ITU-WBA webinar

Greening Digital Companies 2023: Monitoring Emissions and Climate Commitments

2 October 2023

Session One:
9:00 – 10:15 CEST/ 15:00 – 16:15 CST

Session Two:
18:00 – 19:15 CEST/ 12:00 – 13:15 EDT

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Greening digital companies

2023

Monitoring emissions and climate commitments

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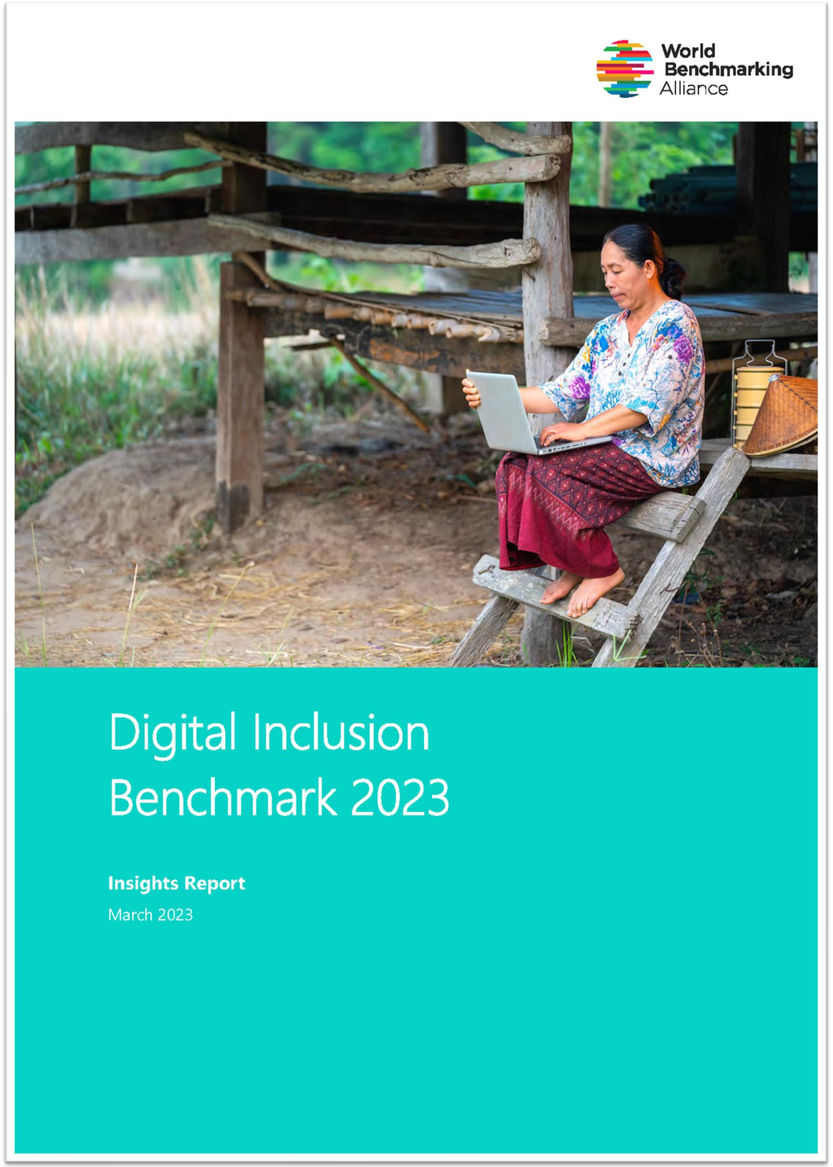
Overview

Framework

Digital companies by industry and geography

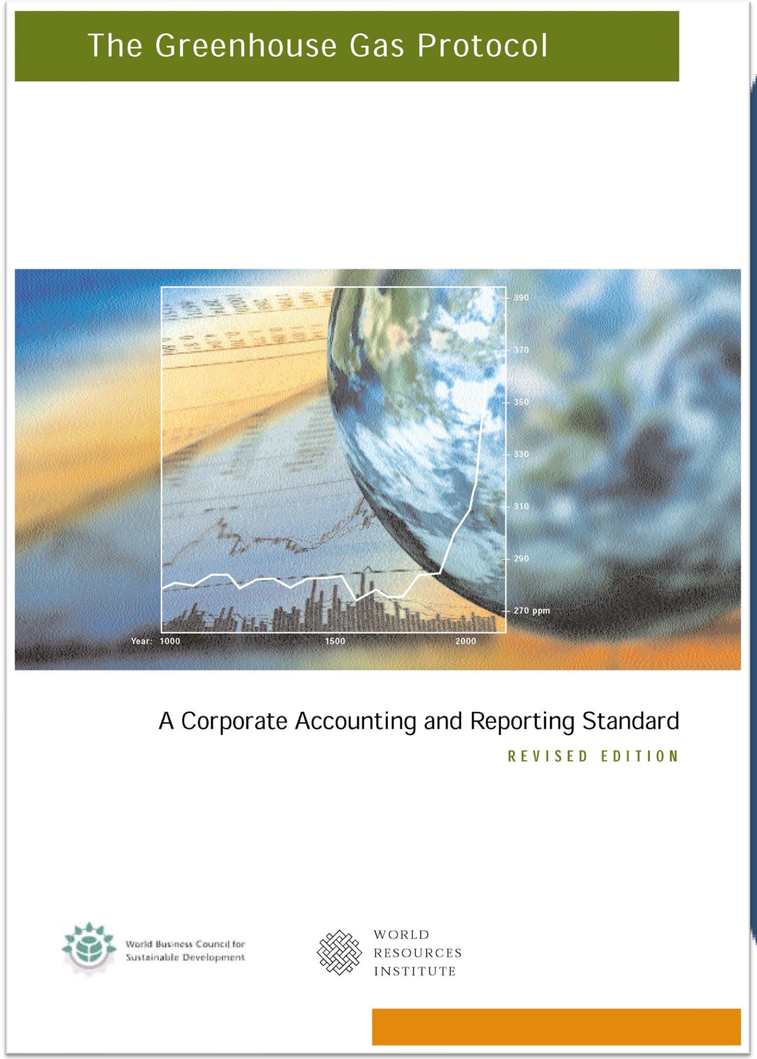
Headquarters	Hardware	Telecom Services	IT Software and Services	Total (%)
United States	24	7	33	**64 (32%)**
Asia (Excl China)	18	19	9	**46 (23%)**
Europe	8	28	5	**42 (21%)**
China	8	4	13	**25 (12%)**
Other	0	21	3	**24 (12%)**
Total (%)	**58 (29%)**	**79 (40%)**	**63 (31%)**	**200**

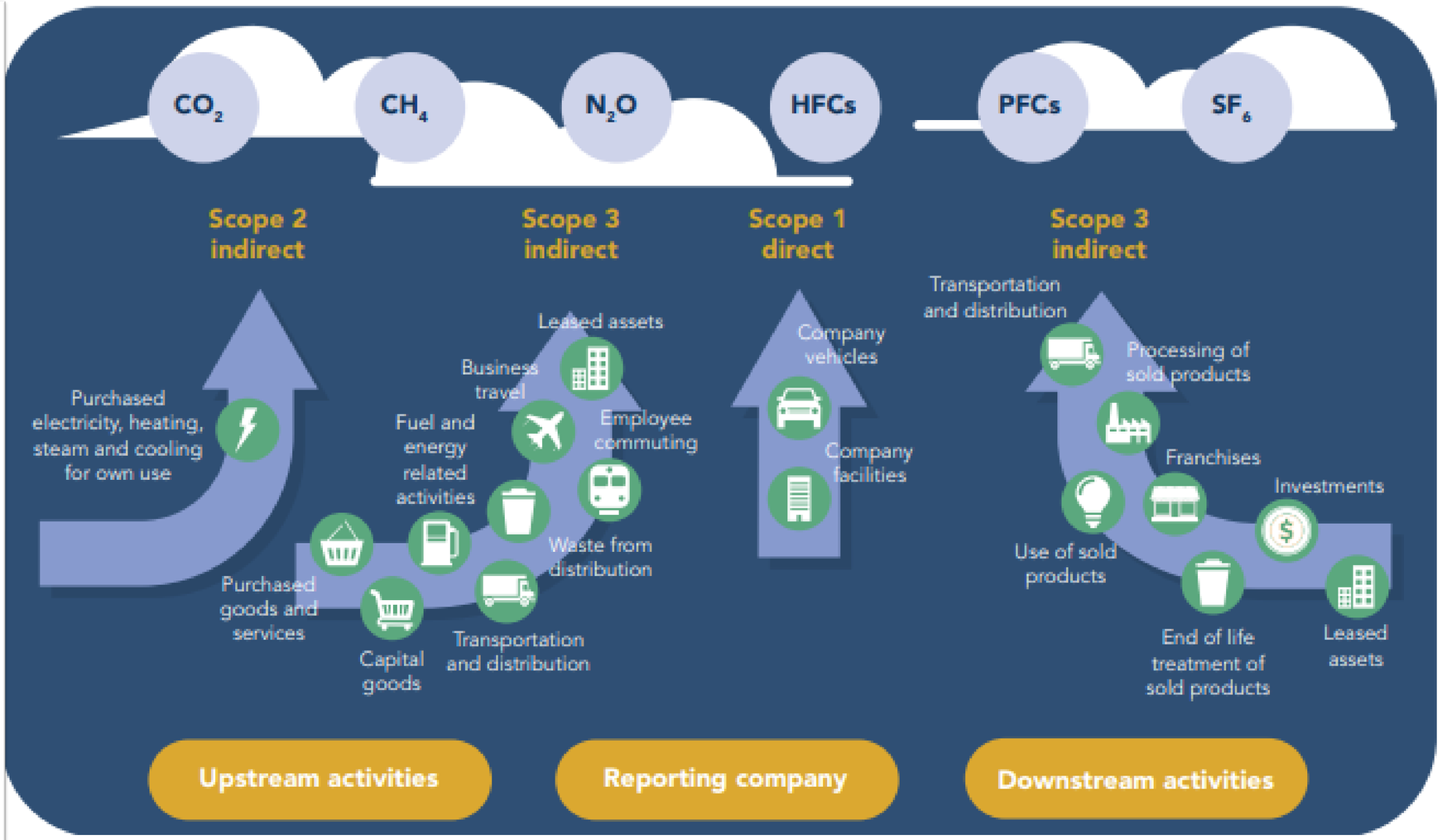
World Bank classification. Other = Latin America & Caribbean, Middle East & North Africa, Pacific, South Asia and Sub-Saharan Africa



Framework

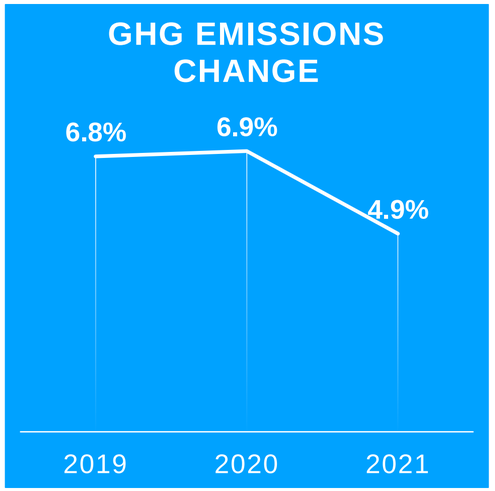
Methodology

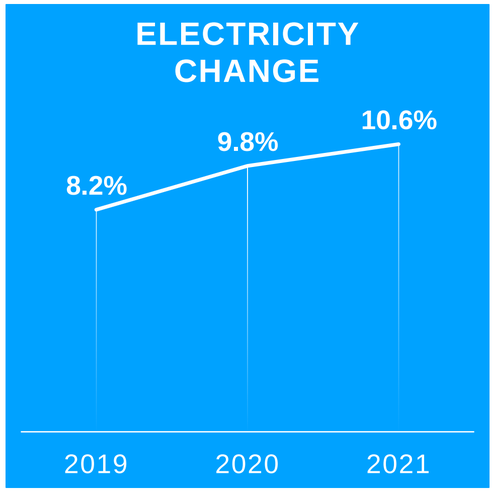


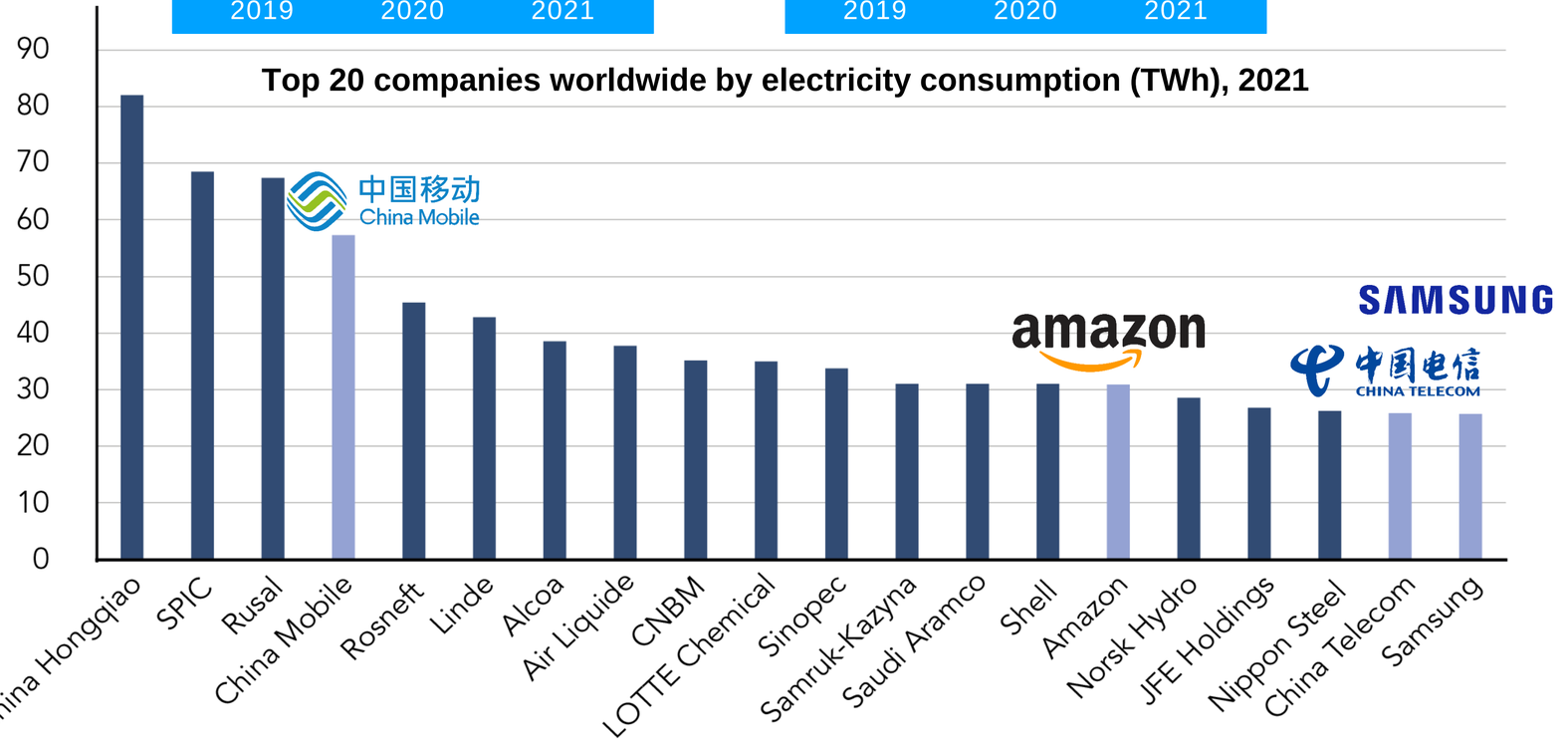


Digital company GHG emissions and electricity

- In 2021, the 200 companies collectively produced Scope 1 and 2 operational GHG emissions of 262 million tonnes of carbon dioxide equivalent (tCO_2e), amounting to 0.8 per cent of global emissions.
- Companies headquartered in Asia accounted for almost half of the emissions of the surveyed companies. Chinese-headquartered companies alone made up one-third of the total.
- The digital technologies sector relies heavily on electricity, consuming over 480 terawatt-hours or 1.7 per cent of the world's electricity
- Notably, 4 digital companies are among the top 20 corporate consumers of electricity, the only ones outside the traditional high emitting industries (chemicals, construction, metals and mining, oil and gas, and utilities)

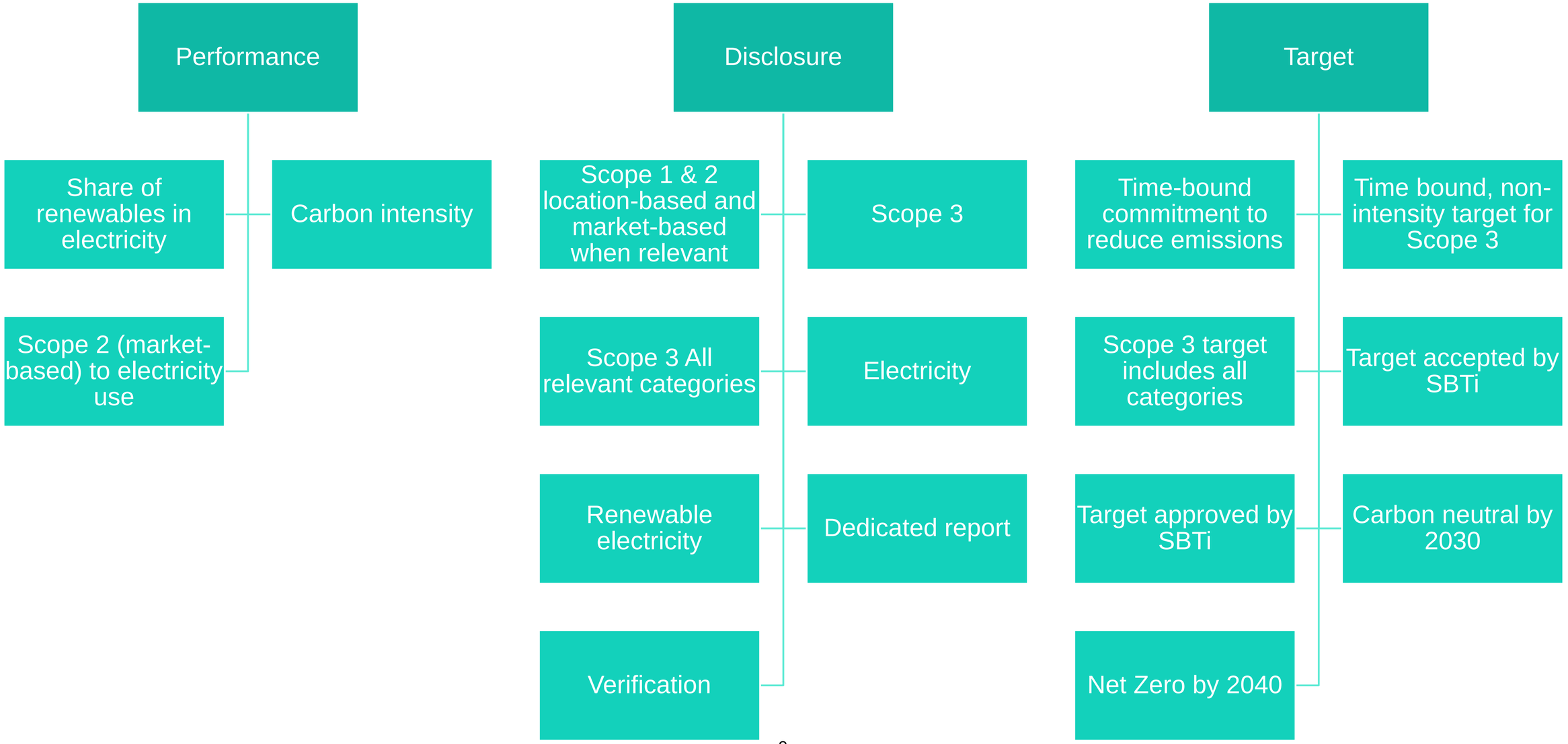






Assessment

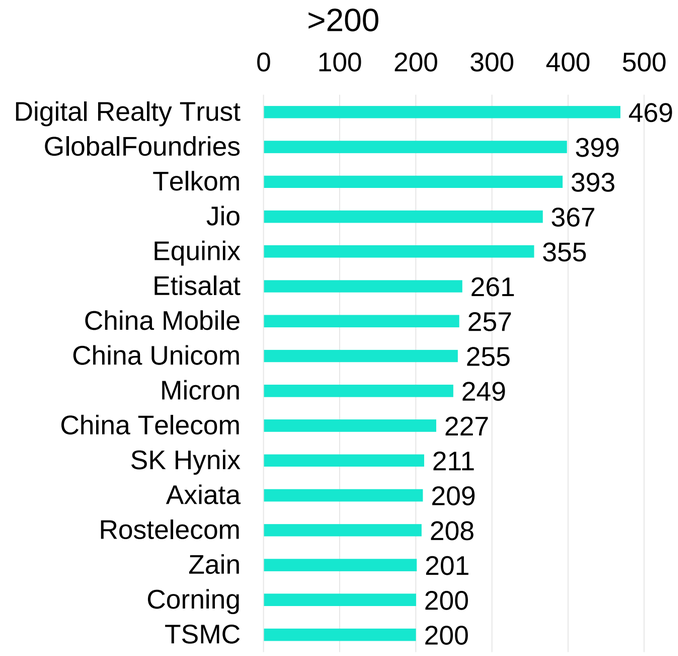
Assessment criteria

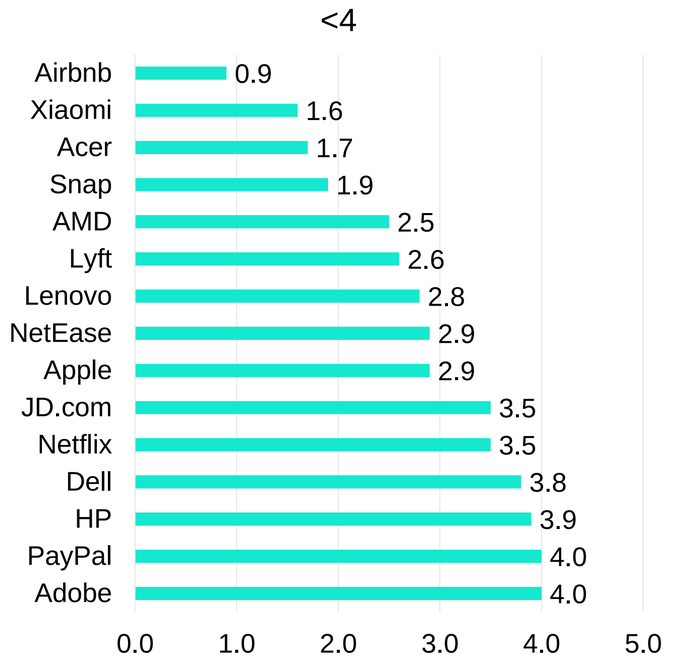


Performance

Operational carbon emissions (tCO_2e) to revenue (USD million), 2021

- The most common intensity-based metric is the ratio of GHG emissions (Scope 1 and 2, location-based) to revenue.
- The average for the companies was 65 tCO_2e/USD million, with a median of 27 tonnes suggesting that a small number of companies with exceptionally high carbon-to-revenue intensities are skewing the statistics.
- Sixteen companies are particularly carbon-intensive, with a figure of 200 tCO_2e/USD million or more for 2021.
- At the other end of the scale are 15 carbon-light companies with a carbon-to-revenue intensity of 4 tCO_2e/USD million or less





Performance

Renewables & Scope 2 market-based

- Two dozen companies reported they were purchasing renewables equivalent to their entire electricity consumption.
- Seven companies have been able to fully match their renewable energy purchases to the grids they use, resulting in zero Scope 2 market-based emissions (Airbnb, Cloudflare, KPN, Netflix, Proximus, Swisscom and Spotify).
- Some companies that do not purchase renewable energy have cleaner operations than others, who report zero or low market-based emissions, due to the availability of relatively low-carbon energy from the grid (e.g., BCE, Liberty Global, Telia, Swisscom, Rogers).

Disclosure

Scope 1 and 2

- Out of the 200 companies, 30 did not disclose any climate-related data at all; one-half of these were unlisted or majority state-owned firms.
- Figures for Scope 1 were provided by 163 out of the 200 companies
- According to the GHG Protocol and the Global Reporting Initiative's standard GRI-305, companies are required to disclose Scope 2 location-based emissions in all cases, and market-based emissions only if applicable.
- Patchy compliance with this guidance is making Scope 2 emissions reporting increasingly opaque: some companies disclose only the market-based Scope 2 figure (typically lower than the location-based one).
- Out of 167 companies reporting operational emissions data (Scope 1 and Scope 2), 25 disclosed market-based but not location-based emissions under Scope 2.

Disclosure

Scope 3

- Emissions under Scope 3, which includes 15 categories, are an integral part of a company's full emissions footprint, accounting for their upstream and downstream emissions.

- For those companies that disclosed all relevant categories, Scope 3 emissions account for an average of 85 per cent of total emissions.

- One challenge is knowing whether a company’s reporting is incomplete, given that some categories may not be applicable to them; it is recommended to list all 15 categories and provide an explanation for any that are considered not to be relevant.

- Out of the 200 companies, 140 report some categories under Scope 3, but only 76 report all relevant categories for their business.

- In some cases companies report reductions in their operational emissions when in fact all that has happened is that they have started reporting them under Scope 3 categories. Such practices highlight the importance of considering a company's entire emissions footprint as relevant.

Disclosure

Scope 3 example

Scope 3 Category	Comment	tCO_2e
Category 1 Purchased goods and services	Calculation based on the number of units and monetary value of purchases of devices and services sold to customers	4,550,000
Category 2 Capital goods	Calculation based on capital investment costs on telecommunications and other equipment	4,560,000
Category 3 Fuel- and energy-related activities not included in Scope 1 or 2	Calculation based on annual consumption by energy type	630,000
Category 4 Upstream transportation and distribution	Calculation based on weight and distance, or number of devices with regard to the transport of devices sold to customers	80,000
Category 5 Water generated in operations	Calculation based on volume of waste by type	10,000
Category 6 Business travel	Calculation based on paid expenses for business travel	30,000
Category 7 Employee commuting	Calculation based on paid expenses for employee commuting	40,000
Category 8 Upstream leased asset*1	Excluded from calculation*1	
Category 9 Downstream transportation & distribution*2	Excluded from calculation*2	
Category 10 Processing of sold products*3	Excluded from calculation*3	
Category 11 Use of sold products	Calculation based on number of services subscriptions, number of devices and monetary value of telecommunications services and devices used by customers.	6,490,000
Category 12 End-of-life treatment of sold products	Calculation based on number of services subscriptions, number of devices and monetary value of communications devices used by customers.	40,000
Category 13 Downstream leased assets	Calculation based on amount of electricity consumption such as equipment by other businesses Calculation based on average use of leased assets.	1,640,000
Category 14 Franchises	Calculation based on total floor area of sales franchises	80,000
Category 15 Investments	Calculation based on Scope 1 and 2 emissions of investees in proportion to shareholding	2,680,000

NTT

*1 We have excluded Category 8 (upstream leased assets) from the calculation because the fuel and electricity used by leased assets is included in Scope 1 and 2 calculations.

*2 We have excluded Category 9 (downstream transportation and distribution) from the calculation because these emissions are almost entirely from our own transportation and use in our own facilities (included in Scope 1 and 2) or from outsourced transportation (included in Category 4).

* 3 We have excluded Category 10 (processing of sold products) from the calculation because our main businesses involve no processing of intermediate products.

Source: NTT. 2022. *NTT Group Sustainability Report 2022*.
https://group.ntt/en/csr/data/report.html

Disclosure

Energy use

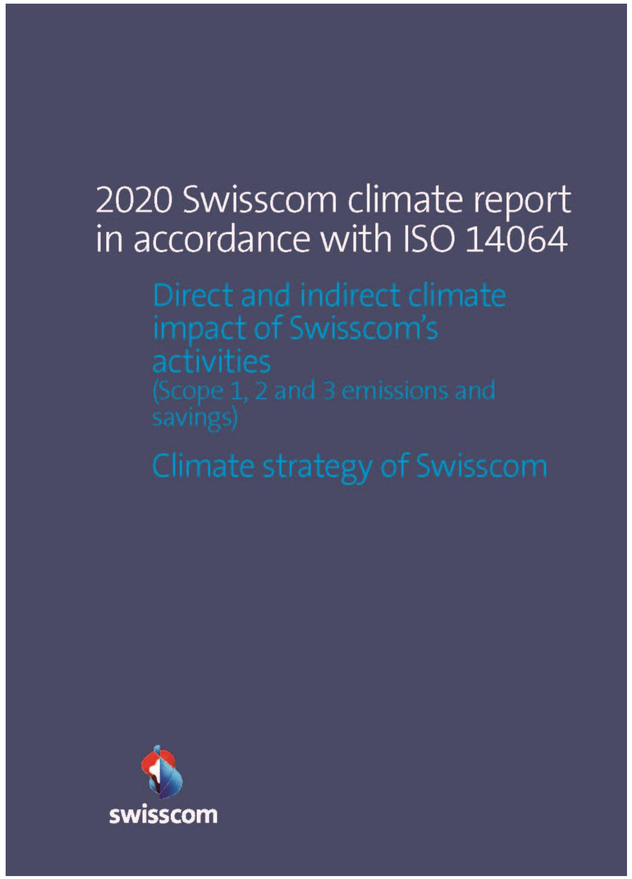
- Companies were asked about their overall energy use as well as electricity consumption and the share of purchased renewables in their total electricity consumption.

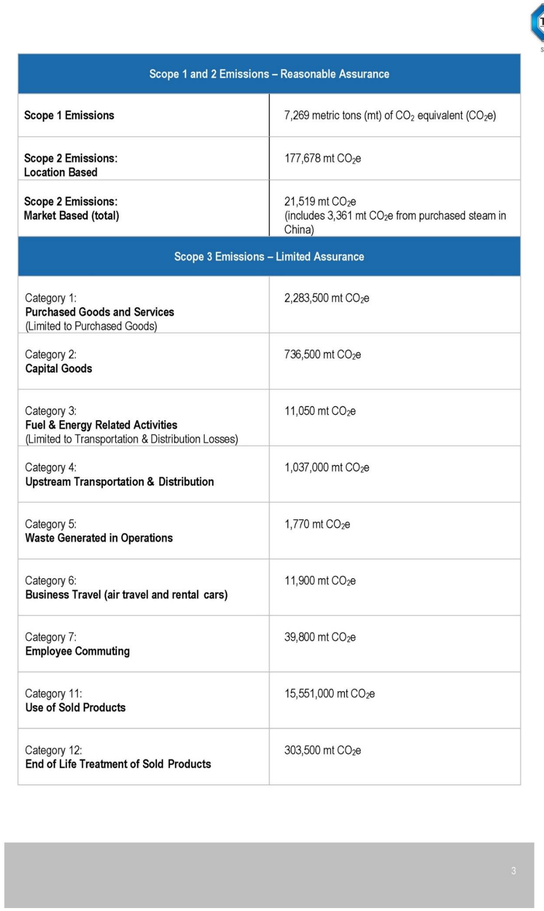
- Out of the 200 companies, 155 reported their electricity consumption and 128 gave the proportion of renewables purchased.

Disclosure

Dedicated report and verification

- Given the succinct and sometimes opaque nature of reporting on emissions and energy consumption, additional insight can be essential.
  - For example, companies can issue a dedicated standalone environmental report, or they can make their CDP disclosure independently available to the public.
  - This was in fact done by 31 of the companies surveyed.
- Climate data disclosure is often plagued by errors such as the use of incorrect grid emissions factors or measurement units.
- This can be mitigated with third party verification of the GHG inventory, as 32 of the surveyed companies have done.





Scope 1 and 2 Emissions – Reasonable Assurance	
Scope 1 Emissions	7,269 metric tons (mt) of CO_2 equivalent (CO_2e)
Scope 2 Emissions: Location Based	177,678 mt CO_2e
Scope 2 Emissions: Market Based (total)	21,519 mt CO_2e (includes 3,361 mt CO_2e from purchased steam in China)
Scope 3 Emissions – Limited Assurance	
Category 1: **Purchased Goods and Services** (Limited to Purchased Goods)	2,283,500 mt CO_2e
Category 2: **Capital Goods**	736,500 mt CO_2e
Category 3: **Fuel & Energy Related Activities** (Limited to Transportation & Distribution Losses)	11,050 mt CO_2e
Category 4: **Upstream Transportation & Distribution**	1,037,000 mt CO_2e
Category 5: **Waste Generated in Operations**	1,770 mt CO_2e
Category 6: **Business Travel (air travel and rental cars)**	11,900 mt CO_2e
Category 7: **Employee Commuting**	39,800 mt CO_2e
Category 11: **Use of Sold Products**	15,551,000 mt CO_2e
Category 12: **End of Life Treatment of Sold Products**	303,500 mt CO_2e

Target

Choosing targets

- At the end of fiscal year 2021, 126 companies had defined a reduction target for Scope 1 and Scope 2 emissions, while 56 had a non-intensity-based target for Scope 3.
- Baseline and target years varied: most commonly, 2019 was chosen as the base year and 2030 as the target year.
- For companies that calculated Scope 2 market-based emissions, their target was almost always based on that (i.e. Scope 1 plus Scope 2 market-based).
- As a result, the main driver of emissions reduction was procurement of renewable electricity.

Target

Quality

- Emissions reduction targets can vary in measurement quality.
- Factors that influence this include whether the targets are intensity-based, and whether they have been submitted and approved by SBTi.
- Nine companies have Scope 1 and 2 targets that are intensity-based, making it impossible to determine what their target year emissions are. Intensity-based targets do not necessarily mean that absolute emissions will be reduced.
- Over one-half of the companies (105) have submitted their targets to SBTi, and 66 of those have been validated.

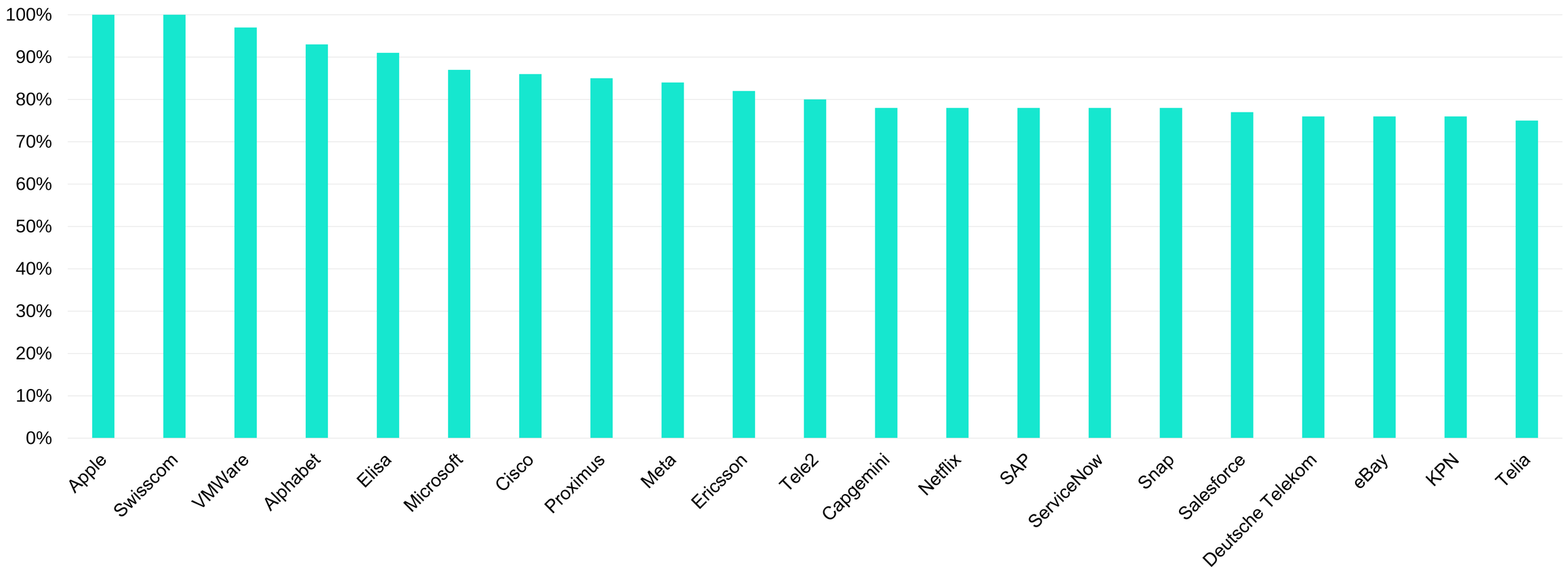
Target

Ambition

- Carbon neutrality was claimed by 23 companies as of fiscal year 2021
- 44 companies have committed to reaching net zero by 2040.

Assessment results

Companies scoring at least 75 per cent on the climate assessment



Enablement

Enablement

Enablement factor of digital companies, 2021

Company	Operational emissions (million tCO_2e)	Enablement effects (million tCO_2e)	Enablement factor (enablement effects ÷ operational emissions)
AT&T	6.2	37.9	6.1
Deutsche Telekom	4.9	25.6	5.3
Telefonica	1.4	8.7	6.2
Verizon	3.9	16.4	4.2
Vodafone	2.0	15.6	7.9
Telstra	1.1	2.7	2.4
KPN	0.2	0.5	2.2
Swisscom	0.1	0.9	14.8
Proximus	0.1	0.5	7.0
Telia	0.1	0.6	6.2
Total	**19.9**	**108.8**	**5.5**

Note: Operational emissions include Scope 1 and Scope 2, location-based.

With the current level of disclosures, the estimated total enablement effect for all 200 surveyed companies is 1.35 billion tCO2e, just 20 per cent of GSMA's estimation.

Enablement

Areas reviewed

- Case studies from digital companies on four categories of enabling mechanisms
  - smart buildings,
  - smart energy,
  - smart transport, and
  - smart living and working

Key findings

Decreasing transparency

- According to the GHG Protocol guidance, disclosing Scope 2 location-based emissions is mandatory, while market-based emissions should only be included if applicable.
- However, some companies only report the generally lower market-based figure, which can be misleading as it does not accurately reflect their actual emissions from electricity consumption.
- Furthermore, as companies increasingly consider upstream and downstream emissions (Scope 3), this can lead to spurious reporting of aggregated Scope 1-3 emissions when activities are outsourced or insourced, moving them from one scope or category to another.
- Lack of transparency is a challenge for comparability, and a strong argument for judging a company's climate performance on its entire footprint rather than just its operational emissions – something that is in any event required from the perspective of net zero targets.
- Two-thirds of the companies not disclosing any data were fully state-owned or private unlisted companies. Efforts are needed to encourage these companies to disclose data.

Growing electricity use by digital companies is posing energy capacity challenges

- Some locations have imposed moratoriums on the construction of new data centres, and new data centres are being required to meet stringent energy efficiency standards or provide for their own source of renewable energy.

- The latter can be a challenge due to opposition to large solar and wind farms or a lack of land. Solutions need to be found or the pace of global digitalization could be slowed.

ICT solutions are playing a significant role in reducing carbon emissions, but quantifying the effect is tricky

- It is important to acknowledge that different solutions may target the same emissions reductions, leading to potential overlaps if the various reduction claims are simply added up without consideration of their interconnection.
- To ensure transparent and rigorous approaches, studies and assessments should take into account and manage the complexities of assessing ICT solutions addressed in ITU-T L.1480.
- While ICT may facilitate lower-carbon living, it alone cannot lead to carbon reductions and may even contribute to rebound effects and higher overall emissions.
- The enablement argument does not absolve the ICT sector from addressing its own emissions, and further efforts are needed to comprehend its complex impact on emissions avoided and emissions added – including rebound effects.

”Rather than simply offsetting emissions, we need to work together to focus on eliminating carbon from the electricity sector entirely.”

—24/7 CFE Compact

”…carbon dioxide removal is essential if the world is to achieve its universally agreed Sustainable Development Goals (SDGs).”

—UN Sustainable Development Group