ENGINEERING THE FUTURE FOR SUSTAINABILITY

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How Tools and Methodologies Can Support Sustainability Decisions

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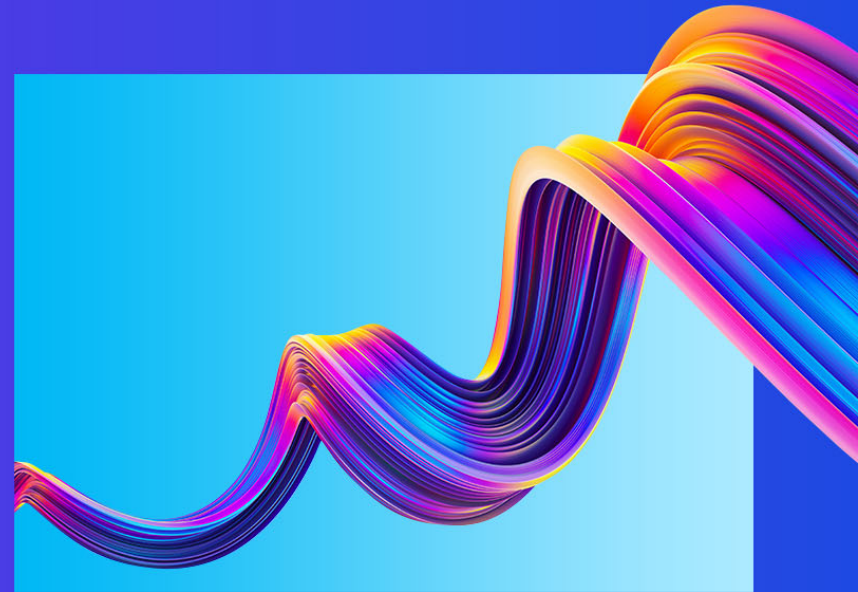*UPartner and National Leader of Economic Services Practice, KPMG LLP*

NATIONAL ACADEMY OF ENGINEERING

ESG Frameworks & standards

- **Frameworks** provide the 'frame' to contextualize information and are normally used in the absence of well-defined standards.

- A **framework** allows for flexibility in defining the direction, but not the method itself. A framework can be thought of as a set of principles providing guidance and shaping people's thoughts on how to think about a certain topic, but miss a defined reporting obligation.

- **Standards** are the agreed level of quality requirements, that people think is acceptable for reporting entities to meet. A **standard** can be thought of as containing specific and detailed criteria or metrics of 'what' should be reported on each topic

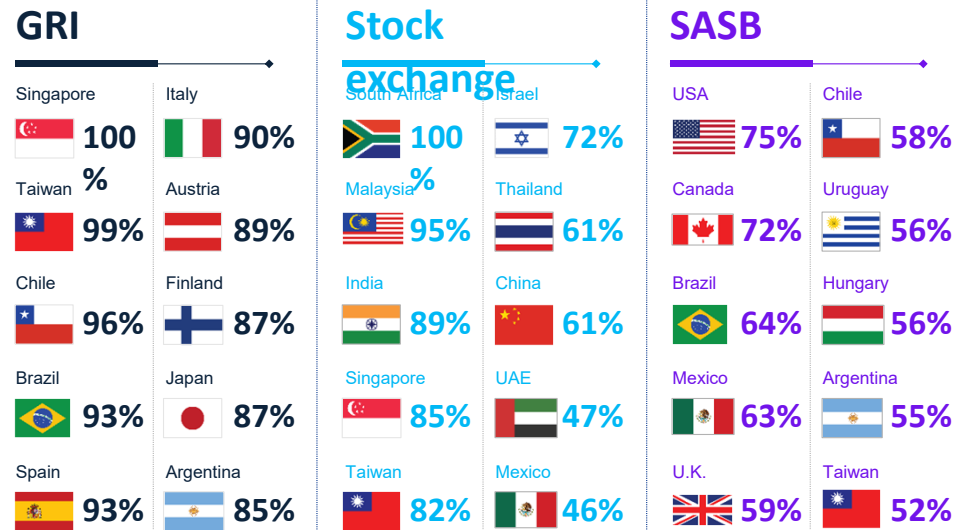- Moving to standards requires more rigor, emphasis on data quality and validation
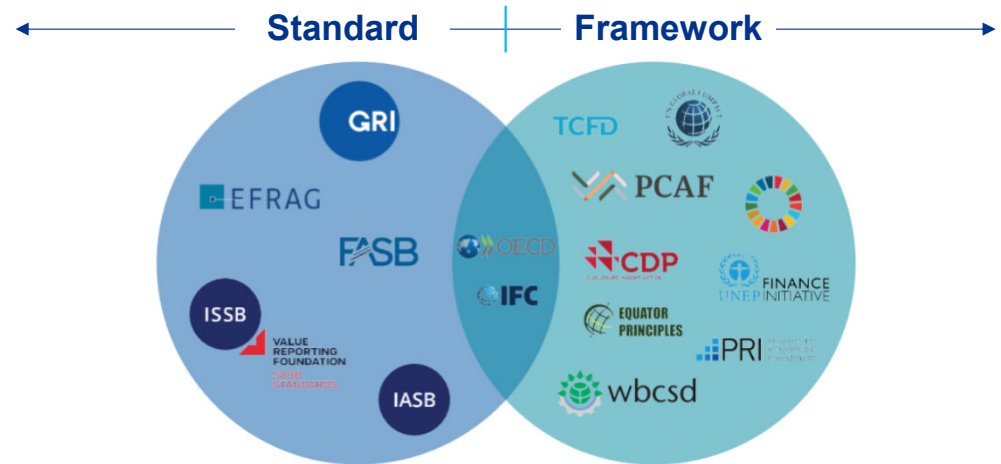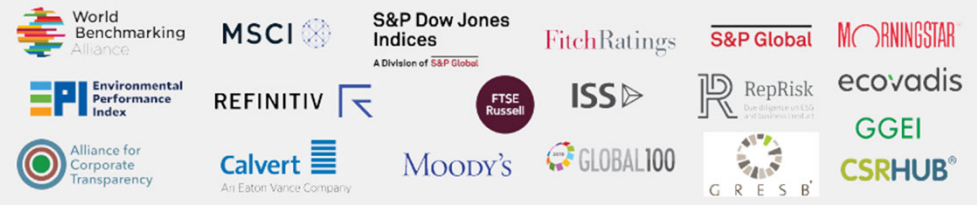
Source: GRI

Current state of sustainability reporting

- **Changes in the definition of firm "performance"**
  - Business world mainly relies on financial metrics
- **ESG – Environmental, Social, and Governance**
  - Increased expectations and focus on consistent and comparable data for non-financial reporting
- **Measurement of broader, social impact of investments & business decisions**
  - Social impact requires methodologies to understand impact on broader communities
  - Consumers & investors need publicly available and standardized data on social impact to make informed decisions
  - ESG frameworks emphasize the importance of such non-financial indicators
    - GRI and SASB - The GRI remains the most dominant standard used around the world.
    - The diverse range of reporting standards makes comparison across companies and markets challenging.
    - Given the global attempt to address climate change and inequality, it is increasingly important that we all speak the same way about sustainability. Fortunately, alignment is in progress, driven by initiatives such as the ISSB and CSRD.

Figure 8: Top 10 countries, territories jurisdictions by percentage of N100 companies reporting against GRI standards, stock exchange guidelines, and SASB standards (2022)

GRI

Singapore	100%	Italy	90%
Taiwan	99%	Austria	89%
Chile	96%	Finland	87%
Brazil	93%	Japan	87%
Spain	93%	Argentina	85%

Stock exchange

South Africa	100%	Israel	72%
Malaysia	95%	Thailand	61%
India	89%	China	61%
Singapore	85%	UAE	47%
Taiwan	82%	Mexico	46%

SASB

USA	75%	Chile	58%
Canada	72%	Uruguay	56%
Brazil	64%	Hungary	56%
Mexico	63%	Argentina	55%
U.K.	59%	Taiwan	52%

Base: 4,581 N100 companies that report on sustainability or ESG matters

Source: KPMG Survey of Sustainability Reporting 2022, KPMG International, September 2022

Reporting use-case: Climate-related disclosures

- **Climate scenario modeling is a relatively new area that would benefit from standardized methodologies and definitions for *comparability***
  - Task Force on Climate-related Financial Disclosures (**TCFD**) provides the framework that is increasingly adopted
  - In the US, so far organizations published voluntary TCFD reports, or disclosed similar information through **CDP** (Carbon Disclosure Project), a non-profit organization
- **Scenario analysis combines large amounts of data to create line items that would appear in financial statements**
  - Company financials, risk factors and likelihood, future strategies, government policies, insurance assumptions, etc.
  - Requires similar & comparable data sources on risks, climate scenarios, timelines, etc. that regulators are expecting
- ***Relative* to transition risks, physical risks are easier to understand and quantify (using property replacements costs and business disruption expenses)**
  - Carbon pricing is a common transition risk that is reported.
- **We observed significant increase in the number of companies that disclosed their climate-related risks, but it is still work in progress for most.**
  - Most disclosures are qualitative without modeling, and many lack methodological details.

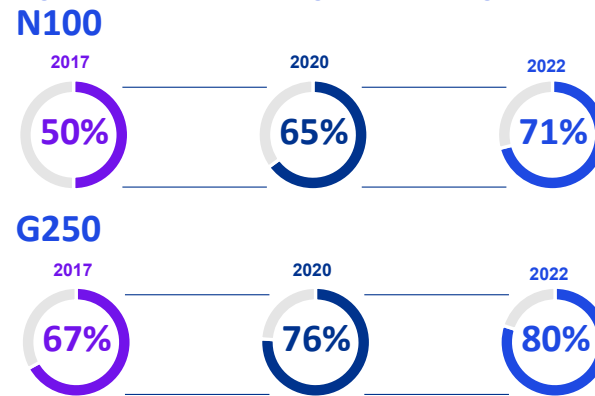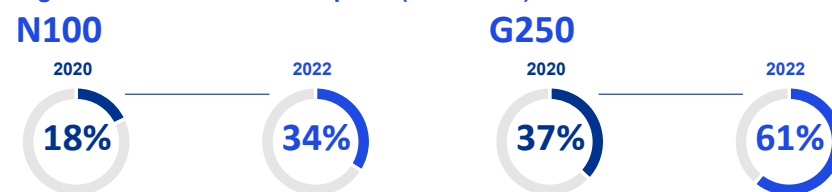**Figure 19: Global reporting of carbon targets (2017-2022)**

N100

2017	2020	2022
50%	65%	71%

G250

2017	2020	2022
67%	76%	80%

Figure 23: Global TCFD adoption (2020-2022)

N100

2020	2022
18%	34%

G250

2020	2022
37%	61%

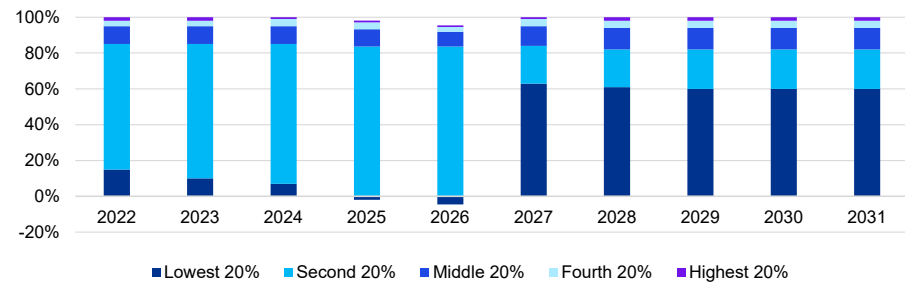Base: 5,800 N100 companies and 250 G250 companies
Source: KPMG Survey of Sustainability Reporting 2022, KPMG International, September 2022

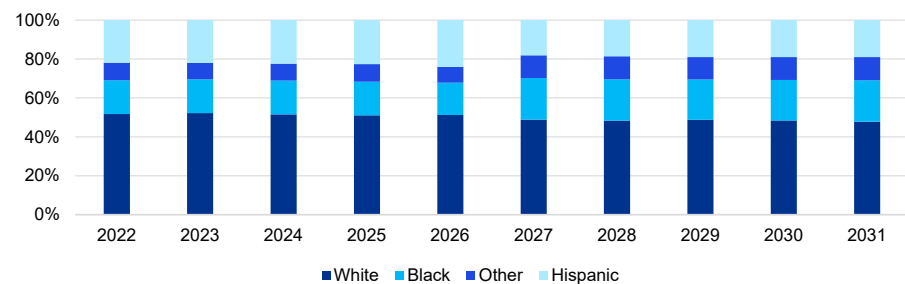# Modeling tools to measure impact of ESG investments

- Individuals and companies need help with impact of their actions, e.g., for climate resiliency, such as switching to EVs
- Lack tools to understand the impact of actions.
- **Cost-benefit analyses** help companies with making decisions by considering all costs and benefits relative to alternative(s)
- **Economic impact** or contribution studies also provide indirect and induced economic impact of business investments in addition to direct effects of investments
- Modeling can also explain the broader **societal impact** that's generated, such as employment by income level or race/ethnicity for ESG investments
- Models are also being developed to combine available climate risk data with socioeconomic data to understand the **impact of climate change on communities** by race and ethnicity, income level, and other groups (i.e., **environmental justice**)

Example: Bus Electrification Infrastructure Investment

Supported employment by income quintiles

Legend: Lowest 20%, Second 20%, Middle 20%, Fourth 20%, Highest 20%

Supported employment by race/ethnicity

Legend: White, Black, Other, Hispanic

Source: KPMG study