Digital Inclusion Benchmark

Methodology report

April 2020

World Benchmarking Alliance

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World Benchmarking Alliance

Executive summary

Digital technology can be a powerful enabler of the United Nations' Sustainable Development Goals (SDGs). However, divides around access to technology, digital skills, inclusive technology development and exposure to online risks and harms persist around the world, slowing the potential to achieve the SDGs. Companies, while varied in their approach and levels of commitment, are evolving rapidly in how they view information and communications technologies (ICTs) as a tool for sustainable development. Acting as a global accountability mechanism, publicly available benchmarks are a vital first step towards shedding light on the reality of corporate impact in this area.

Although progress is being made, those on low incomes, the disabled, ethnic minorities, people in developing countries, rural communities and other marginalised groups are on an unequal footing when it comes to digital inclusion. Almost half of the world's population is offline, and billions do not own a mobile phone. The vast majority of the ICT ecosystem is centred in two countries, the United States and China, with developing countries, other than China, particularly excluded. Adoption of new technologies, such as 5G, the internet of things and artificial intelligence, is occurring much faster in developed versus developing countries.

During global consultations leading to the establishment of the World Benchmarking Alliance (WBA), companies in the digital system were highlighted as among the most influential for achieving the SDGs.

The Digital Inclusion Benchmark (DIB) is part of WBA's wider effort to measure and rank the 2,000 most influential keystone companies on how they contribute to the SDGs across seven critical systems transformations.

This report sets out the DIB methodology. It outlines 16 indicators to examine and assess companies' policies, processes, performance and disclosure across the breadth of the digital system, from hardware to software and telecommunication services to platforms. Critical digital inclusion themes covered by the benchmark include access, skills, use and innovation.

The UN's 2030 Agenda for Sustainable Development, which presents the 17 SDGs and their 169 associated targets, was adopted by 193 countries in September 2015 to serve as a comprehensive blueprint for global societal transformation. In addition to governments and civil society, the 2030 Agenda envisions a significant role for business. Consequently, a number of platforms and mechanisms have been established to facilitate the private sector's engagement in the SDGs. At the same time, thousands of companies have pledged their support to the 2030 Agenda by way of concrete projects – many of them in the digital system. However, a systematic approach to track companies' efforts to drive achievement of the SDGs via digital inclusion is missing. WBA seeks to address this gap by building on a wide range of existing standards and frameworks.The DIB methodology is publicly available and free for all to use.

"This report sets out the DIB methodology. It outlines 16 indicators to examine and assess companies' policies, processes, performance and disclosure across the breadth of the digital system, from hardware to software and telecommunication services to platforms."

In this way, digital companies not included in the benchmark will also be able to assess their own performance levels. Likewise, external stakeholders may do so, either in partnership with the companies they assess or independently.

Towards the end of 2020, the first DIB results and ranking will be published. These will highlight best practices among the digital systems' 100 most influential companies to inspire wider adoption. This kind of peer-to-peer learning opportunity has the potential to fast track digital inclusion efforts across the industry. The benchmark will also highlight where companies can do more or partner with others. Additionally, the DIB will act as a roadmap for the industry, guiding new and more nuanced dialogues to generate more systemic accountability and pioneer change within the digital sector. Finally, the DIB will empower stakeholders, including those beyond the digital sphere such as investors and policymakers, with the necessary data and insight to take action and encourage sustainable business practices more broadly.

What is the Digital Inclusion Benchmark?

The Digital Inclusion Benchmark (DIB) tracks how companies are helping to advance a more inclusive digital economy and society. Company commitments, disclosure and performance will be evaluated under four measurement areas: improving access, enhancing skills, building trust to foster beneficial use, and innovating openly, sustainably and ethically.

The DIB will be free and publicly available, published annually and shared widely with government, investor and civil society stakeholders worldwide, including 128 WBA allies representing USD 6.3 trillion assets under management. During its first year, the benchmark will assess 100 of the world's most influential digital technology companies, such as online platforms, network providers and equipment manufacturers. The benchmark scope will increase to 200 companies by 2023, to include all digital technology companies that are part of the SDG2000 – WBA's list of the 2,000 most influential companies for the SDGs.

The DIB is novel, but it also brings recognition to existing private sector initiatives around digital inclusion. Through their business operations, policy advocacy and corporate outreach, many companies are already making commitments and taking action to improve access for underserved groups, support digital skills development, improve school connectivity, practise open innovation, share big data for sustainable development, contribute to economic value added in their markets of operation and more.

What is the Digital Inclusion Benchmark?

The benchmark also highlights the need for companies to step up on data protection, cybersecurity, child online protection as well as ethical and inclusive research and development – issues that are widely recognised as being key for a positive transformation of the digital system such that it accelerates the achievement of the SDGs.

The coronavirus pandemic has underscored more than ever the power and potential of digital technologies for social good. Where it is available, broadband connectivity has helped keep economies afloat in the face of quarantine and social distancing measures, by allowing part of the labour force to continue working remotely and students to continue their learning online. In exemplary cases, digital technology is literally saving lives. For example, telemedicine is allowing those who are isolated to access advice from healthcare workers while 3D printing shows promise as a speedy solution to the shortage of medical ventilators. Finally, the internet has allowed us to maintain virtual but nevertheless deeply human connections, to share our grief, our collective uncertainty and our hopes for solidarity.

Unfortunately, a large part of the world is still excluded from the digital economy and its benefits. Digital development is highly uneven. Only half of the global population is estimated to be using the internet.[1] Not all countries and regions can easily harness big data, with Africa and Latin America, for instance, accounting for only 5% of the world's data centres.[2] Least developed countries are behind on even basic digital skills, with less than a quarter of their people reported to have such skills compared to more than three quarters in developed countries.[3]

These digital divides that exist between and within countries, further deepen economic inequalities and threaten progress on the SDGs.

The coronavirus pandemic has also brought to the fore the potential dangers arising from the misuse of digital technologies. Online falsehoods spread through social media are especially life-threatening during an outbreak. The use of non-anonymised location data for contact tracing requires a careful balance between privacy risks and better data for epidemic control. Meanwhile, the effect of the gig and sharing economy on social protections such as unemployment benefits, sick leave and health insurance has come under the spotlight.

The world is urgently in need of a trustworthy, secure and resilient digital system that leaves no one behind. Governments, civil society and investors are coming to recognise that digital technology companies, with their know-how and capital, have both the capability and the moral duty to contribute towards this positive transformation.

Some digital technology companies have already stepped up and showed care for their own workers, suppliers, customers, communities and global society, both before and during this health and economic crisis. Yet more needs to be done to improve access to digital technologies, to enhance digital skills, to build trust to foster beneficial use of digital technologies and to innovate openly, sustainably and ethically, especially within the poorest regions and countries.

What is the Digital Inclusion Benchmark?

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"The world is urgently in need of a trustworthy, secure and resilient digital system that leaves no one behind. Governments, civil society and investors are coming to recognise that digital technology companies, with their know-how and capital, have both the capability and the moral duty to contribute towards this positive transformation.."

The DIB represents an opportunity for companies to showcase their contributions to an inclusive digital economy and to look to each other's best practices in order to understand and improve on their own shortcomings. The benchmark also provides an avenue for the digital sector to form a global community of practice around digital inclusion and to coordinate and harmonise actions.

All companies are assessed based on information that is already public or can be made public. By engaging closely with the benchmarking process, companies are able to get a more accurate picture of their own performance with respect to their global peers and key competitors. Aside from gaining an opportunity to appeal results, companies who participate actively are also able to benefit from closer guidance on metrics and methodology, and WBA can closely consider their inputs in updating future iterations of the benchmark.

The next section discusses the companies that are to be benchmarked and how they were selected. The last section explains how companies are assessed and details the rationale and best practice expectations for each indicator.

What is the Digital Inclusion Benchmark?

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About World Benchmarking Alliance

The World Benchmarking Alliance (WBA) aims to incentivise and accelerate the private sector's efforts towards achieving the Sustainable Development Goals (SDGs) developed by the United Nations in 2015. WBA has set out to achieve this goal by developing a series of free, publicly available benchmarks that assess and compare companies' performance and business impact in alignment with the SDGs.

WBA is an independent organisation that is backed by an alliance of over 120 organisations. In 2019, WBA assessed 225 companies through three benchmarks: the Seafood Stewardship Index, the third iteration of the Corporate Human Rights Benchmark and the Climate and Energy Benchmark for the automotive industry. During 2020, WBA plans to assess hundreds more companies through the launch of additional benchmarks on Climate, Food and Agriculture, and Gender, alongside the Digital Inclusion Benchmark.

By 2023, WBA will have assessed the progress of 2,000 companies (the SDG2000) that have been identified as having the most influence and impact on the SDGs. The companies are publicly listed, privately held and state-owned. Each company is aligned with one or more of the seven systems transformations that WBA is using for its benchmarks: food and agriculture, circular, decarbonisation and energy, digital, financial, urban and social. Each of the 2,000 companies will be evaluated on the transformation(s) most relevant to them. However, WBA has also made a commitment to assess all 2,000 companies on the social transformation.

In addition to achieving scale, WBA is also developing spotlight benchmarks. Spotlight benchmarks focus on particularly important issues or industries, such as the Gender Benchmark that focuses on gender equality and women's empowerment, starting with the apparel sector. As with all of WBA's benchmarks, the methodologies and rankings will be made freely and publicly available.

FIGURE 1: **SEVEN SYSTEMS TRANSFORMATIONS**

Who are the companies to be benchmarked?

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KEYSTONE CRITERIA

WBA identified seven systems transformations that are needed to put society and the economy on a sustainable path: food and agriculture, circular, decarbonisation and energy, digital, financial, urban and a social transformation that underpins them all. These systems transformations offer a strategic framework for WBA to develop corporate benchmarks.

Companies that are most impactful within each transformation are considered keystone. This builds on the theory of keystone actors, which refers to organisations with disproportionate influence on the structure and function of the systems within which they operate.[4] These keystone companies will be catalysts for change and their actions will be vital for a wider, systemic transformation. Five principles have been established to identify keystone companies (Figure 2).

FIGURE 2: **THE WBA PRINCIPLES FOR KEYSTONE COMPANIES**

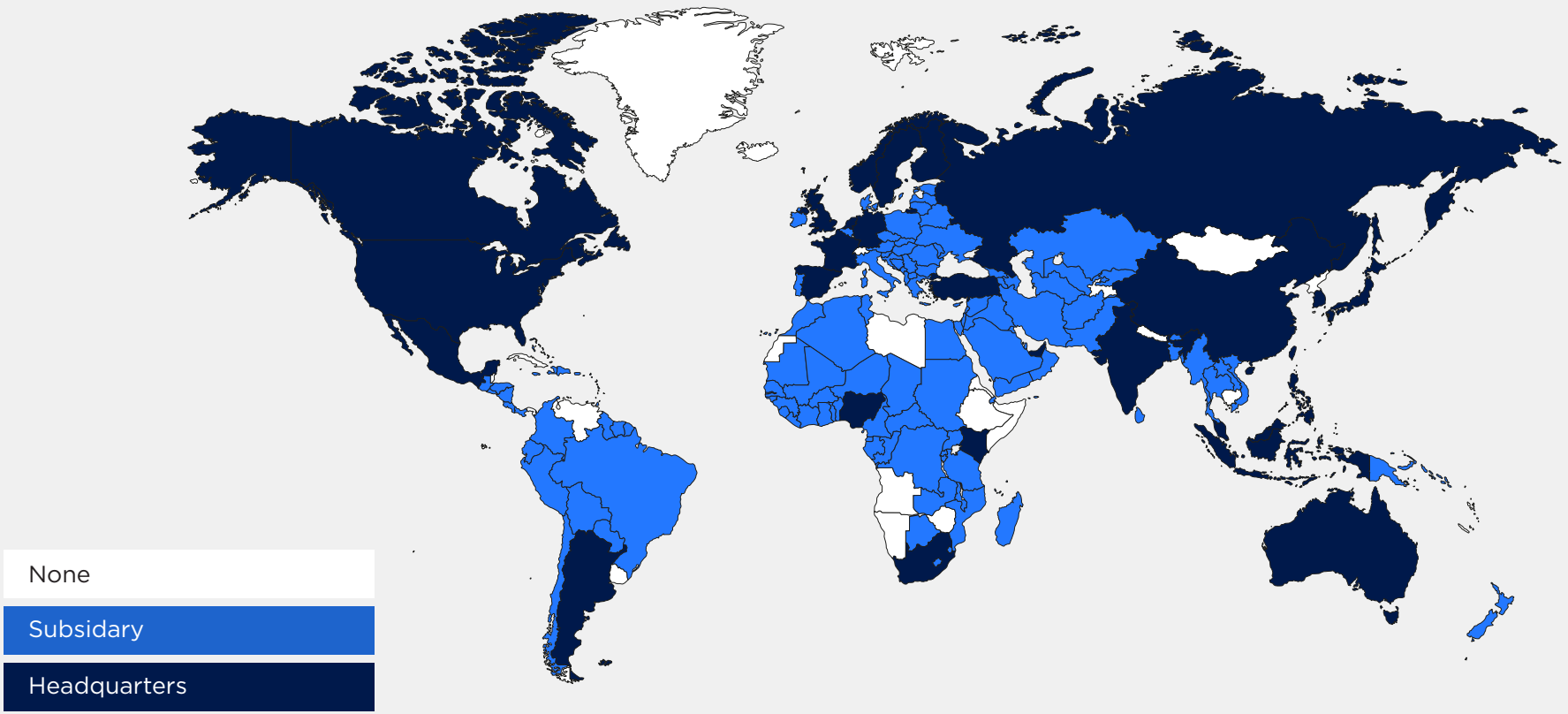
1. Companies that dominate global production or service revenues and volumes within a particular sector
2. Companies that control globally relevant segments of production and/or service provision
3. Companies that connect (eco)systems globally through subsidiaries and supply chains
4. Companies that influence global governance processes and institutions
5. Companies that have a global footprint, particularly significant in developing countries

Who are the companies to be benchmarked?

In order to ensure geographic diversity, the fifth principle was relaxed for some companies from the developing world. One hundred keystone companies were selected for the first DIB (the DIB100), consisting of public, private and partly state-owned enterprises. These include some of the biggest digital companies in the world, of which 39 are in the Fortune Global 500.[5] Billions of people use their products every day.

At the same time, there are a number of companies headquartered in developing regions. The reach of the DIB100 extends to almost the entire planet, either through corporate headquarters or subsidiary companies, supply chains and geographies where the products are bought and used (Figure 3).

FIGURE 3: **THE DIB100 REACH**



LAYERING DIGITAL COMPANIES BY INDUSTRY

Digital companies vary widely. Some manufacture equipment, some provide telecommunication services, some offer information technology (IT) or ICT-enabled services while others carry out two or more of these activities. Given the significant functional differences among digital companies, it is analytically important to classify them into key categories.

Digital companies are categorised in various ways depending on the classification source. The Sustainable Accounting Standards Board (SASB) sector and industry classification is used as a starting point.[6] More than four fifths of the DIB100 companies fall into the technology and communications sector category, which includes the following industries: electronic manufacturing services and original design manufacturing; hardware; internet media and services; semiconductors; software and IT services; and telecommunication services. There are other sectors with industries featuring digital companies: consumer goods (e-commerce); infrastructure (data centres); financials (digital finance); and services (digital media).

Companies are then 'layered' into three broad categories:

1. hardware, consisting of the manufacture of digital goods such as end-user devices, network equipment and semiconductors;
2. telecommunication services; and
3. IT services, consisting of software applications, data centres, cloud computing and platform services.

When companies provide diverse products, they are classified in the layer from which they derived the most revenues in the most recent accounting year. The relationship between the layers and industry classification along with the proportion of companies in each is shown in Figure 4.

FIGURE 4: **THE DIB100 BY LAYER AND INDUSTRY CLASSIFICATION**

Note: EMS & ODM = electronic manufacturing services and original design manufacturing

Who are the companies to be benchmarked?

The full list of companies included in the DIB100, layered by industry and including country headquarters, 2019 fiscal year revenue and 2018 fiscal year employees , is shown in the tables below.

TABLE 1: **LAYER ONE COMPANIES: HARDWARE**

Company	**Headquarters**	**Revenue FY2019** ($ million)	**Employees FY2018** (000s)
AMD	USA	6,731	10
Apple	USA	260,174	132
Broadcom	USA	22,597	15
Cisco	USA	51,904	74
Dell	USA	92,154	157
EchoStar	USA	1,886	2
Ericsson	Sweden	24,023	95
Foxconn	Taiwan, China	175,508†	863
HP	USA	58,756	55
Huawei	China	109,009†	188
Intel	USA	71,965	107
Lenovo	China	51,038†	57
Nokia	Finland	26,101	103
Nvidia	USA	10,918	13
Qualcomm	USA	24,273	35
Samsung	Korea (Rep.)	197,684	310
SK hynix	Korea (Rep.)	23,158	33
SpaceX	USA	...	...
Texas Instruments	USA	14,383	30
TSMC	Taiwan, China	34,594	49
Western Digital	USA	16,569	72
Xiaomi	China	26,438†	17
ZTE	China	13,132	68

Note: ... = not available. † = FY2018. Sourced from company reports.

TABLE 2: **LAYER TWO COMPANIES: TELECOMMUNICATION SERVICES (1)**

Company	Headquarters	Revenue FY2019 ($ million)	Employees FY2018 (000s)
América Móvil	Mexico	52,303	189
AT&T	USA	181,193	268
Axiata	Malaysia	5,938	12
Bharti Airtel	India	11,812	20
CenturyLink	USA	22,401	45
China Mobile	China	107,947	459
China Satellite	China	407	...
China Telecom	China	54,375	281
China Unicom	China	42,043	261
Comcast	USA	108,942	184
Deutsche Telekom	Germany	90,152	216
Digicel	Jamaica	...	...
Etisalat	UAE	14,210	...
GTT	USA	1,728	3
Jio	India	5,679	...
KDDI	Japan	46,009	42
Millicom	Luxembourg	4,336	21
MTN	South Africa	10,483	19
MTS	Russian Federation	7,354	65
NTT	Japan	107,587	303

Note: ... = not available. † = FY2018. Sourced from company reports.

TABLE 2: **LAYER TWO COMPANIES: TELECOMMUNICATION SERVICES (2)**

Company	**Headquarters**	**Revenue FY2019** ($ million)	**Employees FY2018** (000s)
Ooredoo	Qatar	8,219	16
Orange	France	47,284	136
PCCW	Hong Kong	4,788	24
PLDT	Philippines	3,266	17
Rogers	Canada	11,360	26
Safaricom	Kenya	2,471	5
Singtel	Singapore	12,879	24
SK Telecom	Korea (Rep.)	15,224	40
SoftBank	Japan	86,961	77
Tata Communications	India	2,416	11
Telecom Italia	Italy	20,121	58
Telefonica	Spain	54,207	122
Telenor	Norway	12,947	21
Telia	Sweden	9,089	24
Telkom Indonesia	Indonesia	9,187†	24
Telstra	Australia	19,310	35
Türk Telekom	Turkey	4,170	33
Veon	Netherlands	8,863	46
Verizon	USA	131,868	145
Vodafone	UK	58,258	92

Note: ... = not available. † = FY2018. Sourced from company reports.

TABLE 3: **LAYER THREE COMPANIES: IT SERVICES (1)**

Company	Headquarters	Revenue FY2019 ($ million)	Employees FY2018 (000s)
Adobe	USA	11,171	21
Airbnb	USA	...	3
Akamai	USA	2,894	8
Alibaba	China	56,960	102
Alphabet	USA	161,857	99
Amazon	USA	280,522	648
Baidu	China	15,545	42
Booking Holdings	USA	15,066	25
ByteDance	China	...	...
Citrix	USA	3,011	8
Cloudflare	USA	287	1
Digital Realty Trust	USA	3,209	2
eBay	USA	10,800	14
Equinix	USA	5,562	8
Facebook	USA	70,697	36
Grab	Singapore	...	...
HCL	India	8,836	138
IBM	USA	77,147	351
Infosys	India	11,799	228
JD.com	China	83,488	179

Note: ... = not available. † = FY2018. Sourced from company reports.

TABLE 3: **LAYER THREE COMPANIES: IT SERVICES (2)**

Company	**Headquarters**	**Revenue FY2019** ($ million)	**Employees FY2018** (000s)
Jumia	Nigeria	180	5
Meituan Dianping	China	14,114	58
MercadoLibre	Argentina	2,296	7
Microsoft	USA	125,843	131
Naspers	South Africa	3,291	20
NetEase	China	8,573	23
Netflix	USA	20,156	7
Ola	India	...	...
Oracle	USA	39,506	136
PayPal	USA	17,772	22
Salesforce	USA	17,098	35
SAP	Germany	30,845	96
Sina	China	2,163	9
Spotify	Sweden	7,572	4
Tencent	China	54,600	54
Twitter	USA	3,459	4
Uber	USA	14,147	22

Note: ... = not available. † = FY2018. Sourced from company reports.

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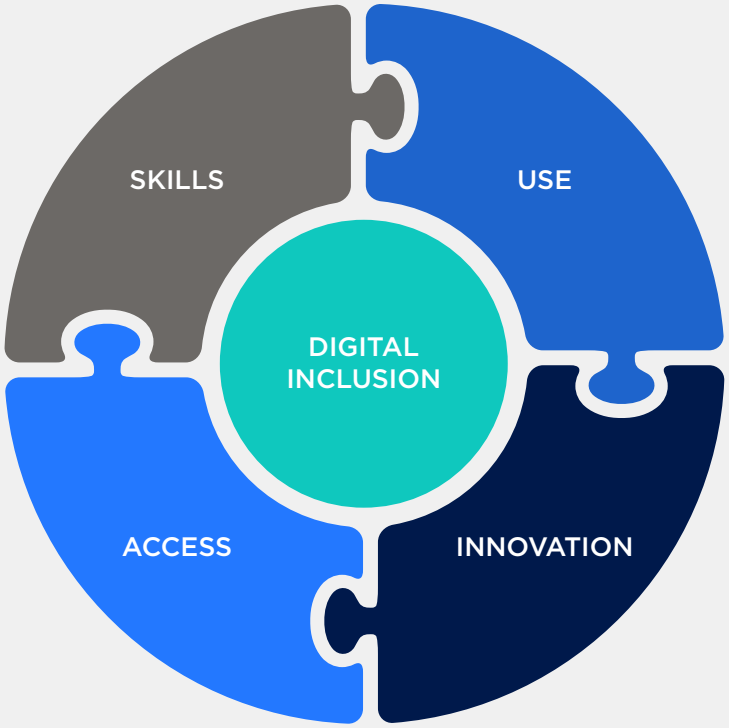
MEASUREMENT AREAS

The DIB evaluates company performance across four measurement areas – access, skills, use and innovation – that are inspired by the SDGs and informed by research, stakeholder engagement and related indexes. The measurement areas were introduced in the WBA scoping report for the DIB.[7]

FIGURE 5: **DIGITAL INCLUSION MEASUREMENT AREAS**



The measurement areas can be envisioned as a set of interrelated actions for achieving digital inclusion (Figure 5). Each faces challenges where stakeholders expect action and where digital companies can have significant impact. The measurement areas are linked in the way they support sustainable digital inclusion. Access is the starting point; without access people cannot use digital technologies. Skills are then needed to benefit from this access. The extent of use is impacted by many factors, trust being one of the most critical. Advanced skills and use help to trigger innovation, leading to new ways of applying digital technology. Sustainable digital inclusion refers to a society with a high level of access to digital products; with the skills to use digital products safely for personal, social and economic gain; with the opportunities to create innovative digital products; with all these activities carried out in an ethical and sustainable manner.

How are companies assessed?

Companies support sustainable digital inclusion through their business activities such as manufacturing digital products, connecting users and providing services. Given wide digital inequalities, digital companies need to go beyond their regular operations to foster an inclusive digital society. This is particularly relevant for the first two measurement areas, access and skills, where digital companies tend to carry out supportive activities as part of their social responsibility. The latter two measurement areas are more closely related to company internal policies, processes and practices regarding security and innovation.

The measurement areas are populated by four indicators each or 16 in total. The design of the indicators was based on several research elements.

- **Stakeholders' expectations.** A draft methodology was prepared to solicit input from different stakeholders, and several roundtables were held to discuss the methodology.

- **Global focus.** Topics related to digital inclusion discussed at a high level by inter-governmental organisations (e.g. UN, ITU, OECD, G20) were identified to strengthen the relevance of the indicators.

- **Company reporting.** Financial, corporate social responsibility and sustainability reports from digital companies were reviewed to identify policies, practices and initiatives related to digital inclusion. This was particularly useful for informing the criteria to include within each indicator by ensuring the relevant information was widely available in public reports. This will reduce the reporting burden on companies while at the same time ensuring consistency for digital inclusion reporting and enhancing transparency.

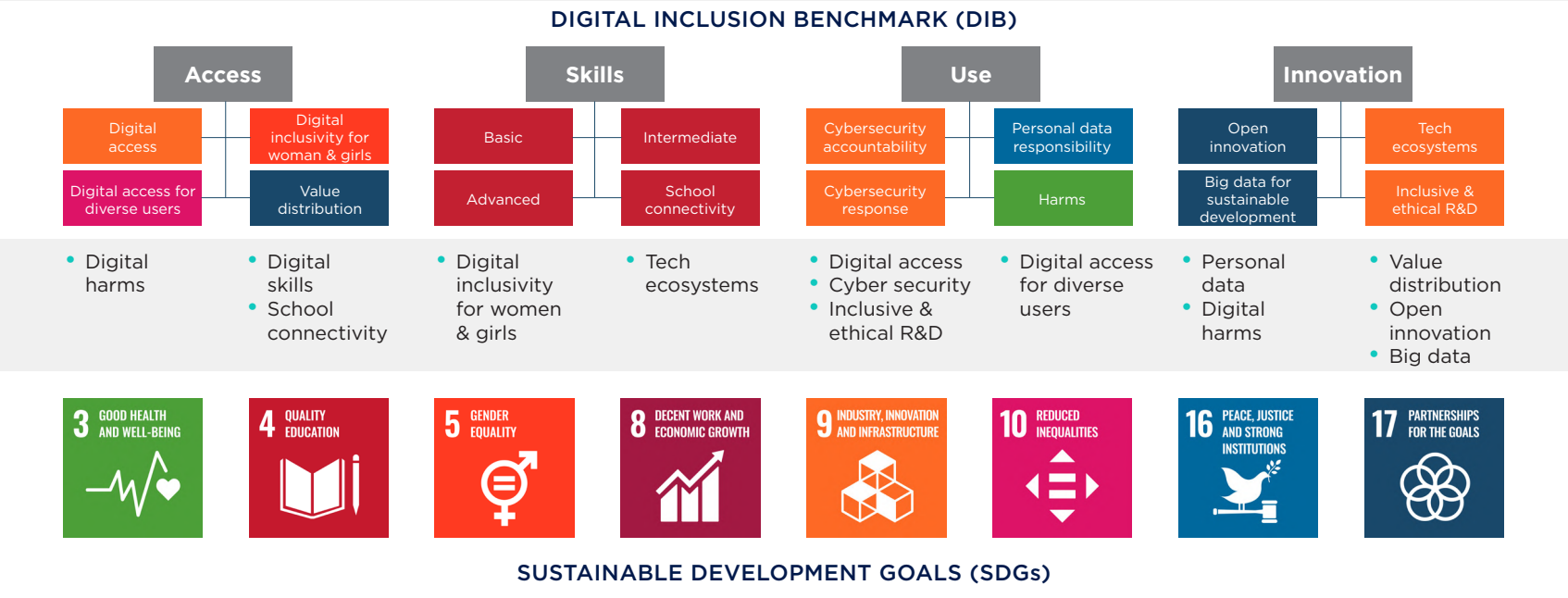
- **Normative standards.** International sustainability reporting frameworks such as GRI and SASB were reviewed for relevant elements to inform the indicators. For instance, both had disclosures relating to data privacy and security. SASB research briefs were consulted regarding sustainability issues for the industries within the technology and communications sector.[8] Similarly, GRI's materiality assessment for the technology sector was reviewed.[9]

- **Existing benchmarks.** Relevant digital indexes were reviewed for content and frameworks as a point of contrast for the DIB. Several digital companies themselves are involved with country-level benchmarks. These include the Inclusive Internet Index commissioned by Facebook[10], the Cisco Digital Readiness Index[11] and Huawei's ICT Sustainable Development Goals Benchmark.[12] Extensive consultations were also held with other WBA researchers working on company indexes to draw on their expertise, specifically the contrast between country and corporate benchmarks.

The DIB indicators were also designed with reference to the 17 SDGs that form the principal framework endorsed by the international community for tracking progress to 2030. Digital technologies play a vital role in achieving the SDGs.[13] There is no specific digital SDG given the cross-cutting impact of digital technologies.

The DIB indicators are all linked to specific SDGs in various ways. Sometimes there is a clear similarity to SDG *tracking indicators* (e.g. '4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills'). At other times they align strongly with SDG *targets* (e.g. '5.B Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women'). Some DIB indicators are the *digital manifestations* of SDG targets. For instance internet addiction is similar to alcohol or drug addiction (e.g. '3.5 Strengthen the prevention and treatment of substance abuse'). Other DIB indicators *help accelerate* achievement of specific SDGs. While most of the DIB indicators cut across SDGs, the goals these indicators have the most impact on are illustrated below (see also Annex 2).

FIGURE 6: **RELATIONSHIP BETWEEN THE DIB AND SDGs**



How are companies assessed?

In order to accurately assess companies' progress towards digital inclusion, the DIB indicators have been formulated to go beyond simply measuring corporate policies and processes to examine company performance and outcomes. The DIB, therefore, considers the extent to which companies put their commitments, policies and strategies into practice. The benchmark provides a comparable framework for companies to standardise their existing reporting on digital inclusion. It also offers a metrics-driven yardstick for companies to compare their performance over time. The benchmark also supports a transversal view of indicator elements for specific topics. For example, while there is an indicator covering digital inclusivity for women and girls, gender equality, specifically in the form of women empowerment is also relevant across several other indicators. The transversal view allows for all women empowerment elements such as the proportion of a company's technical staff that is women or the proportion of women trained through digital skills initiatives.

"...The benchmark provides a comparable framework for companies to standardise their existing reporting on digital inclusion. It also offers a metrics-driven yardstick for companies to compare their performance over time."

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DIB INDICATORS

In the details that follow for the four measurement areas, the rationale behind the indicators is explained. Each indicator consists of a number of elements that will be used to score companies. The elements are reflected in the best practices identified for the indicator.

ACCESS (A)

This measurement area looks at the extent to which a company helps to make digital technologies widely available, affordable and accessible. While some companies contribute to enhancing access through their business practices, demonstration of support for this indicator goes beyond that. The unconnected are typically lower income and live in areas where the potential revenues from digital provision are often lower than the cost of providing it.

A.1 The company contributes to digital technology access

Rationale

SDG target 9.C calls for universal and affordable access to the internet. Yet the world remains far from achieving this target. The International Telecommunication Union (ITU) estimates that 46% of the world's population – around 3.5 billion people – was still offline in 2019.[14] Most are in the developing world while those offline in the developed world are mainly vulnerable groups such ethnic minorities, the disabled and seniors.

Inability to access digital technologies is exacerbating inequalities as more activities move online. This is vividly demonstrated by the impact of the coronavirus pandemic, with schools closing in many countries and moving to online learning, leaving those without digital access behind.[15]

The fourth principle of the Contract for the Web, endorsed by several DIB companies, specifically calls on companies to make the internet 'affordable and accessible to everyone so that no one is excluded from using and shaping the web'.[16]

Best practices

Company best practices involve measurable actions to help the unconnected get and stay connected. For telecommunication service companies, this could involve offering reduced connectivity prices for those with low incomes. Similarly, hardware companies might provide subsidised devices, enabling disadvantaged people to connect. Participation in open, vendor-neutral initiatives to lower deployment costs in remote and rural areas is another example. These examples are illustrative, and companies may have other ways they support the goal of this indicator.

A.2 The company supports digital inclusivity for women and girls

Rationale

SDG target 5.B states: 'Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.' The ITU reported that in 2019, the proportion of women using the internet globally was 48%, compared to 58% of men, a gender gap of 17% in relative terms when weighted by the number of countries rather than population.[17] Alarmingly, the ITU found that the gender gap is growing rather than shrinking.

In addition to the digital technology gender gap, women and girls face other distinct challenges. The creator of the World Wide Web, Sir Tim Berners-Lee, notes a dangerous trend: the web is not working for women and girls. Apart from the digital access gap, over half of young women have experienced violence online and over three quarters believe the problem is getting worse. There is also evidence that artificial intelligence is deepening gender inequalities.[18]

Digital skills are another area where women and girls confront obstacles. Gender gaps exist at all levels of digital skills and get worse the higher up one goes. EQUALS, a partnership of governments and organisations dedicated to promoting gender balance in the technology sector, highlights the inequalities:

"Women are 25 percent less likely than men to know how to leverage ICT for basic purposes, such as using simple arithmetic formulas in a spreadsheet ... UNESCO estimates that men are around four times more likely than women to have advanced ICT skills such as the ability to programme computers ... Recruiters for technology companies in Silicon Valley estimate that the applicant pool for technical jobs in artificial intelligence (AI) and data science is often less than 1 percent female."[19]

Digital companies have a clear role to play in reversing the gender digital divide to accelerate the achievement of SDG target 5.B.

Best practices

This indicator tracks digital technology support involving a financial or other resource commitment. This can include a range of activities whose primary focus is enhancing digital opportunities for women and girls. Providing digital connectivity to girls' schools, supporting digital training across a range of skill levels and providing digital technologies to improve livelihoods are some examples.

A.3 The company facilitates digital access for diverse users

Rationale

The SDGs call for a reduction in inequalities and here, target 10.2 is particularly relevant: 'By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.' The ability of diverse groups of users to access digital products is critical for inclusion. Digital companies can play a major role in helping to achieve this target, but their technologies must be easily accessible by all.

The problem is particularly acute for the disabled. In the United Kingdom, the proportion of internet users in 2019 was lower for adults who were disabled (78%) compared with those who were not disabled (95%), and half of lapsed internet users were disabled.[20] The situation is worse in developing countries where digital support for the disabled is much lower. One billion people, or 15% of the world's population, experience some form of disability, and disability prevalence is higher in developing countries.[21]

Digital technologies improve the lives of the disabled. The technologies enable remote working for those with limited mobility. Online communication tools can be helpful because they allow the user not to be identified as disabled. Those with hearing impairments can easily communicate with each other using text-based digital applications,[22] and smartphone apps can read out screen text for the visually impaired.[23]

Accessibility standards for digital technology provide a road map for how companies can certify that their products are suitable for marginalised sections of society. For instance, the World Wide Web Consortium's Web Content Accessibility Guidelines provide guidelines for making content accessible for those with disabilities.[24]

Companies should strive to ensure that no one is digitally excluded for economic, social or physical reasons.

Best practices

A leading company makes its products accessible for diverse users. It does this by adhering to applicable accessibility standards to develop products with features that provide equal functional experience for all. It strives to understand the needs of vulnerable groups and involve them in product design by consulting these groups working within the company as well as product users and accessibility advocacy groups. The company partners with initiatives focused on accessibility.

A.4 The company discloses its direct economic contribution

Rationale

Companies create economic value and distribute it to their stakeholders: employees, governments, suppliers and providers of capital. Many digital companies are multinational enterprises with regional or international operations. A number of the companies offer goods or services used across the globe. Some digital businesses are able to provide digital services remotely to customers around the world using little or no infrastructure of their own, yet they gain substantial value from interaction with users.

However, the economic value distributed is imbalanced, with consequences for the long-term sustainability of markets. Government stakeholders, in particular, have been impacted by imbalances between where profits are made and taxes are paid, sometimes due to complex and opaque tax structures used by some companies. This threatens governments' ability to fund infrastructure, schools, hospitals and other national and local priorities.[25] Taxes play a vital role in achieving the SDGs, with target 17.1 noting: 'Strengthen domestic resource mobilisation, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.' The impact of digitalisation on taxes is a high-level concern and being examined within the context of the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting.[26]

Digital companies need to be transparent about their global economic value generation and distribution. Inaction strengthens reasons to be critical of digital companies and harms their reputations. The current situation is untenable as it weakens availability of funding needed for sustainable development in many developing countries. Without vibrant and growing economies across the globe, digital companies might find it increasingly challenging to sell their goods and services.

Best practices

A company that is transparent about its business activities discloses the necessary information across global operations where it has a customer base in order to assess value creation for each stakeholder. International guidelines for reporting this type of information are relevant.[27] Companies without a significant overseas customer base could report this information on a national basis (e.g. by state or province).

SKILLS (S)

The availability and level of digital skills have impacts with different outcomes. A lack of basic digital skills is emerging as the main barrier to internet use as access becomes more widespread and usage more affordable. Intermediate digital skills, such as the ability to use word processing and spreadsheet applications, are increasingly important competencies for many jobs. Technical skills are needed for ICT specialist professions.

Most of the digitally unskilled are from disadvantaged groups such as women and girls, people with limited incomes and those that are older or disabled. Hence, particular effort is needed to boost training for these groups.

SDG target 4.4 states: 'Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.' Three of the indicators in this measurement area are directly related to the tracking indicator for this target: '4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills.'

S.1 The company supports basic digital skills development

Rationale

Basic digital skills refer to the proficiencies needed to carry out fundamental digital tasks such as using a computer keyboard or smartphone touchscreen, managing privacy settings, sending email, searching the web or filling out an online form. These skills allow users to communicate with others and access online commerce, public and financial services.[28]

Without basic digital skills, many are not able to use digital technologies. This predominantly impacts women, illiterate, less educated, elderly and disabled people.

The lack of basic digital skills among marginalised groups excludes large markets of potential consumers for digital companies. Thus, it is in companies' interest to support programmes that advance the basic digital skills of marginalised groups.[29]

Best practices

This indicator captures support for basic digital skills programmes targeting marginalised groups such as those with low literacy and income, women and children and the disabled. Examples include providing resources for basic digital skills programmes such as funding or supply of volunteer staff. It could also involve the development of local content used for teaching basic digital skills. Evidence of impact of a company's support conducted by an independent researcher is also an example of best practice.

S.2 The company supports intermediate digital skills development

Rationale

Having intermediate digital skills opens up different opportunities. Users are better able to mitigate digital risks and harms and to create online content. Intermediate digital skills also impart word processing and spreadsheet competencies used in offices. Intermediate digital skills include web design, desktop publishing and digital marketing that prepare students for jobs in those areas or help entrepreneurs use these tools to publicise and grow their business.

Eurostat provides a framework for defining intermediate digital skills.[30] These skills include having above basic competency in four areas: information, communication, problem solving and software skills. For example, this would include the ability to copy and move files; save files to the cloud; send and receive email; upload self-created content; install apps; use internet banking; create presentations; and use spreadsheets.

Individuals develop intermediate digital skills using products produced by digital companies. Hence, it is in the interests of digital companies to support training in this area.

Best practices

This indicator captures support for intermediate digital skills programmes targeting training on technologies to improve livelihoods. Examples include providing resources for intermediate digital skills programmes such as funding or supply of volunteer staff. It could also involve the development of local content used for teaching intermediate digital skills. Evidence of impact of a company's intermediate digital skills support conducted by an independent researcher is also an example of best practice.

S.3 The company supports technical digital skills development

Rationale

Technical digital skills are those needed to become a specialist in digital professions such as software programming, data analysis, network management and hardware design. There is a large technological skills gap across gender, income and ethnicity and between developed and developing economies. No developing country is in the top 25 of software developers per capita.[31] Artificial intelligence as well as other technical expertise is concentrated in a handful of countries, and women and ethnic groups are largely underrepresented in digital industries.[32]

There is an urgent need to develop technical digital skills around the world. Increasing digitalisation is driving the demand for workers with ICT specialist skills. The OECD finds that skills shortages are highest for computers and electronics occupations.[33] However, there is a huge mismatch between labour market needs and skills development, a cause of concern for digital businesses. Further, women and other disadvantaged groups are underrepresented in technical degree programmes. In the United States, women earn just 18% of all bachelor's degrees in computing, and 75% of those are white or Asian compared to 25% for blacks and Latinos.[34]

More needs to be done to improve technical digital skills.

Digital companies often lament that employees with requisite skills are not available, but they are also in a position to change this. If the educational system is failing, companies have a role to play in taking concrete action to safeguard their sustainability.

Best practices

A leading company supports technical digital skills development through its own open training academies and apprenticeships or in partnership with formal educational institutions and organisations that teach technical skills. A company can also support other channels such as boot camps and competitions (e.g. hackathons).

S.4 The company supports school connectivity

Rationale

While the other indicators in this measurement area refer to training in digital technologies, this indicator has a different focus. The emphasis is on using digital technologies in schools for learning other subjects. This is related to SDG target 4.A which states: 'Build and upgrade education facilities ... and effective learning environments for all.' The SDG tracking indicator for this target is directly related to the DIB indicator: '4.A.1 Proportion of schools with access to ... (b) the internet for pedagogical purposes; (c) computers for pedagogical purposes...'

School connectivity supports learning through the ability to deliver a wealth of online multimedia educational content to areas that lack such resources. Digital devices are playing a key role in enabling learning. One example is the use of tablets for downloading textbooks, which can be costly to print. Computer labs offer an opportunity to learn big-screen office applications that are needed for many jobs. School makerspaces with 3D printers, virtual reality headsets and laser cutters provide hands-on experience for future designers, tinkerers and innovators.

Comprehensive information on the status of global school connectivity is lacking, but data available for certain regions paints a sobering picture.[35] In Latin America and the Caribbean, one third of secondary schools and around two thirds of primary schools were unconnected to the internet in 2016; in South Asia, more than half of secondary schools were unconnected; and in sub-Saharan Africa, three quarters of secondary schools were unconnected.[36] Even in countries where school connectivity is high, there are pockets of depravation or equipment is obsolete and not suitable for 21st-century classrooms.[37]

Digital companies play a critical role in improving school connectivity, especially where governments are unable to do so because of a lack of resources.

Best practices

A company can support school connectivity in various ways, for example by making internet connectivity available, enhancing it directly through corporate responsibility initiatives or indirectly as part of a partnership. A company can also donate digital devices such as computers, tablets and servers or services such as cloud storage. Companies can share relevant data, for instance to help school connectivity mapping projects.

USE (U)

While many factors affect use of digital technologies, trust is one of the most critical. Users need to be confident that digital technologies are safe and secure.

Data security and customer privacy are considered highly material for digital companies.[38] However, much work needs to be done. According to a survey of internet users in 25 countries, one in four say they do not trust the internet, and three quarters use the internet more selectively because they do not trust it.[39]

This measurement area covers company practices that ensure the safety of their information assets; safeguard personal data; respond to security threats; and protect users from digital risks and harms.

U.1 The company assigns accountability for cybersecurity at a senior level

Rationale

Cybersecurity threats discourage internet use as they give rise to fears about online safety. Statistics reveal the extent of the challenge to overcome these fears. In 2019, more than 15 billion records were exposed because of more than 7,000 data breaches.[40]

Digital companies are at particular risk as the digital industry is one of the most targeted by cyber criminals.[41] Yet often companies do not assign sufficient high-level attention to cybersecurity. The United States Security and Exchange Commission requires public companies to disclose cybersecurity risks and incidents.[42] Hence, companies need to assure stakeholders that they take cybersecurity seriously and assign high-level accountability and resources.

Senior oversight can serve to indicate the appropriate provision of accountability, managerial capacity and company resources dedicated to prevention, mitigation and resolution of cybersecurity risks.[43]

Best practices

A leading company assigns high-level leadership of and accountability for cybersecurity. Steps may include clearly identifying cybersecurity as a senior-level concern through creation of a dedicated board committee. The presence of a chief information security officer is another example of best practice.

U.2 The company monitors, remedies and reports cybersecurity incidents

Rationale

Globally, cybersecurity incidents are projected to cost $5.2 trillion over the next five years.[44] In 2018, the average time to identify a data breach for an American company was 196 days.[45] If companies are proactive about cybersecurity, digital inclusion will improve because users will feel safer using digital technologies.

ISO/IEC 27001 provides a standard for an information security management system, identifying practices companies should adopt to identify, analyse and address risks.[46] Almost 32,000 companies were ISO/IEC 27001 certified in 2018, the fourth highest level of certification among all ISO standards.[47]

Rapid response to information security incidents is essential. Countries and companies have created special units (i.e. computer emergency response team; computer security incident response team) to protect, detect and respond to cybersecurity incidents. As cyber threats often cross borders, global cooperation is essential. With over 500 members, the Forum of Incident Response and Security Teams fosters 'cooperation and coordination in incident prevention, to stimulate rapid reaction to incidents, and to promote information sharing among members and the community at large'.[48]

SDG target 16.10 calls for 'public access to information'. In that regard, it is important for stakeholders to know about cybersecurity incidents to better understand risk and how companies are dealing with it. With respect to protection of customer data, both the GRI[49] and SASB[50] global reporting frameworks recommend that companies disclose the number of data breaches they experience.

Best practices

This indicator evaluates various measures to combat security risks. One measure is valid ISO/IEC 27001 certification to reflect adherence to a formal framework for protecting information assets. Another measure is the existence of a computer emergency response team and evidence of global cooperation in this area. A third measure regards transparency such as the extent to which a company discloses information to the public about cybersecurity incidents, including the number that have taken place.

U.3 The company applies responsible practices for personal data

Rationale

Companies routinely collect personal information on their clients and users. This data is used for various purposes such as client contact, analytical insights and to target paid advertisements. As custodians of personal data, companies play a critical role in ensuring data is safe and not used for nefarious purposes. Protection of personal data is a fundamental right linking to SDG target 16.10: 'Protect fundamental freedoms.'

There continue to be privacy breaches. In the two years since the European Union's General Data Protection Regulation came into force in May 2018, there have been over 160,000 data breach notifications.[51] In the United States between March 2018 and March 2020, there were almost 600 data breaches of personal health information, affecting 47 million individuals.[52] India's digital identification system has been subject to repeated data leaks.[53] A survey of 1,200 executives from nine countries with responsibility for data security reported that 60% had experienced a data breach, 30% of which were in the last year; 86% of all respondents acknowledged they are vulnerable to data security threats.[54]

After years of neglect, local, national and regional governments are adopting stricter data privacy regulations that are beginning to address user concerns. What is surprising about some digital companies is that while they are bound to abide by these regulations in the jurisdictions in which they apply, the companies adopt less stringent practices elsewhere. The 2019 Ranking Digital Rights (RDR) Index found that companies that led in the privacy category went beyond minimum legal requirements.[55]

Among the many concerns surrounding personal data, an important one is how digital companies handle data use in their supply chains, such as sharing with third parties including governments. A second is how users can obtain information regarding the personal data companies have about them and, if they want, download that data (as well as all the content they have generated) in a portable and interoperable data set.[56]

Digital companies need to improve in this area. In a global survey, three quarters of internet users stated that digital companies are part of the problem when it comes to concerns about data privacy, and companies ranked second only to cyber criminals regarding the source of users' concerns.[57] The 2019 RDR Index found that most of the two dozen companies evaluated failed to meet minimum standards of transparency about how they handle and secure users' data.

Best practices

This indicator is based on the methodology developed for the RDR Index. A leading company clearly discloses whether it shares personal data with third parties and if so, the names of those third parties. The company also allows users to see their personal data and supports the downloading of the data to an interoperable data set.

U.4 The company mitigates digital risks and harms

Rationale

Digital technologies have introduced a range of risks and harms that discourage use or incite overuse. Apart from security risks such as hacks and data breaches, harms have proliferated that can be categorised as disorders and crimes. Examples include self-harm such as internet addiction, often related to online gambling and gaming. Gaming disorder is estimated to affect around 5% of the population.[58] Another symptom of addiction is frequency of use. In the United States, 28% of internet users reported being constantly online in 2019.[59] These harms are the digital equivalent of analogue ills such as drug addiction or alcoholism described in SDG target 3.5: 'Strengthen the prevention and treatment of substance abuse…'

Other harms relate to online misinformation, harassment and echo chambers that threaten institutional trust, affect health and reinforce narrow points of view.[60] Certain groups such as the information illiterate, women and the young are more vulnerable to these harms. Children, in particular, are at higher risk. They do not have the emotional and cognitive capability to detect and mitigate dangers such as bullying, predators and posting private information online. This relates to SDG target 16.2: 'End abuse, exploitation, trafficking and all forms of violence against and torture of children.' The scale of online child abuse is staggering. In the United States alone, there were almost 17 million reports in 2019 regarding the online exploitation of children, including child sexual abuse material, child sex trafficking and online enticement.[61]

Most digital companies inform users about issues relevant to their online safety although explanations are sometimes too complicated for the average user to understand.[62] The digital industry needs to take a more proactive stance on the risks and harms of using its technologies, particularly as the problems intensify. Companies that operate online platforms have additional responsibility to diminish these harms.

Best practices

A leading company assesses the scope of risks and harms from its products and services and makes this information easily accessible and understandable, especially to vulnerable groups. The company has a mechanism in place for reports about online abuse and a process to act upon the reports. The company aligns its internal processes with international standards and participates in initiatives promoting online protection. The company also provides free content controls where relevant and works to protect children through initiatives that have a demonstrable impact.

INNOVATION (I)

Innovation is a critical enabling mechanism for use of and access to digital technologies as companies can develop goods and services that aid both. Further, innovation drives the creation of new digital technologies with cross-cutting potential to accelerate achievement of the SDGs. This measurement area looks at company support for open standards and open source that help to drive innovation; investment in bottom-up innovation; cooperation on innovative big data solutions for sustainable development; and inclusivity and ethical considerations in product development.

I.1 The company practises open innovation

Rationale

Open innovation is characterised by collaboration in research and development (R&D). Companies have found that moving inhouse R&D to cooperative frameworks yields significant benefits and boosts innovation. This collaboration relates to SDG target 17.16, which calls for partnerships that 'mobilise and share knowledge, expertise, technology and financial resources to support the achievement of sustainable development goals in all countries…'

Open standards help to boost innovation because they allow researchers to focus on the innovative aspects of their work.[63] Standards help to lower the cost of product development by enabling interoperability. There are a number of global organisations developing standards in which digital companies participate.[64] Standards collaboration not only boosts innovation but has cross-cutting impacts on the SDGs.[65]

Open source has transformed the way software is developed and is driving innovation across the globe. Communities of dispersed developers are building on open software to make it better and adaptable to new innovative uses.[66] GitHub, the largest host of open source code in the world, had some 40 million users accessing 100 million repositories as of August 2019.[67]

It is in the interest of digital companies to embrace open practices as they drive innovation and enhance interoperability of devices and software.

Best practices

This indicator is designed to capture evidence of openness in innovation. This includes the development of interoperable products adhering to existing standards. Another element is participation in relevant standards organisations. A leading company develops new standards in a collaborative process. Best practices include a company publicly disclosing its software code, allowing its employees to participate in initiatives setting the open standards or making changes to its products in order to align with existing standards. A leading company contributes, particularly with employee time, to standards-making bodies, provides documentation, disseminates its work and develops new product and process standards.

I.2 The company supports technology innovation ecosystems

Rationale

Start-up ecosystems are the key source of bottom-up innovation in the tech world. They are characterised by entrepreneurial digital start-ups with a promising idea for a product and receiving mentoring and other support such as incubation. In order to scale and bring their products to market, start-ups require financing. Given the risk associated with start-up financing, traditional funders have been reluctant to invest, and venture capital has instead filled the void.

Industry analyst Crunchbase estimates that around $295 billion in venture capital was invested in 2019 in some 32,800 deals.[68]

Most venture capital is invested in start-ups in the developed world, where it is highly concentrated in a few locations.[69] Start-ups in the developing world face barriers obtaining traditional finance, and often the collateral required exceeds the loan amount.[70] This makes SDG target 9.B – 'Support domestic technology development, research and innovation in developing countries' – difficult to achieve.

Almost 80% of private R&D investment comes from companies in developed economies[71], making them a critical source to tap for boosting tech ecosystems. Over half the DIB100 companies have a dedicated venture capital fund. Hence, there is an opportunity to channel some of that funding into promising developing country start-ups. Support for incubators and affordable access to relevant products for start-ups also helps boost the tech ecosystem in developing countries.

Best practices

Measurable support for this indicator includes venture capital investment in developing countries. Other measures include supporting innovation hubs such as incubators and accelerators. Providing start-ups with affordable access to relevant company goods and services is another example of support, as is assistance for social entrepreneurship.

I.3 The company collaborates on big data for sustainable development

Rationale

Companies have vast amounts of data, sometimes their users' personal data, which can be leveraged to generate important development insights using innovative techniques. Collaboration between researchers and companies is essential for using the data to help the individuals and communities who created it or to whom it relates.[72]

Big data sharing between companies and researchers is already yielding results. Mobility data from mobile phone networks can reveal the extent of displacement after a disaster and help predict the spread of infectious diseases while mobile airtime purchases can help track food consumption.[73] Social media big data has been used to help forecast floods, detect depression, estimate travel demand and predict house prices.[74]

SDG target 17.18 calls for a significant increase in the availability of data for monitoring the SDGs. It has been estimated that the costs of collecting data for the 169 targets spread across the 17 goals would amount to billions of dollars per year.[75] Given the high costs, it is unlikely that data can be collected for many developing countries using traditional methods such as household surveys. Lower cost techniques using big data will be essential if the information required to track progress is to be successfully collected for all countries.

UN agencies as well as industry associations have also launched initiatives for sharing big data. ITU's Big Data for Measuring the Information Society is exploring ways of using big data from the ICT industry to complement existing statistics for measuring the information society.[76] Global Pulse is the UN Secretary-General's initiative on big data and artificial intelligence for development, humanitarian action and peace. GSMA's Big Data for Social Good initiative was launched in February 2017 and is backed by 20 mobile operators with a presence in 117 markets around the world.[77]

Best practices

A leading company demonstrates its support for big data for sustainable development through sharing and collaboration. An example of this is the presence of transparent mechanisms for sharing data sets and providing access to streaming data. Another is sharing processing, storage and computing facilities. A leading company also supports this indicator by contributing human resources such as data scientists, engineers and researchers, or sponsors activities related to big data for sustainable development. Similarly, public-private partnerships between companies, researchers and governments can be particularly effective in developing standards for access to big data and in disseminating the results of projects.

I.4 The company applies inclusive and ethical research and development

Rationale

Development of digital goods and services needs to be inclusive to meet the needs of diverse global users. Yet diversity within the tech industry is lagging, hindering innovation. According to one study:

"Despite being one of the largest drivers of the United States economy, the technology ecosystem has remained stubbornly homogenous by race and gender, with women, Black, Latinx and Native American individuals vastly underrepresented … Without a diverse workforce, the innovative potential of technology will be stymied."[78]

The emergence of frontier technologies, particularly artificial intelligence, has immense potential for solving some of the world's greatest challenges, but it also presents many risks.[79] These include reducing the need for human intervention, threatening job security; posing dangers to privacy; and enhancing potential for discrimination.[80] The IEEE, a global technical professional organisation dedicated to advancing technology for the benefit of humanity, sums up the urgent need for an ethical reflection by the tech industry:

As the use and impact of autonomous and intelligent systems (A/IS) become pervasive, we need to establish societal and policy guidelines in order for such systems to remain human-centric, serving humanity's values and ethical principles. These systems must be developed and should operate in a way that is beneficial to people and the environment, beyond simply reaching functional goals and addressing technical problems. This approach will foster the heightened level of trust between people and technology that is needed for its fruitful use in our daily lives."[80]

Companies need to exhibit leadership in diversifying their technical workforce, moving past the common lament that those with requisite skills are not available. If the educational system is failing, companies need to take concrete action to safeguard their sustainability. Given the grave concerns about the potential for significant harms from new technologies, companies need to move from design ethic principles to practice, ensuring ethical considerations are factored into product development.

Best practices

This indicator captures the degree to which company practices reflect the participation of diverse groups and consideration of ethics in product development. Diversity in R&D processes is demonstrated by a high percentage of technical staff of different genders, ethnicities and nationalities. Another measure of diversity is the distribution of research labs in different countries. Consultation with ethics bodies within the company as well as wider stakeholder dialogue on the ramifications of product design is another good practice.

BENCHMARK PROCEDURES

Each indicator is scored against a set of predefined criteria related to the best practices identified in the previous section. Benchmarking will be carried out each year and the criteria may change for various reasons. Availability and quality of data may require revision to some criteria. Additional criteria may be introduced for the indicator to have wider scope. Technology is fast moving and new topics may emerge that merit benchmarking. Hence, the criteria will be updated annually and made available in a separate document. If needed, adjustments will be made to preserve comparability over the previous year's data.

The DIB data collection and assessment consists of the following steps:

- Relevant company information for the indicators is collected from a range of publicly available sources such as financial reports, social responsibility reports and sustainability reports. Information is also sourced from relevant company web pages. For companies that have subsidiaries, the source of the data may vary depending on the measurement area. In general, data from subsidiaries can be used for the criteria in the first two measurement areas (access and skills) while the latter two measurement areas (use and innovation) generally refer to corporate-wide practices. Indicator criteria have been designed in reference to publicly available information, enhancing the likelihood of its availability and the transparency of the process.
- The pre-filled questionnaires are shared with companies via an online platform, enabling them to review the collected data, provide their input and clarifications and send additional information. The data supplied will be considered public information.
- The DIB team will review the data in the submitted questionnaires and engage with companies for any further clarifications. The team will also support companies during the data collection phase, guiding them through the process and answering any queries that may arise.
- A set of guidelines for each indicator will be used to score company performance. Each indicator has a fixed scale, whereby companies receive points depending on the scoring criteria. Scoring elements may differ depending on the company layer. There are examples of all the indicator elements being publicly available in company reports. Hence, omission of requested data will be considered a lack of transparency and that element will be scored zero. Company scores will be evaluated by multiple analysts to ensure consistency. Companies that choose not to complete the questionnaire will be evaluated based solely on publicly available information and will not be able to influence or appeal their final scores.

- There is no empirical evidence to suggest that one indicator is more critical than others within a measurement area. Therefore, each of the four indicators per measurement area carries the same weight. Given that each of the measurement areas is considered equally important for achieving digital inclusion, they are also given the same weight in calculating the overall benchmark score. A company's overall score will equal the sum of the scores received for each measurement area.

The company scores and general profile information are used to develop individual company scorecards. The scorecards will outline how companies perform on the benchmark, provide key insights and highlight best practices. Prior to publication, the company scorecards will be shared with companies to inform them of their performance and ranking.

Along with the individual company scorecards, which will include company scores by measurement area and indicator, the final benchmark report will include overall rankings, key findings and the scoring guidelines. The report will be made publicly available to enable all stakeholders, from consumers and investors to employees and business leaders beyond the digital sector, to make informed decisions and encourage stronger corporate impact on digital inclusion.

Annexes

World Benchmarking Alliance

Annex 1: Abbreviations and acronyms

World Benchmarking Alliance

Abbreviations and acronyms	
DIB	Digital Inclusion Benchmark
DIB100	The 100 companies to be measured in the DIB
G20	Group of 20
GRI	Global Reporting Initiative
GSMA	GSM Association
ICT	information and communications technology
ISO	International Organization for Standardization
IT	information technology
ITU	International Telecommunication Union
OECD	Organization for Economic Cooperation and Development
R&D	research and development
RDR	Ranking Digital Rights
SASB	Sustainable Accounting Standards Board
SDG	Sustainable Development Goal
UN	United Nations
WBA	World Benchmarking Alliance

Annex 2: Relationship between the DIB indicators and SDGs

World Benchmarking Alliance

DIB indicator	SDG target or tracking indicator
ACCESS (A)	
A.1. The company contributes to digital technology access	**9.C** Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries
A.2. The company supports digital inclusivity for women and girls	**5.B** Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women
A.3. The company facilitates digital access for diverse users	**10.2** By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
A.4. The company discloses its direct economic contribution	**8.3** Promote development-oriented policies that support productive activities, decent job creation... **17.1** Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection
SKILLS (S)	
S.1. The company supports basic digital skills development	**4.4.1** Proportion of youth and adults with information and communications technology (ICT) skills
S.2. The company supports intermediate digital skills development	
S.3. The company supports technical digital skills development	
S.4. The company supports school connectivity	**4.A.1** Proportion of schools with access to ... (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes
USE (U)	
U.1. The company assigns accountability for cybersecurity at a senior level	**9.1** Develop quality, reliable, sustainable and resilient infrastructure
U.2. The company monitors, remedies and reports cybersecurity incidents	
U.3. The company applies responsible practices for personal data	**16.10** Ensure public access to information and protect fundamental freedoms...
U.4. The company mitigates digital risks and harms	**3.5** Strengthen the prevention and treatment of substance abuse... **16.2** End abuse, exploitation, trafficking and all forms of violence against and torture of children
INNOVATION (I)	
I.1. The company practises open innovation	**17.16** ... partnerships that mobilise and share knowledge, expertise, technology and financial resources ... in particular [in] developing countries
I.2. The company supports technology innovation ecosystems	**8.3** Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services **9.B** Support domestic technology development, research and innovation in developing countries...
I.3. The company collaborates on big data for sustainable development	**17.18** ... enhance capacity-building support to developing countries ... to increase significantly the availability of high-quality, timely and reliable data...
I.4. The company applies inclusive and ethical research and development	**8.3** Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation... **9.B** Support domestic technology development, research and innovation in developing countries...

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11. The index measures a country's level of digital readiness based on seven components. https://www.cisco.com/c/en/us/about/csr/research-resources/digital-readiness.html#-components
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