

MEMORANDUM

To: Comment File - Climate Change Disclosures

From: Mika Morse, Policy Counsel to Chair Gary Gensler, U.S. Securities and Exchange Commission

Date: November 30, 2021

Re: Meeting with Representatives of Persefoni

On September 14, November 23, and November 30, 2021, staff from the Chair's Office, the Division of Corporation Finance, the Office of the Chief Accountant, and the Division of Economic and Risk Analysis met telephonically with representatives of Persefoni, including the executive vice president and chief sustainability officer and senior vice president of strategic market engagement, and representatives of Boundary Stone.

During the three calls, the representatives from Persefoni provided a demonstration of their climate scenario modeling and greenhouse gas (GHG) emissions accounting software. The discussion also included the experiences of companies that voluntarily disclose climate risks, and those that establish and disclose a GHG emissions inventory, including Scope 3 emissions. The representatives from Persefoni discussed the cost and internal resources required from companies to engage with Persefoni's software, and the variables that may impact the cost of GHG emissions accounting and disclosure.

During the meeting, the representatives from Persefoni presented estimated ranges of costs based on their experience working with corporations that voluntarily initiate a GHG emissions disclosure program. They also provided an analysis of which S&P 500 companies that make climate-related disclosures and set GHG emissions reduction targets. The Persefoni team followed up the meeting by sending an email answering several questions that the SEC staff asked during the call (Appendix) and the following attachments, which they reviewed with the SEC staff during the calls: "Cost of Carbon Disclosure-Persefoni Dec. 2021" and "SP500 Climate Action Table-Persefoni Sept. 2021."

APPENDIX:

(Excerpted)

Dear Mika;

We wanted to follow-up with a little more detail on some of our recent communications.

Size and Complexity

Size vs. complexity is not easy to simplify, but we'll give you our best experiences. Most large companies (subjective) and complex organizations (subjective) greatly vary in their current 'traditional' business activities versus their 'carbon' activities. Take Lockheed Martin, a major publicly traded company and contractor to the US government, and also advanced on the GSA's own Climate Action Scorecard - <https://d2d.gsa.gov/report/gsa-federal-contractor-climate-action->

[scorecard](#) They are very advanced on the calculations of their own carbon footprint because their investors **and** customers are expecting this. Other large suppliers in that link are identified in “RED.” As you scroll through the list you will see very well-established and mature companies from a ‘business perspective,’ but they do not appear to do much on their carbon disclosure. From our experience, this is the state of the global marketplace. With other nations increasingly referencing TCFD and carbon accounting and disclosure, we expect to see even more push for the GHG Protocol, PCAF, TCFD and on suppliers to address the missing Scope 3 Emissions aspect.

Disclosure vs. Management

The disclosure vs. management breakdown identified on slide 13 was derived from our team's knowledge, expertise and readings related to the climate reporting landscape, namely TCFD. The supporting details of the drivers, focus and effort come from recent publications and the experience our team has working across industries to implement reporting frameworks, derive reports and support the climate strategy of their clients and/or employers.

Slide 15 further supports the associated costs and areas of effort, as derived from the UK’s overview of the specific resources and costs required to implement the TCFD framework for the first time and on a continued basis.

An overview of our thoughts and reasoning on the differences between disclosure vs. management costs can be noted below:

- When considering the financial reporting process, every organization has defined timelines associated with their close cycle and quarterly/annual reporting requirements, yet there are people, processes and technologies supporting the underlying data on an ongoing basis.
- We see the climate accounting and management process being no different, in that there are continuous efforts to gather, understand and improve upon the decision-usefulness of data, with ties to various internal and external reporting requirements.
- The costs associated with disclosure across both examples above are somewhat repetitive in nature. While there will be adjustments year over year in the type or volume of inclusions, the ways in which we report the information are (and in the case of climate, will continue to be more) defined.
 - It should be noted that an increased cost can be expected with the initial effort to report on climate change as the qualitative components need to be determined and communicated (with on-going effort to improve the quality of disclosure and/or alignment with standards such as TCFD).
- In the case of climate management, the increased cost comes from the time and resources (internal/external) required to gather, clean, and interpret the underlying data in-line with recognized frameworks and calculations, such as those defined in the GHGP and PCAF. Many organizations will need to undertake a large initial investment to complete this effort and understand how their current data can be leveraged and/or the gaps they need to bridge when looking to report on climate change.
- Once this initial effort has been undertaken, the management-focused data (metrics and targets) should be treated like that of financial data – routinely updated and reflected

upon with specific resources to support. Additional reasons for increased effort today include:

- Dynamic standards and accounting disclosure landscape
- Internal skill gaps across existing departments/employees
- Lack of internal processes and data alignment to support new considerations
- Gaps in existing technologies leveraged internally (need for further investment)

Supporting Resources

1. [2021 TCFD Implementing Guidance](#)
2. [TCFD Case Study: Implementing TCFD Recommendations \(Itaú Unibanco Holding S.A.\)](#)
3. [Mandatory climate-related financial disclosures by publicly quoted companies, large private companies and LLPs \(UK\)](#)
 - a. Including components of the government response and impact assessment

S&P500 Climate Action Table

Sheet "S&P Climate Action Table"

Last changed on: 21-Sep-2021

S.No.	Name	Ticker	Sector	CDP A List	TCFD Supporter	TCFD Signup year	SBTi Company	SBTi status
1	Apple Inc.	AAPL	Information Technology	Y			Y	Targets Set
2	Microsoft Corporation	MSFT	Information Technology	Y			Y	Targets Set
3	Amazon.com Inc.	AMZN	Consumer Discretionary				Y	Committed
4	Facebook Inc. Class A	FB	Communication Services				Y	Committed
5	Alphabet Inc. Class A	GOOGL	Communication Services	Y	Y	2021		
6	Alphabet Inc. Class C	GOOG	Communication Services	Y	Y	2021		
7	Tesla Inc	TSLA	Consumer Discretionary					
8	NVIDIA Corporation	NVDA	Information Technology	Y				
9	Berkshire Hathaway Inc. Class	BRK.B	Financials					
10	JPMorgan Chase & Co.	JPM	Financials	Y	Y	2017		
11	Johnson & Johnson	JNJ	Health Care	Y			Y	Targets Set
12	UnitedHealth Group Incorpor	UNH	Health Care	Y				
13	Visa Inc. Class A	V	Information Technology	Y			Y	Committed
14	Procter & Gamble Company	PG	Consumer Staples	Y			Y	Targets Set
15	Home Depot Inc.	HD	Consumer Discretionary	Y			Y	Committed
16	PayPal Holdings Inc	PYPL	Information Technology	Y			Y	Targets Set
17	Walt Disney Company	DIS	Communication Services	Y				

18	Adobe Inc.	ADBE	Information Technology	Y			Y	Targets Set
19	Bank of America Corp	BAC	Financials	Y	Y	2017		
20	Mastercard Incorporated Clas	MA	Information Technology	Y			Y	Targets Set
21	Comcast Corporation Class A	CMCSA	Communication Services	Y				
22	Pfizer Inc.	PFE	Health Care	Y			Y	Targets Set
23	Netflix Inc.	NFLX	Communication Services				Y	Targets Set
24	salesforce.com inc.	CRM	Information Technology	Y	Y	2017	Y	Targets Set
25	Cisco Systems Inc.	CSCO	Information Technology	Y			Y	Targets Set
26	Exxon Mobil Corporation	XOM	Energy					
27	Verizon Communications Inc.	VZ	Communication Services	Y	Y	2020	Y	Targets Set
28	Abbott Laboratories	ABT	Health Care	Y				
29	Thermo Fisher Scientific Inc.	TMO	Health Care	Y			Y	Committed
30	Coca-Cola Company	KO	Consumer Staples	Y			Y	Targets Set
31	Intel Corporation	INTC	Information Technology	Y				
32	PepsiCo Inc.	PEP	Consumer Staples	Y	Y	2017	Y	Targets Set
33	Accenture Plc Class A	ACN	Information Technology		Y	2017		
34	Danaher Corporation	DHR	Health Care	Y				
35	NIKE Inc. Class B	NKE	Consumer Discretionary	Y			Y	Targets Set
36	Eli Lilly and Company	LLY	Health Care	Y				
37	Walmart Inc.	WMT	Consumer Staples	Y			Y	Targets Set
38	Costco Wholesale Corporatio	COST	Consumer Staples	Y				
39	Broadcom Inc.	AVGO	Information Technology					
40	AbbVie Inc.	ABBV	Health Care	Y			Y	Committed
41	AT&T Inc.	T	Communication Services	Y			Y	Targets Set

42	Merck & Co. Inc.	MRK	Health Care	Y				
43	Chevron Corporation	CVX	Energy					
44	Wells Fargo & Company	WFC	Financials	Y	Y	2019		
45	Medtronic Plc	MDT	Health Care	Y				
46	McDonald's Corporation	MCD	Consumer Discretionary	Y			Y	Targets Set
47	Texas Instruments Incorporated	TXN	Information Technology	Y				
48	NextEra Energy Inc.	NEE	Utilities					
49	Philip Morris International Inc	PM	Consumer Staples	Y			Y	Targets Set
50	Linde plc	LIN	Materials	Y				
51	Qualcomm Inc	QCOM	Information Technology	Y				
52	Oracle Corporation	ORCL	Information Technology	Y				
53	Honeywell International Inc.	HON	Industrials	Y				
54	Morgan Stanley	MS	Financials	Y	Y	2017		
55	Intuit Inc.	INTU	Information Technology	Y			Y	Targets Set
56	Citigroup Inc.	C	Financials	Y	Y	2017		
57	Bristol-Myers Squibb Company	BMJ	Health Care	Y				
58	Lowe's Companies Inc.	LOW	Consumer Discretionary	Y				
59	Union Pacific Corporation	UNP	Industrials	Y			Y	Targets Set
60	United Parcel Service Inc. Class B	UPS	Industrials					
61	Goldman Sachs Group Inc.	GS	Financials	Y	Y	2018		
62	Starbucks Corporation	SBUX	Consumer Discretionary	Y			Y	Targets Set
63	American Tower Corporation	AMT	Real Estate	Y				
64	BlackRock Inc.	BLK	Financials	Y	Y	2017		
65	Advanced Micro Devices Inc.	AMD	Information Technology	Y			Y	Targets Set

66	ServiceNow Inc.	NOW	Information Technology	Y				
67	Amgen Inc.	AMGN	Health Care	Y				
68	Raytheon Technologies Corpo	RTX	Industrials	Y				
69	Intuitive Surgical Inc.	ISRG	Health Care					
70	International Business Machir	IBM	Information Technology	Y				
71	Applied Materials Inc.	AMAT	Information Technology	Y			Y	Committed
72	Target Corporation	TGT	Consumer Discretionary	Y			Y	Targets Set
73	Boeing Company	BA	Industrials	Y				
74	Moderna Inc.	MRNA	Health Care					
75	Deere & Company	DE	Industrials	Y				
76	General Electric Company	GE	Industrials	Y				
77	Caterpillar Inc.	CAT	Industrials					
78	CVS Health Corporation	CVS	Health Care	Y			Y	Targets Set
79	Charter Communications Inc.	CHTR	Communication Services					
80	3M Company	MMM	Industrials	Y	Y	2020		
81	Charles Schwab Corporation	SCHW	Financials	Y				
82	S&P Global Inc.	SPGI	Financials	Y	Y	2017	Y	Targets Set
83	American Express Company	AXP	Financials	Y				
84	Prologis Inc.	PLD	Real Estate	Y	Y	2021	Y	Targets Set
85	Zoetis Inc. Class A	ZTS	Health Care					
86	Altria Group Inc	MO	Consumer Staples	Y			Y	Targets Set
87	Booking Holdings Inc.	BKNG	Consumer Discretionary					
88	Anthem Inc.	ANTM	Health Care	Y	Y	2021	Y	Committed
89	Gilead Sciences Inc.	GILD	Health Care	Y			Y	Targets Set

90	Stryker Corporation	SYK	Health Care	Y				
91	Automatic Data Processing Inc	ADP	Information Technology	Y				
92	Lockheed Martin Corporation	LMT	Industrials	Y				
93	Analog Devices Inc.	ADI	Information Technology	Y			Y	Targets Set
94	Mondelez International Inc. C	MDLZ	Consumer Staples	Y			Y	Targets Set
95	TJX Companies Inc	TJX	Consumer Discretionary	Y				
96	Lam Research Corporation	LRCX	Information Technology	Y				
97	Crown Castle International Co	CCI	Real Estate	Y				
98	Micron Technology Inc.	MU	Information Technology	Y				
99	Chubb Limited	CB	Financials	Y				
100	Duke Energy Corporation	DUK	Utilities	Y				
101	PNC Financial Services Group	PNC	Financials	Y	Y	2019		
102	Marsh & McLennan Companie	MMC	Financials	Y	Y	2020		
103	Estee Lauder Companies Inc. (EL	Consumer Staples	Y	Y	2021	Y	Targets Set
104	T-Mobile US Inc.	TMUS	Communication Services	Y			Y	Targets Set
105	Fidelity National Information	FIS	Information Technology	Y				
106	Equinix Inc.	EQIX	Real Estate	Y			Y	Targets Set
107	U.S. Bancorp	USB	Financials	Y				
108	ConocoPhillips	COP	Energy	Y				
109	Truist Financial Corporation	TFC	Financials	Y				
110	Edwards Lifesciences Corpora	EW	Health Care	Y				
111	Cigna Corporation	CI	Health Care	Y				
112	CSX Corporation	CSX	Industrials	Y			Y	Targets Set
113	Becton Dickinson and Compar	BDX	Health Care	Y	Y	2020		

114	Sherwin-Williams Company	SHW	Materials	Y				
115	Capital One Financial Corpora	COF	Financials	Y				
116	CME Group Inc. Class A	CME	Financials					
117	Regeneron Pharmaceuticals Ir	REGN	Health Care	Y				
118	Southern Company	SO	Utilities	Y				
119	Fiserv Inc.	FISV	Information Technology					
120	Illumina Inc.	ILMN	Health Care	Y	Y	2021	Y	Committed
121	Intercontinental Exchange Inc	ICE	Financials					
122	Eaton Corp. Plc	ETN	Industrials		Y	2020		
123	HCA Healthcare Inc	HCA	Health Care					
124	Colgate-Palmolive Company	CL	Consumer Staples	Y			Y	Targets Set
125	Illinois Tool Works Inc.	ITW	Industrials	Y				
126	Aon Plc Class A	AON	Financials	Y				
127	FedEx Corporation	FDX	Industrials	Y				
128	Boston Scientific Corporation	BSX	Health Care	Y				
129	Norfolk Southern Corporation	NSC	Industrials	Y			Y	Targets Set
130	Dominion Energy Inc	D	Utilities	Y	Y	2020		
131	Emerson Electric Co.	EMR	Industrials	Y				
132	Autodesk Inc.	ADSK	Information Technology	Y			Y	Targets Set
133	Activision Blizzard Inc.	ATVI	Communication Services					
134	General Motors Company	GM	Consumer Discretionary	Y			Y	Targets Set
135	Moody's Corporation	MCO	Financials	Y	Y	2017	Y	Targets Set
136	Waste Management Inc.	WM	Industrials	Y			Y	Committed
137	Air Products and Chemicals In	APD	Materials	Y				

138	IDEXX Laboratories Inc.	IDXX	Health Care					
139	NXP Semiconductors NV	NXPI	Information Technology					
140	Ecolab Inc.	ECL	Materials	Y	Y	2020	Y	Targets Set
141	Progressive Corporation	PGR	Financials					
142	Northrop Grumman Corporati	NOC	Industrials	Y				
143	Agilent Technologies Inc.	A	Health Care	Y				
144	Johnson Controls International	JCI	Industrials		Y	2017		
145	Humana Inc.	HUM	Health Care	Y				
146	MSCI Inc. Class A	MSCI	Financials	Y	Y	2021		
147	Chipotle Mexican Grill Inc.	CMG	Consumer Discretionary				Y	Committed
148	Dollar General Corporation	DG	Consumer Discretionary					
149	Freeport-McMoRan Inc.	FCX	Materials		Y	2020		
150	Align Technology Inc.	ALGN	Health Care					
151	DexCom Inc.	DXCM	Health Care					
152	KLA Corporation	KLAC	Information Technology	Y				
153	Vertex Pharmaceuticals Incorp	VRTX	Health Care	Y				
154	Twitter Inc.	TWTR	Communication Services				Y	Committed
155	Synopsys Inc.	SNPS	Information Technology	Y				
156	Roper Technologies Inc.	ROP	Industrials					
157	Ford Motor Company	F	Consumer Discretionary	Y	Y	2020	Y	Targets Set
158	IQVIA Holdings Inc	IQV	Health Care	Y			Y	Committed
159	Biogen Inc.	BIIB	Health Care	Y	Y	2021	Y	Targets Set
160	Public Storage	PSA	Real Estate	Y				
161	T. Rowe Price Group	TROW	Financials	Y	Y	2020		

162	TE Connectivity Ltd.	TEL	Information Technology	Y				
163	eBay Inc.	EBAY	Consumer Discretionary	Y	Y	2018	Y	Committed
164	Exelon Corporation	EXC	Utilities	Y				
165	L3Harris Technologies Inc	LHX	Industrials	Y				
166	Trane Technologies plc	TT	Industrials	Y				
167	Kimberly-Clark Corporation	KMB	Consumer Staples	Y			Y	Targets Set
168	American International Group	AIG	Financials	Y				
169	Carrier Global Corp.	CARR	Industrials				Y	Committed
170	Digital Realty Trust Inc.	DLR	Real Estate	Y			Y	Targets Set
171	Newmont Corporation	NEM	Materials	Y	Y	2021	Y	Targets Set
172	Global Payments Inc.	GPN	Information Technology					
173	Dow Inc.	DOW	Materials	Y	Y	2017		
174	General Dynamics Corporation	GD	Industrials	Y				
175	Cadence Design Systems Inc.	CDNS	Information Technology	Y				
176	Amphenol Corporation Class A	APH	Information Technology	Y				
177	MetLife Inc.	MET	Financials	Y			Y	Committed
178	IHS Markit Ltd.	INFO	Industrials					
179	American Electric Power Company	AEP	Utilities	Y				
180	Simon Property Group Inc.	SPG	Real Estate	Y			Y	Targets Set
181	Bank of New York Mellon Corporation	BK	Financials		Y	2019		
182	ResMed Inc.	RMD	Health Care					
183	Microchip Technology Incorporated	MCHP	Information Technology	Y				
184	Fortinet Inc.	FTNT	Information Technology					
185	Sempra Energy	SRE	Utilities	Y	Y	2021		

186	Ross Stores Inc.	ROST	Consumer Discretionary	Y				
187	Electronic Arts Inc.	EA	Communication Services					
188	Motorola Solutions Inc.	MSI	Information Technology	Y				
189	Prudential Financial Inc.	PRU	Financials	Y	Y	2018		
190	Cognizant Technology Solution	CTSH	Information Technology	Y				
191	Aptiv PLC	APTIV	Consumer Discretionary	Y				
192	Baxter International Inc.	BAX	Health Care	Y				
193	O'Reilly Automotive Inc.	ORLY	Consumer Discretionary					
194	Travelers Companies Inc.	TRV	Financials					
195	Allstate Corporation	ALL	Financials	Y				
196	SBA Communications Corp. Cl	SBAC	Real Estate		Y	2021		
197	Schlumberger NV	SLB	Energy	Y	Y	2020	Y	Committed
198	Sysco Corporation	SYO	Consumer Staples	Y				
199	EOG Resources Inc.	EOG	Energy	Y				
200	DuPont de Nemours Inc.	DD	Materials	Y	Y	2017		
201	Yum! Brands Inc.	YUM	Consumer Discretionary	Y			Y	Targets Set
202	Parker-Hannifin Corporation	PH	Industrials	Y				
203	Rockwell Automation Inc.	ROK	Industrials	Y				
204	Xilinx Inc.	XLNX	Information Technology	Y				
205	Xcel Energy Inc.	XEL	Utilities		Y	2020		
206	Discover Financial Services	DFS	Financials	Y				
207	International Flavors & Fragra	IFF	Materials	Y			Y	Targets Set
208	PPG Industries Inc.	PPG	Materials	Y				
209	Centene Corporation	CNC	Health Care	Y				

210	Otis Worldwide Corporation	OTIS	Industrials					
211	Walgreens Boots Alliance Inc	WBA	Consumer Staples	Y				
212	Marathon Petroleum Corpora	MPC	Energy	Y				
213	Welltower Inc.	WELL	Real Estate	Y				
214	Mettler-Toledo International I	MTD	Health Care					
215	Paychex Inc.	PAYX	Information Technology	Y	Y	2021		
216	Monster Beverage Corporatio	MNST	Consumer Staples	Y				
217	Marriott International Inc. Cla	MAR	Consumer Discretionary	Y				
218	Constellation Brands Inc. Clas	STZ	Consumer Staples	Y				
219	Kroger Co.	KR	Consumer Staples	Y				
220	HP Inc.	HPQ	Information Technology	Y			Y	Targets Set
221	Aflac Incorporated	AFL	Financials	Y				
222	General Mills Inc.	GIS	Consumer Staples	Y	Y	2019	Y	Targets Set
223	First Republic Bank	FRC	Financials					
224	Cintas Corporation	CTAS	Industrials					
225	Pioneer Natural Resources Co	PXD	Energy		Y	2021		
226	Cummins Inc.	CMI	Industrials	Y			Y	Targets Set
227	Hilton Worldwide Holdings Inc	HLT	Consumer Discretionary	Y			Y	Targets Set
228	Nucor Corporation	NUE	Materials					
229	West Pharmaceutical Services	WST	Health Care	Y	Y	2021		
230	American Water Works Comp	AWK	Utilities	Y				
231	Equifax Inc.	EFX	Industrials				Y	Targets Set
232	Archer-Daniels-Midland Comp	ADM	Consumer Staples	Y				
233	SVB Financial Group	SIVB	Financials	Y				

234	TransDigm Group Incorporated	TDG	Industrials	Y				
235	Verisk Analytics Inc	VRSK	Industrials	Y				
236	Keysight Technologies Inc	KEYS	Information Technology	Y			Y	Committed
237	Corteva Inc	CTVA	Materials	Y			Y	Committed
238	AutoZone Inc.	AZO	Consumer Discretionary					
239	CBRE Group Inc. Class A	CBRE	Real Estate	Y	Y	2018	Y	Targets Set
240	McKesson Corporation	MCK	Health Care	Y			Y	Committed
241	Public Service Enterprise Group	PEG	Utilities	Y	Y	2021		
242	AvalonBay Communities Inc.	AVB	Real Estate	Y	Y	2021	Y	Targets Set
243	Fastenal Company	FAST	Industrials	Y				
244	State Street Corporation	STT	Financials	Y	Y	2017		
245	Ball Corporation	BLL	Materials	Y			Y	Targets Set
246	Kinder Morgan Inc Class P	KMI	Energy					
247	ANSYS Inc.	ANSS	Information Technology	Y				
248	Ameriprise Financial Inc.	AMP	Financials	Y				
249	Eversource Energy	ES	Utilities	Y				
250	D.R. Horton Inc.	DHI	Consumer Discretionary	Y				
251	Zebra Technologies Corporation	ZBRA	Information Technology	Y			Y	Committed
252	AMETEK Inc.	AME	Industrials					
253	Stanley Black & Decker Inc.	SWK	Industrials	Y			Y	Targets Set
254	Zimmer Biomet Holdings Inc.	ZBH	Health Care	Y			Y	Targets Set
255	Phillips 66	PSX	Energy					
256	WEC Energy Group Inc	WEC	Utilities	Y				
257	Williams Companies Inc.	WMB	Energy	Y				

258	Corning Inc	GLW	Information Technology	Y				
259	Skyworks Solutions Inc.	SWKS	Information Technology	Y				
260	Copart Inc.	CPRT	Industrials					
261	Laboratory Corporation of Am	LH	Health Care	Y				
262	Arthur J. Gallagher & Co.	AJG	Financials					
263	Willis Towers Watson Public L	WLTW	Financials					
264	Lennar Corporation Class A	LEN	Consumer Discretionary					
265	Equity Residential	EQR	Real Estate					
266	Southwest Airlines Co.	LUV	Industrials	Y				
267	PACCAR Inc	PCAR	Industrials	Y			Y	Targets Set
268	Alexandria Real Estate Equitie	ARE	Real Estate	Y	Y	2018		
269	Old Dominion Freight Line Inc	ODFL	Industrials	Y				
270	CDW Corp.	CDW	Information Technology					
271	Generac Holdings Inc.	GNRC	Industrials					
272	Albemarle Corporation	ALB	Materials					
273	Weyerhaeuser Company	WY	Real Estate	Y			Y	Committed
274	Fifth Third Bancorp	FITB	Financials	Y	Y	2020		
275	Etsy Inc.	ETSY	Consumer Discretionary	Y	Y	2021	Y	Targets Set
276	Realty Income Corporation	O	Real Estate	Y				
277	Kansas City Southern	KSU	Industrials	Y			Y	Targets Set
278	Gartner Inc.	IT	Information Technology					
279	Valero Energy Corporation	VLO	Energy					
280	Republic Services Inc.	RSG	Industrials	Y	Y	2021	Y	Targets Set
281	Consolidated Edison Inc.	ED	Utilities	Y	Y	2020		

282	Garmin Ltd.	GRMN	Consumer Discretionary					
283	Synchrony Financial	SYF	Financials	Y				
284	Hershey Company	HSY	Consumer Staples	Y			Y	Targets Set
285	Delta Air Lines Inc.	DAL	Industrials	Y			Y	Committed
286	Waters Corporation	WAT	Health Care	Y				
287	Best Buy Co. Inc.	BBY	Consumer Discretionary	Y			Y	Targets Set
288	Extra Space Storage Inc.	EXR	Real Estate	Y				
289	United Rentals Inc.	URI	Industrials	Y				
290	Fortive Corp.	FTV	Industrials	Y				
291	Dover Corporation	DOV	Industrials	Y			Y	Targets Set
292	ViacomCBS Inc. Class B	VIAC	Communication Services	Y				
293	LyondellBasell Industries NV	LYB	Materials					
294	Xylem Inc.	XYL	Industrials	Y				
295	Paycom Software Inc.	PAYC	Information Technology					
296	Northern Trust Corporation	NTRS	Financials	Y	Y	2020		
297	Hartford Financial Services Gr	HIG	Financials	Y				
298	V.F. Corporation	VFC	Consumer Discretionary	Y			Y	Targets Set
299	Vulcan Materials Company	VMC	Materials	Y				
300	Enphase Energy Inc.	ENPH	Information Technology					
301	Catalent Inc	CTLT	Health Care	Y			Y	Committed
302	ONEOK Inc.	OKE	Energy	Y				
303	International Paper Company	IP	Materials	Y			Y	Committed
304	Trimble Inc.	TRMB	Information Technology	Y				
305	DTE Energy Company	DTE	Utilities	Y				

306	Martin Marietta Materials Inc	MLM	Materials					
307	PPL Corporation	PPL	Utilities	Y				
308	Kraft Heinz Company	KHC	Consumer Staples	Y			Y	Committed
309	Tyson Foods Inc. Class A	TSN	Consumer Staples	Y			Y	Targets Set
310	Cerner Corporation	CERN	Health Care					
311	Nasdaq Inc.	NDAQ	Financials	Y	Y	2019	Y	Committed
312	Entergy Corporation	ETR	Utilities	Y	Y	2019		
313	Ameren Corporation	AEE	Utilities	Y				
314	Huntington Bancshares Incorp	HBAN	Financials	Y				
315	Tractor Supply Company	TSCO	Consumer Discretionary	Y	Y	2020		
316	Mid-America Apartment Comi	MAA	Real Estate	Y				
317	Edison International	EIX	Utilities	Y				
318	Charles River Laboratories Int	CRL	Health Care	Y			Y	Targets Set
319	Occidental Petroleum Corpora	OXY	Energy	Y				
320	Cooper Companies Inc.	COO	Health Care					
321	VeriSign Inc.	VRSN	Information Technology					
322	McCormick & Company Incorp	MKC	Consumer Staples	Y			Y	Targets Set
323	Essex Property Trust Inc.	ESS	Real Estate	Y				
324	FLEETCOR Technologies Inc.	FLT	Information Technology					
325	FirstEnergy Corp.	FE	Utilities	Y				
326	Caesars Entertainment Inc	CZR	Consumer Discretionary	Y			Y	Targets Set
327	Dollar Tree Inc.	DLTR	Consumer Discretionary					
328	Teledyne Technologies Incorp	TDY	Information Technology					
329	STERIS Plc	STE	Health Care	Y				

330	Ventas Inc.	VTR	Real Estate	Y			Y	Targets Set
331	PerkinElmer Inc.	PKI	Health Care	Y				
332	Clorox Company	CLX	Consumer Staples	Y			Y	Committed
333	Monolithic Power Systems Inc	MPWR	Information Technology	Y				
334	Qorvo Inc.	QRVO	Information Technology	Y				
335	Expeditors International of W.	EXPD	Industrials	Y				
336	Ulta Beauty Inc	ULTA	Consumer Discretionary					
337	Hologic Inc.	HOLX	Health Care	Y				
338	Church & Dwight Co. Inc.	CHD	Consumer Staples	Y				
339	CarMax Inc.	KMX	Consumer Discretionary					
340	Expedia Group Inc.	EXPE	Consumer Discretionary	Y				
341	Quest Diagnostics Incorporated	DGX	Health Care	Y				
342	Teradyne Inc.	TER	Information Technology	Y				
343	Domino's Pizza Inc.	DPZ	Consumer Discretionary					
344	Ingersoll Rand Inc.	IR	Industrials	Y	Y	2018		
345	Duke Realty Corporation	DRE	Real Estate					
346	Pool Corporation	POOL	Consumer Discretionary					
347	NetApp Inc.	NTAP	Information Technology	Y			Y	Committed
348	Hewlett Packard Enterprise Co	HPE	Information Technology	Y	Y	2018	Y	Targets Set
349	Arista Networks Inc.	ANET	Information Technology	Y				
350	Bio-Techne Corporation	TECH	Health Care					
351	Broadridge Financial Solutions	BR	Information Technology	Y				
352	Tyler Technologies Inc.	TYL	Information Technology					
353	Healthpeak Properties Inc.	PEAK	Real Estate	Y			Y	Targets Set

354	Amcor PLC	AMCR	Materials					
355	Darden Restaurants Inc.	DRI	Consumer Discretionary					
356	KeyCorp	KEY	Financials	Y				
357	Hess Corporation	HES	Energy	Y				
358	Regions Financial Corporation	RF	Financials	Y				
359	Carnival Corporation	CCL	Consumer Discretionary	Y				
360	W.W. Grainger Inc.	GWW	Industrials	Y				
361	CMS Energy Corporation	CMS	Utilities	Y				
362	Teleflex Incorporated	TFX	Health Care					
363	Avery Dennison Corporation	AVY	Materials	Y				
364	Western Digital Corporation	WDC	Information Technology	Y			Y	Targets Set
365	Take-Two Interactive Software	TTWO	Communication Services					
366	Citizens Financial Group Inc.	CFG	Financials	Y				
367	Akamai Technologies Inc.	AKAM	Information Technology	Y				
368	AmerisourceBergen Corporation	ABC	Health Care	Y	Y	2021	Y	Committed
369	Cincinnati Financial Corporation	CINF	Financials	Y				
370	Viatis Inc.	VTRS	Health Care	Y				
371	MarketAxess Holdings Inc.	MKTX	Financials					
372	Halliburton Company	HAL	Energy	Y			Y	Committed
373	Royal Caribbean Group	RCL	Consumer Discretionary	Y				
374	M&T Bank Corporation	MTB	Financials					
375	Seagate Technology Holdings	STX	Information Technology	Y				
376	Bio-Rad Laboratories Inc. Class B	BIO	Health Care					
377	Jacobs Engineering Group Inc.	J	Industrials	Y	Y	2020	Y	Targets Set

378	Genuine Parts Company	GPC	Consumer Discretionary					
379	Celanese Corporation	CE	Materials	Y				
380	NVR Inc.	NVR	Consumer Discretionary					
381	Bath & Body Works Inc.	BBWI	Consumer Discretionary					
382	Devon Energy Corporation	DVN	Energy	Y				
383	MGM Resorts International	MGM	Consumer Discretionary	Y			Y	Committed
384	Raymond James Financial Inc.	RJF	Financials					
385	Baker Hughes Company Class	BKR	Energy	Y				
386	IDEX Corporation	IEX	Industrials					
387	Principal Financial Group Inc.	PFG	Financials	Y			Y	Committed
388	ABIOMED Inc.	ABMD	Health Care					
389	Textron Inc.	TXT	Industrials	Y				
390	UDR Inc.	UDR	Real Estate				Y	Committed
391	AES Corporation	AES	Utilities	Y	Y	2018		
392	Boston Properties Inc.	BXP	Real Estate	Y			Y	Targets Set
393	Westinghouse Air Brake Techn	WAB	Industrials					
394	Conagra Brands Inc.	CAG	Consumer Staples	Y			Y	Targets Set
395	Kellogg Company	K	Consumer Staples	Y	Y	2020	Y	Targets Set
396	Omnicom Group Inc	OMC	Communication Services	Y				
397	NortonLifeLock Inc.	NLOK	Information Technology					
398	Quanta Services Inc.	PWR	Industrials	Y				
399	Masco Corporation	MAS	Industrials	Y				
400	Evergy Inc.	EVRG	Utilities					
401	Cardinal Health Inc.	CAH	Health Care	Y				

402	Alliant Energy Corp	LNT	Utilities	Y				
403	Eastman Chemical Company	EMN	Materials	Y	Y	2018		
404	J.B. Hunt Transport Services Ir	JBHT	Industrials	Y				
405	CenterPoint Energy Inc.	CNP	Utilities					
406	United Airlines Holdings Inc.	UAL	Industrials	Y			Y	Committed
407	Interpublic Group of Compani	IPG	Communication Services	Y			Y	Committed
408	Packaging Corporation of Ame	PKG	Materials	Y				
409	Las Vegas Sands Corp.	LVS	Consumer Discretionary	Y			Y	Targets Set
410	Incyte Corporation	INCY	Health Care					
411	PulteGroup Inc.	PHM	Consumer Discretionary					
412	LKQ Corporation	LKQ	Consumer Discretionary					
413	Iron Mountain Inc.	IRM	Real Estate	Y			Y	Targets Set
414	Whirlpool Corporation	WHR	Consumer Discretionary	Y			Y	Targets Set
415	PTC Inc.	PTC	Information Technology					
416	Diamondback Energy Inc.	FANG	Energy					
417	WestRock Company	WRK	Materials	Y			Y	Committed
418	Fortune Brands Home & Securi	FBHS	Industrials					
419	Cboe Global Markets Inc	CBOE	Financials					
420	DENTSPLY SIRONA Inc.	XRAY	Health Care	Y				
421	Allegion PLC	ALLE	Industrials					
422	J.M. Smucker Company	SJM	Consumer Staples	Y			Y	Committed
423	Kimco Realty Corporation	KIM	Real Estate	Y			Y	Targets Set
424	Leidos Holdings Inc.	LDOS	Industrials	Y				
425	Advance Auto Parts Inc.	AAP	Consumer Discretionary	Y			Y	Committed

426	Jack Henry & Associates Inc.	JKHY	Information Technology					
427	Pentair plc	PNR	Industrials					
428	Brown-Forman Corporation Cl	BF.B	Consumer Staples	Y				
429	Atmos Energy Corporation	ATO	Utilities					
430	Citrix Systems Inc.	CTXS	Information Technology	Y			Y	Committed
431	American Airlines Group Inc.	AAL	Industrials	Y	Y	2021	Y	Committed
432	Hasbro Inc.	HAS	Consumer Discretionary	Y				
433	FMC Corporation	FMC	Materials	Y			Y	Committed
434	Howmet Aerospace Inc.	HWM	Industrials	Y				
435	Live Nation Entertainment Inc	LYV	Communication Services					
436	Loews Corporation	L	Financials					
437	Snap-on Incorporated	SNA	Industrials	Y				
438	Penn National Gaming Inc.	PENN	Consumer Discretionary					
439	Lincoln National Corporation	LNC	Financials	Y				
440	Hormel Foods Corporation	HRL	Consumer Staples	Y			Y	Committed
441	Universal Health Services Inc.	UHS	Health Care					
442	Lumen Technologies Inc.	LUMN	Communication Services	Y			Y	Targets Set
443	Fox Corporation Class A	FOXA	Communication Services					
444	C.H. Robinson Worldwide Inc.	CHRW	Industrials	Y				
445	F5 Networks Inc.	FFIV	Information Technology	Y				
446	Robert Half International Inc.	RHI	Industrials	Y				
447	Mohawk Industries Inc.	MHK	Consumer Discretionary	Y				
448	Host Hotels & Resorts Inc.	HST	Real Estate	Y			Y	Targets Set
449	Tapestry Inc.	TPR	Consumer Discretionary	Y	Y	2021		

450	DISH Network Corporation Cl	DISH	Communication Services					
451	Mosaic Company	MOS	Materials	Y				
452	NRG Energy Inc.	NRG	Utilities	Y	Y	2017	Y	Targets Set
453	Henry Schein Inc.	HSIC	Health Care	Y				
454	Regency Centers Corporation	REG	Real Estate	Y				
455	Wynn Resorts Limited	WYNN	Consumer Discretionary					
456	W. R. Berkley Corporation	WRB	Financials					
457	BorgWarner Inc.	BWA	Consumer Discretionary	Y				
458	Everest Re Group Ltd.	RE	Financials					
459	Assurant Inc.	AIZ	Financials	Y				
460	Comerica Incorporated	CMA	Financials	Y				
461	A. O. Smith Corporation	AOS	Industrials					
462	CF Industries Holdings Inc.	CF	Materials					
463	NiSource Inc	NI	Utilities	Y				
464	Newell Brands Inc	NWL	Consumer Discretionary	Y				
465	Juniper Networks Inc.	JNPR	Information Technology	Y				
466	Invesco Ltd.	IVZ	Financials	Y	Y	2019		
467	Lamb Weston Holdings Inc.	LW	Consumer Staples	Y			Y	Committed
468	Sealed Air Corporation	SEE	Materials	Y			Y	Targets Set
469	Zions Bancorporation N.A.	ZION	Financials					
470	DaVita Inc.	DVA	Health Care	Y			Y	Targets Set
471	Norwegian Cruise Line Holding	NCLH	Consumer Discretionary	Y				
472	Marathon Oil Corporation	MRO	Energy	Y				
473	DXC Technology Co.	DXC	Information Technology	Y				

474	Globe Life Inc.	GL	Financials					
475	Organon & Co.	OGN	Health Care					
476	Western Union Company	WU	Information Technology					
477	Molson Coors Beverage Comp	TAP	Consumer Staples	Y	Y	2020	Y	Targets Set
478	News Corporation Class A	NWSA	Communication Services	Y			Y	Targets Set
479	Franklin Resources Inc.	BEN	Financials	Y				
480	Pinnacle West Capital Corpora	PNW	Utilities	Y				
481	Rollins Inc.	ROL	Industrials					
482	Campbell Soup Company	CPB	Consumer Staples	Y			Y	Committed
483	Federal Realty Investment Tru	FRT	Real Estate	Y				
484	PVH Corp.	PVH	Consumer Discretionary	Y			Y	Targets Set
485	Huntington Ingalls Industries	HII	Industrials	Y				
486	Discovery Inc. Class C	DISCK	Communication Services					
487	Nielsen Holdings Plc	NLSN	Industrials	Y	Y	2018		
488	APA Corp.	APA	Energy		Y	2021		
489	Alaska Air Group Inc.	ALK	Industrials	Y				
490	People's United Financial Inc.	PBCT	Financials					
491	Cabot Oil & Gas Corporation	COG	Energy	Y				
492	Hanesbrands Inc.	HBI	Consumer Discretionary	Y			Y	Committed
493	Vornado Realty Trust	VNO	Real Estate		Y	2019	Y	Targets Set
494	Leggett & Platt Incorporated	LEG	Consumer Discretionary	Y				
495	IPG Photonics Corporation	IPGP	Information Technology					
496	Ralph Lauren Corporation Cla	RL	Consumer Discretionary	Y			Y	Targets Set
497	Perrigo Co. Plc	PRGO	Health Care					

498	Unum Group	UNM	Financials	Y				
499	Fox Corporation Class B	FOX	Communication Services					
500	Gap Inc.	GPS	Consumer Discretionary	Y			Y	Targets Set
501	NOV Inc.	NOV	Energy					
502	Discovery Inc. Class A	DISCA	Communication Services					
503	Under Armour Inc. Class A	UAA	Consumer Discretionary	Y			Y	Targets Set
504	Under Armour Inc. Class C	UA	Consumer Discretionary	Y			Y	Targets Set
505	News Corporation Class B	NWS	Communication Services	Y			Y	Targets Set



SBTi signup year	Business Roundtable Member	Major supplier to US Government	Supplier rank (Contract size)	Contracts FY2020 (mUSD)
2021	Y	Y	>100	0.002
2019	Y	Y	80	0.781
2020	Y			
2020				
	Y			
	Y			
	Y			
2020	Y	Y	78	0.789
		Y	81	0.748
2021	Y			
2018	Y			
2021	Y			
2021				
	Y			

2021	Y	Y	>100	0.006
	Y			
2020	Y			
	Y			
2021	Y	Y	54	1.169
2021	Y			
2019	Y			
2018	Y	Y	>100	0.373
	Y			
2021	Y	Y	49	1.279
	Y	Y	>100	0.422
2021	Y			
2019	Y			
	Y			
2021	Y			
	Y	Y	32	2.252
2019	Y			
	Y			
2016	Y			
2021	Y			
2020	Y	Y	51	1.185

		Y	39	1.897
	Y			
	Y			
	Y	Y	>100	0.101
2018	Y			
	Y			
	Y			
2021		Y	82	0.743
	Y			
	Y	Y	>100	0.09
	Y	Y	23	2.795
	Y			
2019				
	Y	Y	>100	0.069
	Y			
	Y			
2020	Y			
		Y	>100	0.25
	Y			
2021	Y			
	Y			
	Y			
2016				

	Y			
	Y	Y	2	27.484
2020				
2019	Y			
	Y	Y	3	26.577
		Y	33	2.211
	Y			
		Y	15	5.329
	Y			
2018	Y			
	Y	Y	>100	0.536
2021	Y			
	Y			
2018				
	Y			
2020				
	Y	Y	3	26.577
2018	Y	Y	>100	0.206
2021				

	Y			
	Y	Y	1	77.379
2021				
2020				
	Y			
	Y			
	Y			
2020				
2019				
2021				
	Y			
	Y			
	Y			
	Y	Y	74	0.832
2020				

		Y	90	0.638
	Y			
	Y			
2021				
	Y			
2020				
	Y			
	Y	Y	57	1.146
2021				
2016				
2021	Y	Y	>100	0.18
2020	Y			
2020				

2020				
	Y			
	Y	Y	5	14.397
		Y	>100	0.043
	Y	Y	>100	0.23
	Y	Y	12	7.021
2020	Y			
	Y			
2021				
	Y			
2021	Y	Y	>100	0.511
2021				
2020				

2021				
	Y	Y	>100	0.11
	Y	Y	11	7.484
2020	Y			
	Y			
2021	Y			
2020				
2021				
	Y			
	Y	Y	4	25.361
2016	Y	Y	>100	-0.006
		Y	>100	0.045
	Y	Y	>100	0.033
2020				
	Y			

	Y	Y	>100	0.199
	Y			
	Y			
	Y			
	Y			
	Y			
2019				
	Y	Y	>100	0.271
	Y			
2021	Y			
	Y			
2018				
	Y	Y	22	3.1

	Y			
	Y			
	Y			
2017	Y	Y	>100	0.189
	Y			
2021				
2019	Y	Y	>100	0.229
2018				
		Y	>100	0.24
2021				
	Y	Y	>100	0.082

	Y			
2021				
2021	Y			
2020	Y			
2021	Y	Y	7	10.104
2019				
	Y			
2020	Y	Y	>100	0.366
	Y			
2021	Y			
2018	Y			
2020				
	Y	Y	>100	0.459
		Y	>100	0.016
	Y			

	Y			
	Y			
2021				
		Y	73	0.833
2021				
2021				
2021				
		Y	>100	0.266
2019				

	Y			
2019				
2021	Y			
2019	Y			
2021				
	Y			
2019				
2021				
2021	Y			

2018				
2018		Y	>100	0.051
		Y	65	1.035
2021	Y			
	Y			
	Y			
2021				
2020	Y			
2018				

2021				
2019	Y			
2021				
2019		Y	>100	0.137
2019				

	Y			
	Y			
		Y	>100	0.226
2021				
		Y	>100	0.008
2021	Y	Y	34	2.192
2020				
	Y			
2020		Y	19	3.848

2019				
2015				
		Y	36	2.028
2021				
	Y			
2020				
2018				
2021				
	Y			
	Y	Y	87	0.682

	Y			
	Y			
2021	Y			
2021	Y	Y	>100	0.148
2020				
2019				
2020				
2021				
2020				
2021				
	Y	Y	9	7.994
2021				

2021				
2021	Y			
2021				
2021				
2017				
	Y			
	Y			
2020				
	Y			

2021	Y			
	Y			
	Y			
2021				
2021				
2021		Y	>100	0.002
	Y			

	Y			
2019				
2020				
2020				
2020				
	Y	Y	10	7.875
2020	Y			
2021				
2020	Y			

	Y			
2020	Y			
2021				
2021				
2020				



THE COST OF COMPLIANCE

FOR CLIMATE-RELATED FINANCIAL DISCLOSURE



Most companies within the S&P 500 already report climate related performance.

→ Would mandated climate-related disclosure drive significant additional administrative burden, or would it be in line with current voluntary reporting?



TCFD is emerging as the de facto standard for reporting.

- If we consider TCFD as a potential framework, which of the reporting requirements require most effort?
- What drives variability across elements requiring high work?



The UK is in the process of introducing mandatory TCFD reporting.

- What learnings can we take from the UK?
- What is different about the US business environment that may require a different approach?

YEAR 1: DISCLOSURE COST OF CARBON DISCLOSURE

- There are several variables that determine the costs of carbon disclosure.
- The complexity of business structures and supply chains, prior reporting activities and requirements, levels of internal climate risk understanding, and compliance requirements all impact the resources and time needed to complete an organizational carbon footprint.

→ Persefoni’s estimates are based on our decades of professional experience while considering the possible tiers of sustainability maturity of companies pursuing disclosure.

Assessment (Scopes)	Maturity*	Costs	Assumptions
1, 2	Low	~\$45K	<ul style="list-style-type: none"> • No formal GHG policy and program in place • No organization specific data available. Assessment based on readily available average sector data
	High	~\$25K	<ul style="list-style-type: none"> • Public GHG goal addressing Scope 1, 2 • Mature data collection process implemented across owned facilities
1, 2, 3	Low	~\$125K	<ul style="list-style-type: none"> • Need to map supply chain and develop data collection strategy for scope 1,2 & 3 incl. data collection and gap analysis, data review and modeling • Develop calculation model or use SAAS to measure robust carbon footprint
	High	~\$50K	<ul style="list-style-type: none"> • Model existing data suitable for setting or set science-based Scope 1, 2, and 3 GHG reduction goals, Net zero operations and 100% renewable goal • Disclosure through various reporting standards (TCFD, CDP, GRI etc.)

*Additional detail around maturity levels is provided within the Appendix



SUPPORTING INFORMATION: CARBON DISCLOSURE TRENDS





FINANCIAL ACCOUNTING

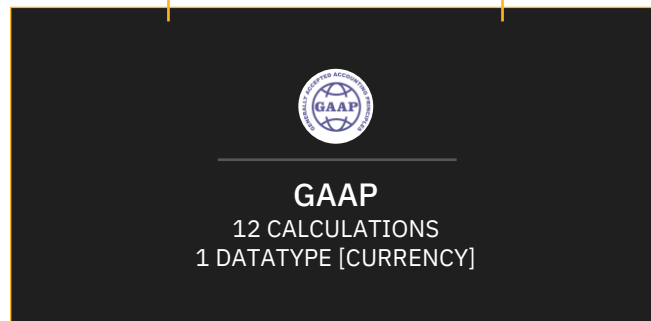
REGULATORY AGENCIES



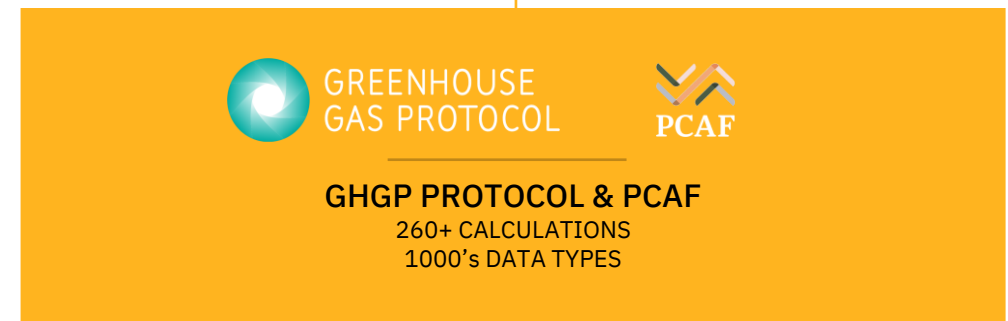
REPORTING FRAMEWORKS



ACCOUNTING



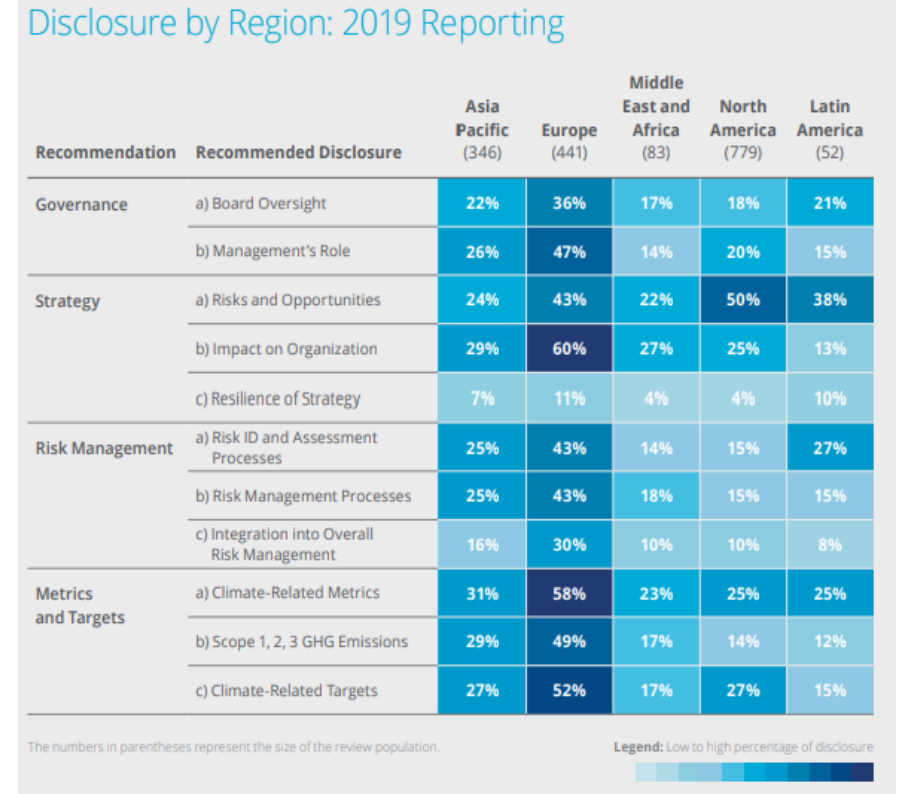
CARBON ACCOUNTING



While climate-related reporting has seen an uptake globally, there is still much room for improvement with a limited number of companies providing disclosures that are both qualitatively and quantitatively sufficient to be decision-useful across the 11 recommendations ([TCFD’s 2020 Status Report](#), Oct 2020).

Aside from the voluntary reporting of climate information, many governing bodies, including the [G7](#) (Jun 2021), are looking to help companies measure and adapt to the risks of climate change by mandating climate-related disclosures. Some of the first actors, such as the United Kingdom, Hong Kong, and New Zealand, have chosen to align with the recommendations of the TCFD.

This uptake in reporting has assurance providers seeing increased demand for [climate-related assurance services](#) (Aug 2021), including the vetting of disclosures as well as metrics such as greenhouse gas emissions (scopes 1, 2 and 3).



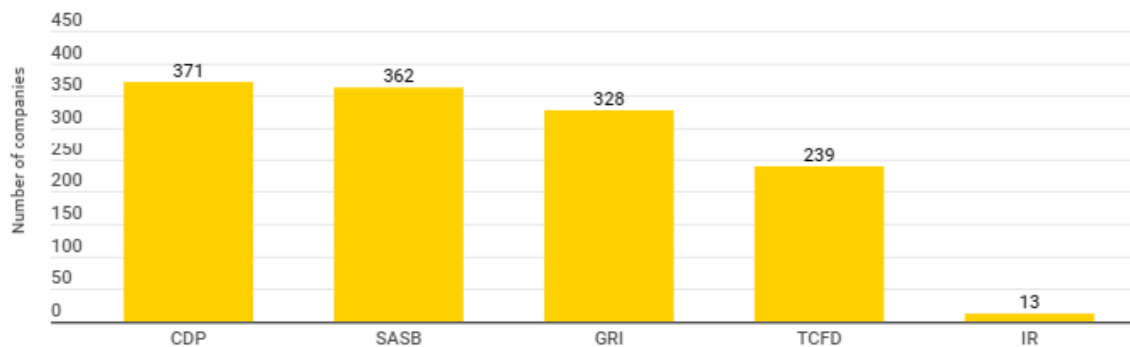
SOURCE: <https://www.fsb.org/wp-content/uploads/P291020-1.pdf>

Over the past few years, climate-related disclosures have increased across the S&P 500. According to [Bloomberg Law](#), more than 220 companies pinpointed climate change and greenhouse gases in their 2020 annual filings (Mar 2021).

S&P 500 ESG Reporting Overview*

- 95% of S&P 500 companies had detailed ESG information publicly available.
 - This information primarily sat outside of SEC submissions in a standalone ESG, CSR, sustainability, or similar reports.
- Approximately 6% of companies had assurance from a public company audit firm and 47% of companies had assurance from an engineering or consulting firm.
 - Some companies sought assurance over metrics related to greenhouse gas emissions and others had coverage over a wider range of ESG metrics.
 - Standards used for verification included AICPA, ISO 14064-3, ISAE 3000, AA1000, TCR, and ERT.

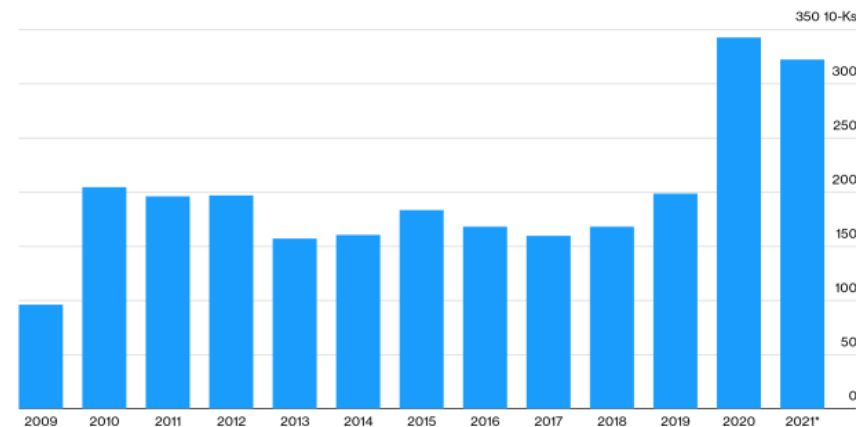
Reporting Standards and Frameworks (GRI, SASB, TCFD, CDP, IR)



*Most S&P 500 companies referenced at least one framework or standard. A majority referenced multiple frameworks and standards.

Seeing Green

More S&P 500 companies are pinpointing climate change, greenhouse gas in annual filings.

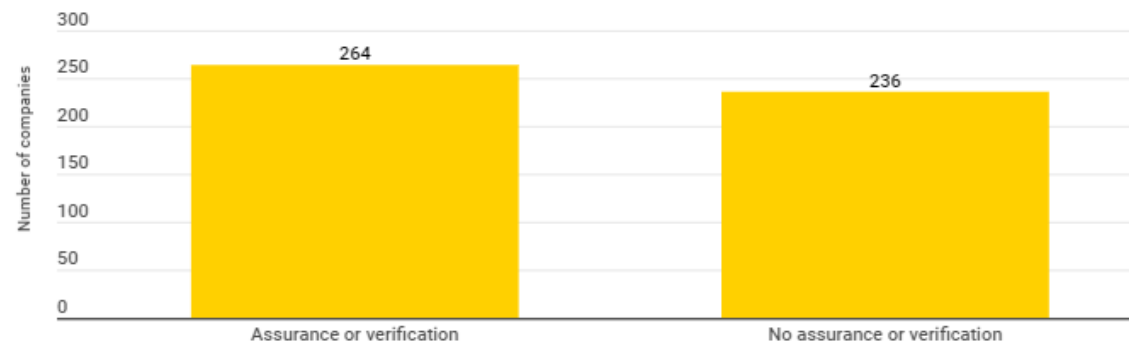


Source: Bloomberg LP
 *Data reflect 10-Ks filed each year by S&P 500 companies (as identified by the Bloomberg Terminal) that mention "climate change," "greenhouse gas," or "greenhouse gases." 2021 data includes filings through March 18.

Bloomberg Law

*An interactive list of S&P 500 companies and associated climate activity is provided under separate cover.

Assurance/Verification



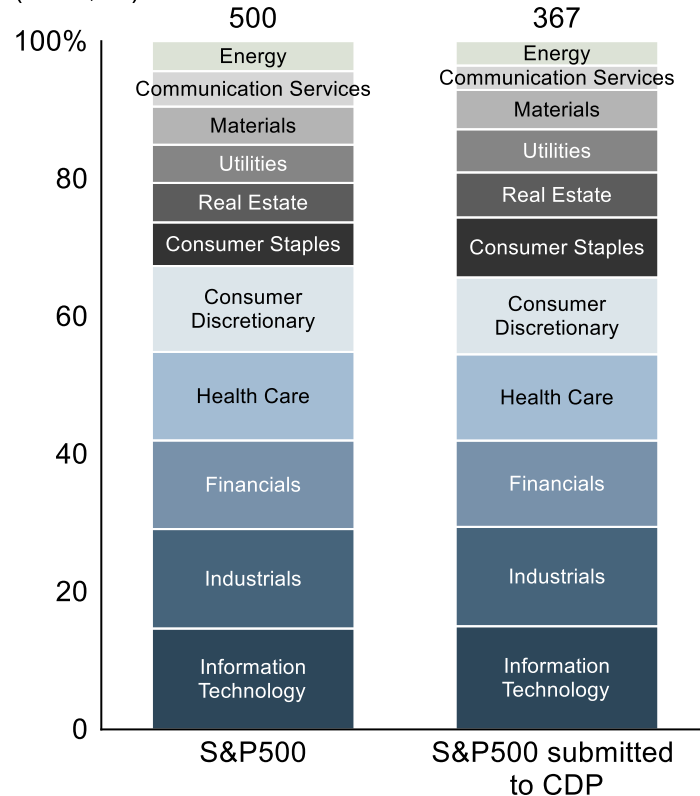
*Note: These numbers equal 266. Two companies had assurance from both a public company audit firm and other service provider.



The vast majority (~73%) of S&P500 companies report in CDP, and an increasing number are supporting TCFD (15%) as well as committing to SBTi (29%).

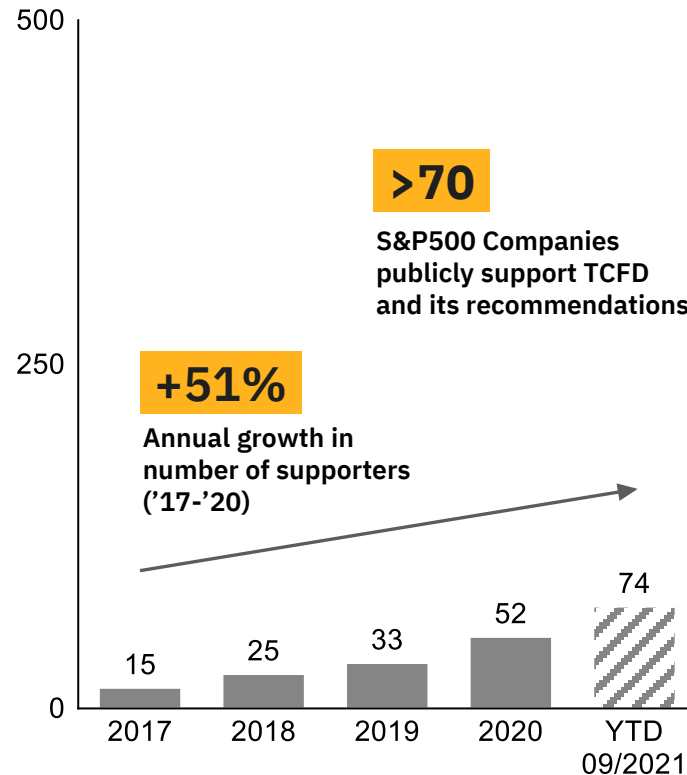
CDP is the most popular of mechanisms considered, all sectors represented

Sector split of S&P500 vs S&P500 submitted to CDP (2020, %)



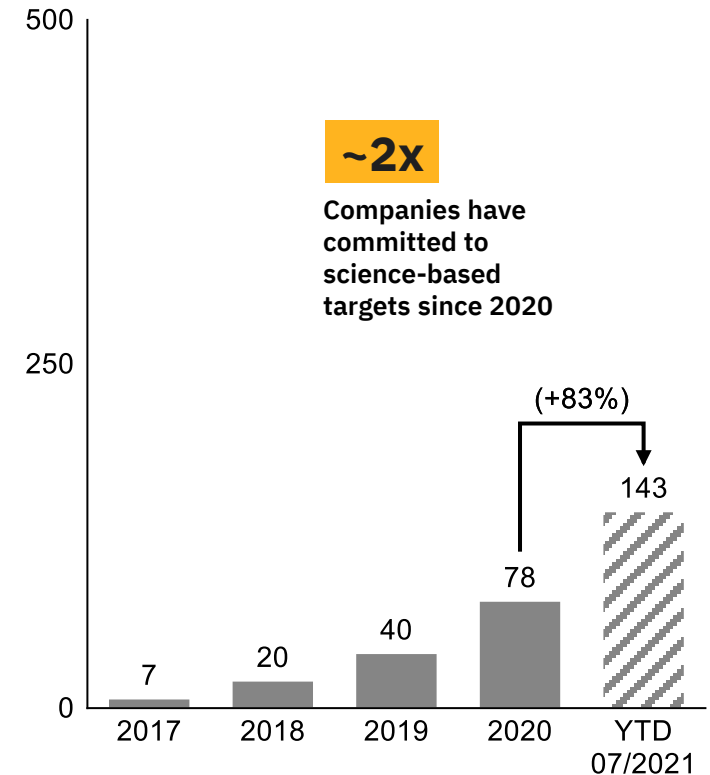
TCFD support increasing rapidly, but still some way to go for full coverage

S&P 500 TCFD supporters (2017-YTD2021, cumulative sum of companies)



Rapid growth in SBTi commitment this year and likely to continue

S&P500 Companies SBTi committed or targets set (2017-YTD2021, cumulative sum of companies)

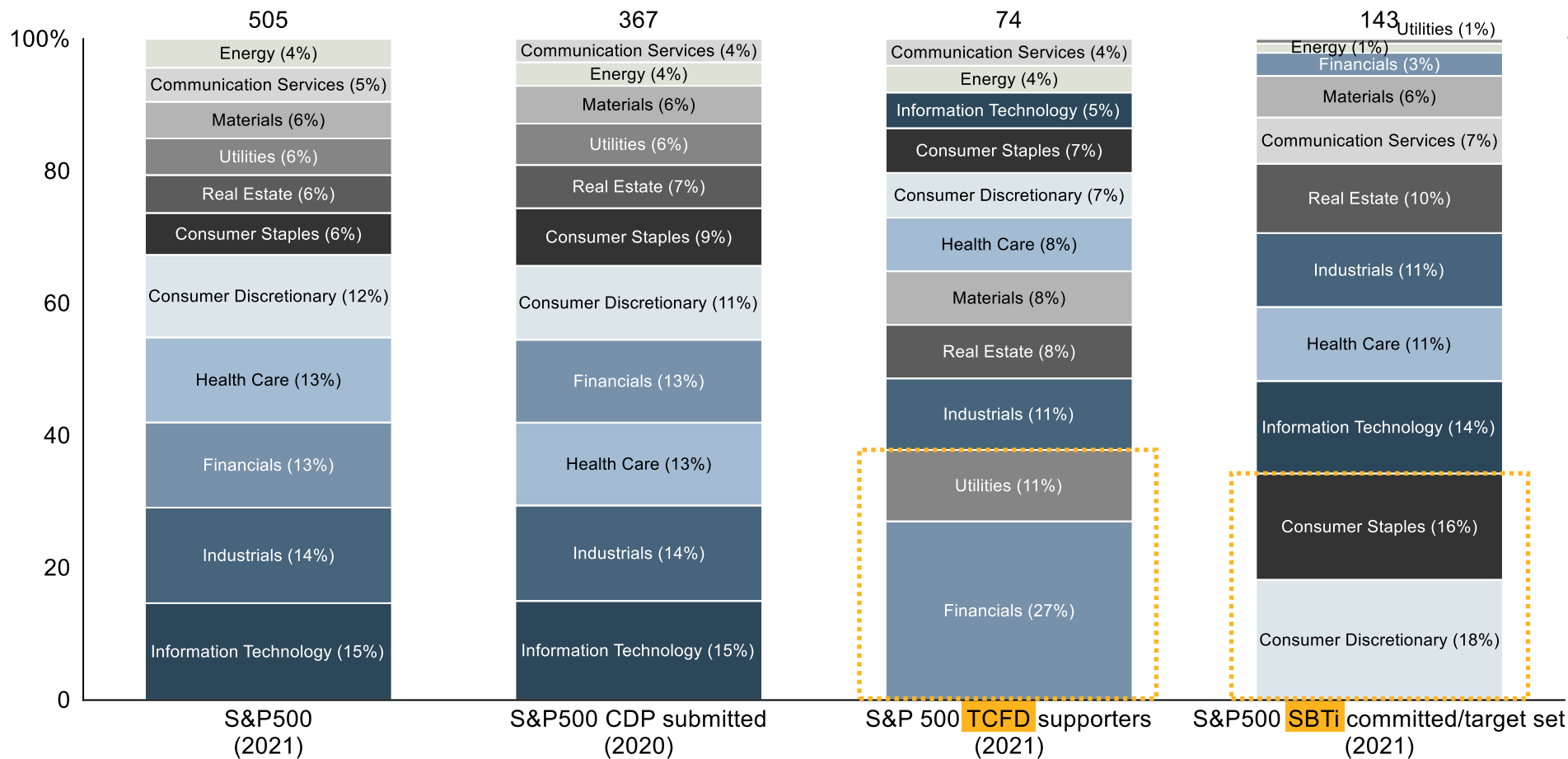


Proposed focus for deep dive



S&P500 OVERALL: REPORTING REPRESENTATION

Sector comparison of S&P 500 companies committed to climate-related disclosure mechanisms (# companies, %)



Commentary

- **TCFD** is relatively more represented by **Financials and Utilities**
 - Financials make up 13% of S&P500 companies but 27% of TCFD supporters
 - Utilities make up 6% of S&P500 but 11% of TCFD supporters
- **SBTi** is relatively more represented by **consumer-focused industries**
 - Consumer Staples make up 6% of S&P500 but 16% of SBTi committed
 - Consumer Discretionary make up 12% of S&P500 but 18% of SBTi committed

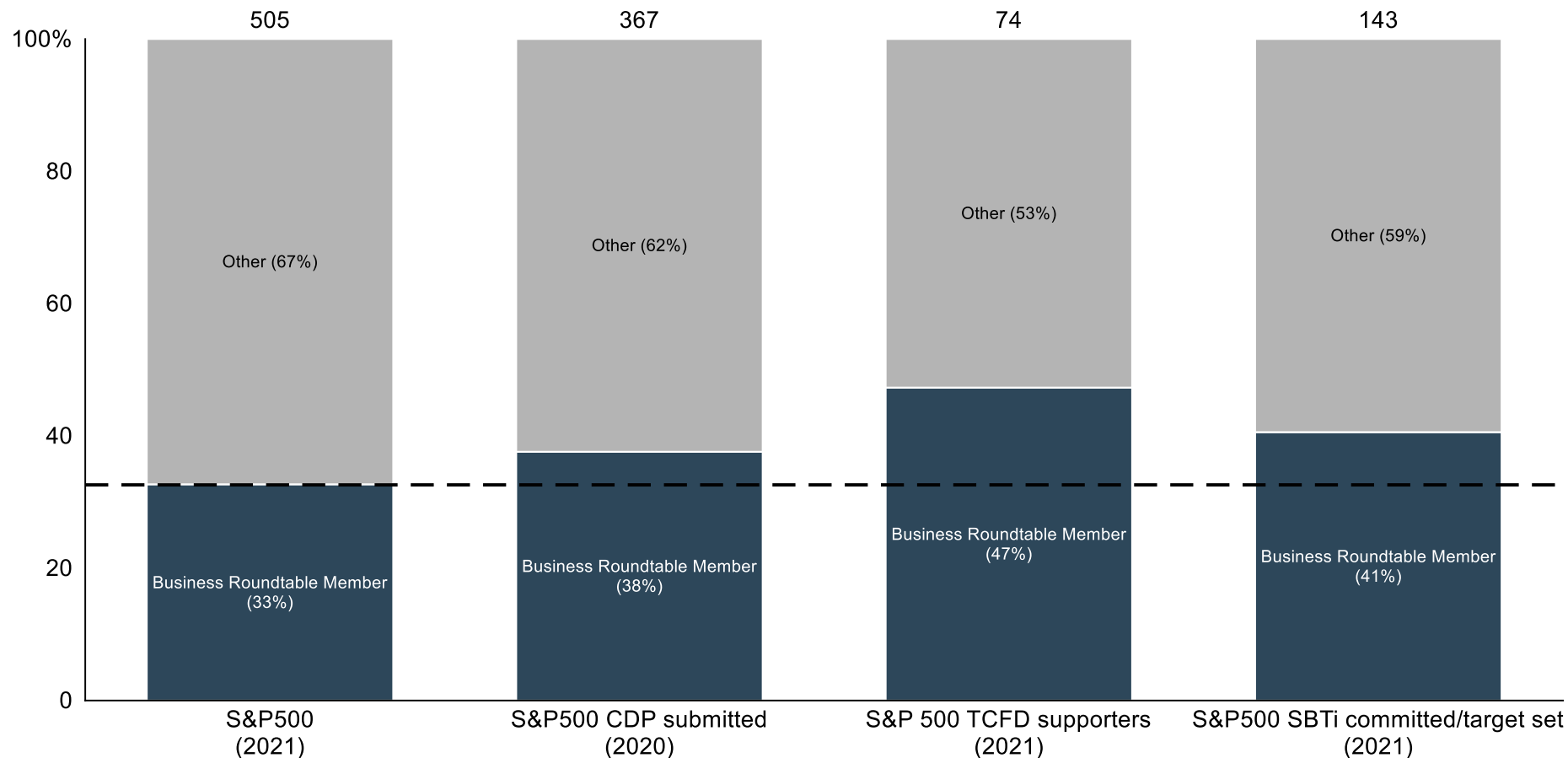
Note: Consumer staples includes foods and beverages, household goods, and hygiene products as well as alcohol and tobacco. Consumer Discretionary includes durable goods, high-end apparel, entertainment, leisure activities, and automobiles

Source: As of September 2021 – [CDP](#), [TCFD](#), [SBTi](#)



S&P500 companies that are also Business Roundtable members are more progressive in climate-related disclosure and commitments

Comparison of percentage S&P500 companies that are part of Business Roundtable across climate-related disclosure mechanisms (# companies, %)



Commentary

- **Business Roundtable members are overrepresented across all climate-related disclosure mechanisms compared to S&P500, suggesting a more progressive stance**
 - Relative share of disclosure mechanisms are 5-8 p.p. higher than the representation in S&P500
- Business Roundtable members make up a larger share of TCFD and SBTi than CDP, indicating **support of more advanced disclosure mechanisms**

Source: As of September 2021 – [CDP](#), [TCFD](#), [SBTi](#), [Business Roundtable](#)



SUPPORTING INFORMATION: TCFD EMERGENCE & UPTAKE





TCFD offers a pragmatic framework to assess the effort and variability of climate-related financial disclosure.

Core elements

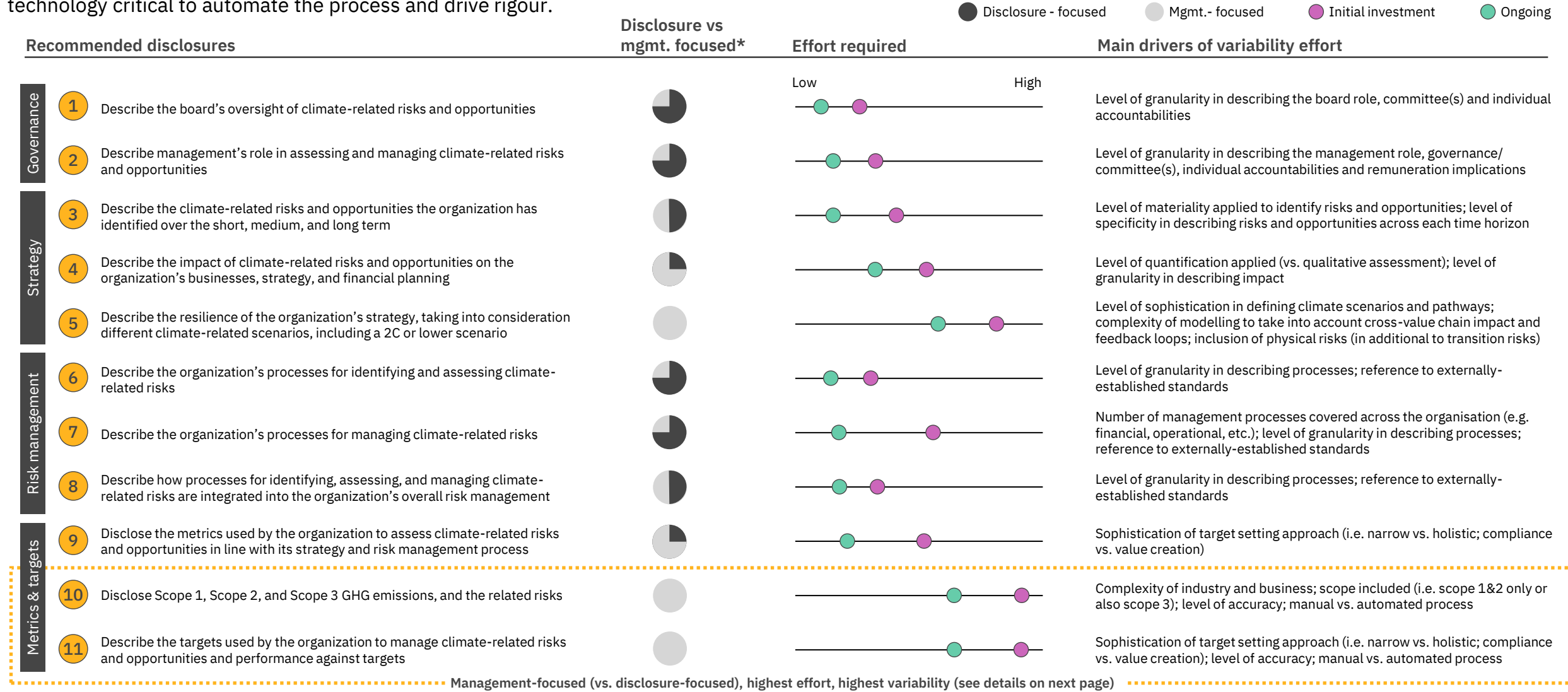
Recommendations

Recommended disclosures

	1 Governance	2 Strategy	3 Risk Management	4 Metrics and Targets
Core elements				
Recommendations	<ul style="list-style-type: none"> Disclose the organization’s governance around climate-related risks and opportunities 	<ul style="list-style-type: none"> Disclose the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material 	<ul style="list-style-type: none"> Disclose how the organization identifies, assesses, and manage climate-related risks 	<ul style="list-style-type: none"> Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material
Recommended disclosures	<ul style="list-style-type: none"> Describe the board’s oversight of climate-related risks and opportunities Describe management’s role in assessing and managing climate-related risks and opportunities 	<ul style="list-style-type: none"> Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2C or lower scenario 	<ul style="list-style-type: none"> Describe the organization’s processes for identifying and assessing climate-related risks Describe the organization’s processes for managing climate-related risks Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management 	<ul style="list-style-type: none"> Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process Disclose Scope 1, Scope 2, and Scope 3 GHG emissions, and the related risks Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets



Select few climate-related financial disclosure requires drive most effort on ongoing basis; technology critical to automate the process and drive rigour.



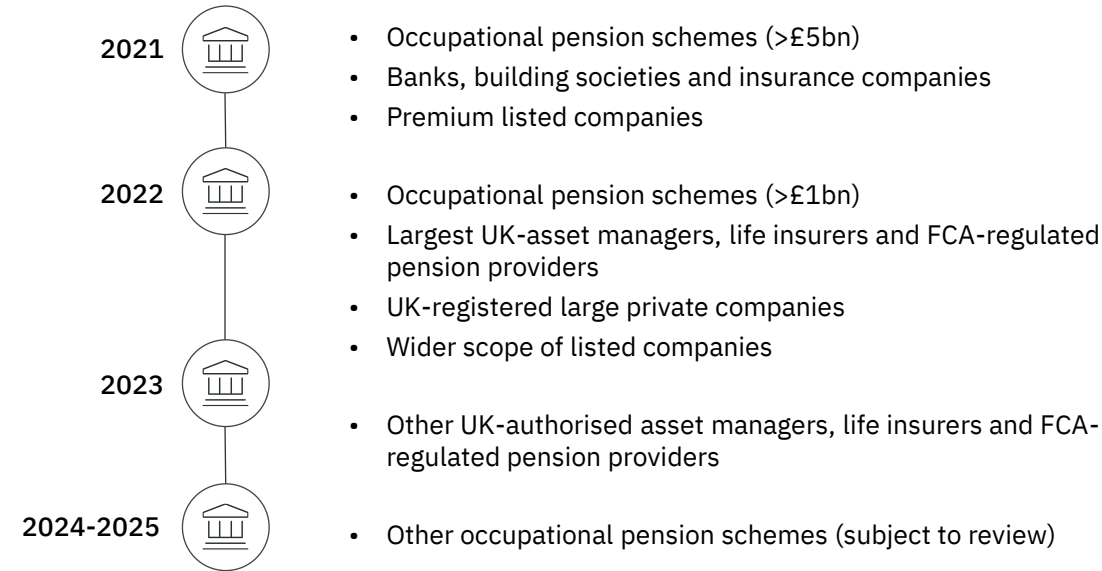
Note: *) Is the disclosure recommendation ‘only for disclosure’ or is it ‘good business’ regardless; Source: [TCFD](#)



UK has introduced mandatory TCFD in a staggered way, focusing first on largest companies and financial institutions; stakeholders have a broadly positive view.

The TCFD disclosure coverage will accelerate over the next 3 years in the UK

Timeline of planned or potential regulatory actions (HMT, 2020)



UK Government regulating mandatory TCFD

- TCFD disclosure mandatory for banks and insurers by 2021
- TCFD disclosure expected to become mandatory for publicly quoted companies, large private companies and LLPs by 2022
 - Expected to affect ~1,600 companies based on current preferred option in BEIS impact assessment
 - Mandating companies at lower threshold “above medium company in 2006 Companies Act” would include approx. 13,000 companies and was removed as option as the long tail would have high TCFD compliance costs relative to economic impact

Note: 1) Based on current preferred option in impact assessment









The majority of stakeholders have a positive view on the process

Investors	<p>“We welcome the Chancellor’s decision for British companies to report in line with the TCFD by 2025. Open, honest, consistent and transparent disclosure is a fundamental precondition for the realignment of finance and capitalism. The TCFD provides an essential platform for asset managers and companies alike to deliver this”</p> <p style="text-align: right;">Global Head of Stewardship, Fidelity Investment</p>
Investors	<p>“Requiring UK companies to make mandatory disclosures against the TCFD framework will move discussions from the ‘whether’ to the ‘what’ and ‘how to’ stage: this is an extremely positive development.”</p> <p style="text-align: right;">CEO, International at Federated Hermes</p>
Investors	<p>“The move would support investment managers to better communicate climate risk to their pension fund clients, enabling them to meet their disclosure requirements and better understand the impact of their investment portfolios.”</p> <p style="text-align: right;">Stewardship Manager, Investment Association</p>
Companies	<p>“[We work with TCFD because] we saw increasing interest from our investors and other stakeholders. We see the current trend in investor interest in long term success continuing and want to ensure that we are well prepared for these questions.”</p> <p style="text-align: right;">Tesco</p>
Companies	<p>“We support the aims of the TCFD and believe that businesses should communicate the risks and opportunities that climate change brings. TCFD provides a framework to improve the disclosure [...] so that investors can make better capital allocation decisions in support of the transition to a low carbon economy.”</p> <p style="text-align: right;">Unilever</p>



The UK has developed impact assessment with compliance cost. However, several categories might be understanding the cost of compliance, e.g. strategy costs

Category	Description	Cost in year 1	Annual costs from year 2	Key assumptions
 Familiarization costs	Costs to understand and interpret guidance provided by regulator	~\$17,300	~\$0	<ul style="list-style-type: none"> Costs of 43 employees reading 75 pages
 Governance costs	Costs to implement, document and disclose governance and to coordinate across internal business functions	~\$12,100	~\$12,100	<ul style="list-style-type: none"> Costs of 9 employees involved in producing 5 pages governance documentation
 Strategy costs	Costs to analyze information, implement changes, draft reporting, and sign-off	~\$17,300	~\$17,300	<ul style="list-style-type: none"> Costs of 13 employees involved in producing 5 pages strategy documentation
 Risk Management	Costs on all entities to disclose climate-related risks, including internal coordination	~\$14,400	~\$14,400	<ul style="list-style-type: none"> Costs of 11 employees involved in producing 5 pages risk management documentation
 Metrics and Targets	Annual costs of developing and disclosing metrics and targets	~\$100,700	~\$77,700	<ul style="list-style-type: none"> 1 FTE for annual data gathering (0.75 by year 2) Costs of 11 employees involved in producing 3 pages metrics and targets documentation
 Signposting	Uploading required reporting	~\$100	~\$100	<ul style="list-style-type: none"> Assumed to take 2 hours by one administrative level professional
Total annual costs		\$161,800	\$121,500	<p>Compliance costs significantly understated and assumes no use of external consultants nor the need to hire new employees.</p>

Note: Costs converted to from GBP to USD at 1.37 and rounded to nearest \$100

Source: [Gov.uk](https://www.gov.uk)

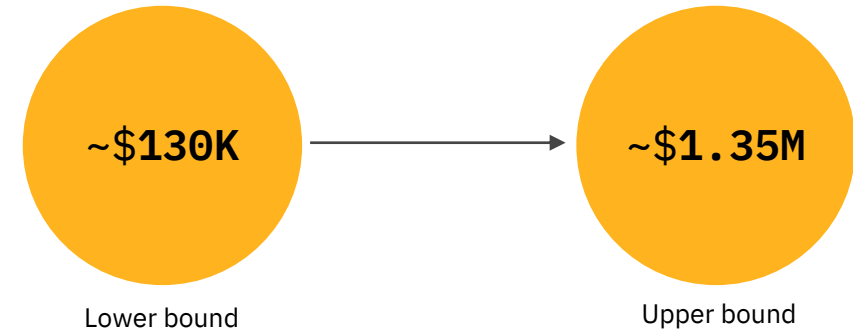
Experience from implementation of previous regulatory EITI initiative indicates that wider ranges are much more realistic for cost of compliance

Extractive Industries Transparency Initiative (EITI)

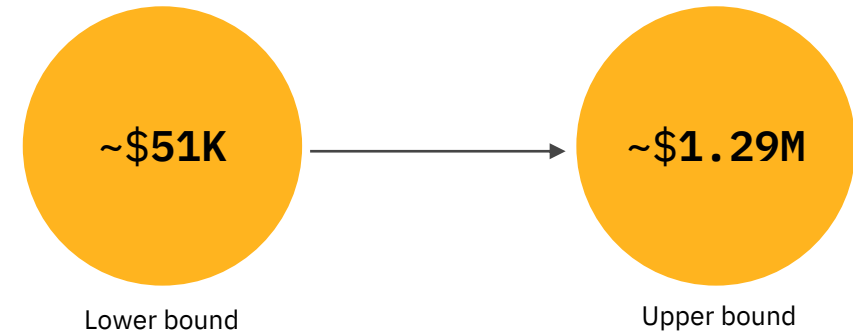
- EITI implements the global standard to promote the open and accountable management of oil, gas and mineral resources
- The standard requires the disclosure of information along the extractive industry value chain from the point of extraction, to how revenues make their way through the government, and how they benefit the public
- The SEC estimated initial and ongoing compliance costs using compliance cost estimates from Barrick Gold, ExxonMobil, Rio Tinto, and the National Mining Association, e.g.:
 - Barrick Gold estimated initial compliance costs of \$500K and ongoing compliance costs of \$200K
 - ExxonMobil estimated initial compliance costs of \$50M

Estimated compliance cost proved to be material

Average initial compliance costs per company with no fixed costs



Annual ongoing compliance costs per company with no fixed costs



Source: [EITI](#), [SEC](#)

SUPPORTING INFORMATION: BENEFITS OF CARBON ACCOUNTING





Reduce Risk

- How**
- Report carbon findings to stakeholders using available CSR formats (e.g., GRI) or disclose the data and information through public reporting systems like CDP
 - Increase awareness and understanding of risks/opportunities, informing long-term strategies
 - Improve benchmarking and progress measurement capabilities

Reduce Costs

- Reduce raw materials, energy, water and waste in the supply chain, all of which have a cost
- Identify costs in the supply chain and explore opportunities for shared savings
- Factor climate implications into planning, budgeting and forecasting decisions

Grow Revenue

- Surface and create opportunities to innovate and generate revenue from sustainable products and service
- Provide data to develop and/or improve marketing claims

Reporting GHG emissions and energy use externally is increasingly an expectation of both investors and industry associations.

A comprehensive assessment of an organization's carbon inventory and energy footprint is the first step companies can take when looking to identify inefficiencies, set goals, and evaluate cost-saving energy efficiency investments.

BENEFITS

- **Access to capital and green funding** – Sustainable finance has been expected to see [55% growth in 2021](#) (Jan 2020), with most of it supported by the issuance of sustainability-linked bonds.
- **Talent recruitment and retention** – According to a study performed by [Fast Company](#) (Feb 2019), nearly 40% of millennials have said they've chosen a job in the past because the company performed better on sustainability than the alternative.
- **Market differentiation** – The quality of climate-related reporting can set an organization apart from their peers, reaping heavy benefits in industries where consumer preferences are swayed by public perception, such as consumer goods.
- **Access to new markets** – Evolving regulatory requirements and defined targets such as those of the Paris Agreement are accelerating the demand for GHG solutions in [emerging markets](#), as highlighted by the World Bank (May 2020). This is resulting in increased market opportunities that are best capitalized by those who have already proven to be low-carbon.
- **Futureproofing** – The public disclosure of climate-related financial information will improve market transparency and comparability, providing investors with the information required to make decisions that will positively influence the transition to a low-carbon economy.

Accountants “can help companies attain more sustainable outcomes for long-term success by integrating environmental, social and governance (ESG) matters into their decision-making and assessing ESG impacts on the financial, industrial, agricultural and ecological systems on which they depend,” the **Rachel Johnson, Head of Risk Management and Corporate Governance, Association of Chartered Certified Accountants** [CFO Dive, July 2021](#)

“I don't think that they [**management accountants**] have an option ... because there isn't an opt-out clause on ESG,” said **Paul Ash, President & Chair, Chartered Institute of Management Accountants (CIMA)** “Whether we like it or not, ESG already defines us and our profession in so many ways.” [Financial Management, September 2021](#)

“ESG reporting is no longer an emerging trend, but has become necessary information that **investors** have come to expect,” said **Center for Audit Quality (CAQ) executive director Julie Bell Lindsay**. [Accounting Today, June 2021](#)

“What we're trying to achieve with this resource is foster a dialogue on climate-related measures and disclosures among all the stakeholders in the financial reporting ecosystem,” said **Dennis McGowan, CPA, vice president, Professional Practice for the Center for Audit Quality (CAQ)**. “The goal is to provide investors and other stakeholders with a foundational understanding of how the key elements of the current **accounting and auditing** requirements in the U.S. today are applied by company **management and auditors** with respect to climate-related risks and the **audited financial statements**.” [Journal of Accountancy, September 2021](#)

“Businesses don't have the ability to choose whether these [sustainability issues] are real issues. The issues are there whether businesses acknowledge them or not,” **Jeffrey Hales, Ph.D., Chairman of the Sustainability Accounting Standards Board (SASB)** “**Management accounting** is actually part of this conversation because of the important role that **management accounting** has in analyzing information.” [Financial Management, September 2021](#)

The screenshot displays the 'CO2e ACTIVITY LEDGER' interface. On the left, there are filter sections for 'RESOURCE GROUPS' (Pantheon Global), 'INVESTMENTS' (All Financed Entities), and 'EMISSIONS' (All Emissions Categories, All Emissions SubCategories, All Emissions Sources). The main area shows a table titled 'All CO2e Activities' with columns: Organization, Emissions Category, Emissions SubCategory, Emissions Source, Activity Start, Activity End, GHG Scope, and Acc. The table lists various activities from organizations like Notus Trucking, Advantage, Pantheon Global, Eos Electric, Boreas Resources, and Sisyphus Earthworks.

Organization	Emissions Category	Emissions SubCategory	Emissions Source	Activity Start	Activity End	GHG Scope	Acc
Notus Trucking	Supply Chain	Upstream Emissions	Purchased Goods & Services	07-01-2021	07-12-2021	3	Gre
Advantage	Assets	Fleet	Utility Grid Consum...	07-01-2021	07-02-2021	2	Gre
Pantheon Global	People Activity	Business Travel	Water Travel	07-01-2021	07-01-2021	3	Gre
Eos Electric	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Eos Electric	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Eos Electric	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Eos Electric	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Boreas Resources	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Boreas Resources	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Boreas Resources	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Sisyphus Earthworks	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Sisyphus Earthworks	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Sisyphus Earthworks	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Sisyphus Earthworks	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Notus Trucking	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Notus Trucking	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Notus Trucking	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre
Notus Trucking	Assets	Fleet	Mobile Combustion	06-01-2021	06-30-2021	1	Gre

There are several carbon accounting solutions on the market that help organizations calculate and disclose their carbon data. Some are well suited for the SMB market or corporates while others for the financial sector.

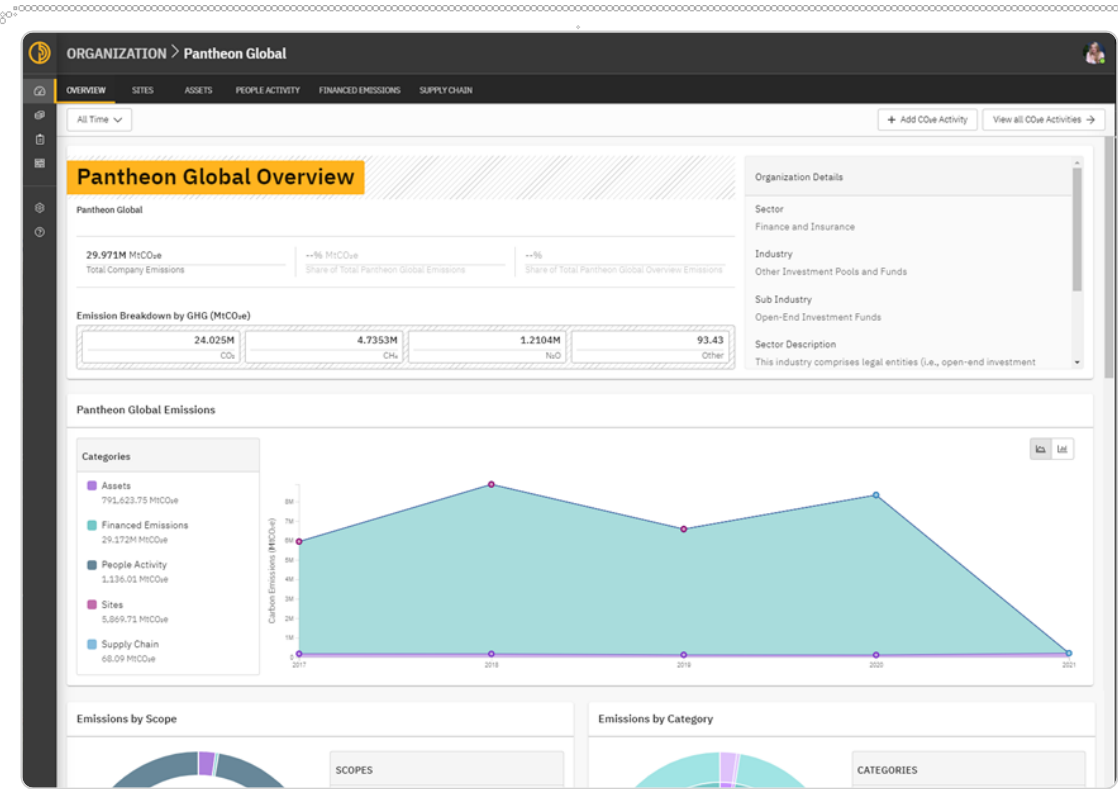
The Persefoni platform provides completely transparent and auditable **Greenhouse Gas Protocol** (GHGP) and Partnership for **Carbon Accounting Financials** (PCAF) calculations. This makes the results usable in sustainability reporting frameworks as well as carbon and climate goals.

Persefoni is a carbon management platform that enables financial institutions and asset managers to measure and manage their carbon footprint across their operations and portfolios in a centralized, cloud-based application. This simplifies the management of carbon inventories from multiple datasets and provides a single view for analytics and reporting on the progression of sustainability goals.

1 TURN DATA INTO ADUTIABLE & ASSURABLE CARBON FOOTPRINT

2 MAKE CARBON REDUCTION DECISIONS & MEASURE PROGRESS

3 CREATE INVESTOR-GRADE DISCLOSURES





Mike Wallace – SVP, Strategic Market Engagement

Mike is focused on building partnerships with consulting organizations, standard-setters, government agencies, and corporate clients. Prior to Persefoni, Mike was a partner at ERM. He has worked on foundational ESG initiatives such as the International Integrated Reporting Council, the European Commission proposal on corporate ESG reporting, and the UN Sustainable Stock Exchange Initiative's on ESG listing guidance.



Katie Blum – Associate Director, Carbon Solutions

Katie is a Chartered Professional Accountant with extensive experience in climate-related risk and disclosure assessments, integrating findings into business operations, strategy, risk management and corporate disclosures. Prior to Persefoni, Katie worked at Manifest Climate. She holds the FSA Credential through the Sustainability Accounting Standards Board (SASB) program.



Jacob Madsen – Senior Director, Carbon Solutions

Jacob has more than two decades in sustainability across multiple industries and consulting. Most recently, he led sustainability at SC Johnson. Previously, he managed life cycle assessment and carbon footprint teams and projects at Deloitte Consulting and ERM including strategy, metrics development, measurement, analysis, and reporting.



Dan Hill – Associate Director, Carbon Solutions

Dan has a background in the sustainability industry, as well as a Master's Degree in Environmental Economics. Prior to Persefoni, he was in Ernst & Young's Climate Change & Sustainability Services practice where he assisted Fortune 500 clients in strategy development, climate risk management, and assurance over GHG emissions.





Tim Mohin – Chief Sustainability Officer

Tim is a globally recognized sustainability executive who ran sustainability at Intel, Apple, and AMD. He led the development of environmental policy, including the Clean Air Act, within the EPA & U.S. Senate. Prior to Persefoni, Tim was the CEO of the Global Reporting Initiative (GRI), the world’s largest ESG reporting standard.



Rakhi Kumar – Member, SAB

Rakhi is a Sr. Vice President at Liberty Mutual, where she leads sustainability efforts and chairs their Climate Council. She led State Street Global Advisors’ ESG activities and has worked at Moody’s, the IFF, and Booz Allen. She is part of PCAF and UN-convened Net-Zero Insurance Alliance (NZIA)’s working group to develop the first global standard for insured GHG emissions.



Robert Eccles – Co-Chair

Bob is a leading authority on corporate purpose and the integration of ESG factors in resource allocation decisions. A founding Chairman of the Sustainability Accounting Standards Board (SASB), Bob is also a visiting Professor of Management Practice at the Saïd Business School, University of Oxford, and a Senior Advisor to the Boston Consulting Group and the Impact Management Project.



Curtis Ravenel – Co-Chair

Curtis is a leading expert on climate-related risks and opportunities in the corporate, financial, regulatory, and NGO communities. A founding member and the Secretariat of the TCFD, Curtis is also advisor to UN Special Envoy for Climate Finance Mark Carney and founder of the Sustainable Business & Finance Group at Bloomberg LP.





THANK YOU //  PERSEFONI

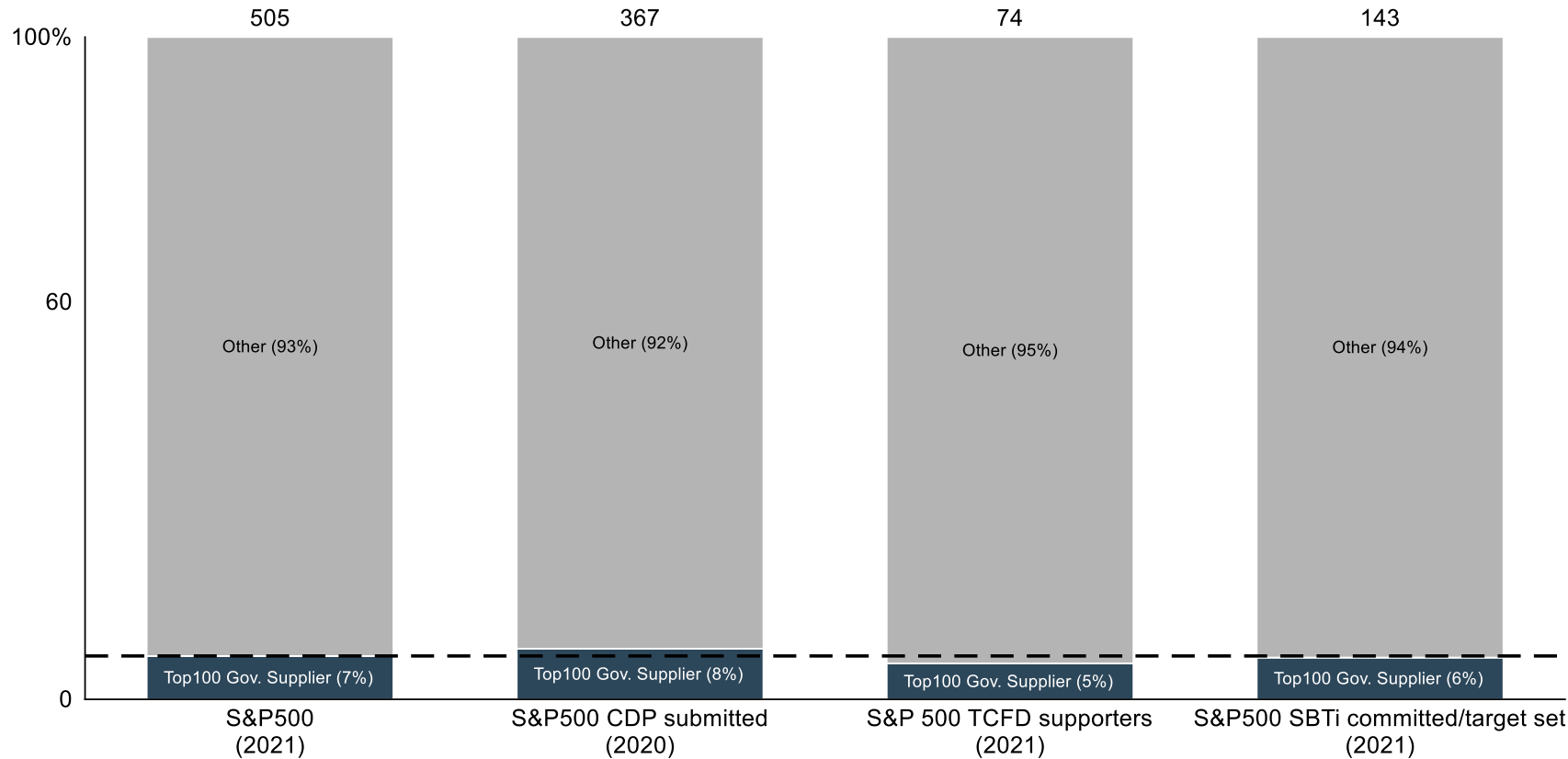
APPENDIX

A decorative graphic consisting of two horizontal yellow lines. The top line is solid and ends with a yellow arrowhead pointing right. The bottom line is also solid and ends with a yellow arrowhead pointing right. To the right of the top line, there is a rectangular area filled with diagonal yellow hatching.

Dimension	Low Maturity	Medium Maturity		High Maturity	
	Initiating	Progressing	Excelling	Leading	Transforming
GHG Reduction Strategy and Goals	<p>Ad hoc efforts, no formal program</p> <p>No internal goals or annual internal goals based only on cost reduction</p>	<p>Defined energy management roadmap with internal GHG reduction goals</p> <p>Benchmarking activities with peers</p> <p>Using standard metrics for measuring energy performance</p>	<p>Public GHG reduction goal</p> <p>Reporting to third-parties such as CDP and pursuing recognition opportunities</p> <p>Setting a goal to improve scores across full portfolio</p>	<p>Public GHG goal addressing Scope 1, 2 and possibly 3 emissions</p> <p>Integrating supply chain/value chain into GHG reduction strategy</p> <p>Collaborating across industry to establish sector goals and initiatives</p>	<p>Setting or set science-based Scope 1, 2, and 3 GHG reduction goals</p> <p>Net zero operations goal</p> <p>Goal to be supplied by 100% renewable energy by 2050</p>
Measuring, monitoring, benchmarking	<p>No systematic measurement, tracking, or benchmarking program in place</p>	<p>Using utility bill pay system, benchmark energy performance and identify anomalies</p> <p>Measuring and tracking Scope 1 & 2 GHG emissions.</p> <p>Calculating GHG emissions using spreadsheets and facility surveys</p>		<p>Measuring and tracking Scope III GHG emissions, including vendor emissions</p> <p>Using software to perform Scope 1, 2 and 3 analysis, measurement & verification, automated benchmarking and advanced analytics e.g. scenario building and forecasting</p>	

S&P500 companies that are also part of Top100 government suppliers are slightly underrepresented in TCFD and SBTi disclosure mechanisms.

Comparison of percentage S&P500 companies that are part of top100 gov. suppliers across climate-related disclosure mechanisms (# companies, %)



Commentary

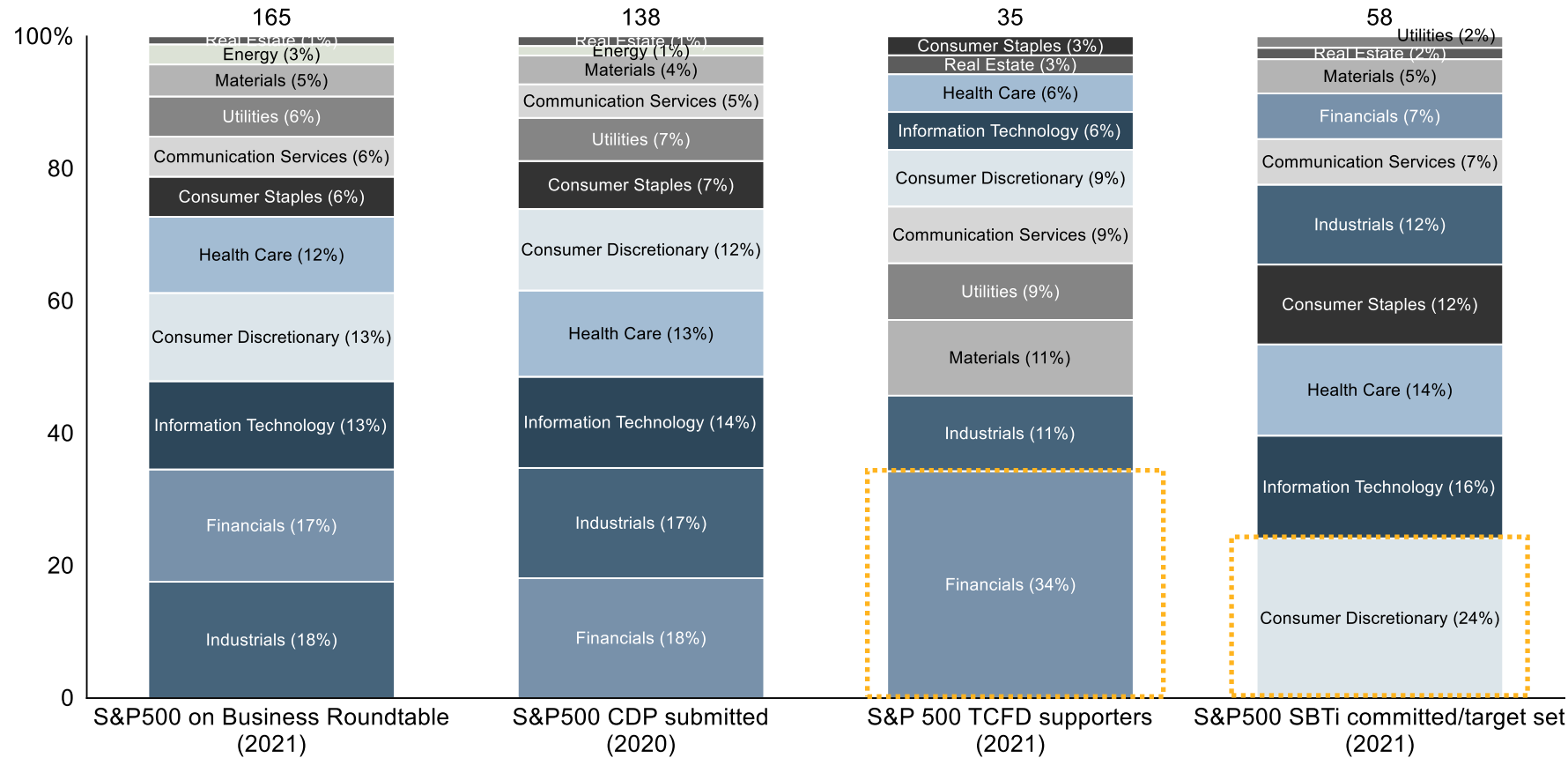
- Major government suppliers are **well represented in terms of CDP commitment**
- Major government suppliers have slightly lower representation in TCFD and SBTi compared to S&P500, suggesting a **conservative stance to advanced disclosure mechanism**
 - 5% share of TCFD supporters compared to 7% of S&P500
 - 6% share of SBTi committed compared to 7% of S&P500

Source: [CDP](#), [TCFD](#), [SBTi](#), [GSA](#)



As with overall S&P500 companies, CDP cuts across sectors while financial companies are highest share of TCFD and consumer discretionary for SBTi

Sector comparison of S&P500 Business Roundtable companies committed to climate-related disclosure mechanisms (# companies, %)



Commentary

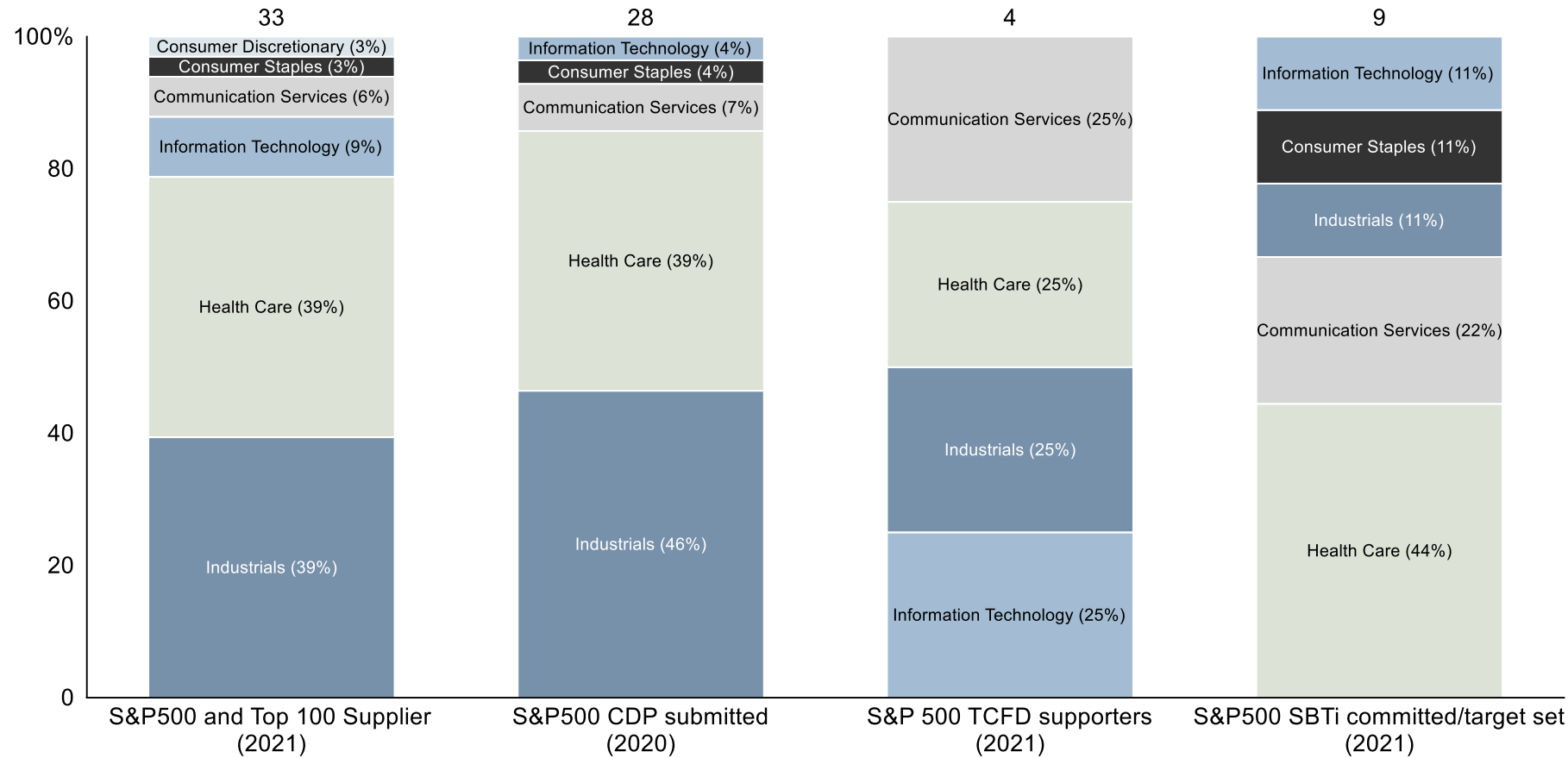
- **TCFD** is to a larger degree used by **Financials**
 - Financials make up 17% of S&P500 companies but 34% of TCFD supporters
- **SBTi** is more used by **Consumer Discretionary**
 - Consumer Discretionary make up 13% of S&P500 but 24% of SBTi committed

Source: [CDP](#), [TCFD](#), [SBTi](#), [Business Roundtable](#)



Major industrial gov. suppliers are represented in CDP, but shows lower commitment to advanced disclosure mechanisms; Healthcare also in CDP and prefers SBTi.

Sector comparison of S&P500 Top100 government suppliers comitted to climate-related disclosure mechanisms (# companies, %)








Commentary

- **Industrials** is well represented in CDP, but **not in TCFD and SBTi**, indicating **lower commitment to more advanced disclosure mechanism**
- **Healthcare** is represented in CDP and seems to **prefer SBTi over TCFD**

Source: [CDP](#), [TCFD](#), [SBTi](#), [GSA](#)



There are several key carbon initiatives which aim to help companies reduce their GHG emissions including TCFD and the Science-Based Targets Initiative

Initiative	Scope			Audience	Focus			Function	
	Scope 1	Scope 2	Scope 3		Setting & committing to targets	Measuring & reporting emissions	Org. & financial governance	Providing standards	Promoting & enabling disclosure
 SCIENCE BASED TARGETS	✓	✓	✓	Companies	●	◐	○	✓	✓
 RE 100	✓*	✓	✗	Companies	●	◐	○	✓	✓
 CDP	✓	✓	✓	Companies & organizations Countries and cities	◐	●	◐	✗	✓
 GREENHOUSE GAS PROTOCOL	✓	✓	✓	Companies & organizations Countries & cities	○	●	○	✓	✓
 TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES	✓	✓	✓	Companies & organizations (public) Investors	○	○	●	✓	✓

● Primary focus ◐ Secondary focus ○ Not in focus

Note: (*) Includes any scope 1 emissions relating to the generation of electricity by the company, but not including e.g. fossil fuels for transport, production of heat, or other uses not involving electricity production

Initiatives are closely interconnected; setting science-based targets (SBTs), for example, involves applying guidelines and disclosures defined by other initiatives



Use GHG Protocol to measure GHG inventory, as SBTs must be in-line with GHG Protocol standards

- Sets comprehensive global standardized frameworks to measure and manage GHG emissions
 - For example, it defines what to include and how to measure scope 1, 2 and 3 categories, and GHG gases
- ‘Corporate Accounting and Reporting Standard’ is the world’s most widely used GHG accounting standard



Meet SBT annual disclosure requirements by following SBTi suggestion of reporting to CDP

- CDP runs a disclosure system where companies report annual environmental impact & actions through a detailed questionnaire
 - Companies are graded reflecting environmental transparency & action; grades range from ‘A’ (Leadership) to ‘D’ (Disclosure)
- Questionnaire includes detailed reporting on emissions in line with GHG Protocol



Set SBTs

Report financial information according to Task Force on Climate-related Financial Disclosures (TCFD)

- TCFD recommendations are designed to help organizations disclose climate-related risks and opportunities within their existing reporting efforts
- Recommendations across four areas: 1) Governance, 2) Strategy, 3) Risk management, 4) Metrics & targets

Consider adopting a science-based renewable electricity (RE) target which SBTi defines in-line with RE100

- Option in SBT to commit to a target for sourcing 100% RE in-line with RE100 recommendations instead of a scope 2 emissions reduction target
- Joining RE100 can help companies transition to 100% use of renewable electricity
 - Commitment includes all electricity consumption, also self-generated

While TCFD does not specify use of SBTs, disclosure of metrics & targets is a key recommendation



Required Recommended No direct connection



TCFD is a standard for financial reporting of climate-related risks and opportunities.



How did it start?

- The Task force on Climate-related Financial Disclosure **(TCFD) was established by the Financial Stability Board in 2015** to review how the financial sector can take account of climate-related issues.
- After a series of draft reports, **TCFD released its first climate-related financial disclosure recommendations in 2017** – and 100 CEOs signed a statement of support.



What is the purpose?

- Set **standards for reporting** on climate-related risks and opportunities – and their financial implications **Integrate climate-related reporting** into existing financial reporting structure in order to create transparency and stability.
- Allow investors to **price climate-related risks and opportunities** and channel investments to sustainable and resilient solutions, opportunities, and business models.



Why does it matter?

- **+2000 supporters** have publicly declared support for TCFD and its recommendations (across 78 countries) **Investors are increasingly concerned about sustainability** and climate-impact TCFD recommendations are created “by the market, for the market”.
- The Task Force consist of 31 members from across G20, both **preparers** (e.g. Unilever, Tata Steel, etc.) and **users** (e.g. BNP Paribas, JPMorgan Chase & Co., etc.) of financial disclosures – Chaired by Michael Bloomberg.

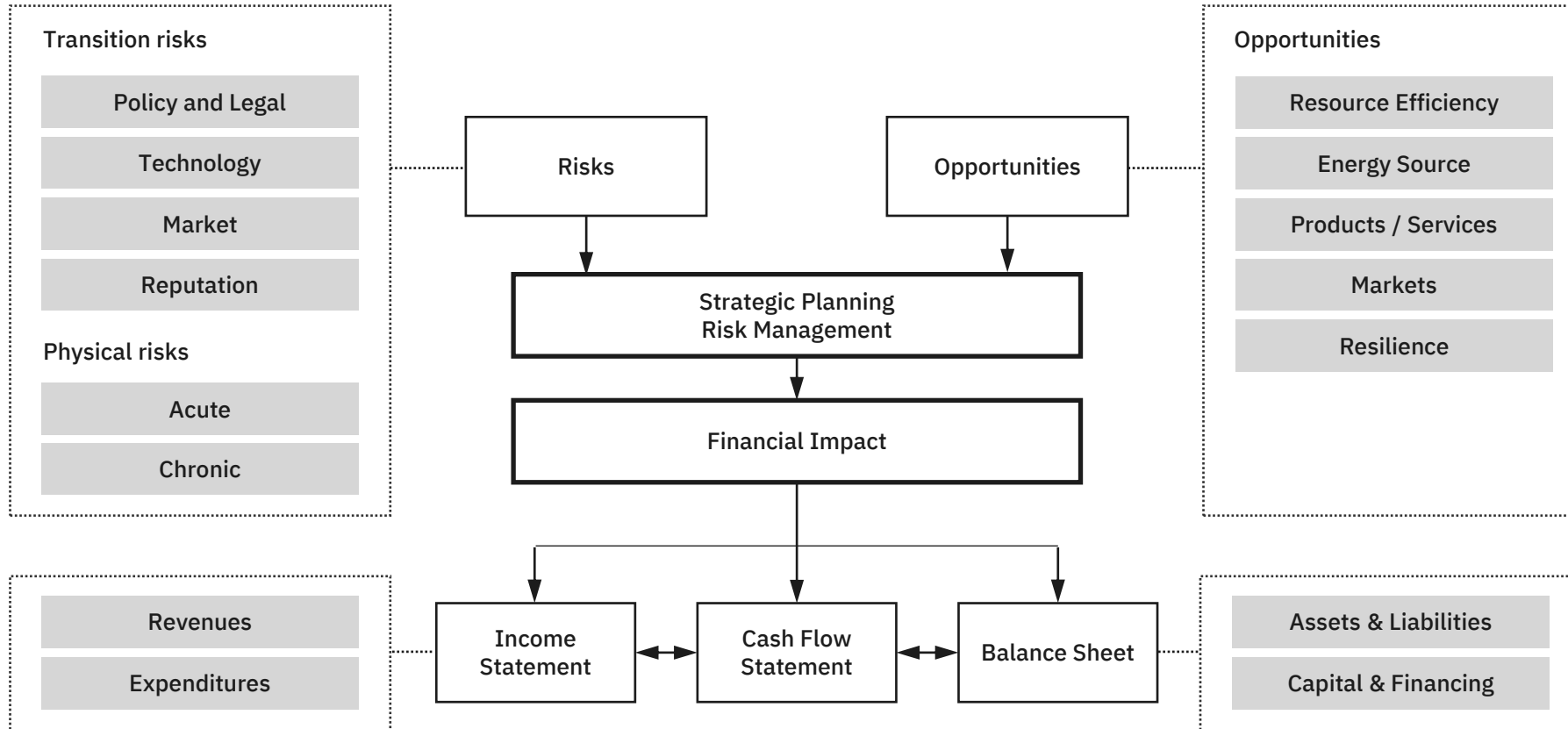


What is in it for you?

- Relevant for public companies and organizations (who are legally required to disclose risks)
- **Leverage framework** to accommodate investors’ demand for transparency and to communicate financial impact of climate-related risks and opportunities.
- Be prepared for **potential regulation**
- **Obtain GHG verification** from independent verifiers

Framework deep dive | TCFD’s framework assesses the financial impact of climate change in a uniform way across geographies and industries.

TCFD’s framework for assessing the financial impact of climate change considers both risks and opportunities, and ties them to financials through four categories.

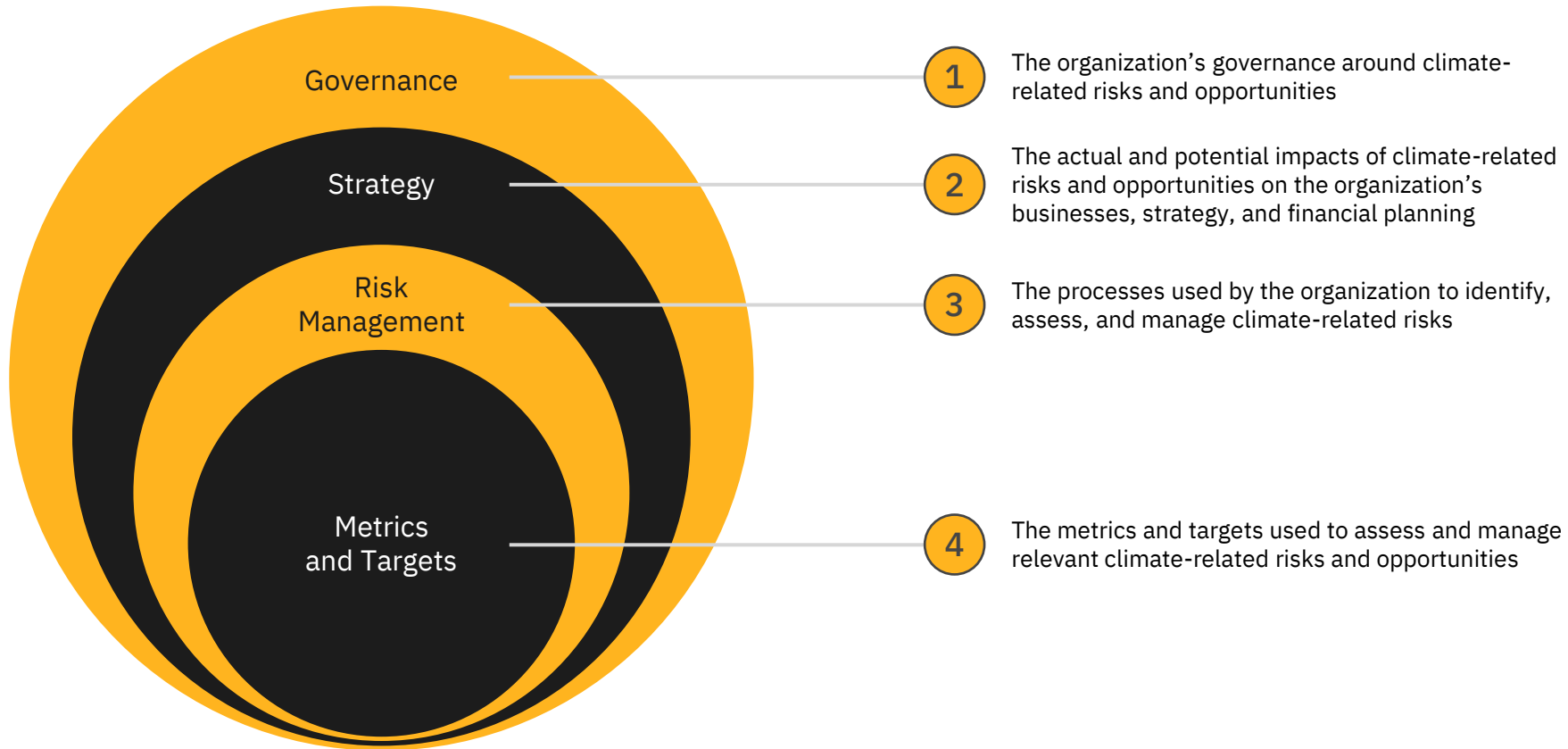


Commentary

- TCFD has created a framework to **assess the financial impact of climate change** in a consistent way across industries, geographies and companies
- The framework considers both **risks and opportunities** posed by climate change
- The risks and opportunities can **affect companies’ financial performance through four major categories:** Revenues, Expenditures, Assets & liabilities, and Capital & financing
 - While climate change affects nearly all economic sectors, **the level and type of exposure and the impact of climate-related risks differs** by sector, industry, geography, and organization

Framework deep dive | TCFD's four recommendations provide information around how companies think about and assess climate-related risks and opportunities.

TCFD structures its recommendations around four thematic areas: Governance, Strategy, Risk management, and Metrics and targets.



Commentary

- To allow investors to assess the financial impact of climate change, TCFD has created **recommendations on climate disclosure**
- The Task Force organises the recommendations in **four thematic areas**: Governance, Strategy, Risk management, and Metrics and targets
- The aim of the recommendations is to provide information on how organisations think about and assess risks and opportunities posed by climate change