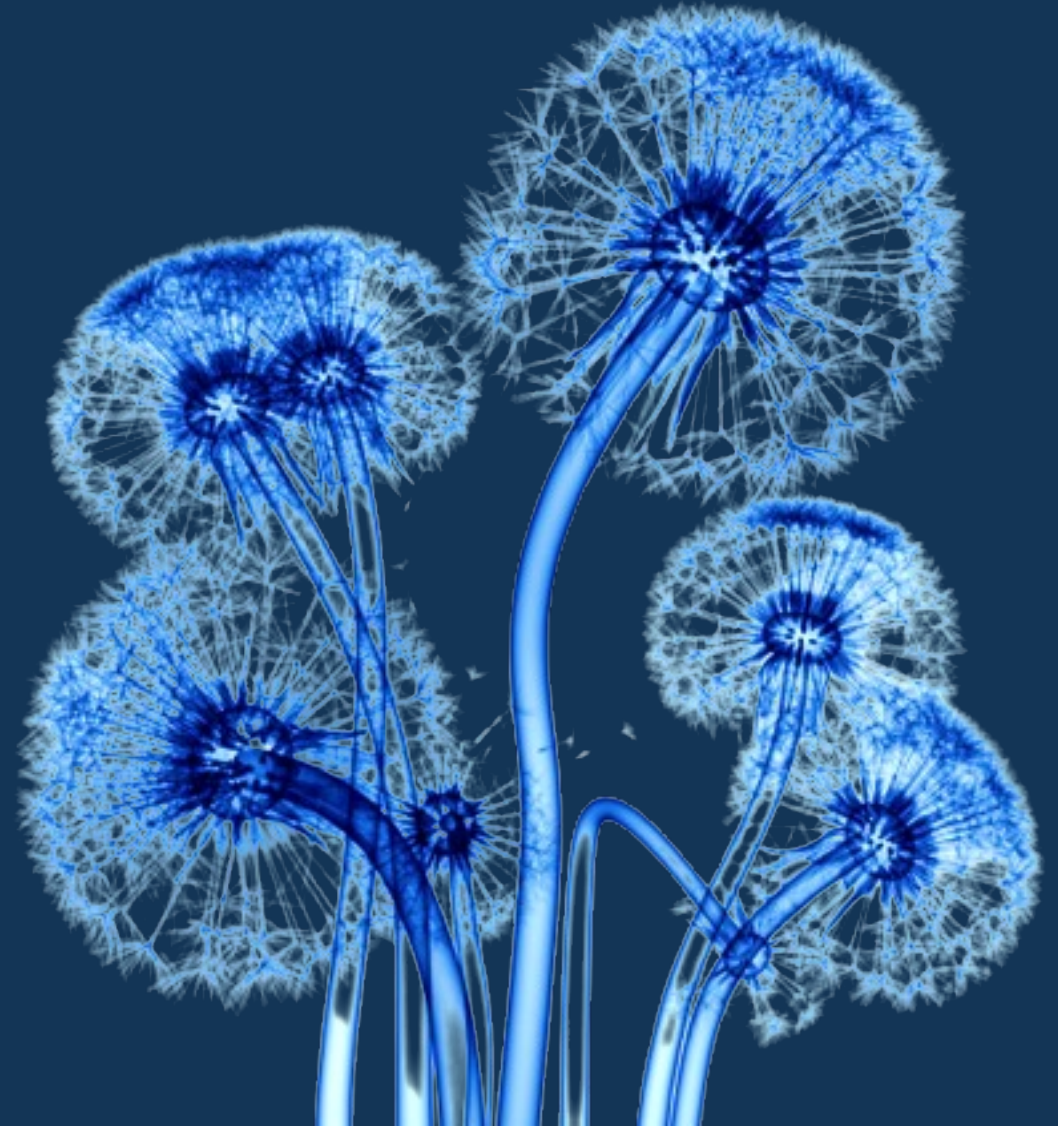2022 Telco ESG Leaders

Asia-Pacific Edition

Asian telcos ESG study: Key Findings

A detailed analysis of ESG practices

twimbit

Welcome to the deep dive

twimbit

If you're reading this, you've most likely already spent time with the report's web experience, and now you're curious to absorb even more data and insights.

This version contains all the web headlines, plus a host of extras highlighted in bold.

Asia-Pacific telco ESG leaders 2022

Inside:

twimbit

5-minute takeaway

Key lessons from our ESG leaders on how telcos can embrace ESG transformation?

#1 Start with GHG Emissions

#2 Manage Energy Consumption

#3 Effective use of Resources

#4 ESG assessment of Supply-chain

#5 Innovate Accessibility

#6 Create Equal Opportunity

#7 Design a Sustainable Board

#8 Run Transparent Operations

Asia-Pacific telco ESG leaders 2022

Start with GHG Emissions

50%

Leaders with a YoY decline in both scope 1 & scope 2 emissions

30%

Leaders who still do not declare scope 3 emissions

Asia-Pacific telco ESG leaders 2022

Key strategies of our leaders!

OPTUS

Singtel

Telstra

SoftBank

- Proactively record and declare ESG data such as 'GHG emissions intensity' and 'Scope 3 emissions'

- Move beyond local ESG regulations and match global standards such as GRI, TCFD and SASB

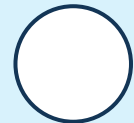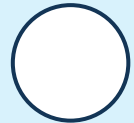twimbit

Manage Energy Consumption

60%

Leaders with a YoY increase in use of renewable energy

80%

Leaders with a YoY increase in total energy consumption

Singtel

Taiwan Mobile

NTT docomo

○ **Telcos with high renewable energy use invest in production of renewable energy alongside sourcing externally**

○ **Build or source an AI based electricity tracking system for real time management of electricity consumption**

Asia-Pacific telco ESG leaders 2022

twimbit

Effective Use of Resources

NTT docomo

OPTUS

au

60%

Leaders with a YoY decrease in waste generation

60%

Leaders with a YoY increase in water consumption

○ **Waste management champions target – cell phone and network waste recycling, sustainable packaging, and use of plastics**

○ **Develop efficient water harvesting capabilities to reduce dependence on potable municipality water for operational uses**

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ESG Assessment of Supply-chain

60%
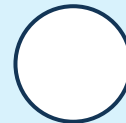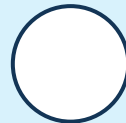
Leaders with '90% or above' ESG evaluation rate of tier 1 suppliers

10%

Leaders with 'ESG pre-screening rate of 100%' of all new suppliers (across tiers)

Asia-Pacific telco ESG leaders 2022

Key strategies of our leaders!

中華電信
Chunghwa Telecom

SK telecom

Singtel

- Aim for 100% ESG screening rate of new suppliers (across tiers)

- Complement ESG education of suppliers with on-site visits to oversee ESG implementation and provide corrective support

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Innovate Accessibility

80%

Leaders have programs for employment of differently abled

40%

Leaders still do not provide products designed for differently abled customers

Key strategies of our leaders!

Telstra

au

OPTUS
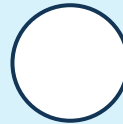
○ Use the four pillars below to create opportunities and remove barriers to access for people with disabilities

Employees: facilities and opportunities
Customers: products and services
Communities: collaboration and activities
Technology: develop assistive products

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Create Equal Opportunity

Telstra

10%
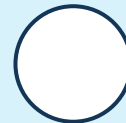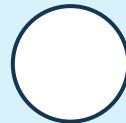
Leaders with 35% or more female BOD members

20%

Leaders with 35% or more female workforce

- Have gender equality as a measurable performance objective for senior leadership and the Board

- Push equal opportunity by having at least 50% representation of women in interview recruitment shortlists (or 35% in fields where women representation is low)

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Design a Sustainable Board

80%
Leaders have BOD as the top body overseeing ESG initiatives

70%
Leaders with 75% or less independent directors in the board

Key strategies of our leaders!

SK telecom

Taiwan Mobile

kt

OPTUS

- Have the BOD nomination committee comprise only of independent non-executive directors

- Remove performance incentives for non-executive directors to maintain independence and impartiality

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Run Transparent Operations
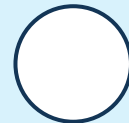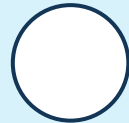
50%
Leaders who do not provide political contributions in any form

30%
Leaders have not provided details of their anti-trust or fair-trade practices

Key strategies of our leaders!

Telstra

NTT docomo

kt

au

SK telecom

○ Publicly disclose any direct or indirect (lobbying) political contributions

○ Ensure easy discovery and wide circulation across organization of – fair trade practices, code of conduct, whistle blower policies and conflict of interest statements

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Our category leaders

#1 Environment

   Optus

#2 Social

   Chunghwa Telecom

#3 Governance

   SK Telecom

Asia-Pacific telco ESG leaders 2022

Leader in
Environment Category

OPTUS

Category	Score
Emissions	10.0
Environment	8.33
Energy	2.50
Water	8.75
Waste	8.75
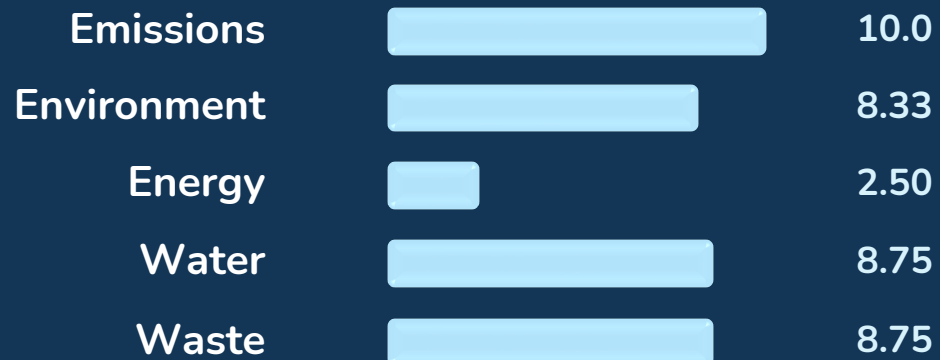
8.08
Optus Score
Environment Category

6.44
Average Score
Environment Category

twimbit

Leader in
Social Category

中華電信
Chunghwa Telecom

Customer		7.00
Employment		8.50
Local Communities		7.50
Supply Chain		10.0
Diversity & Inclusion		5.00
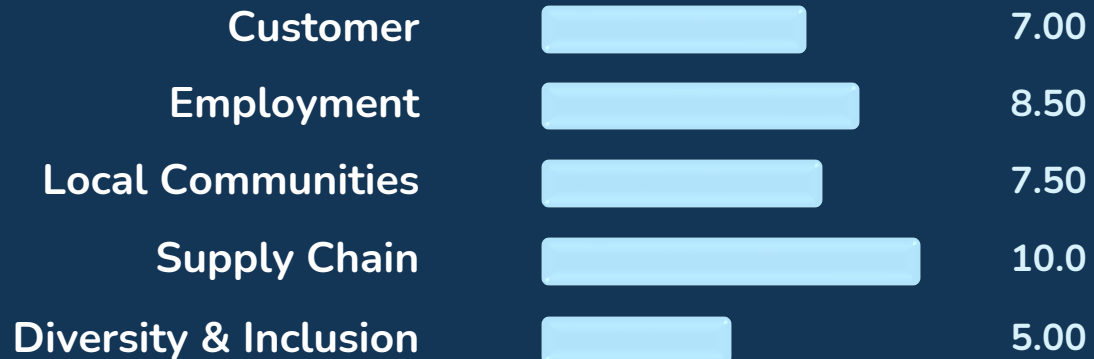
7.50
Chunghwa Score
Social Category

6.82
Average Score
Social Category

twimbit

Leader in
Governance Category

SK telecom

Board of Directors	▬▬▬▬▬	8.33
Materiality	▬▬▬▬▬▬	10.0
Human Rights	▬▬▬▬▬▬	10.0
Compliance	▬▬▬▬▬	8.75
Transparency	▬▬▬▬▬	8.33

8.83

SK Telecom Score

Governance Category

7.88

Average Score

Governance Category

twimbit

twimbit

3 pillars of twimbit ESG Framework

#1 Environment

#2 Social

#3 Governance

Pillar 1: Environment

Emissions

- Scope 1 GHG emissions
- Scope 2 GHG emissions
- Scope 3 GHG emissions
- GHG emissions intensity

Environment

- Resource Conservation
- Environmental Management
- Climate Change Management

Energy

- Energy Consumption
- Renewable Energy Use

Water

- Water Consumption
- Water Management

Waste

- Waste Generated
- Waste Management

twimbit

Pillar 2: Social

Customer

- Health and Safety
- Feedback Management
- Inclusive Product and Services
- Information Security System
- Privacy Breaches

Employment

- Training
- Family Time
- Hiring and Turnover
- Collective Bargaining
- Inclusive Employment

Diversity and Inclusion

- Parity in Salary
- Employee Gender Ratio
- Board of Directors Gender Ratio

Local Communities

- Digital Inclusion
- Investment in Community

Supply Chain

- ESG Screening
- ESG Assessment

twimbit

Pillar 3: Governance

Board of Directors

- Nomination Process
- Performance Evaluation
- Role in Governance
- Role in Sustainability
- Independent Directors
- Conflicts of Interest

Transparency

- External Audit
- Whistle-blower Policy
- Political Contributions

Materiality

- Assessment of material issues
- Management of material issues

Human Rights

- Risk Assessment
- Risk Management

Compliance

- Anti-trust Policy
- Code of Conduct

twimbit

twimbit

Our ESG leaders

#1 Ranking: ESG leaders

#2 Performance on ESG Framework

ESG category scores

Heat map: ESG scores

Ratings: ESG leaders

Company	Rating	Country
SKT	7.59	South Korea
Optus	7.56	Australia
Chunghwa	7.24	Taiwan
Docomo	7.23	Japan
Telstra	7.12	Australia
Taiwan Mobile	6.93	Taiwan
Singtel	6.79	Singapore
au	6.76	Japan
KT Corp	6.66	South Korea
Softbank	6.61	Japan

Asia-Pacific telco ESG leaders 2022
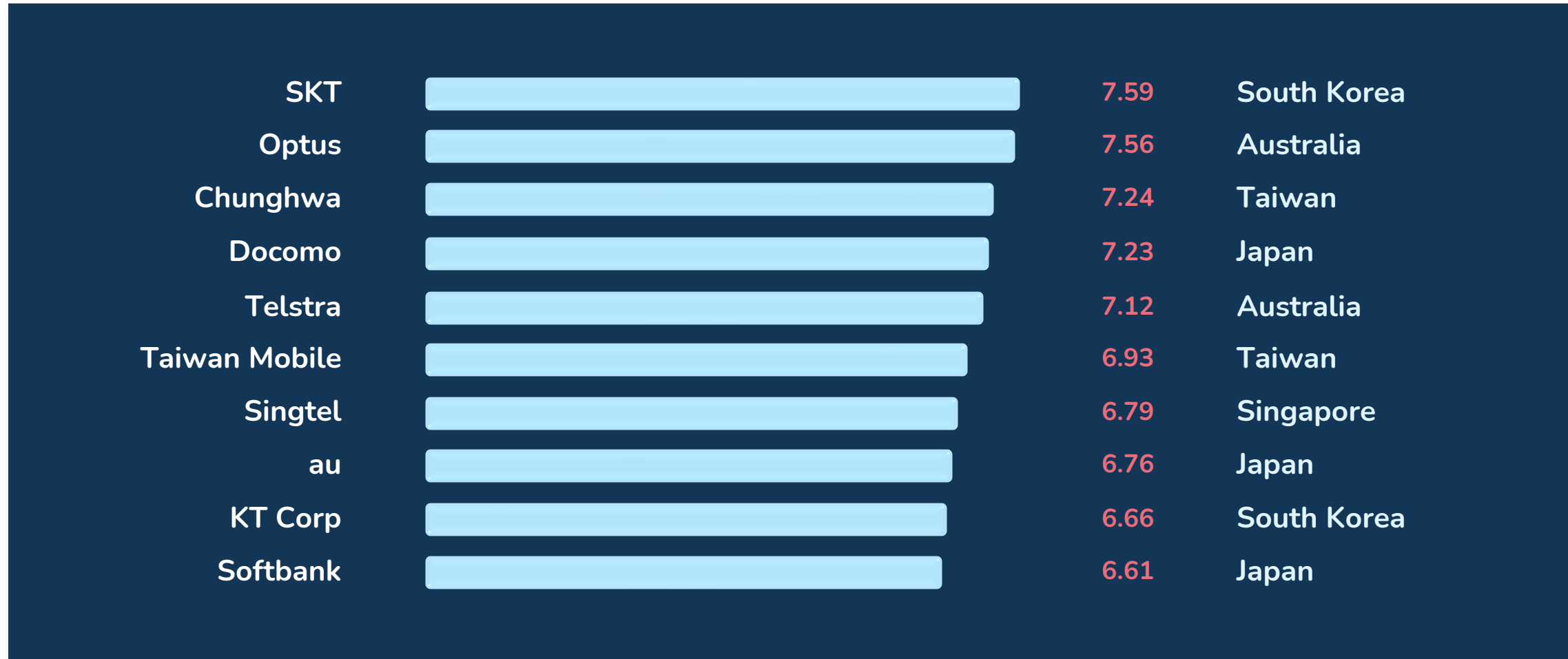
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Performance on ESG Framework:
ESG Scores

Environmental
Social
Governance
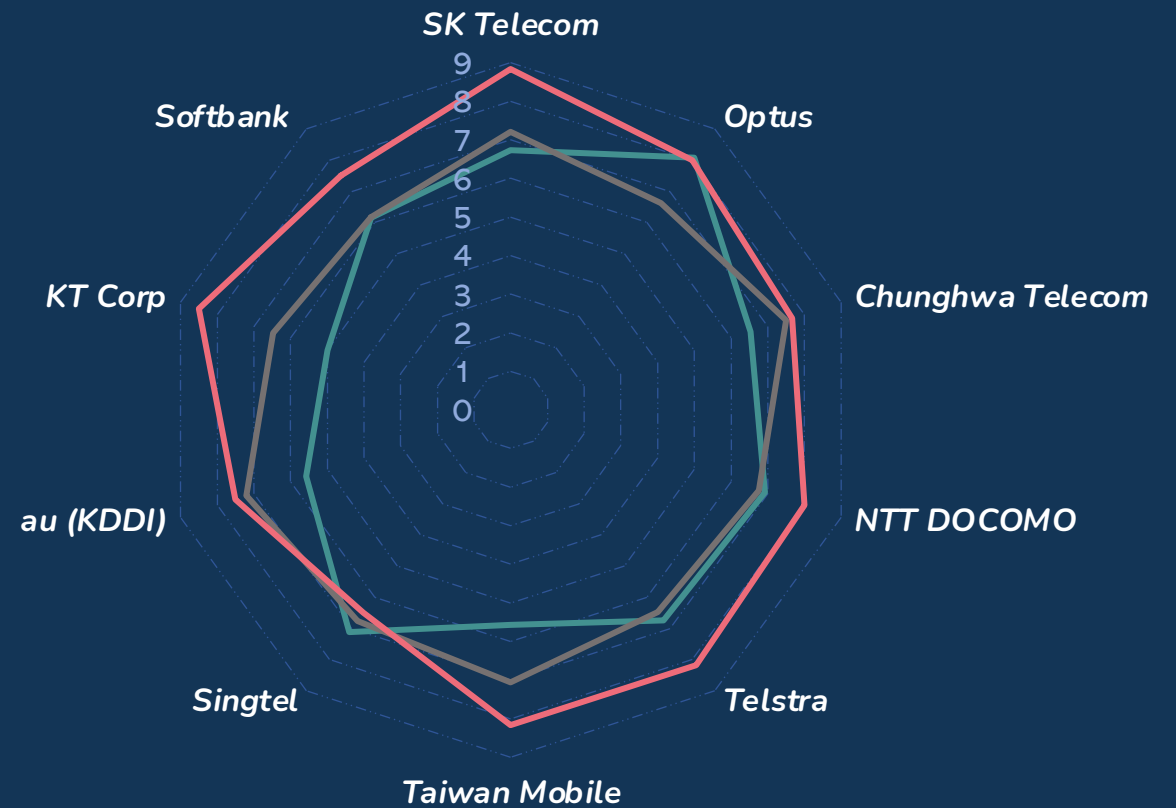
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Performance on ESG Framework:
Heat map

ESG Scores

E		SK telecom	OPTUS	中華電信 Chunghwa Telecom	NTT docomo	Telstra	Taiwan Mobile	Singtel	au	kt	SoftBank
E	Emissions										
	Environment										
	Energy										
	Water										
	Waste										
S	Customer										
	Employment										
	Local Communities										
	Supply Chain										
	Gender Diversity										
G	Board of Directors										
	Materiality										
	Human Rights										
	Compliance										
	Transparency										

Asia-Pacific telco ESG leaders 2022
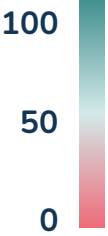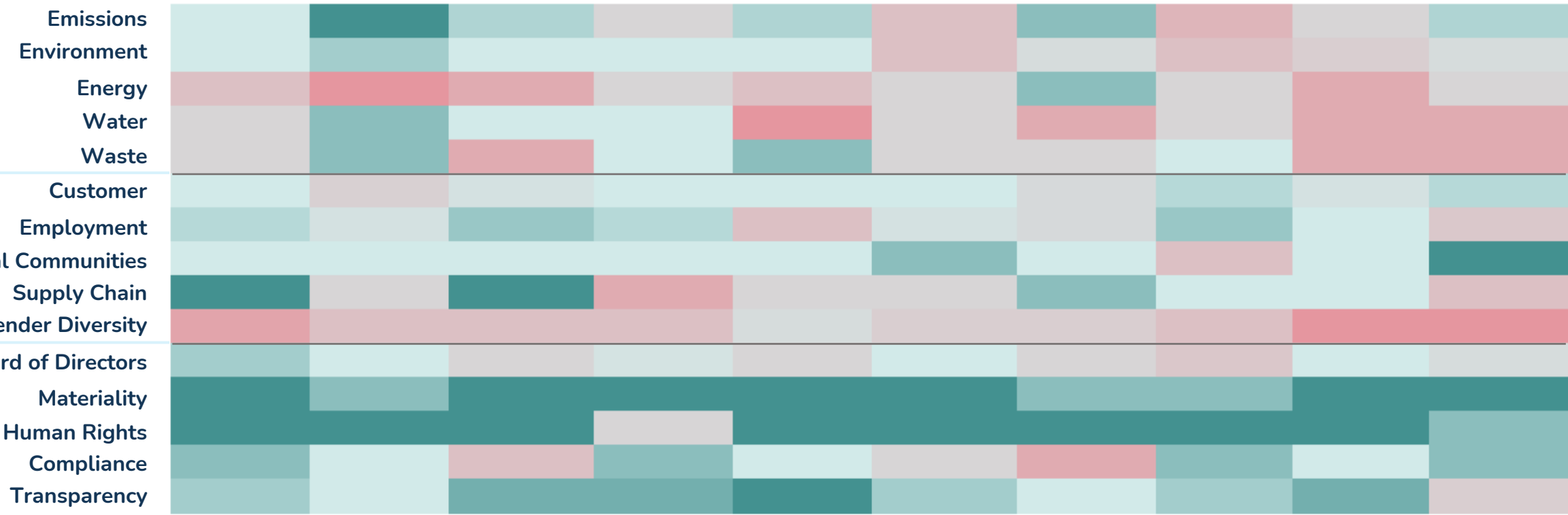
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**twimbit
top 10 telco
ESG leaders
profile**

#1 Environment

#2 Social

#3 Governance

1. SK Telecom

Encouraging customer participation to drive ESG awareness

**Ryu Young-sang,
CEO**

" We will take concrete action to increase the share of renewables to 100% by 2050 and gain recognition as an eco-friendly ICT leader. We will also continue to exert positive influence through campaigns such as happy habit to encourage customers to reduce the use of disposable plastic products.

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Performance on twimbit ESG Framework

SK telecom

Overall ESG Score 7.59

Environmental 6.7

Social 7.2

Governance 8.8

Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

Environmental	Social	Governance
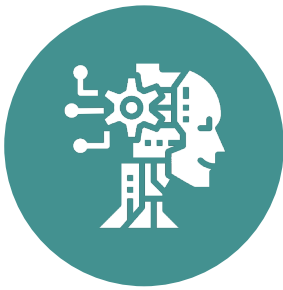
Reducing plastic waste, one cup at a time

ESG donation program to drive sustainable habits

'ESG Innovation Group' to monitor climate change

twimbit

Reducing plastic waste, one cup at a time…

Happy Habit is an ICT-based reusable cup circulation system

50+ members

Dal.Komm
STARBUCKS
CAFE ASIA
Embassy of Sweden Seoul
NEW ZEALAND EMBASSY Te Aka Aorere

Big Data

🔍 Selecting project areas

🗺️ Location of cup collector

AI Vision

👁️ Recognizing cups

900,000+

Disposable cups saved

~5 million cups

Estimated demand increase across Starbucks shops in Jeju region

...Happy Habit reusable cup system structure

Leveraging partnerships and participant benefits
to drive sustainable consumption

Discarded cups

Cleaned cups

(8) Upcycling

(5) Cup collection

(7) Cup delivery

(6)
Professional cleaning station

Deposit and cup charge

(3) Returning of reusable cup

(1) Beverage price + deposit (KRW 1,000)

(4) Immediate refund of deposit (KRW1,000)

(2) Reusable cup

ICT unmanned collector

User

Café

SK telecom
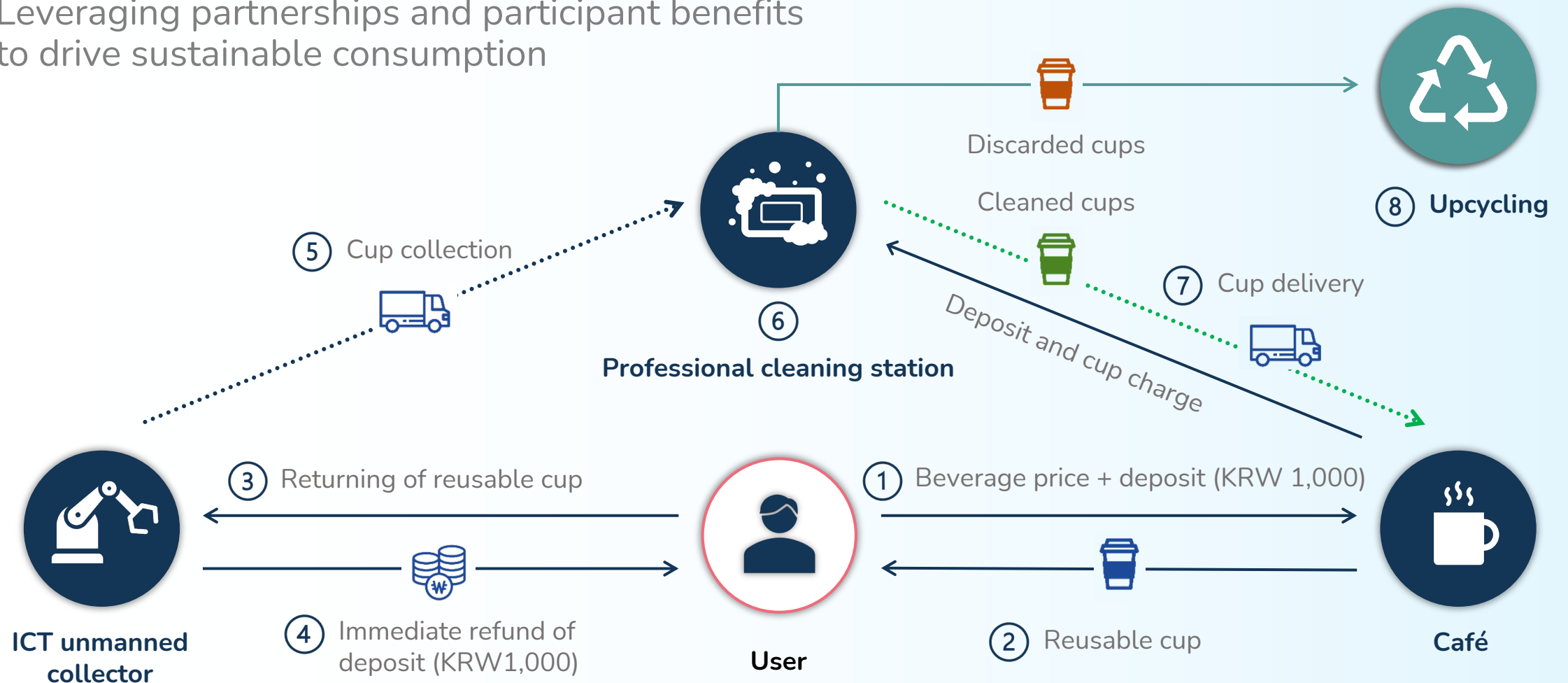
ESG donation program to drive sustainable habits

Happy Credit program allows customers to donate towards societal development by purchasing sustainable products and services

Partner stores

TMAP   11

T DIRECT SHOP

Red Connect

SK stoa

~$595 K

Total Donations
(Nov 2020-Oct 2021)

2.55 million

Customers who donated
under the program

337%

YoY increase
in donors

Programs funded

12,000+
Households using
AI care for elderly

51+
Special schools being
provided ICT education

twimbit

SK telecom

Dedicated 'ESG Innovation Group' monitors...

Working-level group	ESG Innovation Group	• Monitors GHG emissions, and resource consumption • Identifies ESG issues and conducts assessment on - possibility of occurrence and severity of the results
Management	CFO	• Reviews risks with significant impact
	CEO	• Reviews risks with serious impacts
Board of Directors	ESG Committee	• Consists of three external executives with ESG expertise • Reviews ESG issues and makes the final decisions

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SK telecom

...climate change risks across five areas

Reputation

Investors perception
of SKT's ESG

Technologies

High electricity usage of
5G equipment

Physical

Abnormal weather events
due to climate change

Market

Increase in GHG emissions
due to 5G adoption

Policy

2050 Net Zero implementation

twimbit

Match up with SKT

Leverage customer participation to raise ESG awareness and enhance brand perception

- **Use partnership model to provide ESG services and facilities**

- **Develop platforms where customers and other ecosystem players can do their bit**

- **Invest in a dedicated team that manages ESG risks in real time**

SK telecom

twimbit

OPTUS

" By the end of 2025, 100% of our electricity requirements will be backed by renewable energy sources, and we will reduce and recycle over 90% of our electronic waste.

Kelly Bayer Rosmarin, CEO

Performance on twimbit ESG Framework

OPTUS

Overall ESG Score	▭	**7.5**

Environmental		8.1
Social		6.3
Governance		8.0
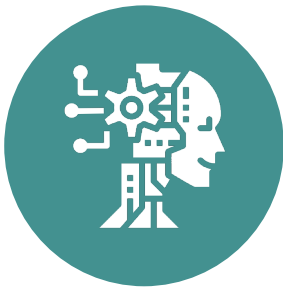
Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

OPTUS

Environmental	Social	Governance

Championing mobile phone recycling

'Donate Your Data', helping the underprivileged

Optus Accessibility and Inclusion Action Plan

twimbit

OPTUS

Reuse, recycle and repurpose

A shift from a 'take, make, dispose' way of thinking,
to one that is restorative and regenerative

2025 Targets			
	90% General waste diversion from landfill	**90%** Reuse and recycle of e-waste	**100%** Recyclable, reusable or compostable packaging

Progress				
	20% General waste diverted in FY22	**100%** IT waste diversion from landfill	**97%** Network waste diversion from landfill	**89%** Sustainable packaging in FY22

twimbit

OPTUS

Advocating mobile phone recycling

By hosting collection points in retail stores and including paid recycling satchels in pre-paid mobile bundles

Resources saved

63 tonnes

of mineral resources saved through recycling

136,328 MJ

of fossil fuels indirectly saved through recycling

Greenhouse benefits

12 tC02e

of greenhouse gas emissions prevented

36kg

of particulates avoided through recycling

20kg C2H4

of summer smog avoided through recycling

323

Equivalent trees planted

MOBILE PHONE RECYCLING

IT'S EASY!

WE ACCEPT MOBILES, BATTERIES, CHARGERS & ACCESSORIES

twimbit

OPTUS

'Donate Your Data',
helping the underprivileged

Enabling customers to donate unused data to young people, their families and other Australians in need

27,148+

Youngsters part of the program

40,257,360 GB

Data donated by customers

100,000+

Expected beneficiaries by 2025

534,000

Unique donors

twimbit
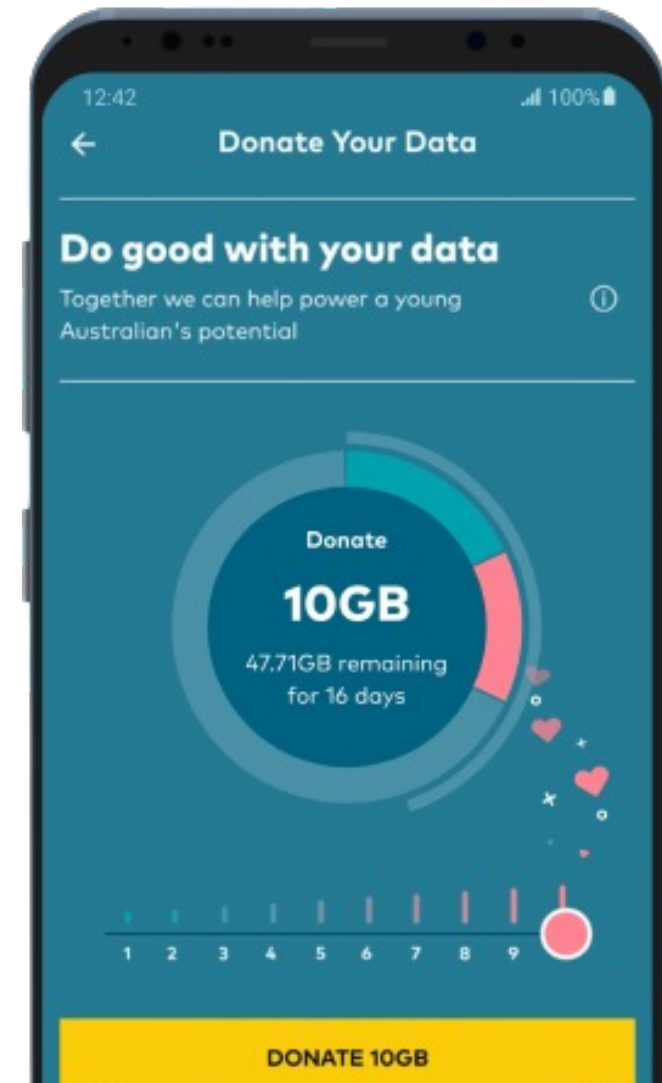
OPTUS

Optus Accessibility and Inclusion Action Plan

The 4 pillars of the plan aim to minimize and, wherever possible, remove barriers to access for the disabled

Workplace

- Establishing a 'Senior Leader Accessibility Action Group'

- Training talent acquisition on recruiting disabled employees

Customers

- Retail stores in compliance with 'Disability Discrimination Act'

- Inclusive design approach for products & services

Communities

- Official partner of the Australian Paralympic Team

- Doing business with disability advocating employers
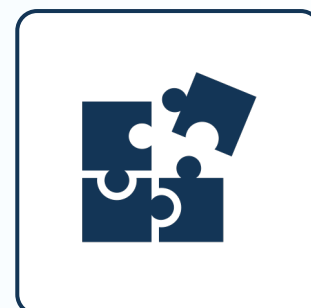
Innovation

- 'Optus Future Makers' social innovation program develops technologies in support of people with disability

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OPTUS

Launched the
Optus Circular Economy Roadmap
2021-25 for packaging

Increased our e-waste collection
by 62% as part of the Mobile Muster program

Won the
Australian Packaging Covenant Organisation (APCO) Industry Sector Award

Match up with Optus

Transform from 'take, make, dispose' way of operations, to one that is based on sustainability

- Invest in recycling and sustainable packaging to lower waste

- Develop solutions (such as data donation) to meet digital inclusion targets without stretching current capacity

- Make 'accessibility' a 'way of work'

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3. Chunghwa Telecom

Using new tech to monitor and manage ESG

中華電信
Chunghwa Telecom

"

Looking forward, we shall continue to take one step at a time, striding steadfastly towards the corporate sustainability and pushing for various ESG actions on the ground. Meanwhile, utilizing our core expertise in ICT, technologies, resources, competences, and features, we efficiently help resolve social issues, exercise our commitment as a corporate citizen, and create values for stakeholders across fields.

**Chi-Mau Sheih,
CEO**

twimbit

Performance on twimbit ESG Framework

中華電信
Chunghwa Telecom

Overall ESG Score | **7.24**

Environmental | 6.5

Social | 7.5

Governance | 7.7

Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

中華電信
Chunghwa Telecom

Environmental	Social	Governance

Self-developed EARTH system for control of environmental information

Strong pay parity to drive gender equality

Proactive monitoring of human rights

twimbit

Internal EARTH system for 100% control of environmental information

Power Management

Centralized tracking and payment system for 64,710 electricity accounts

Carbon Emission Management

Centralized tracking of emissions and carbon verification information
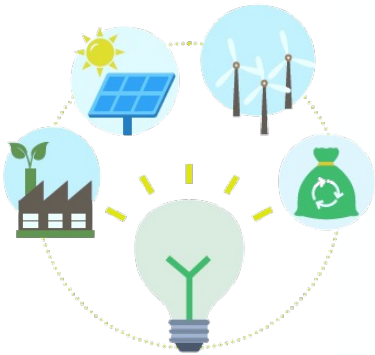
Fuel Management

Tracking and analyses of fuel used by hybrid and ordinary vehicles

Corporate Tree Planting

Management and location tracking of over 67,350 trees

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中華電信
Chunghwa Telecom

Earth system water bill management function

Using technology to monitor and manage water use

9.7% Decline

2018   2019   2020

Tap Water Consumption
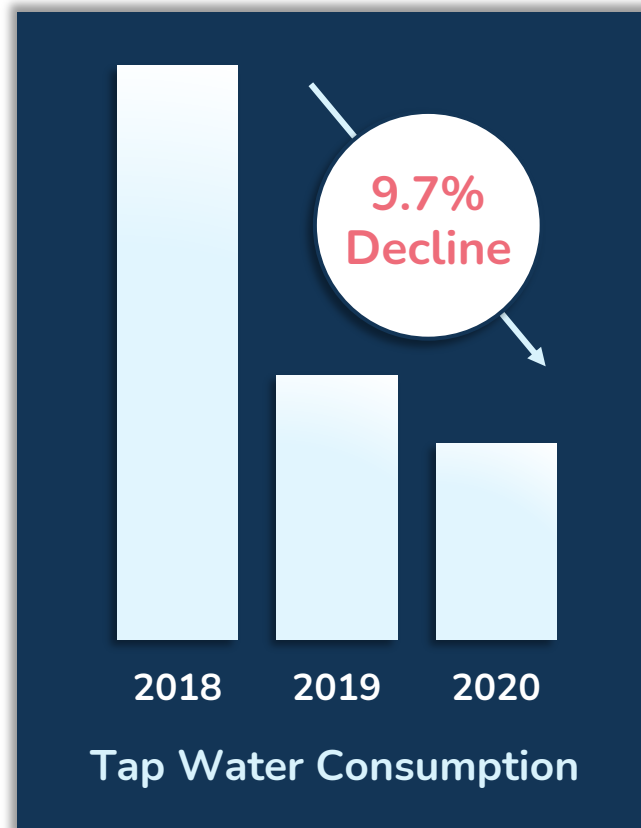
Centralized Payment

To monitor management goals and control water use

Error tracking

Exception reports to avoid mistakes in billing and meter readings

Tracking and analysis

Generate trend charts and reports to reduce consumption

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中華電信
Chunghwa Telecom

Using pay parity to drive gender equality

Number of employees in each grade and gender salary ratio

	Senior Executive and Higher	
	Level 18-22	
0.15	Ratio (%)	0.02
1.07	Base Salary Ratio	1
0.88	Average Salary Ratio	1

	Intermediate Executive	
	Level 17	
0.18	Ratio (%)	0.05
1	Base Salary Ratio	1
0.98	Average Salary Ratio	1

	Executive	
	Level 11-16	
8.48	Ratio (%)	2.04
1.03	Base Salary Ratio	1
1.02	Average Salary Ratio	1

	Entry-level Employee	
	Level 0-10	
61.9	Ratio (%)	27.2
1	Base Salary Ratio	1
1	Average Salary Ratio	1

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中華電信
Chunghwa Telecom

Proactive monitoring of human rights

Adherence of human rights in line with multiple human right conventions and guiding principles

Value Chain	Coverage	Evaluation Mechanism	Evaluation %
CHT owned institutes	28	• Labor-management meeting • Collective agreement • Workers' Union meeting • Annual inspection	100%
Subsidiaries	21	• Annual CSR inspection	100%
Re-investment Companies	16	• Annual CSR inspection	100%
Upstream and Downstream Suppliers	Tier 1 Critical Tier 1 Critical Tier 2	• CSR survey inventory • CSR second party audit • Occupational health and safety audit	100%
The Public	All Consumers	• Complaint channels • Satisfaction surveys • Personal information and privacy protection • Minority group service mechanism	100%

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Match up with Chunghwa

Utilize tech capabilities to monitor and manage ESG initiatives

- **Develop centralized solutions for full control on execution of ESG goals**

- **Cultivate equal base pay as a central message for gender equality**

- **360^0 management of human rights risks to avoid conflicts due to global operations**

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Accountability based systems to achieve ESG objectives

NTT docomo

> " In tackling climate change, DOCOMO has worked on reducing CO_2 emissions across all of society. It has also organized internal expert subcommittees to set specific related goals and implemented action plans to manage and reduce its own electricity consumption and effectively use resources.

**Motoyuki Ii,
President and CEO**

twimbit

Performance on twimbit ESG Framework

NTT docomo

Overall ESG Score		**7.23**

Environmental		6.9
Social		6.8
Governance		8.0

Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

NTT **docomo**

| **Environmental** | **Social** | **Governance** |

Minimizing paper use across the organization

Strong employee feedback mechanism to improve CX

Setting accountability in environmental management

twimbit

Minimizing paper use across the organization

13.9 t
11.4 t
10.1 t

27% Decline

2018 2019 2020

t = tonnes
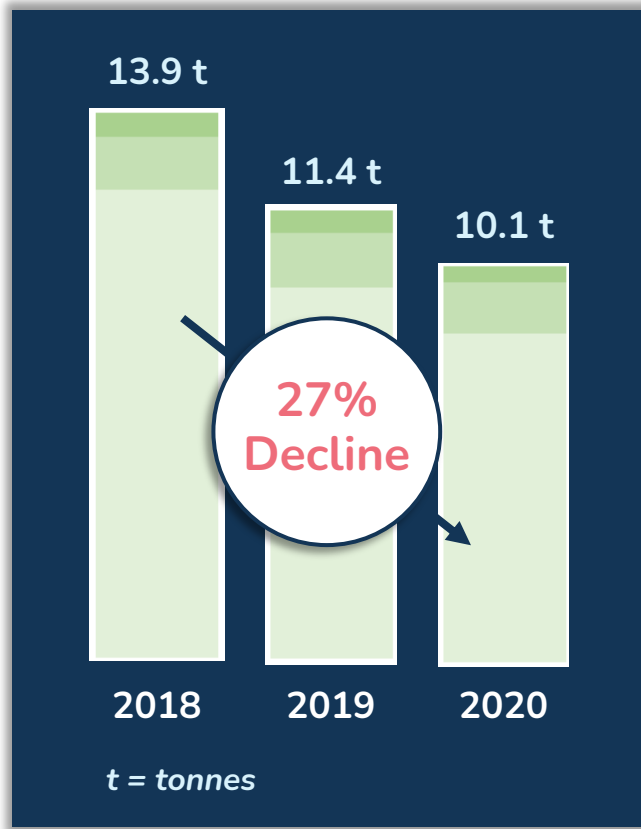
Office Use
Communicating monthly paper use per person

28.5%
Decline in monthly paper use per person

Billing
Standardized e-billing for all services

530 million
A4-size paper saved annually

Promotional Tools
- Digital user manuals for android smartphones & tablets
- WIP – analytical tool to accurately determine promotional tool requirement for each shop

NTT docomo

Strong employee feedback mechanism...

Frontline employees annually submit **~44,000 suggestions** to improve CX

Flow of Employee Feedback

* ALADIN = All Around DOCOMO Information Systems

Customer Feedback

Opinions/ requests

DOCOMO shops and other contact points

Input employee feedback CS-ALADIN*

Headquarters

- **Inquiries**
- **Orders**
- **Opinions**
- **Requests**

Improved response

Feedback results of deliberation

Confirm content of feedback

▽

Consider improvements

▽

Consider result of deliberation

Improvement in products and services

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NTT docomo

…to improve CX

Improvements resulting from interaction between employees and customers in FY20

Online DOCOMO smartphone class

Launched online version of the DOCOMO smartphone class to allow customers to take classes from home

Emergency service access for kids phone

Improved Kids Keitai cellular phone by allowing users to call the Disaster Emergency Message service by tapping on the phone screen

Upper bill limit on 5G Giga Plan

Launched the Giga Plan Upper Setting Option allowing customers to fix the monthly charge on the 5G Gigalight plan

twimbit

Setting accountability in environmental management...

Organizational Structure for Environmental Management

```
Top Management
(President and CEO)
        │
        ▼
Group's Chief of Environmental
Management (General Manager
of CSR Department)
        │
        ▼
CSR Department ────── Central/Internal
        │              Environmental Auditors
Group Secretariat
        │
Regional Secretariat
        │
Secretariat of each
group company
```

Sustainability Management Committee

Environmental Sustainability Taskforce

Creation of Safe and Secure Services

Universal Design Promotion Working Group

Health and Productivity Management Working Group

docomo

...by using expert subcommittees for specific targets

Each subcommittee of the 'Environmental Sustainability Taskforce' sets specific sustainability targets every year

Utilizing ICT against Climate Change	Energy Conservation for Telco Facilities	Effective Use of Resources	Biodiversity
Reduce contribution of CO₂ emissions **by 40 million tonnes**	Achieve a **seven-fold increase** in power efficiency of telco services compared to FY13	**Lower final disposal ratio** of waste to 1.4% or lower	Conduct forest maintenance activities, and expansion of **activities on biodiversity**

twimbit

DOCOMO's Vision of a Society Where No One Is Left Behind

Industry, innovation, infrastructure
Support for remote medical care (Tokushima

Sustainable cities and c
Mobile Spatial Statistics

Life below water
ICT buoys

Good health and well-being
Health management and consultation services (d healthcare)

Decent work and economi
Smart agriculture

Match up with DOCOMO

Use expert teams to efficiently manage various aspects of ESG

- Use first principle thinking to manage resource usage

- Leverage frontline employees for product and service improvements

- Create accountability by having dedicated teams with specific ESG targets

**Andrew R Penn,
Ex-CEO**

"

In digital inclusion - Telstra was recognized as a global leader in the first-ever World Benchmarking Alliance Digital Inclusion Benchmark... (Telstra) helped one million customers in vulnerable circumstances to stay connected through delivery of specialized programs, products and services.

Performance on twimbit ESG Framework

Telstra

Overall ESG Score		**7.12**

Environmental		6.7
Social		6.5
Governance		8.2

Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

Telstra

Environmental	Social	Governance
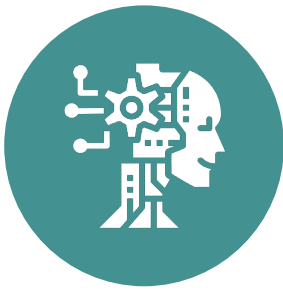
Extensive Electromagnetic energy testing on 5G

Tackling digital accessibility

Encouraging speaking up!

twimbit

Environmental | Social | Governance

Telstra

Extensive Electromagnetic energy (EME) testing on 5G

Testing done in real world settings to avoid adverse health impacts

Public safety limit (ARPANSA & World Health Organization)

100
10
1
0.1

1000 times below public safety limit

0.01
0.001
0.0001
0.00001

☐ Min
■ Max

5G mmWave Trial (2017) | 5 surveys of 5G (2018 & 2019) | 5G smart apartment (2020) | 5G lowband 850MHz (2021) | 50 surveys of 5G mmWave (2021) | 5G smart apartment midband (2022) | 5g smart apartment mmWave (2022)

Asia-Pacific telco ESG leaders 2022

twimbit
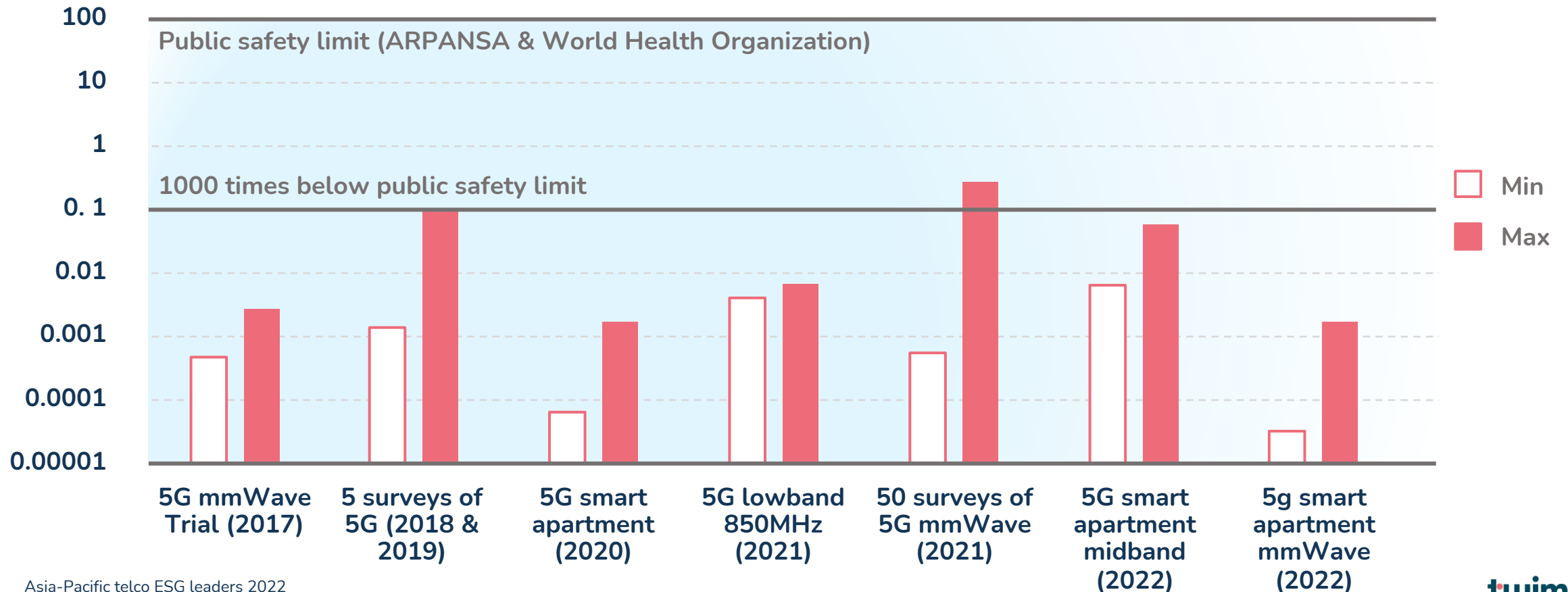
Telstra

Tackling digital accessibility

Improved and upgraded products to bridge the digital divide for customers with disability

Uniden SSE47+1P

Telstra Easy Control Corded Desktop

Uniphone 1150 TeleTypewriter

Superprint 4425 TeleTypewriter

| Hearing Loss | Deaf |
| Mobility Impairment | Cognitive Impairment |

Speech Impairment

Vision Impairment

twimbit

Telstra

Encouraging speaking up!

Transparent and widely distributed whistleblower policy to support ethical operations

In-depth coverage on

What is reportable conduct?

How to make disclosure?

Confidential disclosures

Compensation and remedies

Protection from civil, criminal and administrative liability

Complaint Channels

Webform

Global complaint numbers

Whistleblowing Committee

Designated Protection Officer

Group Officers, Directors and Group Executives

115
Whistleblowing reports received in FY21

131
Whistleblowing investigations in FY21

30
allegations substantiated in whole or in part

twimbit

Match up with Telstra

Make products and services as per the universal design principles

- Respond to health concerns arising of 5G with concrete test data

- Deploy a range of products and services covering people with varied disabilities

- Empower employees to improve their work environment

Telstra

twimbit

6. Taiwan Mobile

Generating renewable energy to offset GHG emissions

Taiwan Mobile

**Daniel M. Tsai,
Chairman**

"

We are the first telecom operator in Taiwan to join RE100, an international renewable energy initiative organization. We promise to use 100% renewable energy by 2040, and set 2022 as the first year of Net Zero initiative. In May, the board of directors formally adopted the goal of Net Zero by 2050, and upgraded the 'Sustainability Development Committee' to the level of board of directors.

twimbit

Performance on twimbit ESG Framework

Taiwan Mobile

Overall ESG Score		**6.93**

Environmental		5.6
Social		7.1
Governance		8.2

Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

Taiwan Mobile

Environmental	Social	Governance

Dedicated department to monitor renewable energy

Bridging the Digital Divide b/w Urban & Rural Areas

Rigorous supply chain ESG assessment

twimbit

Dedicated department to monitor and innovate application of renewable energy

Ratio of renewable energy to total energy consumption

Year	Value
*2040	100%
*2035	60%
*2030	20%
*2025	10%
2021	1.4%
2020	0.123%
2019	0.123%

Projected

0.1%   1%   10%   20%   60%   100%
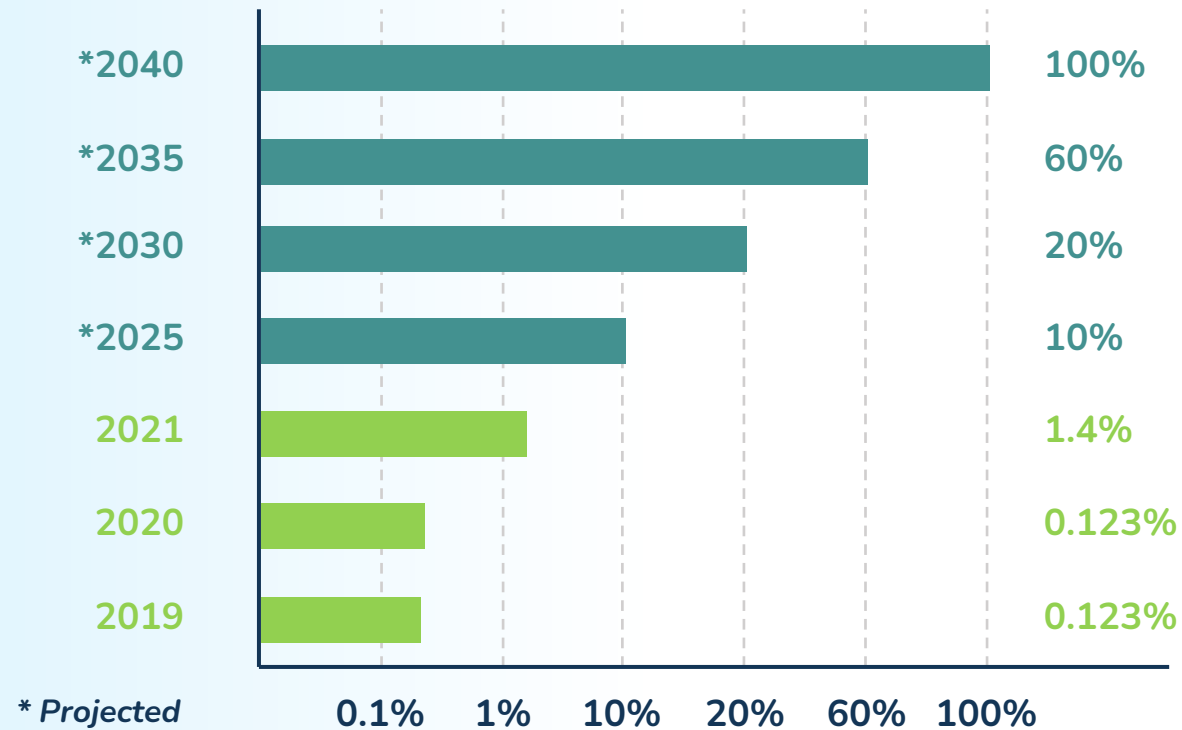
Joined RE100

An international renewable energy initiative organization

Adopted 'Green layout strategy'

30% green electricity from purchasing and 70% from self-built power plants

Progress in FY21

- Installed 12.46 MW renewable energy equipment, capable of generating an ~7.618 million kWh of power annually

Taiwan Mobile

Bridging the Digital Divide b/w Urban & Rural Areas

Coding Fun	Courses for underprivileged students (46 volunteers and 176 students)	Free online teacher training sessions on in-house platform (58+ teachers participated)
Digital Wings	~NT$70 million investment to provide welfare internet access	10,000 openings to disadvantaged students at junior high level or above
Digital Learning Centers	23 locations and 129 seats	Benefited 62,958 people

twimbit

Environmental   Social   Governance

Taiwan Mobile

Rigorous supply chain ESG assessment

Assessment entails document reviews, on-site audits, setting of KPIs, and risk improvement planning

Periodic Evaluation

Existing Suppliers

Joint review

ESG self-assessment questionnaire

ESG evaluation

Supplier evaluation

Desk/off-site review

- On-site review
- Desk/off-site review

Risk assessment

Threshold setting

Sustainability threshold for technical evaluation of tenders

- Identifying and evaluating sustainability risks
- Identify high-risk suppliers and risk types

Risk assessment

Signing code of conduct

- Declaration of Integrity in Business Conduct
- Safety, health and environmental protection guarantee for contractors

- ESG and risk assessment report of supplier
- ESG/risk improvement recommendations and supplier improvement

Improvements

Asia-Pacific telco ESG leaders 2022

twimbit

Match up with Taiwan Mobile

Leverage ecosystem partnerships to enhance digital and network experience

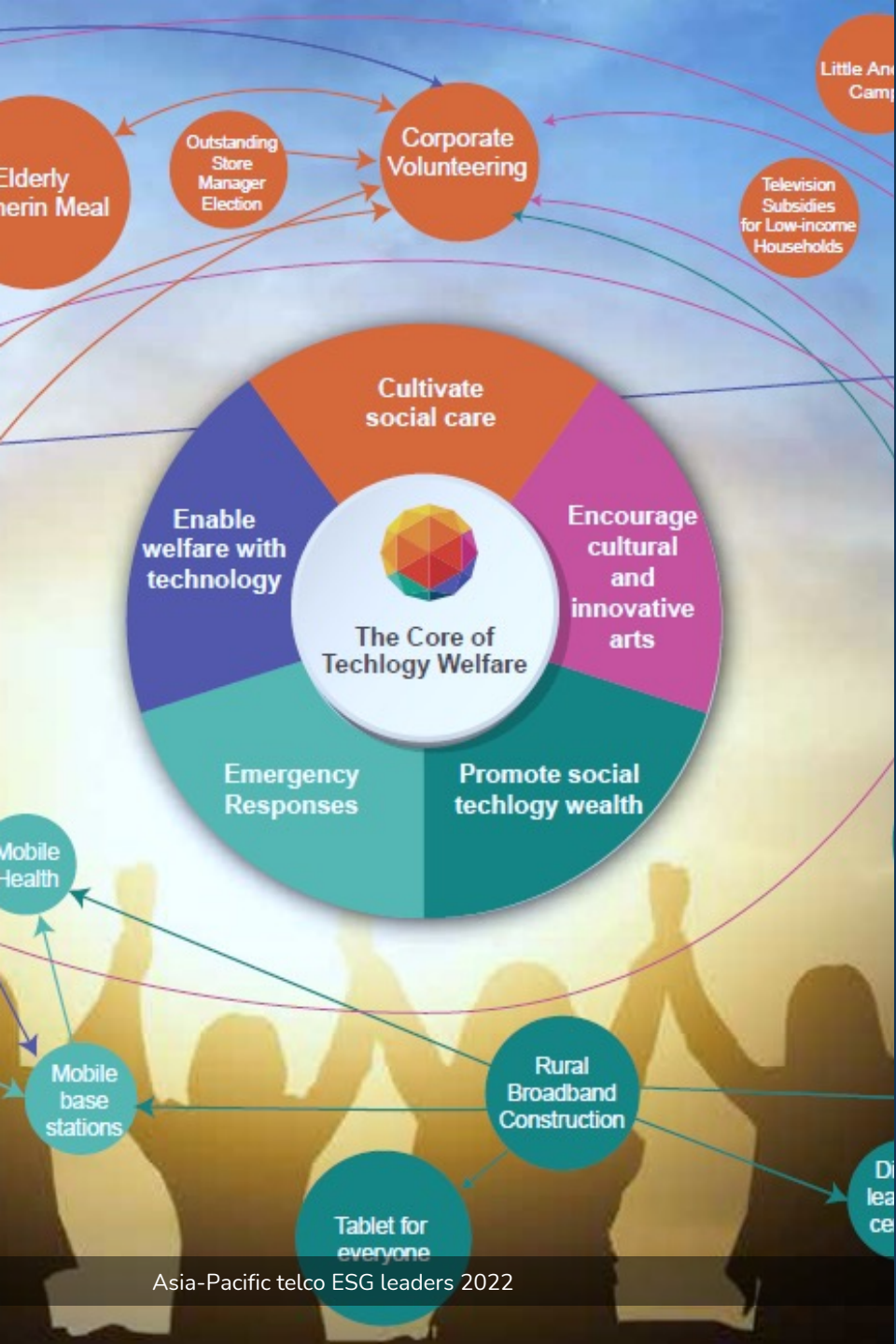- **Install renewable energy facilities in addition to sourcing externally**

- **Provide ICT education and facilities for the unprivileged to further digital inclusion**

- **Develop a thorough supplier ESG assessment process to lower emissions**

7. Singtel

Exploring substantiable financing as an ESG strategy

**Lee Theng Kiat,
Chairman**

" While we restructure to improve the financial outcomes of our investments, we're also working to strike the right balance by strengthening our sustainability commitments. Besides supporting global climate action by minimizing our carbon footprint with greener technologies, we're embedding more conscious climate deliverables such as green financing into our agenda.

twimbit

Performance on twimbit ESG Framework

Singtel

Overall ESG Score		**6.79**

Environmental		7.1
Social		6.8
Governance		6.5

Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

Singtel

Environmental	Social	Governance
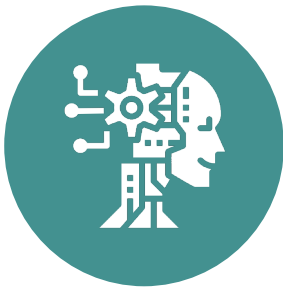
Olives, a dedicated sustainable financing programme

Singtel Group Future Makers

Data driven approach towards materiality assessment

twimbit

Olives, a dedicated sustainable financing programme

Linking financing with sustainability to achieve 'Net Zero by 2050' target

Sustainability Financing Targets for Singtel Group

Reduce Absolute GHG Emissions by 25% for Scope 1 and 2 by 2025 from 2015 Baseline

Reduce Absolute GHG Emissions by 42% for Scope 1 and 2 by 2030 from 2015 Baseline

Progress in FY21

Yielded first sustainability-linked revolving credit facility of **SGD 750 million**

17.5% YoY reduction in Scope 1 GHG emissions

3.01% YoY reduction in Scope 2 GHG emissions

Singtel Group Future Makers (SGFM)...

The social innovation and accelerator programme provides support to startups in the social and environmental sector

Partner ecosystem

Non-profit sector

Social enterprises

Corporates

Venture Capitalist

Start-ups attending a virtual engagement session with Singtel stakeholders

Support provided

S$150,000 grant pool

Subject matter experts

Affiliate partners

Mentors

...start-ups digital solutions to support the needs of seniors and their caregivers at different stages

Desired Outcomes	Social Support Required	Potential of Singtel Future Makers Start-Up Solutions		
Keep active to reduce frailty and risk of care recipients	Meaningful social engagement for care recipients	**TIMELISS** *Fulfilling Wishes. Fulfilling Legacies.* Digital legacy planning	AI data annotation game to engage seniors	Digital rehabilitative games that enhance the cognitive abilities for people with dementia
Early intervention to manage physical and mental decline	First responder and local support to meet needs	**CLR8** *Remote Rehabilitation* Remote physical rehabilitation through sensors and wearables	**SENZE HUB** Wearables to measure vital signs of seniors and early detection for emergencies	
Reduce caregiver burden and stress	Peer support and empower caregivers through technology	**pillpress** IoT device to improve patient's medicine adherence	**ENABLER** Digital simulation training for hospital staff and caregivers	Community of support for caregivers of people with dementia

twimbit

| Environmental | Social | Governance |

Data driven approach towards materiality assessment

Strategic Objectives	Risk-sensing Exercise	Stakeholder Exercise	Recommendations
Material Topics	**Peer Benchmarking**	**Online Surveys**	**Final Topics**
UN SDGs	**Trends Research**	**Stakeholder Interviews**	**SDGs and Targets Mapping**
Listing of available sustainable topics and guidelines to identify key ESG issues, risks and opportunities	Analysis of industry studies on current and future sustainability trends such as: • **Science Based Targets initiative** • **GSMA Sustainability Assessment Framework**	Direct engagement and feedback from stakeholders • **2,500 individuals from ten key stakeholder groups** • **Online surveys and one-on-one interviews**	Identification of final sustainability topics to be adopted and grouping them into three categories • **High priority** • **Ongoing importance** • **Monitor and manage**

twimbit

Match up with Singtel

Explore sustainable financing as a strategy for achieving sustainability targets

- **Link internal and external financing to ESG targets**

- **Explore startup funding for finding unique solutions to sustainability problems**

- **Use data to zero in on material topics of maximum significance**

8. au

Strong internal compliance mechanisms to drive ethical behavior

**Makoto Takahashi,
President, KDDI Corp**

" KDDI believes people are its most important resource. We are working to transform into a company that puts human resources first by placing training at the base of management with the three pillars of 'introducing KDDI Version Job Style Personnel System,' 'Declaration of KDDI New Work Styles,' and 'Internal DX.'

twimbit

Performance on twimbit ESG Framework

au

Overall ESG Score		**6.76**

Environmental		**5.6**
Social		7.2
Governance		**7.5**
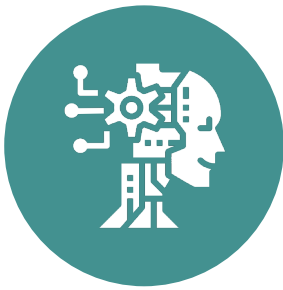
Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

Environmental	Social	Governance

Industry best mobile-phone recycling rate

Diverse work styles to match employee needs

Strong compliance and enforcement framework

au

Industry best mobile-phone recycling rate of 99.8%

| **Flow for Recycling of Mobile Phones**

Customers

Collections of used mobile phones →

Turned into next products and provided to customers

Retail stores (au Shops, etc.)

Personal information formatting and circuit board destruction using specialized tools

To KDDI-designated recycling plant →

Recycling plants

Disassembly conducted in secured rooms

Disassembly conducted by hand to facilitate recycling

Different recycling processes for different materials

Iron products	←	Domestic steelmakers	← Iron
Aluminum & copper products	←	Domestic producers of non-ferrous metals	← Non-ferrous metals
Plastic products	←	Recycling plant	← Plastic

twimbit

Diverse work styles to match employee needs

Flexibility

Work shift interval rule program

Daily work limit set to 9 hours

Variable working hours system

Change working hours monthly

Telework program

Work from home for all employees

Discretionary work system

Focus on high performance in a short time

Lifestyle

Shorter working hours for caregivers

Working hours as per family obligations

Employment within restricted area

For employees with relocation issues

Spouse accompaniment leave program

Leaves to accompany spouse overseas

Work-Childcare balance initiative

Pre and post child-birth program
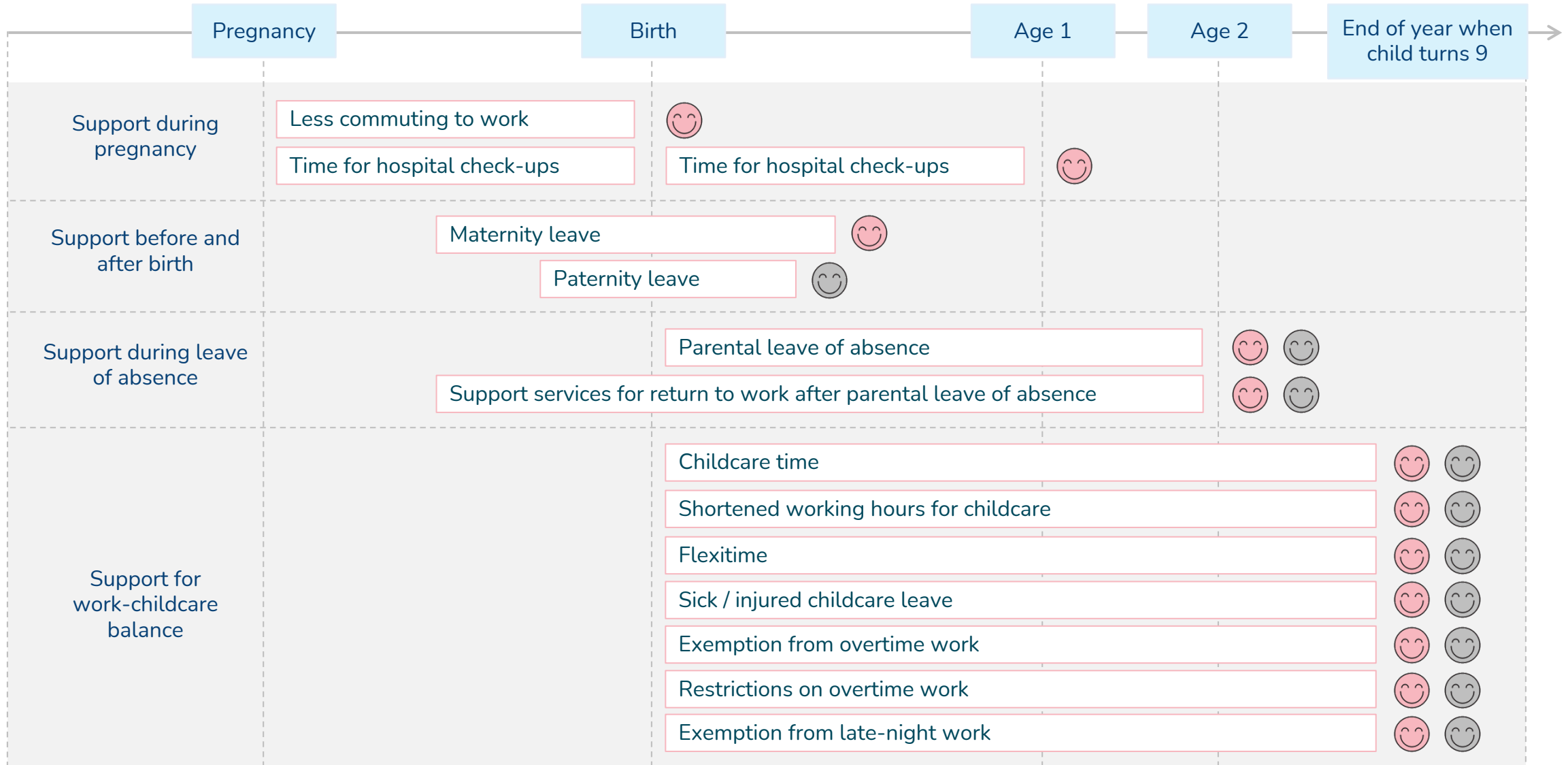
au (KDDI) program for Work-Childcare Balance

For women   For men

	Pregnancy	Birth	Age 1	Age 2	End of year when child turns 9

Support during pregnancy
- Less commuting to work 😊 (For women)
- Time for hospital check-ups | Time for hospital check-ups 😊 (For women)

Support before and after birth
- Maternity leave 😊 (For women)
- Paternity leave 😊 (For men)

Support during leave of absence
- Parental leave of absence 😊 😊 (For women, For men)
- Support services for return to work after parental leave of absence 😊 😊 (For women, For men)

Support for work-childcare balance
- Childcare time 😊 😊 (For women, For men)
- Shortened working hours for childcare 😊 😊 (For women, For men)
- Flexitime 😊 😊 (For women, For men)
- Sick / injured childcare leave 😊 😊 (For women, For men)
- Exemption from overtime work 😊 😊 (For women, For men)
- Restrictions on overtime work 😊 😊 (For women, For men)
- Exemption from late-night work 😊 😊 (For women, For men)

twimbit

Strong compliance and enforcement framework…

President, KDDI Corp

Report | Consult

Report

Report

Corporate Management Committee

KDDI Group Business Ethics Committee

KDDI Group Business Ethics Committee Members (Chairperson, Representative Director and Other Members appointed by the chair)

- Policies for educational activities
- Countermeasures in case of compliance violations
- Disclose information outside of the company
- Deliberate on measures to prevent recurrence

Contact (Anonymous)

Feedback/ Instruction | Report

Business Ethics Helpline

Report | Feedback

All Group Employees

au

...ensuring ethical business practices

Examples of Initiatives in FY20

Compliance Education, Training and Awareness Raising	Target: All KDDI employees	Promotion of the KDDI Group Philosophy
	Target: Managers, Group leaders	Harassment-prevention seminars
	Target: Group company executives	Risk management in operations, legal, and labor management

Compliance Consultations Received in the Last Two Years

Consultations	FY19	FY20
Compliance Consultations	469	⬆ 671
Breakdown: harassments	173	⬆ 220
Breakdown: other compliance violations	296	⬆ 451

twimbit

Match up with au

Lay strong internal compliance systems to ensure ethical operations

- Achieve waste reduction targets and lower raw material costs by mobile recycling

- Ensure employee welfare before investing in social welfare

- Provide tailored compliance trainings and reporting mechanisms for redressals

au

twimbit

9. KT Corp

Implementing emerging tech solutions to ESG problems

**Hee-Yol Yu,
Board Chairperson**

"

KT has announced that we will innovate ourselves and grow as a DIGICO, that we will adopt first-rate management focusing on compliance and transparency as part of our strategy for promotion of ESG that we will strive to find solutions to environmental/social issues, using our differentiated ABC (AI, BigData, Cloud) technology.

twimbit

Performance on twimbit ESG Framework

KT

Overall ESG Score		**6.66**

Environmental		5.0
Social		6.5
Governance		8.5

Average score of our leaders

twimbit

Top Initiatives

Leading ESG programs across our 3 pillars

Environmental	Social	Governance

KT-MEG, an integrated energy management platform

Voice of the customer (VOC) innovation

Fostering a system-based culture of self-compliance

KT-MEG, an integrated energy management platform

The e-brain is an AI-based analysis engine that provides integrated control of production-consumption-trading of energy across 10,000 sites
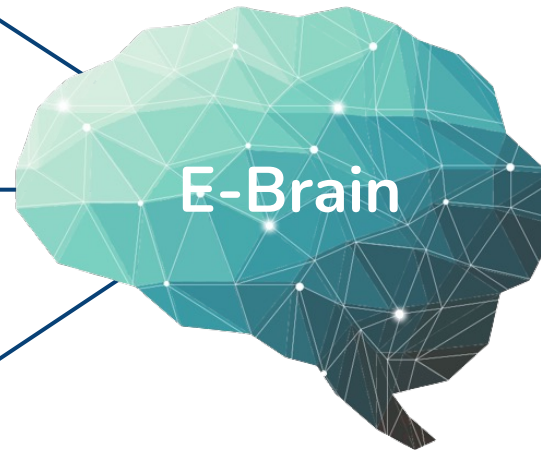
e-DNA(Diagnosis)

Automatic customer energy use pattern

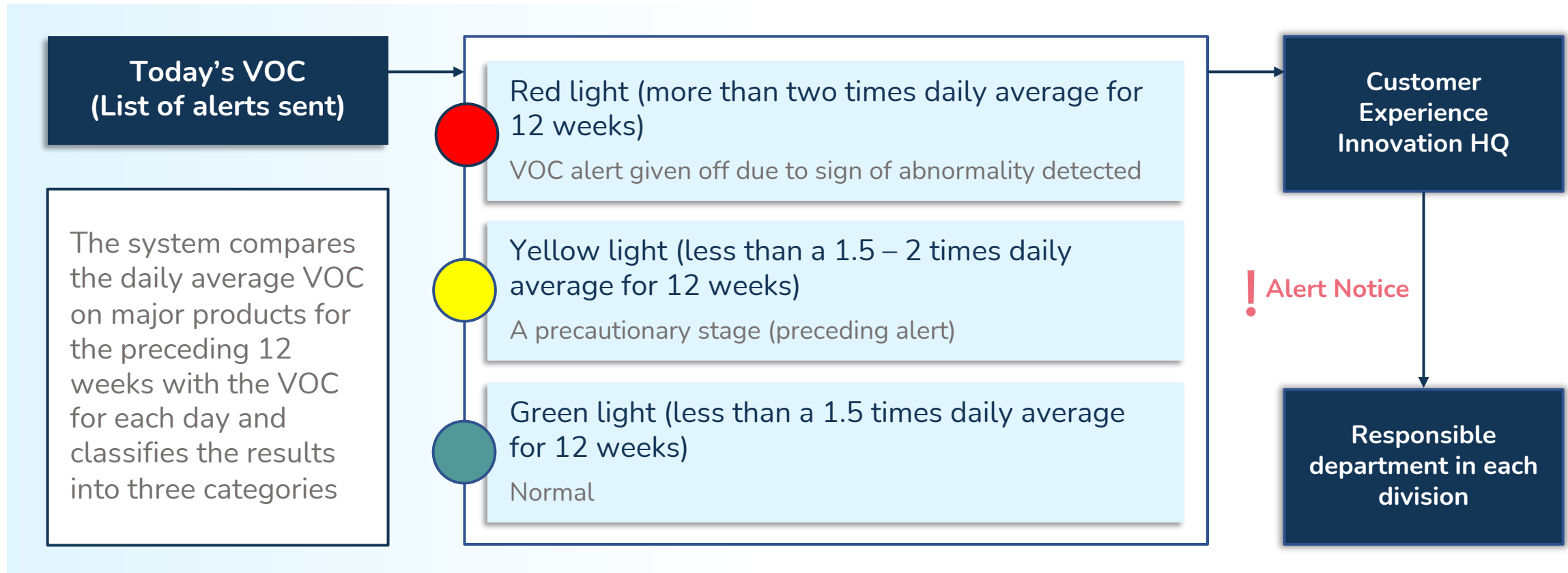**enerCast(Forecast)**

Automate consumption/production forecasts

Robo-operator(Optimal Control)

Optimal control of AI-based energy facilities

E-Brain

Voice of the customer (VOC) innovation

Big Data-based VOC Alert system designed to immediately communicate customers' complaints to relevant employees

Today's VOC (List of alerts sent)

The system compares the daily average VOC on major products for the preceding 12 weeks with the VOC for each day and classifies the results into three categories

Red light (more than two times daily average for 12 weeks)

VOC alert given off due to sign of abnormality detected

Yellow light (less than a 1.5 – 2 times daily average for 12 weeks)

A precautionary stage (preceding alert)

Green light (less than a 1.5 times daily average for 12 weeks)

Normal

Customer Experience Innovation HQ

! **Alert Notice**

Responsible department in each division

Fostering a system-based culture of self-compliance

Established a company-wide compliance platform

Go to channel for communication on ethical management:

- Sharing exemplary compliance cases
- Cases of audit/lawsuit between departments
- Integrated management of relevant guidelines and manuals

Functionality that allows employees to formulate and manage plans concerning compliance items
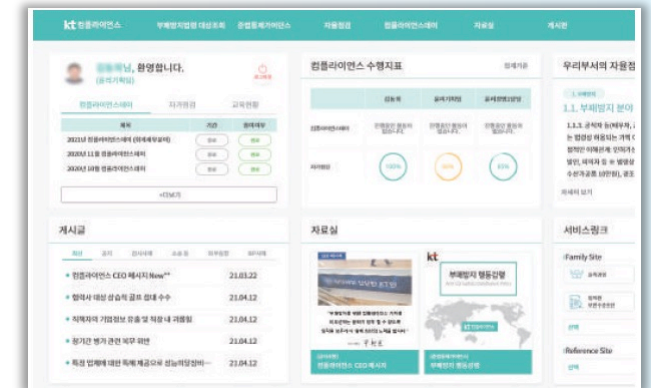
Enhancing ethics & compliance related education

Training by expert external institutions

Program for employees of 37 affiliates

Customized educational content for specific positions

144,933

Employees (including affiliates) who attended compliance sessions held on 97 occasions in FY 21

twimbit

Match up with KT Corp

Reinvent sustainability solutions using ABC (AI, Big Data, Cloud) technologies

- **Use AI solutions to better manage and analyze energy needs**

- **Implement 'preemptive tech-based real time solutions' for customer problems**

- **Develop an internal compliance platform and customize as per requirements**

twimbit

Performance on twimbit ESG Framework

SoftBank

Overall ESG Score		**6.61**

Environmental — 6.2

Social — 6.2

Governance — 7.5

Average score of our leaders

twimbit

Top Initiatives

SoftBank

Leading ESG programs across our 3 pillars

Environmental	Social	Governance

Carbon Neutral 2030 Declaration

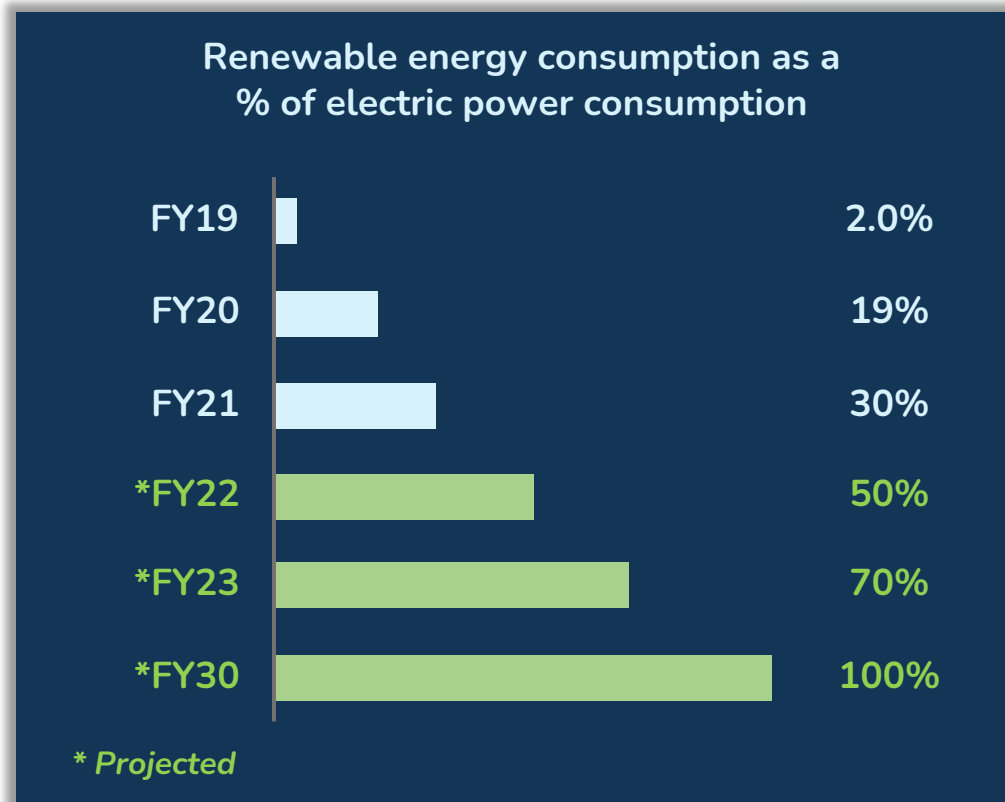**Helping the hearing impaired to communicate**

Mapping Human-rights Risk of High Priority

twimbit

Carbon Neutral 2030 Declaration

Reduce GHG emissions generated by company business activities and processes (Scope 1, 2) to zero by FY 2030

Renewable energy consumption as a % of electric power consumption

Year	Value
FY19	2.0%
FY20	19%
FY21	30%
*FY22	50%
*FY23	70%
*FY30	100%

Projected

Carbon Neutral Working Group

The working group operates as a cross-company organization enhancing its reach

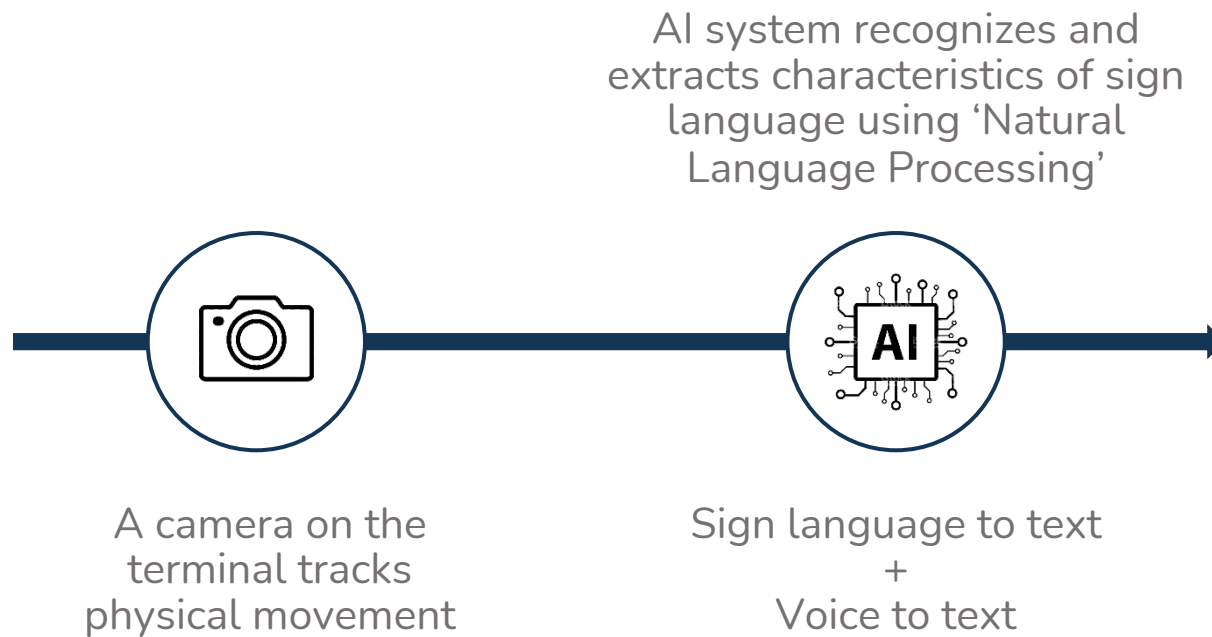## Renewable Energy use at Base Stations

In FY20, achieved 30% renewable energy goal; FY22 target is of 70% or more

Leveraging group companies

SB Power and SB Energy Corp generate and provide Softbank with renewable power
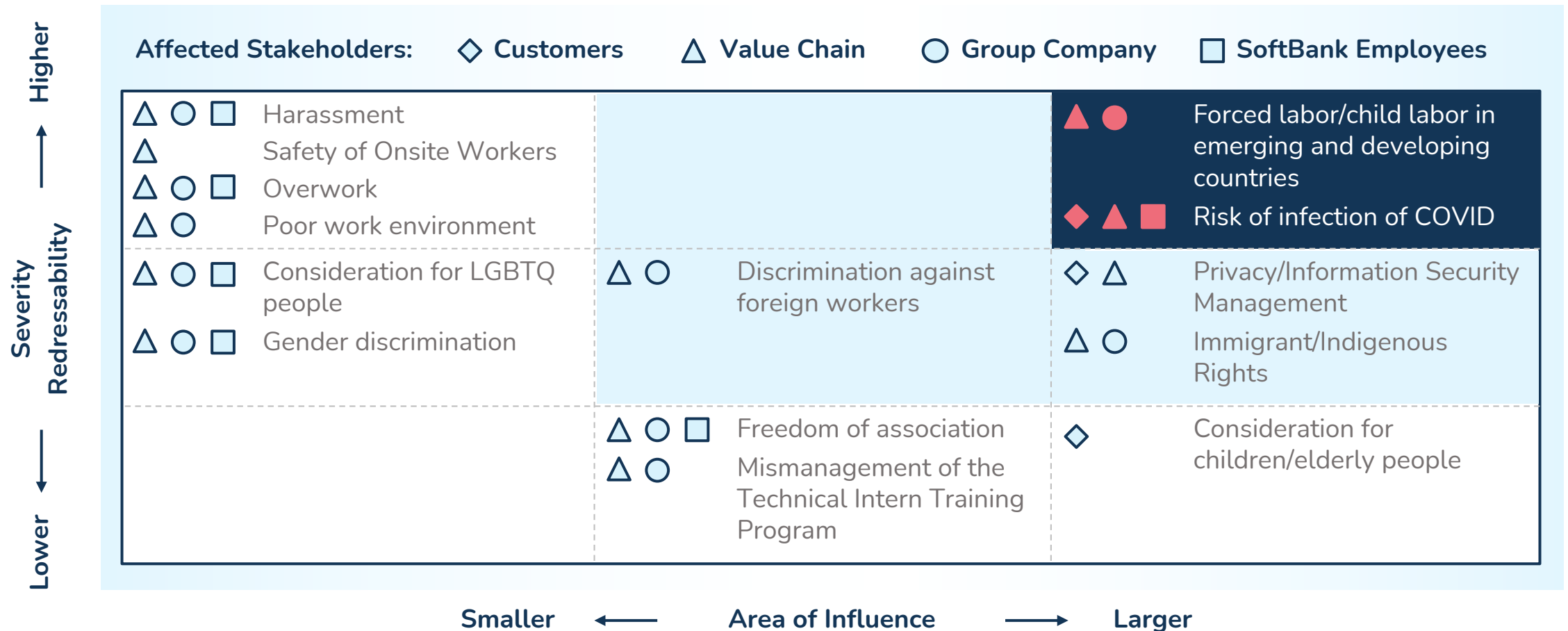
SoftBank

Helping the hearing impaired to communicate

'**Sure Talk**', a communication tool that enables conversation between sign language, voice and AI

AI system recognizes and extracts characteristics of sign language using 'Natural Language Processing'

A camera on the terminal tracks physical movement

Sign language to text
+
Voice to text

twimbit

SoftBank

Mapping Human-rights Risk of High Priority

Proactively managing potential negative business impact by identifying critical human-rights risks

Affected Stakeholders: ◇ **Customers** △ **Value Chain** ○ **Group Company** ▢ **SoftBank Employees**

Severity Redressability	Higher / Lower	Smaller ← Area of Influence → Larger

Higher

△ ○ ▢ Harassment
△ Safety of Onsite Workers
△ ○ ▢ Overwork
△ ○ Poor work environment

▲ ● Forced labor/child labor in emerging and developing countries

◆ ▲ � Risk of infection of COVID

△ ○ ▢ Consideration for LGBTQ people
△ ○ ▢ Gender discrimination

△ ○ Discrimination against foreign workers

◇ △ Privacy/Information Security Management

△ ○ Immigrant/Indigenous Rights

△ ○ ▢ Freedom of association
△ ○ Mismanagement of the Technical Intern Training Program

◇ Consideration for children/elderly people

Lower

Smaller ← **Area of Influence** → **Larger**

twimbit

Match up with Softbank

Eliminate scope 1 &2 GHG emissions by sourcing/ producing renewable energy

- **Create accountability by forming a dedicated 'Carbon Neutral Working Group'**

- **Have a cross-company working group that targets emissions across the telco**

- **Proactively identify and manage human right risks of high severity**

Appendix

#1 Methodology

#2 Acknowledgments

Methodology

Asia-Pacific telco ESG leaders is an annual research report by twimbit.

The telcos have been ranked using an in-house ESG ratings framework developed after discussions with leading industry experts, review of existing ESG literature, reports on major industry participants, industry sources, and twimbit analysis. This research was conducted in Q2 2022.

Steps:

1. **Shortlisted** 80 network service operators across the Asia-Pacific region by revenue

2. **Developed informed perspectives** on ESG through company reports, published anecdotes, contemporary literature and press releases

3. **Rated and shortlisted** top 10 telcos by screening on the twimbit ESG framework

twimbit

Methodology

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twimbit

Acknowledgments

This report was informed by contributions from people around the world, to whom we owe our sincere thanks.

Our sustainability framework was in part inspired by existing work from experts in the field, to whom we express gratitude.

Sustainability research:

twimbit

Note from the analyst

This report has been primarily adapted from publicly declared ESG practices of Asian telcos as of the date of writing. The data for the framework was gathered using annual reports, ESG declarations, company website, and other trustworthy sources such as industry bodies.

For detailed methodology please check appendix.

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Devender Singh Pathania
Analyst, twimbit research

twimbit

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reachus@twimbit.com