** Some studies show those adopting ESG perform better financially, but others suggest it's greenwashing, creating uncertainty around whether to adopt.
8. **Innovation Applied to ESG:** Innovation such as new building materials, renewable technologies, and new governance models are applied to ESG.

SCENARIOS: ESG 2030

Scenarios are plausible yet provocative forecasts of a particular domain. The goal is not necessarily to get the future right as it is to explore these plausible futures and come up with a plan to stay resilient and / or take advantage of changes in the future. If this is done well, the hope is that you are not surprised by any future. They are examples of what the future might look like and the types of things we may experience. The scenarios are intended to create a picture in readers' mind that helps them be aware of and stay resilient to the future.

The scenario abstracts below are the same ones we presented before our first Implications Workshop. You may notice some overlap in these scenarios – that is perfectly normal in a foresight project and, for this project in particular, somewhat inevitable. The point is to make the group think about ESG in different ways.

Houston Foresight uses a version of the Scenario Archetype technique developed by Professor Jim Dator of the Hawaii Futures Studies program. Based on his long experience and research with scenarios and alternative futures, he observed four common patterns in how domains evolved over time. We at Houston Foresight have made some small tweaks to it. A key assumption underlying this technique is to view the domain as a "system," operationally defined as "the current way of doing things." Four patterns characterize the plausible movements of a system over time:

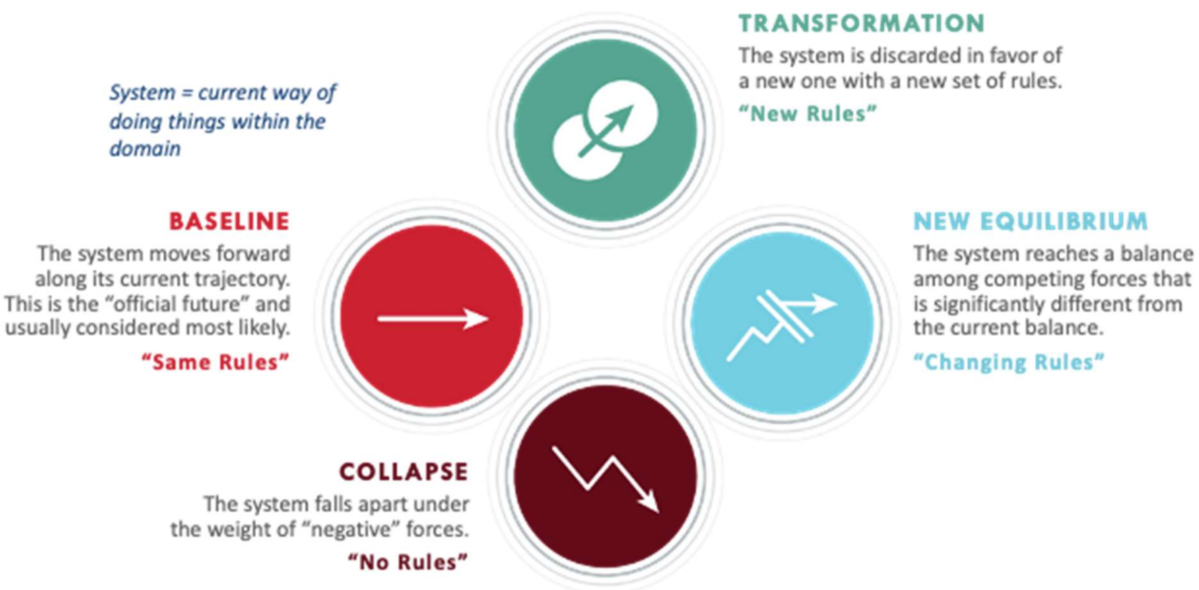


Figure 9. Four scenario archetypes

- **Baseline** – Baseline extrapolation of present into the future. Present trends continue within the system without any major disturbances, what we call the baseline future, with the joke being that it's the most unlikely future in suggesting no major surprises. The current system continues to grow in the sense that its present trends continue.
- **Collapse** – A system stuck in dysfunction. A key point is that collapse does not necessarily suggest the apocalypse, but the system regresses or dips into a level of dysfunction, e.g., economic stagnation or recession as the norm. Of course, it could also be an outright collapse as well.
- **New Equilibrium** – A challenge to the system leads to compromise to save the existing way of doing things. The key notion here is one of challenge and response. The system is challenged and responds in a way to save itself. It's based on the notion that systems are stable and will tend to — and want to — return to baseline after being disturbed. They will actively seek this return to stability and be willing to make some compromises in order to preserve the essence of the system, e.g., bailing out the banks at the onset of the Great Recession.
- **Transformation** – We can't save the system, so we rewrite the rules of the game. Transformation entails fundamental change to the system. This transformation could be driven by any number of factors, values, technology, or economics. The key point is that it essentially involves creating new operating rules or guidelines.

A simple way to think about it are the rules of each archetype:

- Baseline (same rules)
- Collapse (no rules)
- New Equilibrium (changing rules)
- Transformation (new rules)

In developing the scenarios for the future of ESG, we found that the baseline and collapse scenarios were very similar, or rather, the collapse was just an extension of the continuation. Therefore, we combined the baseline and collapse scenarios and developed two new equilibrium scenarios.

The steps followed to develop the scenarios using the archetype technique for this project included:

1. Identify, describe, and prioritize drivers.
2. Project how each driver plays out in the future according to each of the four archetypes.
3. Create first draft scenarios.
4. Group evaluation and discussion to review scenarios and adjust to make the set comprehensive and distinct.

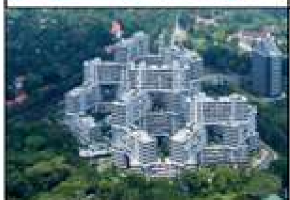
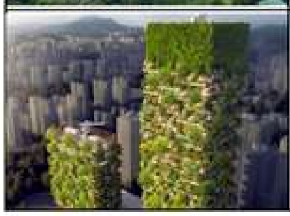
	**Wait-and-See** This is a world in which the industry sticks with its wait-and-see approach to regulations and implementing ESG.
	**B and G Corps** This is a world in which the social and governance aspects of ESG finally begin to catch up to the environmental ones. It's not that the focus on environmental is reduced, it's that the spotlight on the other brightens considerably.
	**Regulatory Cornucopia** This is a world in which after several years of debate and discussion, regulation begins to be passed … and passed … and passed! There seem to be ESG-like regulations everywhere, at the global-level, national level, and even industry-specific ones.
	**Purpose Matters** A loose but significant coalition of professionals with a similar socio-economic profile coalesces around shared values that align solidly with ESG. These individuals leave the traditional big companies who adopt a wait-and-see strategy.

Figure 10. Scenario descriptions

The following pages contain an expanded treatment of each scenario, which includes:

- Summary – An at-a-glance view that frames the scenario.
- Driver outcomes – Explain how drivers play out in each scenario.
- Scenario description – An expanded treatment of the storyline.

WAIT AND SEE

Baseline to Collapse: Same rules to no rules

This is a world in which the industry sticks with its wait-and-see approach to regulations and implementing ESG. Even as other industries move forward and voluntarily embrace ESG principles, the prevailing argument in the capital projects industry is that their margins are already thin, so it does not make sense to move forward without a clear mandate. There is skepticism that following ESG guidelines is financially beneficial to organizations, and it is noted that the circumstances of other industries are not tit-for-tat comparable. There is a degree of "consulting chaos" as investment companies and big consultancies repeatedly come out with the "best" way to implement and optimize ESG – for a healthy fee. This risk of wait-and-see is that as the rest of the world moves toward ESG, it may be too late for some organizations to catch up, and they risk being cancelled when the spotlight shines on them.

Driver Outcomes

Regulatory Ramp	A complex, mish-mash of guidelines, suggestions, and some requirements from different groups emerge as ESG moves to center stage, although adoption remains voluntary. Even non-government agencies and institutions put forward ESG frameworks, which creates more ideas but also a sense of "analysis paralysis" for many firms seeking to take action. There is more voluntary ESG activities in an attempt to line up with suggestions and guidelines in the absence of regulatory requirements.
Innovation Applied to ESG	A spirit of experimentation and innovation overtakes ESG as a seemingly infinite array of practices and approaches start to pop up…all promising to deliver results and outcomes that others cannot. However, the buzz from this swirling frenzy does not impact the "slow and steady" approach being taken by many large firms, who look cautiously upon and experiment lightly with breakthrough innovations from building materials to ESG measures. It creates a sense among some to wait for the dust to settle rather than jump in.
Internal Conflicts on ESG	The battle lines have been drawn: ESG enthusiasts versus those who look at the bottom line. Disputes over whether there are clear indicators that show ESG leads to success continue to plague the sector, and underlying this dynamic is a deep-rooted divide over how (and how fast) change happens. Although the two sides are in communication, it is clear that those focused on the bottom line will not budge until some strong evidence is put forward.

Tech Enabling ESG	Amidst the frenzy of proposed metrics and measures, a suite of technological advancements—from AI to blockchain—have put data front and center.
Good on E, Less on S & G	It took regulations to ensure that the "E" in ESG was taken seriously and moved to the forefront, and while "S" has stepped into the limelight in recent years, there is a sense that "G" continues to lag behind, especially as sectoral decision-making remains rooted in a strong sense of "wait and see."
ESG Demands from Everywhere	The number one question that recruits ask when the tables are turned during interviews is: what is the firm doing with regards to ESG? In seeking to court highly qualified graduates, many firms have put initiatives around diversity and inclusion front and center in marketing materials. There is a sense that the tide is turning as public awareness drives shifts in policy and regulation in ways that go beyond a little "belt tightening." The writing is on the wall as the sector faces its greatest challenge to "standardize operating procedures" since first and second waves of environmental regulations took hold a generation ago.
ESG: Fact or Fiction	Firms at the leading edge of ESG are focusing on reporting top priorities, while those taking a more cautious approach are still deciding on what to report and trying to distinguish between ESG and non-ESG performance.
Trustiness	In what is seen by many as a shot across the bow of the industry as a whole, a proposal gathers steam to create a publicly available and auditable data platform. Pitched as a way of reducing conflict, this causes angst and despair amongst the "business case hardliners," who remain steadfast in spite of growing pressure from all sides to ride the wave of ESG's transformative promise.

Scenario Description

“ESG is the wave of the future,” at least this is what we’re being told… or is this what we are being sold? Noting that there is no real “business case” for ESG, many within the industry remain unconvinced and unwilling to make radical moves. This separates the construction industry as other major sectors have embraced ESG and taken innovation to heart.

Amidst the complex ESG feeding frenzy driven by consulting firms, the capital projects industry is one of several industries that appears to be standing as solid as a Mississippi oak. Without a clear business case, many are not willing to budge.

Perhaps emboldened by experience from navigating previous waves of environmental pressure and regulation, hardliners continue to have the loudest voice and suggest that everyone just “stick to their guns” as the “business case” for ESG is, at best, minuscule and, as many confess to one another in secret, not there now and never will be. How the sector can and might reconcile the demands of ESG with razor-thin margins that keep the industry alive and kicking is a question that hangs like a cloud over boardrooms across the country. But there is also a sense amongst many that “this too shall pass.”

Within the capital projects industry, the battle lines have been drawn: those who want to see the evidence and be shown the clear numbers on ESG versus the young and idealistic graduates, who are all highly-qualified (just ask them!), seeking to align the sector with their values, or the “values of the future,” as they so proudly say. Seeking to dampen internal conflicts, many firms are turning to new technologies to enhance data analysis and reporting, although metrics and measures continue to be all over the place.

And then, it happens. A single tweet with the hashtag: #cancelplastics. This caught the attention of marketing departments across the sector, and while it has not gone “viral,” nerves are running high. There is a palpable tension that changes are on the horizon, and chatter has started to emerge that the sector could be left behind if it continues along the “slow and steady” path, especially as many other sectors and industries have now made ESG part and parcel of their operations and identity.

A rising ride of public awareness emboldened government agencies to take swift and bold action leading to a range of new policy and regulatory frameworks, but the “wait and see” mindset that had come to dominate boardrooms across the country remained steadfast, even as casualties, sectionally speaking, began to mount. Even those who had their doubts and sought to create change were feeling like it was too late as a swirling storm had overtaken the sector, and no one was safe from the winds of ESG change.

For an industry known for building things up, it shocked many that the consensus amongst leadership seemed to be do nothing and potentially watch it all burn down.

REGULATORY CORNUCOPIA

New Equilibrium 1: Changing rules

This is a world in which after several years of debate and discussion, regulation begins to be passed… and passed… and passed! There seems to be ESG-like regulation everywhere: at the global-level, national level, and even industry-specific ones. It is not 100% clear how to resolve sometimes conflicting mandates. For instance, the rules in India are different in the US, and in some cases, the industry's own regulations are more strict than national ones, but weaker in other cases. It is more difficult to cheat on ESG, but there's still an ability to hide or not discover other issues. Technology is used extensively to help with reporting on ESG and some companies are happy to rely 100% on what the algorithm reports (a "purely AI-disclosed value").

Driver Outcomes

Regulatory Ramp	Stakeholders at all levels have kicked regulation into high gear. Organizations that want to continue to operate (i.e., compliance or funding) are forced to dance to the needs of their respective regulatory overlords. Different communities are constantly on the hunt for lack of ESG compliance, requiring organizations to constantly update their operations and reporting standards.
Innovation Applied to ESG	A steady stream of innovative ESG technologies is entering the market. Implementation costs are decreasing, but not enough for the early majority to pull the trigger. The first cases of innovation to make a mark in organizations are environmental, but social and governance innovation lags behind as internal conflict holds up progress.
Internal Conflicts on ESG	The results are getting clearer: ESG is key to effective strategy in leading organizations, but the proliferation of regulations and standards enables laggards to question the data. However, differences in execution around speed, scope, and purpose delay transformative change, positioning ESG criteria as "cafeteria regulation."
Tech Enabling ESG	Automated ESG reporting is the norm for corporate accountability thanks to advances in technology and regulation via public data platforms – but it still requires the humans to decide which regulations to report on. It doesn't capture the entire picture, but it's enough to coax industries in the same direction, depending on which set of regulations they're going by.

Good on E, Less on S & G	Environmental degradation and collapse are the loudest of them all, leading to E to be first in line for industry compliance. As the dust settles, regulators build on their approach to environmental regulation and apply the same principles to governance. Social issues are swept under the rug until they hit critical mass, leading to big, dramatic booms in S regulation that appear to become more and more frequent. In step, a swathe of emerging governance regulations gives environmentally prepared organizations new milestones while forcing the late majority to juggle S and G.
ESG Demands from Everywhere	Organizations, particularly those in compliance mode, are confronted with a complex maze of regulations. It becomes challenging to simply abide by regulations as there are often several. As a result, some organizations choose to “over-perform” and meet or exceed the highest standards. Other organizations choose to do the bare minimum, but they risk the wrath of globalized cancel culture.
ESG: Fact or Fiction	The case for ESG compliance improving financial performance is getting stronger, but conflicting regulation muddies the waters and give skeptics the ammunition they need to question the data.
Trustiness	With a wide variety of standards, it is difficult to completely understand or trust huge waves of data. Organizations that can’t hold their weight against the plethora of regulation work around them instead. Specific entities tailored to jurisdiction, audience, and location buy time for organizations to make a run for the money or catch up in the marathon.

Scenario Description

ESG has taken off to the point of regulation everywhere. However, the clear guidance many were hoping for on regulatory practices never comes. External pressures drive regulators to take a unilateral approach. Industry, state, national, and global regulation leave organizations to face a minefield of ESG criteria to meet. National authorities like the SEC face mounting global pressures and look to ESG as a panacea, driving national ESG reporting requirements. With years of ESG consequences having material impact, communities, investors, talent, competitors, and other stakeholders watch progress closely, ready to sound the alarm that signals dangerous stagnation.

Early adopters have compounded benefits from their ESG criteria while the rest have been forced to catch up to the bare minimum due to impending regulation and societal pressure. Reporting mechanisms have achieved automation for the organizations that have established data collection across their operations, but the multitudinous ways in which the data is reported also leads to inconsistencies and difficulties fully interpreting the data. And of course, people still decide what to report on. Advanced reporting is only as good as what is chosen to be measured, leaving ESG factors such as workplace culture, diversity and inclusion, and governance to slip through the cracks. Left unchecked, these ticking time bombs threaten to drive an exposé era that has both new and incumbent organizations anxious.

The most ambitious strategy is to try and outperform all of the standards. Environmental innovation bought time and good will as stakeholders applaud exceeding carbon and energy milestones. On top of that, e-nnovation thought leaders are able to make concerted efforts in the social and governance criteria. The challenge arises when leaders need to decide which reporting to abide by. Abiding by all layers of regulation spreads unprepared organizations thin. On the other hand, focusing efforts on a single level of regulation threatens financing, compliance, and social risk.

Journalists, internet sleuths, and passionate organizers smell blood in the water after the first few non-complaints are taken down by massive hits to their stock price. Other scramble to catch up in fear of being next. Internal conflict intensifies as alignment around purpose and execution slow progress. To make matters worse, government mandated ESG compliance raises the stakes by imposing fines, restrictions, and possible shutdowns on non-compliant organizations. The competitive advantage from ESG leadership has shone through brightly, as the laggards fight to catch up.

B AND G CORPS

New Equilibrium 2: Changing rules

This is a world in which the social and governance aspects of ESG finally begin to catch up to the environmental ones. It's not that the focus on environmental is reduced, it's that the spotlight on the others brightens considerably. In 2024, a prominent capital project industry organization is publicly outed for touting its environmental performance and glossing over its poor treatment of workers and lack of investment in the communities in which it operates. And not surprisingly, their governance is found to be well below minimum ESG standards. This sparks a sharp focus on the S and G. B Corps, which had been growing steadily for years, take off as a best practice for S. A suggestion is made that a G Corp equivalent is needed for Governance, and that concept catalyzes the creation of the now popular G Corp framework.

B Corp Defined: "Certified B Corporations are businesses that meet the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose." (Link)

Driver Outcomes

Regulatory Ramp	B Corps, which had been growing steadily for years, take off as a best practice for S. A suggestion is made that a G Corp equivalent is needed for Governance, and that concept catalyzes the creation of the G Corp framework. Congress and the IRS create a tax-incentivized carveout for sub-chapter G Corps.
Innovation Applied to ESG	Self-managed teams have been around for years, but the trend got a big push when Zappo's converted to this governance model on a large scale. The growing evidence of effectiveness and employee engagement nudges capital project companies to re-organize into self-managed teams. The next step is following Morning Star Farms example and converting an entire organization into a self-governing model.
Internal Conflicts on ESG	The Great Resignation changes the demographics of the capital project industry. Labor shortages at all levels of the organization widen the open door for marginalized people and ex-offenders to join the industry in search of apprenticeship programs. The changing demographics and perspectives of the workforce begin to tip the balance on how the labor force approaches engagement with management and owners, culminating in a broad-scale early retirement buyout for the 'old guard.'

Tech Enabling ESG	AI-driven technologies have been great for improving operating efficiency, but the same technology has not been synthesized to assess supply chain, financial reporting, or HR data. The advance of the G Corp increases the rate of development in these areas as a means of capturing automation efficiencies.
Good on E, Less on S & G	S&G get their day in the sun. Attention to focusing on the development of frameworks and tools for measuring, monitoring, and reporting on S&G related topics. E is far more mature and work continues there, albeit a bit out of the spotlight.
ESG Demands from Everywhere	Legal but ethically dubious wage and safety practices come to light. This provides a spark that strengthens unions across the country. Unions are emboldened with the extra attention and launch social media campaigns. Investment in apprenticeship programs increases as a new generation of workers' demands more equitable treatment.
ESG: Fact or Fiction	Efficiency initiatives started with good intentions of reducing waste and keeping costs down for clients, but they took on a life of their own. Some companies relied too heavily on automation and devalued humans as anything more than resources. But stock analysts dinged them for a shrinking pool of R&D idea pipelines. ESG offers a way to revive engagement, stoke performance, and capture alpha.
Trustiness	The transition to more focus on S&G in part reflects stakeholder concerns that companies had gotten too comfortable with relying on their E performance. Skepticism abounds as companies begin the shift to more S and G – it will take time to rebuild trust.

Scenario Description

Entrepreneurs have done their part to get serious about improving business models for S&G. There are no silver bullets, of course. Every industry and executive and worker needs to exercise its conscience and make their own decisions about how to achieve their prosperity, but the G Corp has taken center stage. B Corps, which had been growing steadily for years, were a good option, but by adding strengthened corporate governance expectations and removing requirements for charitable giving out of profits - the "G Corp" was born. The framework isn't perfect, nothing is, but people like it enough as the “next gen” business model that junior members of Congress have submitted bills to have the IRS create a tax-incentivized carveout for sub-chapter G Corps.

The G Corp's ascension was well-timed with some pivotal investigative reporting for widening the employment door for marginalized peoples to join the industry. The industry leaders had figured out how to do good environmental work, but some bad press on employment practices played to the G Corp's strengths. To appease regulators and make some good headlines, the industry gave machine learning tools the same education from HR and executive-level data as they did for operational efficiency. This seemed like a good idea at first, but it threw open the archives of the bad ol’ boys club and there was no going back. The transition from tradition was embarrassing for a lot of people, but in the end, the investments in S&G are already beginning to hit their payback periods for some. Data and reports are transparent and freely available to a concerned public. The data itself is girded by distributed ledger technology which makes validation and verification much more effective and efficient. And it also removes any meaningful argument against making regular audits a required element of the expanded internal controls requirements.

Now that the data is there for all to see, growing social pressure leads to a bit of a union renaissance in some sectors. The shifting perspective of the "new" unions are tipping the balance on how the labor force approaches engagement with management and owners. There's even talk of a broad-scale early retirement buyout for the 'old guard.' There's a lot that's still up for grabs in public discourse, but one thing's for sure, things are getting better at the bottom. The Bureau of Labor Statistics data proves it: lower-income communities have taken over the #1 position as exporter of families to the middle class. Shareholders, for their part, lose nothing. The 1% are still the 1%.

Capital project companies, now out from under the shadow of exploitative S&G practices, are proposing operational advances that emphasize worker autonomy over management hierarchy. The argument that companies have overly-relied on machines and devalued humans as anything more than widget-punchers; which stock analysts are noticing in shrinking R&D pipelines. However, good ESG principles offer a way to revive engagement, stoke performance and creativity, and thereby capture alpha.

And for a moment, business holds the importance of E, S, and G in parity. Stay tuned.

PURPOSE MATTERS

Transformation: New rules

A loose but significant coalition of professionals with a similar socio-economic profile – young, educated, and financially secure – coalesces around shared values that align solidly with ESG. They want to put their money where their mouths are and work for a company that aligns with their beliefs. This produces "The Great Talent Exodus," drawing many of whom are often the best and brightest away from the traditional big companies who adopt a wait-and-see strategy. They migrate to what are seen as more progressive companies who are actively getting ahead of ESG compliance because they believe that it's good business in the long-run. They believe that doing the right thing in with ESG creates a sense of purpose that ultimately makes them more competitive.

Driver Outcomes

Regulatory Ramp	Companies that value ESG leverage it to attract up-and-coming talent who place high importance on ESG. They are already typically operating at higher standards than any top-down regulations that are passed.
Innovation Applied to ESG	It becomes sexy for tech workers to "put on a hard hat" and apply their knowledge to building things. This influx of tech talent dramatically boosts safety, takes advantage of the latest advances in materials technology, and "smartens up" building processes to dramatically improve ESG performance.
Internal Conflicts on ESG	The "Great Talent Exodus" leads to those with more experience and influence leaving companies who lag on ESG performance. They migrate towards firms that emphasize ESG and have a proven, seemingly authentic track record.
Tech Enabling ESG	Progressive companies modernize their information architectures to organize data, gain insights, and publish their adherence to ESG guidelines in a transparent way – offering to share their expertise with others (for a fee).
Good on E, Less on S & G	Pressure from the Purpose Matters crowd has made all three ESG critical criteria for anyone looking to work at, buy from, or invest in a company.

ESG Demands from Everywhere	While the primary pressure on companies to adopt ESG comes from recruits and highly qualified graduates, the pressure seems to be coming from everywhere: regulators pass new rules and guidelines, customers raise performance parameters, and activists and the public target perceived laggards.
ESG: Fact or Fiction	As ESG becomes more widespread, those companies with higher ESG performance are starting to see higher ROIs. Their early investments in ESG, while boosting costs in the short-term, are increasingly paying off.
Trustiness	A publicly available, publicly 'auditable' data source that reduces conflict over data validity (e.g., technology). Despite the absence of any single standard that "proves" ESG performance, the companies who are clearly out in front on ESG are recognized as such. Being open, transparent, and willing to correct mistakes earns back some of lost trust.

Scenario Description

Digital natives now make up the bulk of the workforce and leveraging new tech is assumed. It's a necessity to stay apprised of "the next big thing" that's just around the corner, and what comes after that. The purpose-driven cohort finds it exciting to transition into the capital project industry, seeing the potential to influence the way people live and interact with the spaces they live and work in. They've embraced modernizing materials and using data to improve efficiency and showcase how they are giving back through ESG. They've occupied a traditional, somewhat insulated industry as its latest endeavor to change how we interact with the world.

"Why can't we create building sites that are completely safe and made efficiently?" they ask. They've elevated digital tools to identify the cause of accidents and improve operational processes, sometimes implementing innovative solutions like robotics and drones so humans are not placed in harm's way. They thrive on collating data into understandable stories, illuminating how their employer can be more efficient in meeting deadlines and reducing costs. They are most proud of discovering the latest, eco-friendly materials, creating structures that replenish the earth, are good for the community, and can show off their willingness to give back to the world.

A vacuum of talent is created for employers. Talent migrates to companies where they can fulfill their values and make a difference by influencing the adoption of ESG. They start movements, often employee activism, to pressure a corporation into reflecting upon themselves, to search for what they believe is the right thing to do. Employees began to make choices. If they're going to spend the majority of the hours in their life working for a company, they want it to be meaningful – in their work, and the products they're developing as outputs of their employer.

Over time, this evolves into a new mindset for many companies. Of course, they want to attract the best employees who have the experience and expertise they require. The most talented people have their choice of options and more and more are choosing work that also have the "feel good" factor. Companies who embrace ESG become the employers of choice and are rewarded by investors and customers as this worldview takes hold. Money, success, and being socially and environmentally mindful shouldn't be exclusive of each other anymore, they come to realize.

To support this, and in addition to emerging policies and regulations around ESG, a single, publicly accessible source of ESG data is developed. The public audits and enforces ESG compliance through this transparent platform. It becomes very obvious and rather suspicious for a corporate entity to not participate in this system. Those companies who were early adopters become models for how to operate within this new purpose-driven environment, and are admired by consumers, employees, and investors. The way of working becomes, "if it doesn't feel good, it doesn't get funded."

RECOMMENDATIONS

The project focus now shifts from "what might happen" to "what might we do about it." The scenarios and supporting research, interviews, and scanning provide insight on what might happen. The remainder of the report focuses on recommended actions. Three virtual workshops were organized to gather client input – one focused on Environmental implications, one focused on Social implications and one focused on Governance implications. The following steps were taken to develop the recommendations:

1. Brainstorm potential implications or impacts of each scenario.
2. Identify strategic issues from the implications.
3. Develop an option or strategic response to each issue.
4. Develop an integrated strategic approach.

1. Implications. The process begins with brainstorming the potential implications or impacts of each scenario for ESG. That is, assuming the scenario occurs, the impacts for ESG are identified. We looked at implications specifically across Environment, Society and Governance. A "Third Order Impact" tool was used to identify these implications. It goes beyond the obvious impacts by exploring the impacts of the impacts.

2. Strategic Issues. Armed with a few hundred implications, the teams then look at the aggregate themes that these implications suggest. The focus is on identifying strategic issues – issues that will be critical to address in the future. They could be either threats or opportunities.

3. Options. The options are potential responses to the issues. An elevator speech tool was used to develop a rough outline of how to strategically respond to the key issues.

4. Integrated Strategic Approach. The final step is to develop an integrated strategic approach. The issues and options to this point are linked to individual scenarios. They provide a sense of how to respond if that scenario were to occur. Now the goal is to tie the responses together in an integrated fashion, that is, to develop a strategy that works across the entire landscape.

Issues and Options by Scenario

The implications provide ideas or raw material from which to construct strategic issues, whether a threat or an opportunity. The strategic issues provide a sharper focus on what ought to be addressed. Our experience as futurists suggests that while identifying strategic issues is a good and useful activity, its value is greatly enhanced by exploring what can be done about them, which we refer to as options. Options are high-level strategic responses to the strategic issues. The strategic options provide specific potential action responses for each issue. The overall strategic approach strategizes how to respond and navigate across the entire scenario landscape and identifies likely and desirable strategic directions or pathways to the future.

A useful tool for capturing the high-level responses is the elevator speech tool. We used a version of the elevator speech tool employed by the Houston Foresight program that was adapted from Strategos, the former company of business guru Gary Hamel. The goal is to capture the essence of how the team might develop a longer-term strategy for responding to the issue, as well as first steps in the present.

In three Implications workshops, we generated implications (specific to E, S and G) and spent time fleshing the most important implications out in an Elevator Speech Response. This table is a list of the 15 most imperative issues / options & response. In Appendix 3, we have these elevator speeches listed in detail.

We found that the issues fit into one of three overarching themes:

1. How does this impact the way my company operates and stays competitive?
2. How does this impact the types of projects (and the business) that my company does?
3. How will this impact the way we deliver projects?

We also wanted to suggest whether we believed these tasks to be ones tackled as an industry (with THE CLIENT) vs. considered independently within your organization.

While we point out which workshop an issue surfaced in, and which scenario in the workshop surfaced it, we may find that an issue, even though it came from a particular workshop and from a particular scenario, may be relevant to all 3 aspects of ESG, and relevant to all scenarios.

Which ESG implications workshop did this issue come up? "All" if it came up in all three

In which scenario was the issue found? "All" if the issue is across all 4 scenarios

Category	Issue / Opportunity	Response	Work alone or together?	ESG Workshop	Scenario
Operations and competition	How might we more effectively work together as an industry to meet the ESG challenge?	Come Together: Work with leading organizations like CII to develop an integrated industry response to ESG	Together	All	All
	Should we take the risk and get ahead of ESG standards before it becomes economically evident?	A Step Ahead of ESG by developing an ESG Think Tank	Alone	Environment	B&G Corps
	What do we do about an inability to get the right people?	Thinking outside the box to attract talent	Alone	Social	Wait & See
	How will adopting ESG change company risk profiles?	Risk Management Overhaul: A complete realignment and overhaul of risk management practices, which is necessary to achieve performance improvements.	Together	Governance	B&G Corps
	How can we develop the leadership needed to deal with shifting operating environment as ESG is indicating?	Create a Transformational Leadership program	Alone	Governance	Purpose Matters
	How do we manage external and internal pressure to increase Board and leadership diversity?	A long-term diversity plan with short-term wins	Alone	Governance	Purpose Matters
	How do we manage potential divisions within the company over ESG focus?	Aligning on ESG to attract and retain talent	Alone	Governance	Purpose Matters
	How do we improve our public perception?	Greater transparency. Companies embrace transparency as part of their proactive commitment to ESG.	Together	Governance	B&G Corps

Figure 11. Issues / Opportunities

Which ESG implications workshop did this issue come up? "All" if it came up in all three

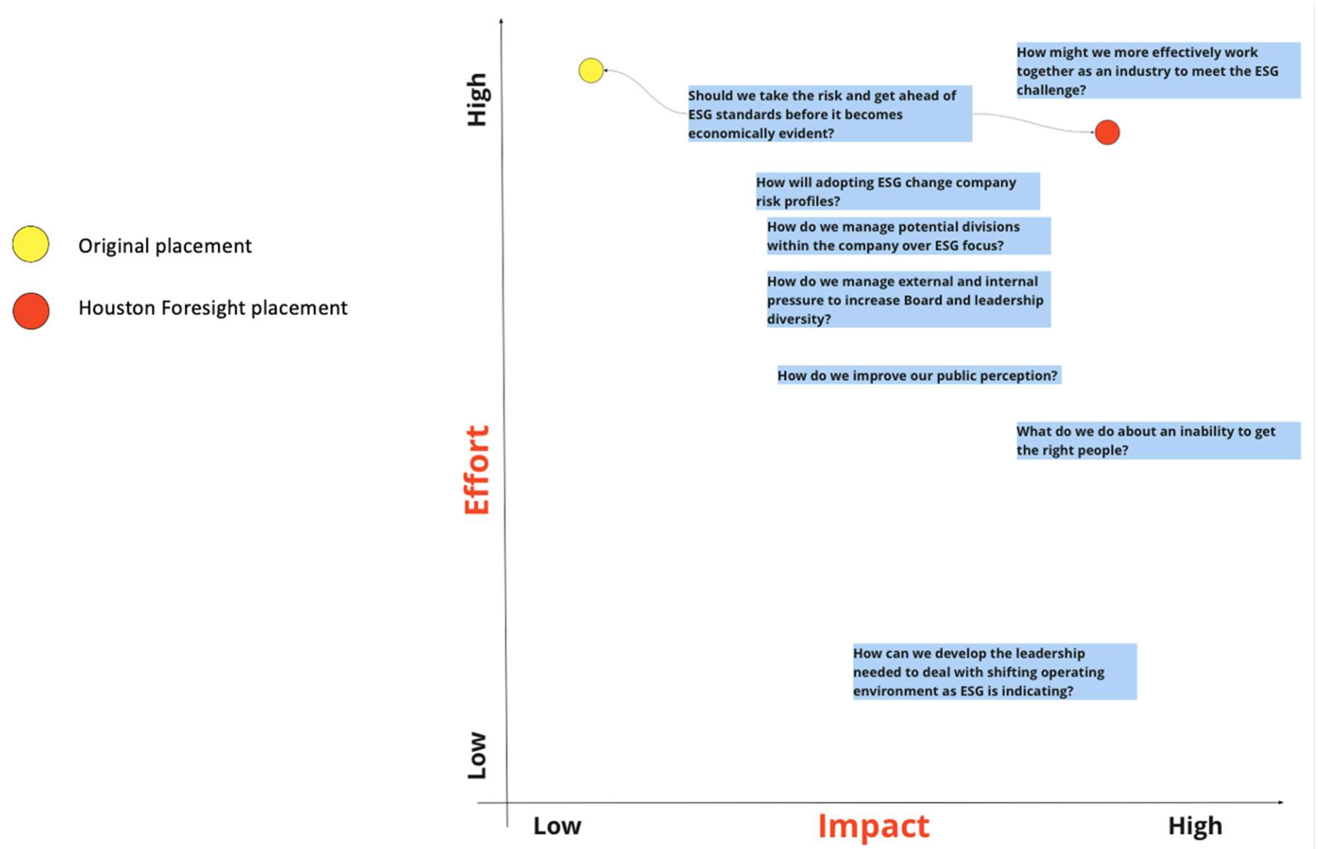
In which scenario was the issue found? "All" if the issue is across all 4 scenarios

Category	Issue / Opportunity	Option	Work alone or together?	ESG Workshop	Scenario
Types of projects	Should we pay equal attention to each part of ESG?	Leapfrog to S or G	Alone	All	All
	What's your value/what's your legacy?	Bring the cost of natural capital "on balance"	Alone	Environment	B&G Corps
	How do we differentiate from everybody else?	Above and Beyond ESG: Pursue Bold initiatives, such as Net Zero, B Corp, or G Corps	Together	Environment	Purpose Matters
	What do we do about current climate mitigation activities, such as carbon credit markets that are ineffective?	"All in" on Climate	Alone	Environment	Purpose Matters
	How do we address innovation stagnation?	Doubling Down on ESG Innovation	Together	Social	Wait & See
Ways projects are delivered	How might we address a lack of trust?	Share power with key stakeholders	Together	Governance	B&G Corps
	Will compensation practices at all levels be a barrier to long-term thinking and action on ESG?	Transforming compensation to impact all actors in capital projects by creating short, mid, and long-term compensation opportunities	Alone	Social	Regulatory Cornucopia

Figure 12. Issues / Opportunities con't

In our final workshop, each issue was plotted based on Impact (how important the issue is) and Effort (how difficult it will be to do) by workshop attendees. The plotting of these issues is below, including reasonings for the placement.

Plotting of Issues / Opportunities Under the Operations & Competition Category



Should we take the risk and get ahead of ESG standards before it becomes economically evident?
High effort & "Ranging" impact

- *Workshop Note: There is some disagreement about the level of impact this issue would have. While some workshop participants strongly felt this issue would have the lowest impact, others (along with the majority of Houston Foresight) believe getting ahead of ESG standards could be extremely impactful. The two extremes of this issue are shown in the graph with the yellow and red circles. Final placement has this issue more in the middle*

- Europe / Russia: What happens at the border will have a high impact on ESG discussion due to interconnected country impact
- Very difficult to standardize all instances of ESG
- Historical precedent for being in this position across other industry
- Getting ahead is challenging because the standards will likely change, and resource investment can prove risky
- Collaborating and creating the standard might lower the amount of effort

How might we more effectively work together as an industry to meet the ESG challenge?
High effort & High impact

- *Workshop Note: The placement was unanimously decided as highest effort yet highest impact*
- Forming alliances to push ESG to reality have proven effective, but they are high effort (there is varying willingness)
- Could collaboration remove individual competitive edge?

How will adopting ESG change company risk profiles?
High effort & Medium impact

- This means shifting your focus and support teams
- Requires getting a lot of people on board (including legal), meaning high effort
- Risk profiles of individuals is challenging; industry risk profile shifts can be impactful

How do we manage potential divisions within the company over ESG focus?
High effort & Medium impact

- Each individual company needs to figure out what they care about and derive their own strategy
- Seeing this as "alignment over ESG issues"
- Visionary leadership plays a role

How do we manage external and internal pressure to increase Board and leadership diversity?
Medium effort & Medium impact

- "Managing external pressures are always high effort"

How do we improve our public perception?
Medium effort & Medium impact

- If collaborating within the industry and with organizations like THE CLIENT works out, public perception of effort would be low, but there will be a high impact.
- "Perception isn't always reality"

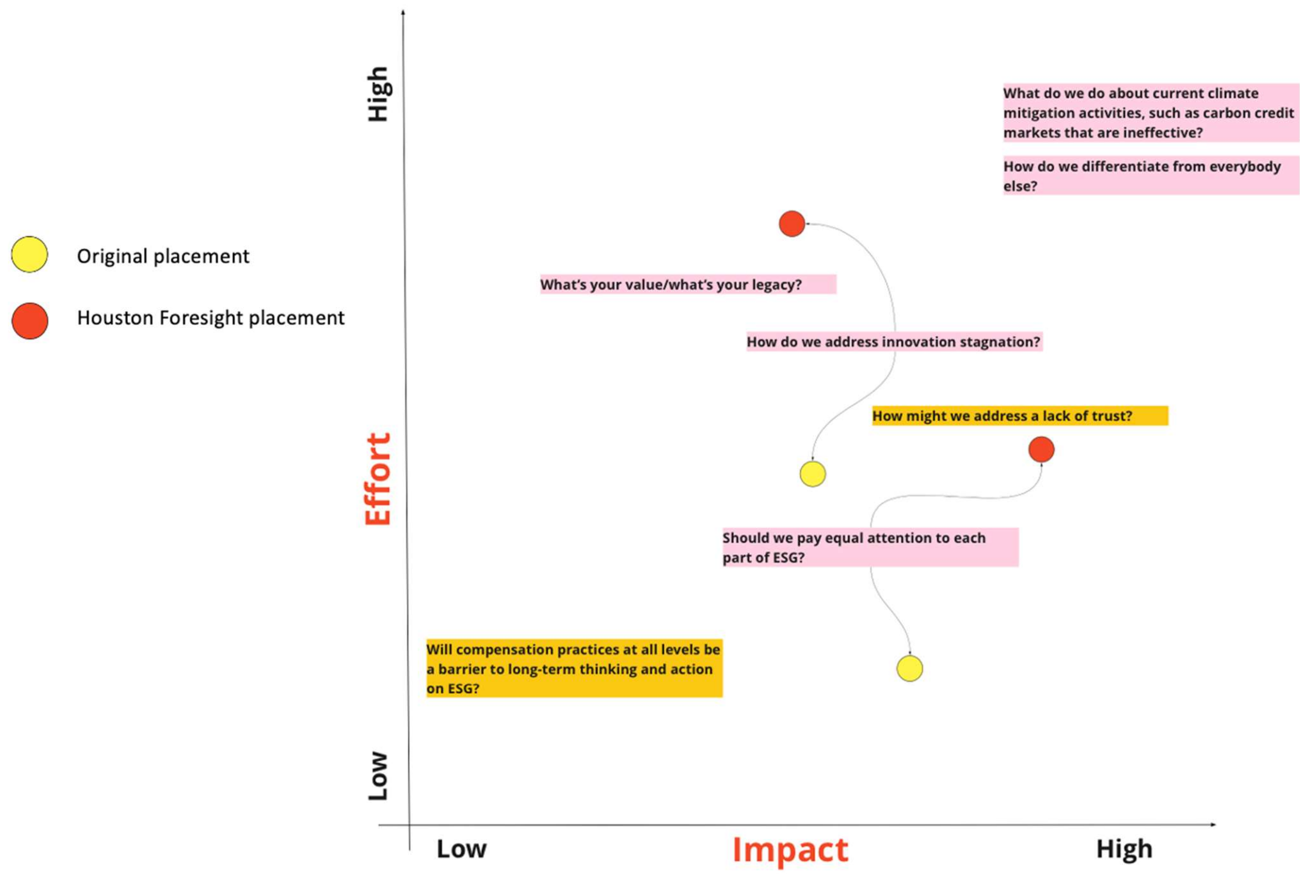
What do we do about an inability to get the right people?
Medium effort & High impact

- Resources required are low
- High impact because of the need for visionaries
- Perception impacts talent you attract. Need to walk the talk for impact
- Can train / raise talent from within (and in that case, the effort is lower)
- Effort might be higher in the short term, lower profit margins required for relevant talent
- Without incentives how can we make progress smoother?

How can we develop the leadership needed to deal with shifting operating environment as ESG is indicating?
Low effort & Medium impact

- The leaders are facing change today (so the developing is well under way)
- ESG is one of many challenges and, to many, not perceived as an existential threat
- Charisma of a leader impacts team and drives action and communication

Plotting of Issues / Opportunities under the Types of Projects and Ways Projects are Delivered Competition categories:



What do we do about current climate mitigation activities, such as carbon credit markets that are ineffective?
High effort & High impact

- For those that do go all-in, it is a lot of effort. But the payoff seems worth it (e.g. Patagonia)
- Whether the company does a lot or a little, the impact will likely be high
- For a company like oil, might not make sense to go all-in – maybe better to take steps, diversify
- Recognize a transition period – difficult for a company to go all-in immediately

How do we differentiate from everyone else?
High effort & High impact

- Difficulty in balancing working together as an industry vs. maintaining competitive edge
- Pursuing bold initiatives is high effort and hopefully high impact

What's your value / what's your legacy?
High effort & Medium impact

- If we assume sustainability is on a path of "permanent priority", the biggest impact would be if we chose not to get on board
- High effort in enforcing high priority to environmental sustainability

How do we address innovation stagnation?
"Ranging" effort & Medium impact

- *Workshop Note: There is some disagreement about the level of effort this issue would have as the company's already established innovation culture will largely determine effort. While some workshop participants strongly felt this issue would be low effort, others (along with the majority of Houston Foresight) believe overcoming innovation stagnation is a high-effort activity. The two extremes of this issue are shown in the graph with the yellow and red circles. Final placement is in the middle*
- Addressing innovation stagnation as a group should be easier than solo
- The level of effort and impact varies whether the innovation stagnation is environmental or social
- Social innovation stagnation may be easier to address within a group, but the social aspect is more complex

How might we address a lack of trust?
Medium effort & High impact

- If the response is to share power with key stakeholders, there are questions about who those stakeholders are
- Would have a big impact on how companies deliver projects
- Addressing lack of trust also depends on how much you've worked with stakeholders in the past

Should we pay equal attention to each part of ESG?
Low/Medium effort & Medium/High impact

- *Workshop Notes*
  - *Effort: Our optimistic workshop participants placed this issue as one of the lowest efforts but, given the feedback we received from THE CLIENT as well as comments throughout the course of the project, Houston Foresight moved effort up to Medium*
  - *Impact: Similarly, the workshop group felt the impact of addressing ESG parts equally would have medium impact. We recognize the impact of this varies depending on time. Houston Foresight believes the sooner this is done, the higher the impact*
- "Leapfrogging" to prioritize S & G will have varying levels of effort and impact, depending on the current ESG stance within the company

Will compensation practices at all levels be a barrier to long-term thinking and action on ESG?
Low effort & Low impact

- Much of the effort could be more about how this is being communicated
- "Companies won't do this alone since as compensation is based on market"
- Varies depending on if this is internal or contractors? Is it leadership or other personnel at company?
- If the compensation is transparent, it shouldn't be a high effort

The elevator speeches further discussing the 15 Issues / Opportunities are found in Appendix 3.

After the workshop, the teams analyzed these issues and discovered that there were four cross-cutting issues (robust issues) – the "Big Four" – that were important to address in all four scenarios:

1. Develop a strategy for addressing each part of ESG
2. Decide: Do we partner or do it alone?
3. Prepare for more (and extra difficult) innovation
4. Take extra care of your public perception and younger generation of employees

INTEGRATED STRATEGIC APPROACH

A good foresight project provides a sense of direction for moving into the future. It should be emphasized that organizations don't get to choose their scenarios, but rather choose how they will respond to the various scenario possibilities. Organizations may have a preferred scenario, in which case they can develop a strategy that helps move them toward that scenario. Similarly, organizations may have a scenario they would like to avoid, and they can take steps within their power to avoid it. ***However, it is important to note that the organization cannot dictate or choose which scenarios or combinations of scenarios actually happen.*** The future emerges from an amazingly complex interaction of forces and factors that defy control or even the ability to precisely predict how they will play out. The logic of scenario planning is to be ready for whichever way the most plausible combinations play out. There are four typical strategic approaches for a set of scenarios:

- Bet-the-farm is a risky approach of focusing on one scenario exclusively.
- Core-satellite puts more strategic attention on a scenario or two, and develops contingences for the others.
- Hedge-your-bets spreads time and attention roughly equally across the four scenarios.
- Robust identifies the common elements across the scenarios and focuses on those.

A useful way to think of these four strategic approaches is that they suggest how an organization can allocation its time, attention, and resources across the scenario landscape.

Suggested Strategic Approach: Robust

The team selected a robust strategic approach to the scenario landscape. The robust approach aims for common ground across the scenario landscape.

The strategic issues and options nicely fit into four clusters that are relevant to address in each of the four scenarios.

1. Develop a strategy for addressing each part of ESG
2. Decide: Do we partner or do it alone?
3. Prepare for more (and extra difficult) innovation
4. Take extra care of your public perception and younger generation of employees

The graphic below provides a map to guide the strategic approach. We begin in the present and find that we are already close to a Baseline / Collapse future. We say that business-as-usual will lead us into the "Wait-and-

See" scenario. We would caution industry companies from forming a long-term plan along "Wait-and-See" as the future appears to be strongly headed towards some sort of ESG compliance.

Or the capital projects industry could choose to focus on the robust four pillars, develop a winning strategy for each, and become resilient and/or flourish in any scenario we find ourselves.

For the other three scenarios, we included a major strategic choice. Developing a plan to address the robust issues should be guided by this major strategic choice.

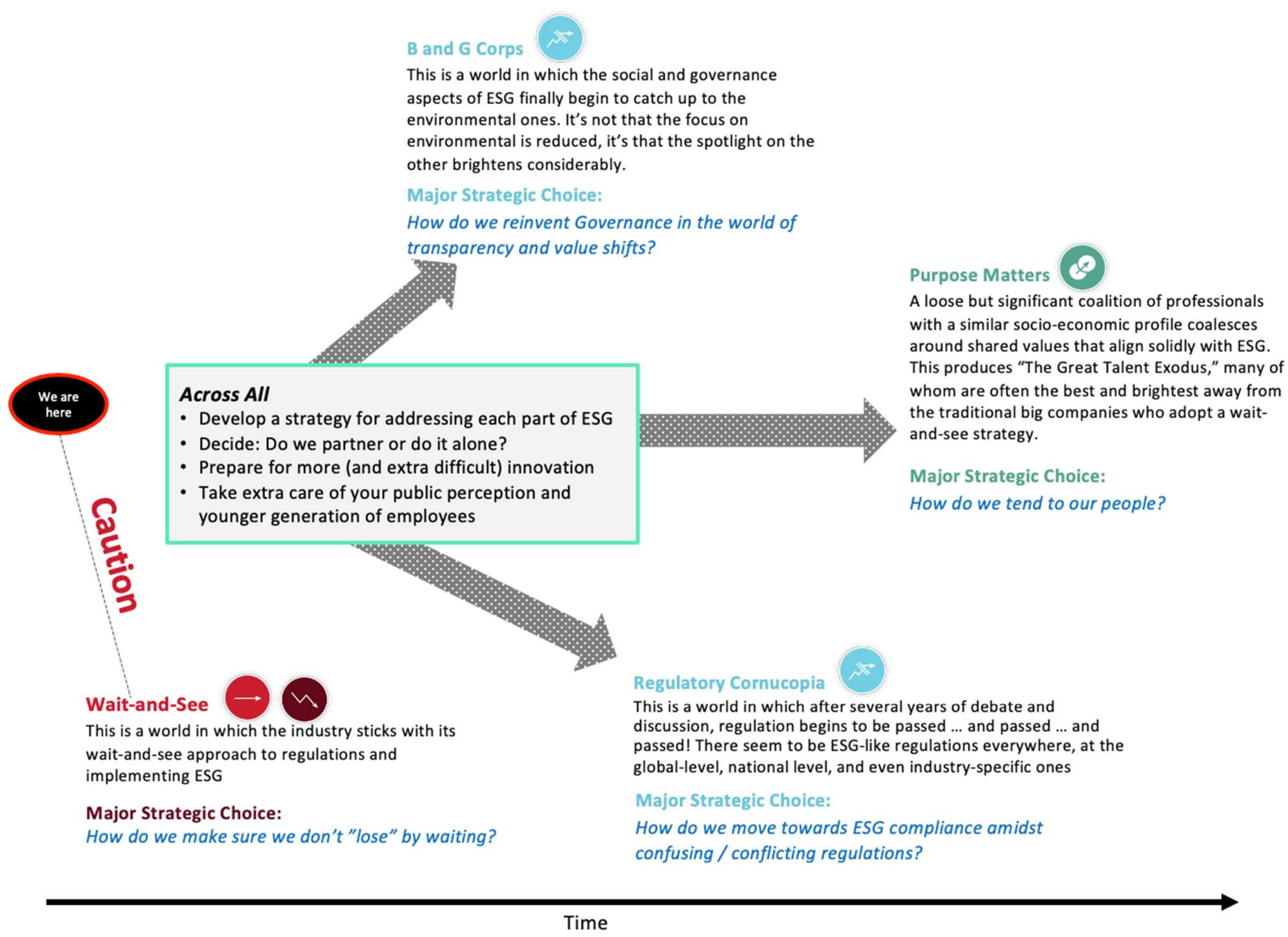


Figure 13. ESG on Capital Industry 2030 Strategic Approach

Use of the Report

The typical uses of a project like this are four-fold:

1. Strategic planning. Feed the learning from this project directly into the next strategy or strategic planning activity.
2. Innovation sessions. Use the scenarios, drivers, and supporting research as content for innovation sessions aimed at developing new offerings and services. The workshop may range from a few hours to a half-day or even full day. The idea is to use the material to stimulate thinking about the future and provide groups with tools and exercises to translate that into specific initiatives that the group might pursue.
3. Deep dives. Individual issues or drivers could be explored more comprehensively through a Deep Dive.
4. Horizon scanning system. Set up an ongoing Horizon scanning system. The full inventory of scanning hits housed in cloud-based collection system developed for this report can be accessed separately. It would serve as a starting point for the team to build from and develop its own inventory. An ongoing horizon scanning system can both:
    a. Identify new emerging issues – both opportunities and threats
    b. Monitor for changes suggested by the drivers and scenarios and provide insight to strategy on how the future is unfolding, which scenario(s) the future seems to be moving toward or away from

In addition, the drivers, trends, and supporting research can be the foundation of building an ongoing futures inventory or knowledge base that can be added to with each project, as well as provide a starting point for new projects.

APPENDICES

APPENDIX 1. PROJECT TEAM

Houston Foresight team

Dr. Andy Hines – Principal Investigator

Laura Schlehuber – Project Leader

John Sweeney – Adjunct Professor

Joshua Brockway – Student Researcher

Sara Fogarty – Student Researcher

Hauson Le – Student Researcher

Kelly Ann Medrano – Student Researcher

APPENDIX 2. ABOUT THE HOUSTON FORESIGHT PROGRAM

The Houston Foresight program is the world's longest-running graduate program solely focused on foresight. It offers education and training in futures thinking and methodologies in a variety of formats that are customized for different learners with different needs – from virtual "boot camps" to a four-course graduate certificate to a full Master's degree. It also performs research on futures-oriented projects to benefit the community and business, government, education, and non-profit organizations.

Our vision is to be widely recognized as the premier training ground for professional futurists and for those seeking to futurize their lives and their organizations.

Our mission is to serve aspiring professional futurists and the world by providing high-quality foresight training to help individuals and organizations in business, government, education, and non-profits realize their preferred futures.

For more information, visit https://www.houstonforesight.org/

APPENDIX 3. ISSUES AND OPTIONS

Category: Operations and Competition

Scenario: All

ESG Workshop All: **How might we more effectively work together as an industry to meet the ESG challenge?**

RESPONSE: Come Together: Work with group to develop an integrated industry response to ESG

Why is it important?

It would be more efficient to respond to ESG as an industry than as individual companies. Spreading the cost over the industry instead of having each company spend the money to investigate. It would also offer "cover" in that each member company would be sure it was aligned with industry perspective.

What should we do about it?

- Set up a task force/project with an organization such as THE CLIENT to investigate potential coordinated industry response
- Consider how to include non-member companies - how to include those companies or perhaps work with other associations

How do we make it happen?

Talk with other industry companies about their interest in collaborating on ESG response and explore whether VII would be willing to take it on

Who "owns" it?

Special task force

Scenario: B&G Corps

ESG Workshop Environment: **Should we take the risk and get ahead of ESG standards before it becomes economically evident?**

RESPONSE: "A Step Ahead of ESG" by developing and ESG Think Tank

Why is it important?

- Staying qualified in the new / ESG ways of constructing
- Staying attractive to new talent by moving towards a purpose-led corporation
- Being ahead ensures not being disqualified for innovative and novel jobs
- Investors will reward being qualified in the new-school way

What should we do about it?

The internal "think tank" closely monitors ES developments and keep the organization a step ahead. It is required due to:

- Requirements likely varying across regions
- Specialized resources being needed to understand the impacts
- Launch and coordinate innovation campaign to "get ahead of ESG"
  - Campaign to bring in entrepreneurs to catalyze the innovation
- Ensure proactivity to stay ahead
- Work closely with risk management to minimize project, business, ESG risk (it's a risky approach, so do all that is possible to minimize it)
- Devising strategies for managing costs incurred by being ahead
- PR campaign to highlight success and build momentum

How do we make it happen?

Set up ESG think tank as a prestigious group to belong to that will monitor ESG to stay ahead of it

Who "owns" it?

New innovation group/think tank

Scenario: Wait & See

ESG Workshop Social: **What do we do about an inability to get the right people?**

RESPONSE: Thinking outside the box to attract talent

Why is it important?

Inability to execute projects due to lack of talent, losing craft people, younger generations because they see the industry as stuck in the past due to their inaction on ESG.

What should we do about it?

- Create positions within the organization to promote ESG
- Commit to meeting or exceeding ESG requirements
- Develop a recruiting campaign asking for help on developing the innovations to be ESG compliant or leaders

How do we make it happen?

Work with HR departments to "target" the appropriate talent

Who "owns" it?

HR and marketing departments

Scenario: B&G Corps

ESG Workshop Governance: **How will adopting ESG change company risk profiles?**

RESPONSE: Risk Management Overhaul: A complete realignment and overhaul of risk management practices, which is necessary to achieve performance improvements.

Why is it important?

ESG is seen by many as putting more financial pressure on companies in an industry already experiencing tight profit margins. Yet the pressures are real and strong, and the failure to act in the short term, while financially prudent, could create long-term risks for organizations.

What should we do about it?

- Need to revisit the organization's risk management philosophy and the resulting metrics to make a greater account:
  - for the long term
  - for non-financial criteria, e.g., the ESG criteria
- Goal is to estimate the opportunity cost of non-compliance with ESG

How do we make it happen?

Benchmark other industries to see how long-term their risk management strategy looks ahead.

Who "owns" it?

COO and risk management function

Scenario: Purpose Matters

ESG Workshop Governance: **How can we develop the leadership needed to deal with shifting operating environment as ESG is indicating?**

RESPONSE: Create a Transformational Leadership program

Why is it important?

All industries and companies are under increased scrutiny, but capital programs may have an even brighter spotlight shined on its practices due to the huge impacts its projects have. At the same time, the external world in all three areas of ESG, the environment, and the social situation, and the nature of corporate governance are all shifting and increasing volatile – all at the same time. It may be that the more cautious and conservative leadership approves that have served the industry well in the past are out of synch with this emerging context, and that a more bold, visionary, and transformative approach is needed.

What should we do about it?

Design a future transformational leadership program that:

- Prepare leaders for transitions, tipping points, and long-term transformation
    - ESG is a fundamental part the curriculum, but not the only part
    - Emphasizes transparency and skilled communication with stakeholders

Assess whether the skills to deliver such a program are in house or need to be brought in from the outside, or both.

How do we make it happen?

- Audit current leadership training practice for how it addresses transformational leadership
    - Is it possible to build on existing programs, or is a fresh start needed?

Who "owns" it?

Board of Directors, Senior leadership, HR, and key stakeholders

Scenario: Purpose Matters

ESG Workshop Governance: **How do we manage internal and external pressure to increase Board and leadership diversity?**

RESPONSE: A long-term diversity plan with short-term wins

Why is it important?

Fair or not, and regardless of view about how diversity will add value or not, there will be growing pressure on organizations to increase the diversity of their Boards and leadership. Organizations involved in Capital Projects are often judged to be lack "appropriate" diversity. Failure to take what are perceived as adequate steps may get ugly if cancel culture targets organizations in the industry.

What should we do about it?

It is important to acknowledge that this is an important issue. It is important to engage in dialogue and be sure that concerns are being heard and that the organization is doing what it can to address these concerns.

- • Avoid an adversarial cost- benefit argument with interest or activist groups that is likely only to be inflammatory
- Alliances or an industry-level consortium response may be the best way to process.
- Given the need to "catch up," developing a long-term plan with key short-term milestones seems to be the minimum response.

How do we make it happen?

Develop an inventory of what other industries are doing; in particular look for industry with a similar diversity profile

Who "owns" it?

Board of Directors, senior management, and public relations

Scenario: Purpose Matters

ESG Workshop Governance: **How do we manage potential divisions within the company over ESG focus?**

RESPONSE: Aligning on ESG to attract and retain talent

Why is it important?
The industry, and individual companies, may suffer if there is widespread division on ESG goals. Some could lose out on top talent if it fails to demonstrate its commitment to ESG goals. Some companies are already dividing over the issue. The long-term trend is moving away from just focusing on the bottom-line to the broader ranges of consideration captured by ESG.
	What should we do about it?
	• Develop a "placeholder" set of ESG goals to use as part of an industrywide conversation aimed to develop consensus.
	  • Identify KPIs for ESG goals / targets
	  • Report regularly on ESG KPIs
	  • Tie business results to ESG impact
	• Link exec compensation to ESG goals

How do we make it happen? Develop an ESG roadshow to educate members on what's coming.	***Who "owns" it?*** ESG task force (SME in each area of ESG with cross-sectional representation within the organization)

Scenario: B&G Corps

ESG Workshop Governance: **How do we improve our public perception?**

RESPONSE: Greater transparency. Companies could embrace transparency as part of their proactive commitment to ESG.

Why is it important?

We want to:

- Improve employee engagement as part of a cultural shift toward ESG
- Improve the public perception of the industry and
- Build a more resilient overall firm

What should we do about it?

- Develop ESG goals and commit to transparency on reporting
- Decide whether to phase in transparency or go all-in
- Consider practices that may need to be adjusted in advance of transparency
  - Releasing information about pay practices, part of both S and G criteria, could create internal strife is perceived as unfair
- Build out of marketing to include internal AND external communications regarding transparency as related to ESG
- Create a change management plan

How do we make it happen?

Form a cross-functional, diverse team to clarify costs/benefits to make the case for doing it

Who "owns" it?

HR

Category: Types of Projects

Scenario: All

ESG Workshop All: **Should we pay equal attention to each part of ESG?**

RESPONSE: Leapfrog to S or G

Why is it important?

The E aspect is the most emphasized of the ESG criteria. It has received the most attention and is generally more advanced. It has the most comfort for Capital Projects in the construction industry. One potential strategy to build the organization's ESG reputation is to maintain acceptable E performance, but leapfrog ahead to invest "extra" time, attention, and resources on the S or the G criteria or both.

What should we do about it?

- Decide whether to leapfrog to S or G or both
- Evaluate the benefits to the industry of "leading" in each
- Assess the feasibility of leading in S or G; what innovations and talent might be needed
- Maintain "acceptable" levels of E performance
- Through innovation and change management, implement study findings

How do we make it happen?

- Initiate a task force to highlight S and G by doing a study
- Hire SMEs in S&G
- Think about an internal PR campaign to raise awareness

Who "owns" it?

Special task force

Scenario: B&G Corps

ESG Workshop Environment: **What's your value/what's your legacy?**

RESPONSE: Bring the cost of natural capital "on balance"

Why is it important?

Non-renewable resources are shrinking every day, and many of those resources add to environmental degradation when they are harvested and/or used. The ethical value of sustainability is gathering cultural value and importance at an increasing rate, and is on a path to permanent priority. In time, it will become an assumption, and our children and grandchildren will judge us and the decisions that we make against the value of sustainability. Are we ready to face that scrutiny, or are we holding out for a "Hail Mary throw' that the narrative will change?

What should we do about it?

- Re-prioritize sustainability within the corporate culture as a foundational tenet
- Improve sustainability education for employee
- Hire lawyers to collaborate with SEC and shareholders so you're acting in Good Faith
- Begin developing ad campaign to highlight differentiation from other firms
- Crowdsource revenue-generating opportunities to repurpose engineering and design talent previously used on unsustainable business lines
- Revalue natural resources to include natural capital, thereby recognizing the additional cost on extraction
- Price goods and services to include the new cost structure, and use the amount for natural capital in environmental degradation abatement programs
- Refocus corporate culture, strategic plan, and business model

How do we make it happen?

Perform a sustainability audit of existing operations, which may require hiring actuaries and accountants with experience in "green accounting"

Who "owns" it?

CEO and Board of Directors

Scenario: Purpose Matters

ESG Workshop Environment: **How do we differentiate from everybody else?**

RESPONSE: Above and Beyond ESG: Pursue Bold initiatives, such as Net Zero, B Corp, or G Corps

Why is it important?	**_What should we do about it?_**
Just being compliant or staying a step ahead may not create much competitive advantage. A bold strategy would be to leapfrog ahead by pioneering performance levels above ESG as a way to rebrand and transform the company. Talent and investors would be attracted to an industry seen as cutting-edge, and it would build trust with regulators and communities as well.	• Build support for the bold strategy • Develop metrics suggesting how it could improve ROI in the long-run • Recruit needed talent for big initiatives • Develop promotional campaign • Identify expertise needed to administer model

How do we make it happen?	**_Who "owns" it?_**
Commission a team to pick an appropriate first pilot, e.g., Net Zero	Special ESG task force

Scenario: Purpose Matters

ESG Workshop Environment: **What do we do about current climate mitigation activities, such as carbon credit markers that are ineffective?**

RESPONSE: "All in" on Climate

Why is it important?

The acceleration of climate change is alarming and allowing companies who continue to contribute to carbon emissions to pay money to "offset" their impact on the environment will lose tolerance. Current measures, such as carbon credit market risks are largely ineffective.

What should we do about it?

Following the climate audit (suggested below), consult with environmental experts about alternate materials, energy sources, processes that improve the organization's climate impact.

- Model scenarios and costing to shift business in alternate directions.
- At company level, identify areas of the business with largest carbon impact and sources.
- Research environmental innovation that could be incorporated into existing products, processes.
- Long-term R&D aimed solely at green climate-friendly initiatives

How do we make it happen?

Executive leadership and Board of Directors initiate a sweeping audit of all climate-related impacts as the first step to devising action plans.

Who "owns" it?

Executive leadership and Board of Directors

Scenario: Wait & See

ESG Workshop Social: **How do we address innovation stagnation?**

RESPONSE: Doubling Down on ESG Innovation

Why is it important? The business case for ESG in the present is challenging and many in the industry are saying “not right now, thank you." But the momentum for ESG is strong and by investing now, the industry can start developing the innovation (process, technology, materials, etc.) needed to comply and get ahead in the future.	***What should we do about it?*** • Assume ESG will come true and begin developing pilot innovation projects to meet or exceed these requirements. • Help innovations “aim” by developing a base case on what ESG regulations are likely to be in 5-10 years • Develop an advocacy campaign on “Doubling Down” on ESG Innovation aimed at the future health of the organization • Develop an internal community of practice network with platform to collect, evaluate, and fund promising ESG-related innovation ideas
How do we make it happen? Create an inventory of current ESG-related proposals and regulations	***Who “owns” it?*** Task force/community of practice

Category: Ways Projects are Delivered

Scenario: B&G Corps

ESG Workshop Governance: **How might we address lack of trust?**

RESPONSE: Doubling Share power with key stakeholders

Why is it important?

Classical business wisdom says to keep your cards close to your vest, lest you give up a competitive advantage. Moreover, unions, communities, and special interest groups have spent so many years trying to eat away at corporate profits, so it's hard to see anything good coming from working with them. But the contemporary era is asking more unanswerable questions. Businesses' best hope for prosperity amidst the uncertainty is partnerships of resilience, but partnerships are based on trust, and you can't build trust if you don't share power.

What should we do about it?

- Value stakeholders as counselors
- Strike mutual support and investment agreements with stakeholder groups
- Gather stakeholders at local, regional, and national levels for participation in strategic and operational decisions
- Design a mechanism by which stakeholders may "veto" inappropriate corporate actions
- Develop a measure of overall resilience, the business value of resilience, and the incremental resilience that each stakeholder partnership adds
- Offer 'equitable collateral' to stakeholders in the event of a 'trust default'
- Enhance operational, financial, and strategic disclosures to stakeholder leaders

How do we make it happen?

- Clarify who stakeholders are and which get some power
- Manage expectations within the corporate-community relationships

Who "owns" it?

Leadership, strategy and PR

Scenario: Regulatory Cornucopia

ESG Workshop Social: **Will compensation packages at all levels be a barrier to long-term thinking and action on ESG?**

RESPONSE: Transforming compensation to impact all actors in capital projects by creating short, mid, and long-term compensation opportunities

Why is it important?

Inspire action for short-term thinkers and increase accountability through compensation

- Money rules to start change
- Health and sustainability to the company
- Implements accountability from an owner AND contractor side

What should we do about it?

- Prioritize projected operational time and end of life as new KPI in addition to cost and timing of projects
- Decouple short-term goals with executive compensation
- Consider approaching capital projects from design/thinking phase to end of life
- Compensation designed in short/mid/long term

How do we make it happen?

- Adapt current compensation plans at all levels to short/mid/long term
- Review and refine compensation plan
- Pilot new KPIs

Who "owns" it?

Strategy and HR

APPENDIX 4. TREND INVENTORY

Social Trends

Activist Investors	More and more stakeholders are making decisions based on companies' sustainability performance, as reflected in the growing market share of sustainability-sensitive investors, the proliferation of codes of sustainable business conduct, and the widening acceptance of voluntary standards for reporting sustainability performance. The focus on the societal and thus the human rights aspects are ever increasing.	Link
Building Relations with Communities	Construction contractors are emphasizing their involvement in partnering with communities they are building in since they are literally building the future. Additionally, communities and organizations are approaching capital projects more holistically.	Link
Climate Justice	Pressure is increasing for construction projects to address climate injustice by calling on designers and architects to consider air quality, mitigating extreme heat and incorporating clean energy and clean economics.	Link
Corporate Social Justice	Corporate social justice reframes corporate social responsibility by focusing on initiatives or programs on the measurable, lived experiences of groups harmed and disadvantaged by society. Consumers and other stakeholders are increasingly seeing social good as a necessity and not just a marketing strategy	Link
Couples shacking up	More cohabitating couples are living together longer but few are marrying	Link
Delayed adulthood, Kidults	Some World 1 consumers are prolonging their adolescence and delaying adulthood in various ways. In World 1 adults in their 20s, 30s, and 40s are carrying on activities traditionally associated with childhood and adolescence later in life. In developed countries is becoming the norm for women to pursue their education, career, and personal development before getting married. In the US 22% of 30- to 34-year-old women have never married, a threefold increase over the level in 1970. Delays in the age of marriage are causing corresponding lags in parenthood. In the US in 2002, the birthrate for mothers aged 35-39 were the highest in more than three decades. With delays in parenthood also come growing fertility problems, with increased use of IVF methods for conceptions, and in some cases, increased multiple births.	Link
Demographics Shifts	Demographic changes will impact all aspects of society going forward. The aging population and lower fertility rates affect the future workforce. More single households and immigration contribute to how people live and consume.	Link
Employee Activism	Rising employee activism is driving corporations to state a position on social issues.	Link
Empowered health consumers	Empowered consumers are turning to the Internet first—before consulting doctors about health problems—and in many cases are diagnosing their own conditions.	Link
Exurban growth	Edge cities, exurbs, and areas of sprawl continue to develop, especially in areas with high land costs. Increasing numbers of poor urban dwellers and immigrants are moving to far exurbs and even rural areas surrounding expensive cities, changing the distribution patterns for the provision of social benefits.	Link
Gender Equity	Through all the obstacles women encounter breaking into the construction industry and the image of construction as a male-dominated field, women are finding the benefits like higher pay and opportunity for advancement outweigh any perceived negatives.	Link
Marriage declining	The long-term decline in marriage continues as more unmarried couples are living together, and more people are staying single longer	Link

Megacities rising	Megacities—defined by the United Nations as cities with populations of 10 million or more—are a growing phenomenon of Worlds 2 and 3. By 2025-2030, it is estimated that around 630 million people will live in close to 40 megacities around the world.	Link
Millennials Rising	Millennials are altering the construction industry in areas of creating a lack of skilled workers and driving change to use more technology and eco-friendly practices in the industry.	Link
Neotribalism	Neotribalism is on the rise as extreme partisan politics drives citizens into "us vs. them" camps. Studies have found that partisanship or non-cooperation in the U.S. Congress, for example, has been increasing exponentially for over 60 years with no sign.	Link
New disease threats	Worldwide, infectious diseases will continue to be a threat to life and economic stability. New and reemerging infectious diseases will pose a rising global health threat over the next 20 years.	Link
New urbanism	New urbanism—an urban planning movement that seeks to recreate the dense, walkable cities of the past—is gaining momentum. Mixed-use developments with a variety of housing units, jobs, and retailers, located in close proximity to one another, are typical of new urbanist communities.	Link
Pandemic fear	In light of COVID, the fear of more or worse pandemics is rising throughout the world.	Link
Racial Inequity	Racial disparities in the United States manifest significant impacts to wealth, health, safety of BIPOC individuals and communities. National visibility of the issue has increased significantly in 2020 with increasing public commitments by corporations and governments to take action to improve.	Link
STEM focus	Education is focusing on offering more STEM curricula.	Link
Suburbanization	Edge cities, exurbs, and areas of sprawl continue to develop, primarily in rich nations.	Link
Traditional families shrinking	Traditional families continue to shrink—cohabitation is rising, increasing numbers of adults are delaying or not marrying at all, more children are living with an unwed parent, and same-sex marriage is legal across the US.	Link
Trust declining	Americans reportedly trust each other less. About seven-in-ten Americans (71%) think people are less confident in each other than they were 20 years ago	Link
Urbanization	Population growth continues toward urban over rural areas.	Link
Voluntary simplicity	A small but growing portion of consumers are downshifting, cutting back on their work or lifestyle in order to lead a more fulfilling and balanced life. To date, this trend has largely been voluntary.	Link
Wellness focus	Health consciousness and the idea of wellness are growing, especially in World 1. A growing number of consumers are focusing their attention on physical and mental fitness, diet, and hygiene.	Link

Technological Trends

3D Printing	Additive manufacturing, often referred to as 3D printing is transitioning from a prototyping tool to a manufacturing tool. It has the potential to profoundly alter the manufacturing landscape by allowing not only manufacturers but individuals and small businesses to create custom products on demand. The primary applications of additive fabrication are design/modeling, fit and function prototyping, and direct part production.	Link
5G and beyond	The global 5G infrastructure market size was valued at $371 million in 2017 and is projected to reach $58 billion by 2025; it will boost the mobile experience with reduced latency, low cost-per-bit, and consistent and higher data speeds.	Link
AI	The global AI market is expected to reach $734 billion by 2027, expanding at a CAGR of 42.2%, driven by big data, cloud-based applications, and demand for intelligent virtual assistants.	Link
Augmented reality	Augmented reality (AR) systems supplement a user's real world with digitally created visual and aural information including text, graphics, 3D animation, and sounds, producing information streams that lie somewhere between reality and virtual reality.	Link
Automation and job loss	A recent PwC report suggests automation-related job loss will start to be felt in the mid-2020s – with 10-15% of jobs in three sectors (manufacturing, transportation and storage, and wholesale and retail trade) – and by 2035, the range of jobs with high automation potential will be closer to 35-50% for those sectors.	Link
Biometrics	Biometric technologies, such as facial recognition, are increasingly being used by governments globally – in policing, border and immigration enforcement, national identification systems, rural credit markets, and public service delivery.	Link
Blockchain	The global blockchain market size is expected to grow from $3.0 billion in 2020 to $39.7 billion by 2025, at an impressive annual growth rate of 67.3% in wide range of process applications, e.g., supply chain management.	Link
Constant connection	Constant connectivity is becoming the norm. This is creating new consumer demands on service providers, and new opportunities for organizations to stay in regular contact with their customers.	Link
Consumer-centric AI	AI-based automatic monitoring is becoming crucial to the viability of e-commerce, with AI software being used to detect fraud and expedite online transactions. The Web has given AI developers a new platform for creating consumer-oriented services and software. Web-based consumer AI applications now range widely, from smarter search engines to portfolio management, gaming, and online translation services.	Link
Continuous monitoring & data collection	IoT extends to always on monitoring and gathering of data.	Link
Digital Media Manipulation	Online media has shown itself vulnerable to bots, search engine manipulation, bias, and disinformation, highlighting the vulnerabilities of free speech in a digital age.	Link
Government Joins the Cloud	The use of the cloud in government is steadily increasing, with the benefit of breaking down data silos and enabling future innovation.	Link
Government Transparency	As increasing numbers of government entities continue to go digital to save time and money, citizens are able to access and review government processes and digital data, increasing government transparency.	Link
Green homes	Homes are increasingly "green," both as new builds and in retrofits.	Link

Growth of Automation and Prediction Systems	The expansion of automation and prediction systems will continue to grow through the use of predictive analytics, machine learning technologies, Internet of Things (IoT), and other intelligent infrastructures.	Link
Information fusion	Ubiquitous analytics will make it possible for consumers to generate useful insights about their own habits and behaviors by fusing personal data (e.g., social media profiles, tweets, location data, purchasing histories, health sensor data, etc.).	Link
Internet of Things	At the end of 2019 there were 7.6 billion active IoT devices, a figure which will grow to 24.1 billion in 2030 at a compound annual growth rate of about 11%.	Link
Open data access vs. privacy, security	The advent of electronic medical records will continue the trend towards greater accessibility of medical records to patients, providers, and insurer. Privacy and security of medical records and medical information will be of increasing concern as more data are shared through electronic medical records, mobile devices, and social networks.	Link
Quantum computing	A quantum computer harnesses the phenomena of quantum mechanics to deliver huge leaps forward in processing power. Quantum machines promise to outstrip even the most capable of today's supercomputers.	Link
R&D globalization continues	A growing number of companies are investing more of their R&D investment to regions where their sales and manufacturing were growing fastest and where they could access the right technical talent.	Link
Rise of anti-microbial/anti-bacterial design	Increasingly, design is tackling the problems of germ-fighting, either through materials used or how buildings are laid out to minimize contact point/germy surfaces.	Link
Self-powered buildings	Self-powered building designs are being increasingly explored and implemented, e.g., Manchester England refurbished CIS tower	Link
Smart buildings & homes	Smart homes and buildings are emerging, with the ability to monitor and control energy consumption and internal systems, including security and appliances.	Link
Smart Everything	As people continue to gain online access and more devices connect up to faster networks, everything will be "smart" enabled. This will greatly increase as 5G networks are built.	Link
Smart grids	There is a move to modernizing the electric grid with smart technology, which shows up with consumers in the form of smart home meters.	Link
Smart logistics	Logistics and distribution are getting smarter via information technology – such as IoT, RFID, GPS – which is facilitating just-in-time operations.	Link
Tech-enabled activism	Information technologies are becoming more important to activism and protest, especially as use of the Internet and mobile phones continues to grow.	Link
Truth increasingly blurry	The growing use of online sources makes it increasingly difficult to find "the truth," as sources interpret news and information to fit their worldview.	Link
Wearable computing	After years of prototyping and development, and some successes in specialized environments, wearable computing may be poised for broader adoption. Entertainment, sports, and fitness uses will drive the consumer market; healthcare applications will expand; and military and industrial applications will continue.	Link

Economic Trends

Aging infrastructure	The American Society of Civil Engineers America's infrastructure estimates the US needs to spend some $4.5 trillion by 2025 to fix the country's aging roads, bridges, dams, and other infrastructure	Link
Aging workforce	Labor force participation of workers 55-64, 64-74 and 75+ are continually growing with rates at younger ages declining or remaining steady.	Link
Collaboration Platforms	Collaboration platforms such as Slack, Microsoft Teams and Zoom designed to mimic or promote more interactive virtual collaboration have been growing with more significant adoption catalyzed in 2020 during the COVID-19 pandemic.	Link
Employee Engagement	Companies are paying closer attention to increasing the emotional commitment of their employees through employee engagement programs.	Link
Experience Economy	We've shifted from an industrial-based to a service economy that now emphasizes meaningful experiences over physical products.	Link
Global competition	Competition is increasingly global, reaching beyond national and regional borders.	Link
Income inequality	In the US, income inequality has been growing markedly, by every major statistical measure, for some 30 years. Income inequality in the US is currently the highest of all G7 nations, and the wealth gap between America's richest and poorer families more than doubled from 1989 to 2016.	Link
Job Hopping Generations	As a result of many Boomers staying in the workforce past typical retirement age, Millennials and Gen X are resorting to job hopping to find promotions and higher pay. Some companies are losing promising employees due to lack of promotions and higher pay.	Link
Knowledge economy	The knowledge economy is focused on the essential importance of human capital in the 21st-century economy. The rapid expansion of knowledge and the increasing reliance on computerization, big data analytics, and automation are changing the economy of the developed world to one that is more dependent on intellectual capital and skills, and less dependent on the production process.	Link
Moral capitalism	Maximizing shareholder value is going out of fashion; instead, companies increasingly consider all stakeholders - employees, their communities, and the environment to name a few - when making decisions. And consumers are paying attention to which companies do this.	Link
Peer-to-peer (P2P) models	It is increasingly practical to "disintermediate" the middle layer so that consumers can directly transact with one another; one projection is global P2P lending will hit $44B by 2024 up from $18B in 2018.	Link
Remote Workforce	Employers are offering remote work as an option for employees.	
Reputation systems	Reputation systems are becoming increasingly important for commerce, with credit rating systems underpinning the lending system, and buyer rating services supporting the evolution of e-commerce.	Link
Retirement Crisis	Baby Boomers just are not retiring like previous generations. The last Great Recession (and more than likely this current recession) created a willingness among many Boomers to keep costs low and incomes high, thus they are not retiring. Partially because of this, Millennials and younger generations aren't able to follow the traditional career track.	Link

Reverse Brain Drain	Some foreign-born white collar workers are leaving their prosperous lives in the developed world to take part in the growth of the developing world. This trend may increase in the US in light of COVID.	Link
Reverse globalization	Global supply chains have been shortening due to a number of factors which has be exacerbated by the global pandemic, resulting in distribution chain disruptions, companies are increasingly manufacturing locally .	Link
Stakeholder capitalism	Maximizing shareholder value is going out of fashion as companies increasingly consider all stakeholders – employees, their communities, and the environment to name a few – when making decisions .	Link
Structural unemployment	Long-terms shifts in the economy are creating a mismatch between jobs and skills that is leading to many states facing historic unemployment rates .	Link
Subscribe instead of own	Subscribing tends to be cheaper, allowing more people access to items, e.g., rather than owning tools, maker spaces charge a monthly fee to use their space and tools .	Link
Supply chain transparency	With lack of visibility to their own complex supply chains, many companies are pushing for greater end-to-end visibility to minimize disruption and optimize supply chains. NGOs, regulatory and consumers are also pushing for greater transparency on what who is making products, how and what they are made of. Traceability technology is evolving to meet this transparency demand.	Link
Sustained unemployment	Many states are facing historic unemployment with many expecting recovery to take years, not months.	Link
Talent shortage	Companies in North America, Europe, and Japan are finding it increasingly difficult to find workers with the required skills, education, and talent.	Link
Financial Risk of Climate Change	In July 2021, the international body Financial Stability Board (FSB) released three climate-related reports, including a roadmap for addressing climate-related financial risks. The FSB noted that actions under the roadmap seek to ensure that all financial risk decisions appropriately take account of climate change.	Link
National-Level Risk Assessment	In May 2021, President Biden issued an executive order directing the Treasury Secretary, in her capacity as the chair of the US Financial Stability Oversight Council (FSOC), to engage with FSOC members (including US federal and state financial regulators) to assess the climate-related financial risk to the financial stability of the US federal government and the US financial system.	Link
Climate impacting Monetary Policy	The European Central Bank said that it would integrate climate change considerations into its monetary policy framework, including considering issuers' alignment with climate-related EU legislation in its allocation of corporate bond purchases. The Bank of Japan announced that it would launch a lending program likely within 2021 to provide funds at zero interest rate to financial institutions supporting efforts to address climate change.	Link
Social Impact Investing	Impact investing has seen a boost in popularity during the COVID-19 pandemic due to increased awareness of climate change and social challenges such as unequal access to healthcare and racial and gender inequality.	Link
Shareholders demand change	Corporate stockholders have filed a range of derivative actions in the US alleging inadequate board efforts to promote gender and racial diversity in the workplace.	Link
Sustainability goes to court	Several recent cases have been brought by private plaintiffs against companies in US state courts under state consumer protection laws for false or misleading sustainability-related claims	Link

Environmental Trends

Circular economy interest growing	There is growing interest in circular economy principles of (1) designing out waste (2) keep products and materials in use and (3) regenerating natural systems.	Link
Clean tech investment	Governments around the world have targeted clean tech development as a strategy for economic recovery in the decades ahead—and as a way to help navigate potential constraints of traditional resources in the future.	Link
Climate change	According to the NOAA 2019 Global Climate Summary, the combined land and ocean temperature has increased at an average rate of 0.07°C (0.13°F) per decade since 1880; however, the average rate of increase since 1981 (0.18°C / 0.32°F) is more than twice as great.	Link
Climate changes' disproportionate impact	Low-income communities already have higher rates of many health conditions, are more exposed to environmental hazards, and take longer to bounce back from natural disasters.	Link
Decreasing Plastics	Globally people are increasingly aware of the environmental and health impacts of plastics. Countries have placed taxes on or outright banned the sell and use of plastic bags, and many individuals are buying products that contain less plastics.	Link
Local water movement	An emerging local water movement is promoting smarter use and management of water resources on a regional level.	Link
Municipal Environmentalism	Cities are creating their own local standards/regulations/codes for environmental sustainability.	Link
Plastic problem	People are increasingly aware of the environmental and health impacts of plastics. Many municipalities and even countries are placing restrictions or bans on certain types of plastic products.	Link
Pressure on food supply	Food demand is expected to increase anywhere between 59% to 98% by 2050.	Link
Reverse globalization	Especially in light of the global pandemic and supply and distribution chain disruptions, companies are increasingly manufacturing locally.	Link
Rights of nature	The environment is increasingly gaining legal rights worldwide, with "personhood" and legal status granted to environmental entities like rivers, mountains, and trees, in a bid to protect them for generations to come.	Link
Global energy demand rising	Global demand for energy is rising. Rapid population and economic growth (e.g., in India and China), increased car and computer use, and escalating demands for electricity are contributing to a surge in global demand.	Link
Solar power	Solar photovoltaic (PV) systems continue to transition from an exotic technology to a more standard method of generating power. PV technologies are declining in cost and becoming more efficient. A growing number of countries are integrating PV into their national energy policies.	Link
Sustainable Cities	Cities are emerging as indispensable players in the struggle for global sustainability. They create and are strongly impacted by sustainability issues, but also have huge potential to help mitigate, adapt to, and solve issues related to sustainability.	Link
Zero Waste Cities	More cities, especially large ones, are setting goals to become "zero waste"	Link

Eco-friendly Building Materials	There is increasing interest and investment in advanced building materials that are future proof and eco-friendly	Link
Product transparency	Consumers have increasing access to product information, enabling them to easily compare product features and pricing to find one to suit their needs and budget. Consumer interest in the environmental and social impact of the products they buy are placing pressure on producers and retailers to increase the transparency of their production and distribution processes.	Link
New Building Techniques	There is a growth in pre-fab and modularization, and the adoption of BIM (Building Information Modeling)	Link
Regulatory Boom	Increased rules and regulations must be paid attention to in order to initiate capital projects	Link

Political Trends

Cybersecurity	Governments and private sectors continue to fail to protect citizens' personal data from data breeches. The public will continue to demand better protections and accountability from governments and the private sector.	Link
Data governance	Digital rights, specifically data privacy/governance, are continuing to be defined. The EU's General Data Protection Regulation (GDPR) on data protection and privacy is an example of the type of legislation that some are advocating for in the US.	Link
Local more trusted	Polls indicate that local elected officials are the most trusted, followed by state, and then federal which is trusted the least.	Link
Neo-protectionism	The Great Recession erodes some of the global consensus on free trade, with the potential to trigger global trade wars that could hamper international trade and impede economic recovery in affected countries.	Link
Regulation continues to grow	Regulations are continuing to grow touching on multiple aspects of business and consumer protection.	Link
Soft paternalism	There is growing interest in using regulations to "nudge" citizens towards better decision-making, e.g., automatic enrollment with an opt-out option.	Link
Terrorism	The U.S. faces not just faces threats from foreign actors but also internal actors as well.	Link

APPENDIX 5. GLOSSARY

Scanning hit	an article, blog post, video or other piece of information describing or signaling a potential change
Trend	A statement describing a change and its future direction: increasing, decreasing, or holding steady
Driver	A thematic cluster of trends, scan hits, or other research information that describes an influential change; these are the fundamental building blocks of scenarios
Scenario	A plausible plot line or story of how combinations of uncertainties and drivers might play out in the future; the 2x2 approach produces four scenarios
Implication	A potential consequence for the organization if a particular scenario plays out
Issue	A strategic question emerging from the scenarios for the organization, typically based on clusters of related implications
Option	A proposed response by the organization to a strategic issue