TELECOMMUNICATIONS
Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #TC0301

Prepared by the Sustainability Accounting Standards Board®

April 2014
Provisional Standard
TELECOMMUNICATIONS
Sustainability Accounting Standard

About SASB
The Sustainability Accounting Standards Board (SASB) provides sustainability accounting standards for use by publicly-listed corporations in the U.S. in disclosing material sustainability issues for the benefit of investors and the public. SASB standards are designed for disclosure in mandatory filings to the Securities and Exchange Commission (SEC), such as the Form 10-K and 20-F. SASB is an independent 501(c)3 non-profit organization and is accredited to set standards by the American National Standards Institute (ANSI).

SASB is developing standards for more than 80 industries in 10 sectors. SASB's standards-setting process includes evidence-based analysis with in-depth industry research and engagement with a broad range of stakeholders. The end result of this process is the creation of a complete, industry-specific accounting standard which accurately reflects the material issues for each industry.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Telecommunications industry.

SASB Standards are comprised of (1) disclosure guidance and (2) accounting standards on sustainability topics for use by U.S. and foreign public companies in their annual filings (Form 10-K or 20-F) with the U.S. Securities and Exchange Commission (SEC). To the extent relevant, SASB Standards may also be applicable to other periodic mandatory filings with the SEC, such as the Form 10-Q, Form S-1, and Form 8-K.

SASB’s disclosure guidance identifies sustainability topics at an industry level, which may be material—depending on a company’s specific operating context—to a company within that industry.

Each company is ultimately responsible for determining which information is material and is therefore required to be included in its Form 10-K or 20-F and other periodic SEC filings.

SASB’s accounting standards provide companies with standardized accounting metrics to account for performance on industry-level sustainability topics. When making disclosure on sustainability topics, companies adopting SASB’s accounting standards will help to ensure that disclosure is standardized and therefore useful, relevant, comparable and auditable.

Industry Description

The Telecommunications industry consists of two main segments: wireless and wireline. The wireless services segment provides direct communication through radio-based cellular networks and operates and maintains the associated switching and transmission facilities. The wireline segment provides local and long-distance voice communication via the Public Switched Telephone Network. Wireline carriers also offer voice over internet protocol (VoIP) telephone, television, and broadband internet services over an expanding network of fiber optic cables. The industry is influenced by increasing data use due to expansion in smartphones and tablets. Companies serve customers primarily in their domestic markets, although some U.S.-listed companies domiciled abroad operate in several countries.
Guidance for Disclosure of Material Sustainability Topics in SEC filings

1. Industry-Level Material Sustainability Topics

For the Telecommunications industry, SASB has identified the following material sustainability topics:

- Environmental Footprint of Operations
- Data Privacy
- Data Security
- Product End-of-Life Management
- Managing Systemic Risks from Technology Disruptions
- Competitive Behavior

2. Company-Level Determination and Disclosure of Material Sustainability Topics

Sustainability disclosures are governed by the same laws and regulations that govern disclosures by securities issuers generally. According to the U.S. Supreme Court, a fact is material if, in the event such fact is omitted from a particular disclosure, there is “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of the information made available”.1,2

SASB has attempted to identify those sustainability topics that it believes may be material for all companies within each SICS industry. SASB recognizes, however, that each company is ultimately responsible for determining what is material to it.

Regulation S-K, which sets forth certain disclosure requirements associated with Form 10-K and other SEC filings, requires companies, among other things, to describe in the Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A) section of Form 10-K “any known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations. If the registrant knows of events that will cause a material change in the relationship between costs and revenues (such as known future increases in costs of labor or materials or price increases or inventory adjustments), the change in the relationship shall be disclosed.”2

Furthermore, Instructions to Item 303 state that the MD&A “shall focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition.”2

In determining whether a trend or uncertainty should be disclosed, the SEC has stated that management should use a two-part assessment based on probability and magnitude:

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• First, a company is not required to make disclosure about a known trend or uncertainty if its management determines that such trend or uncertainty is not reasonably likely to occur.

• If a company’s management cannot make a reasonable determination of the likelihood of an event or uncertainty, then disclosure is required unless management determines that a material effect on the registrant’s financial condition or results of operation is not reasonably likely to occur.

3. Sustainability Accounting Standard Disclosures in Form 10-K

a. Management’s Discussion and Analysis

Companies should consider making disclosure on sustainability topics as a complete set in the MD&A, in a sub-section titled “Sustainability Accounting Standards Disclosures.”

b. Other Relevant Sections of Form 10-K

In addition to the MD&A section, companies should consider disclosing sustainability information in other sections of Form 10-K, as relevant, including:

• **Description of business**—Item 101 of Regulation S-K requires a company to provide a description of its business and its subsidiaries. Specifically Item 101(c)(1)(xii) expressly requires disclosure regarding certain costs of complying with environmental laws:

  Appropriate disclosure also shall be made as to the material effects that compliance with Federal, State and local provisions which have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, may have upon the capital expenditures, earnings and competitive position of the registrant and its subsidiaries.

• **Legal proceedings**—Item 103 of Regulation S-K requires companies to describe briefly any material pending or contemplated legal proceedings. Instructions to Item 103 provide specific disclosure requirements for administrative or judicial proceedings arising from laws and regulations targeting discharge of materials into the environment or primarily for the purpose of protecting the environment.

• **Risk factors**—Item 503(c) of Regulation S-K requires filing companies to provide a discussion of the most significant factors that make an investment in the registrant speculative or risky, clearly stating the risk and specifying how a particular risk affects the particular filing company

b. Rule 12b-20

Securities Act Rule 408 and Exchange Act Rule 12b-20 require a registrant to disclose, in addition to the information expressly required by law or regulation, “such further material information, if any, as may be necessary to make the required statements, in light of the circumstances under which they are made, not misleading.”


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3 SEC [Release Nos. 33-8056; 34-45321; FR-61] Commission Statement about Management’s Discussion and Analysis of Financial Condition and Results of Operations: “We also want to remind registrants that disclosure must be both useful and understandable. That is, management should provide the most relevant information and provide it using language and formats that investors can be expected to understand. Registrants should be aware also that investors will often find information relating to a particular matter more meaningful if it is disclosed in a single location, rather than presented in a fragmented manner throughout the filing.”
Guidance on Accounting of Material Sustainability Topics

For material sustainability topics in the Telecommunications industry, SASB identifies accounting metrics.

SASB recommends that each company consider using these sustainability accounting metrics when disclosing its performance with respect to each of the sustainability topics it has identified as material.

As appropriate—and consistent with Rule 12b-20⁴—for each sustainability topic, companies should consider including a narrative description of any material factors necessary to ensure completeness, accuracy and comparability of the data reported. Where not addressed by the specific accounting metrics, but relevant, the registrant should discuss the following related to the topic:

• the registrant’s strategic approach to managing performance on material sustainability issues;
• the registrant’s competitive positioning;
• the degree of control the registrant has;
• any measures the registrant has undertaken or plans to undertake to improve performance; and
• data for registrant’s last three completed fiscal years (when available).

SASB recommends that registrants use SASB Standards specific to their primary industry as identified in the Sustainable Industry Classification System (SICS™). If a registrant generates significant revenue from multiple industries, SASB recommends that it consider the materiality of the sustainability issues that SASB has identified for those industries and disclose the associated SASB accounting metrics.

Users of the SASB Standards

The SASB Standards are intended for companies that engage in public offerings of securities registered under the Securities Act of 1933 (the Securities Act) and those that issue securities registered under the Securities Exchange Act of 1934 (the Exchange Act)⁵, for use in SEC filings, including, without limitation, annual reports on Form 10-K (Form 20-F for foreign issuers), quarterly reports on Form 10-Q, current reports on Form 8-K, and registration statements on Forms S-1 and S-3. Nevertheless, disclosure with respect to the SASB Standards is not required or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

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⁴ SEC Rule 12b-20: “In addition to the information expressly required to be included in a statement or report, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made not misleading.”

⁵ Registration under the Securities Exchange Act of 1934 is required (1) for securities to be listed on a national securities exchange such as the New York Stock Exchange, the NYSE Amex and the NASDAQ Stock Market or (2) if (A) the securities are equity securities and are held by more than 2,000 persons (or 500 persons who are not accredited investors) and (B) the company has more than $10 million in assets.
Scope of Disclosure

Unless otherwise specified, SASB recommends:

- That a registrant disclose on sustainability issues and metrics for itself and for entities in which the registrant has a controlling interest and therefore are consolidated for financial reporting purposes (controlling interest is generally defined as ownership of 50% or more of voting shares);6

- That for consolidated entities, disclosures be made, and accounting metrics calculated, for the whole entity, regardless of the size of the minority interest; and

- That information from unconsolidated entities not be included in the computation of SASB accounting metrics. A registrant should disclose, however, information about unconsolidated entities to the extent that such registrant considers the information necessary for investors to understand its performance with respect to sustainability issues (typically this disclosure would be limited to risks and opportunities associated with these entities).

Reporting Format

Activity Metrics and Normalization

SASB recognizes that normalizing accounting metrics is important for the analysis of SASB disclosures.

SASB recommends that a registrant disclose any basic business data that may assist in the accurate evaluation and comparability of disclosure, to the extent that they are not already disclosed in the Form 10-K (e.g., revenue, EBITDA, etc.).

Such data – termed “activity metrics” – may include high-level business data such as total number of employees, quantity of products produced or services provided, number of facilities, or number of customers. It may also include industry-specific data such as plant capacity utilization (e.g., for specialty chemical companies), number of transactions (e.g., for internet media and services companies), hospital bed days (e.g., for health care delivery companies), or proven and probable reserves (e.g., for oil and gas exploration and production companies).

Activity metrics disclosed should:

- Convey contextual information that would not otherwise be apparent from SASB accounting metrics.

- Be deemed generally useful for users of SASB accounting metrics (e.g., investors) in performing their own calculations and creating their own ratios.

- Be explained and consistently disclosed from period to period to the extent they continue to be relevant – however, a decision to make a voluntary disclosure in one period does not obligate a continuation of that disclosure if it is no longer relevant or if a better metric becomes available.

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6 See US GAAP consolidation rules (Section 810).
Where relevant, SASB recommends specific activity metrics that – at a minimum – should accompany SASB accounting metric disclosures.

<table>
<thead>
<tr>
<th>ACTIVITY METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless subscribers 7</td>
<td>Quantitative</td>
<td>Number</td>
<td>TC0301-A</td>
</tr>
<tr>
<td>Wireline subscribers 8</td>
<td>Quantitative</td>
<td>Number</td>
<td>TC0301-B</td>
</tr>
<tr>
<td>Broadband subscribers 9</td>
<td>Quantitative</td>
<td>Number</td>
<td>TC0301-C</td>
</tr>
<tr>
<td>Network traffic, percentage on cellular network, and percentage on fixed network</td>
<td>Quantitative</td>
<td>Petabytes, Percentage</td>
<td>TC0301-D</td>
</tr>
<tr>
<td>Network bandwidth capacity, percentage leased 10</td>
<td>Quantitative</td>
<td>Megabits per second (Mbit/s), Percentage (%)</td>
<td>TC0301-E</td>
</tr>
</tbody>
</table>

### Units of Measure

Unless specified, disclosures should be reported in International System of Units (SI units).

### Uncertainty

SASB recognizes that there may be inherent uncertainty when disclosing certain sustainability data and information. This may be related to variables like the imperfectness of third-party reporting systems or the unpredictable nature of climate events. Where uncertainty around a particular disclosure exists, SASB recommends that the registrant should consider discussing its nature and likelihood.

### Estimates

SASB recognizes that scientifically-based estimates, such as the reliance on certain conversion factors or the exclusion of de minimis values, may be necessary for certain quantitative disclosures. Where appropriate, SASB does not discourage the use of such estimates. When using an estimate for a particular disclosure, SASB expects that the registrant discuss its nature and substantiate its basis.

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7 Note to TC0301-A – Wireless subscribers are defined as those customers that contract with the registrant for mobile services, which include cellular phone service and/or wireless data service.
8 Note to TC0301-B – Wireline subscribers are defined as those customers that contract with the registrant for fixed line phone services.
9 Note to TC0301-C – Broadband subscribers are defined as those customers that contract with the registrant for fixed line cable and internet services, which include WiFi connections.
10 Note to TC0301-E – The registrant shall disclose the network bandwidth capacity as the maximum throughput of the network system, including owned and leased capacity; the percentage leased is defined as network capacity for which infrastructure is not owned by the registrant.
Timing

Unless otherwise specified, disclosure shall be for the registrant’s fiscal year.

Limitations

There is no guarantee that SASB Standards address all sustainability impacts or opportunities associated with a sector, industry, or company and, therefore, a company must determine for itself the topics—sustainability-related or otherwise—that warrant discussion in its SEC filings.

Disclosure under SASB Standards is voluntary. It is not intended to replace any legal or regulatory requirements that may be applicable to user operations. Where such laws or regulations address legal or regulatory topics, disclosure under SASB Standards is not meant to supersede those requirements. Disclosure according to SASB Standards shall not be construed as demonstration of compliance with any law, regulation, or other requirement.

SASB Standards are intended to be aligned with the principles of materiality enforced by the SEC. However, SASB is not affiliated with or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

Forward Looking Statements

Disclosures on sustainability topics can involve discussion of future trends and uncertainties related to the registrant’s operations and financial condition, including those influenced by external variables (e.g., environmental, social, regulatory and political). Companies making such disclosures should familiarize themselves with the safe harbor provisions of Section 27A of the Securities Act and Section 21E of the Exchange Act, which preclude civil liability for material misstatements or omissions in such statements if the registrant takes certain steps, including, among other things, identifying the disclosure as forward looking and accompanying such disclosure with “meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the forward-looking statements.”

Assurance

In reporting on SASB Standards, it is expected that registrants report with the same level of rigor, accuracy, and responsibility as all other information contained in their SEC filings.

SASB encourages registrants to use independent assurance (attestation), for example, an Examination Engagement to AT Section 701.
# Table 1. Material Sustainability Topics & Accounting Metrics

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Footprint of Operations</td>
<td>Total energy consumed, percentage grid electricity, percentage renewable energy; amount of energy consumed by (a) cellular and (b) fixed networks</td>
<td>Quantitative</td>
<td>Gigajoules, Percentage (%)</td>
<td>TC0301-01</td>
</tr>
<tr>
<td>Data Privacy</td>
<td>Discussion of policies and practices relating to collection, usage, and retention of customer information and personally identifiable information</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TC0301-02</td>
</tr>
<tr>
<td></td>
<td>Percentage of users whose customer information is collected for secondary purpose, percentage who have opted-in</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>TC0301-03</td>
</tr>
<tr>
<td></td>
<td>Amount of legal and regulatory fines and settlements associated with customer privacy</td>
<td>Quantitative</td>
<td>U.S. dollars ($)</td>
<td>TC0301-04</td>
</tr>
<tr>
<td></td>
<td>Number of government or law enforcement requests for customer information, percentage resulting in disclosure</td>
<td>Quantitative</td>
<td>Number, percentage (%)</td>
<td>TC0301-05</td>
</tr>
<tr>
<td></td>
<td>Number of data security breaches and percentage involving customers' personally identifiable information</td>
<td>Quantitative</td>
<td>Number, percentage (%)</td>
<td>TC0301-06</td>
</tr>
<tr>
<td></td>
<td>Discussion of management approach to identifying and addressing data security risks</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TC0301-07</td>
</tr>
<tr>
<td>Product End-of-Life Management</td>
<td>Materials recovered through take back programs, percentage of recovered materials that are (a) reused, (b) recycled, and (c) landfilled</td>
<td>Quantitative</td>
<td>Weight (tons), percentage by weight</td>
<td>TC0301-08</td>
</tr>
<tr>
<td>Managing Systemic Risks from Technology Disruptions</td>
<td>Average interruption frequency and average interruption duration</td>
<td>Quantitative</td>
<td>Disruptions per customer, Hours per customer</td>
<td>TC0301-09</td>
</tr>
<tr>
<td></td>
<td>Description of systems to provide unimpeded service during service interruptions</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TC0301-10</td>
</tr>
<tr>
<td>Competitive Behavior</td>
<td>Amount of legal and regulatory fines and settlements associated with anti-competitive practices</td>
<td>Quantitative</td>
<td>U.S. dollars ($)</td>
<td>TC0301-11</td>
</tr>
</tbody>
</table>

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11 Note to TC0301-04 – Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.

12 Note to TC0301-06 – Disclosure shall include a description of corrective actions implemented in response to data security incidents or threats.

13 Note to TC0301-09 – Disclosure shall include a description of each significant performance issue or service disruption and any corrective actions taken to prevent future disruptions.

14 Note to TC0301-11 – Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.
Environmental Footprint of Operations

Description

Fossil fuel based energy production generates significant environmental impacts, which have the potential to affect the results of operation of telecom companies because they are highly reliant on a continuous, uninterrupted supply of energy for network operations and data centers. The way in which telecom companies manage their overall energy efficiency or intensity, their reliance on different types of energy, and their ability to access alternative sources of energy will become increasingly material as the global regulatory focus on climate change increases bringing with it incentives for energy efficiency and renewable energy and pricing of GHG emissions.

Accounting Metrics

TC0301-01. Total energy consumed, percentage grid electricity, percentage renewable energy; amount of energy consumed by (a) cellular and (b) fixed networks

.01 The registrant shall disclose total energy consumption from all sources as an aggregate figure in gigajoules or its multiples.

- The scope includes energy purchased from sources external to the organization or produced by the organization itself (self-generated).

- The scope includes only energy consumed by entities owned or controlled by the organization.

- The scope includes energy from all sources including direct fuel usage, purchased electricity, and heating, cooling, and steam energy.

.02 The registrant shall disclose the portion of total energy consumed each by cellular networks and fixed networks, excluding support services (e.g., vehicle fleet and offices), where:

- Cellular network is defined as a wireless mobile network that uses radio waves for transmission, is distributed over land areas called cells, which are each served by at least one fixed-location transceiver (i.e., cell site or base station). Cellular networks include all wireless transmission of data over land cells from a fixed-location transceiver.

- Fixed network is defined as a solid medium telephone or data line such as a metal wire or fiber optic cable for transmission. Fixed networks include all stationary wireless connections between two fixed sites.

- The scope of disclosure for energy from cellular and fixed networks is limited to the energy directly used by the network equipment and does not include energy for any support services or functions (e.g., as vehicle fleet or offices).

.03 In calculating energy consumption from fuels and biofuels, the registrant shall use higher heating values (HHV), also known as gross calorific values (GCV), and which are directly measured or taken from the Intergovernmental Panel on Climate Change (IPCC), the U.S. Department of Energy (DOE), or the U.S. Energy Information Administration (EIA).
.04 When reporting self-generated energy consumption, the registrant shall not double-count fuel consumption. For example, if a registrant generates electricity from natural gas and then consumes the generated electricity, the energy consumption is counted once as energy from fuel consumption.

.05 The registrant shall disclose purchased grid electricity consumption as a percentage of its total energy consumption.

.06 The registrant shall disclose renewable energy consumption as a percentage of its total energy consumption.

- The scope of renewable energy includes the renewable energy the registrant directly produces, purchases through a renewable power purchase agreement (PPA) which explicitly includes renewable energy certificates (RECs), or for which Green-e Energy Certified RECs are paired with grid electricity. For all renewable energy consumed as electricity in this manner, RECs must be retired on behalf of the registrant to be claimed as renewable energy as part of this disclosure.

- For any renewable electricity generated on-site, any RECs must be retained (i.e., not sold) and retired on behalf of the registrant in order for the registrant to claim as renewable energy.

- For renewable PPAs, the agreement must explicitly include and convey that RECs be retained and retired on behalf of the registrant in order for the registrant to claim as renewable energy.

- The renewable portion of the electricity grid mix that is outside of the control or influence of the registrant is excluded from disclosure.¹⁵

.07 Renewable energy is defined as energy from sources that are capable of being replenished in a short time through ecological cycles, such as geothermal, wind, solar, hydro, and biomass.

- For the purposes of this disclosure, the scope of renewable energy from hydro and biomass sources are limited to the following:

  - Energy from hydro sources that are certified by the Low Impact Hydropower Institute.

  - Energy from biomass sources that are Green-e Energy certified or eligible for a state Renewable Portfolio Standard.

.08 The registrant shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kWh to gigajoules (including for electricity from solar or wind energy).

Additional References


¹⁵ SASB recognizes that RECs reflect the environmental attributes of renewable energy that has been introduced to the grid, and that a premium has been paid by the purchaser of the REC to enable generation of renewable energy beyond any renewable energy already in the grid mix absent the market for RECs.
Data Privacy

Description
As customers pay increased attention to privacy issues around cell phone, Internet, and email services, Telecom companies will have to implement strong management practices and guidelines related to their use of customer data. Telecom companies use growing volumes of customer location and demographic data to improve their services as well as to generate revenue by selling such data to third parties. Additionally, Telecom companies receive, and must determine whether to comply with, government requests for customer information. In the absence of data privacy measures, companies could face difficulties in acquiring and retaining customers and could face increased regulatory scrutiny.

Accounting Metrics
TC0301-02. Discussion of policies and practices relating to collection, usage, and retention of customer information and personally identifiable information

.09 The registrant shall describe the nature, scope, and implementation of its policies and practices related to customer privacy, with a specific focus on the how they address the collection, usage, and retention of customer information, demographic data, customer behavioral data, location data from cellphone usage, and personally identifiable information, where:

- Customer information includes information that pertains to a user's attributes or actions, including but not limited to, records of communications, content of communications, demographic data, behavioral data, location data, or personally identifiable information.

- Demographic data is defined as the quantifiable statistics which identify and distinguish a given population. Examples of demographic data include gender, age, ethnicity, knowledge of languages, disabilities, mobility, home ownership, and employment status.

- Behavioral data is defined as the product of tracking, measuring, and recording individual behaviors such as consumers' on-line browsing patterns, buying habits, brand preferences, and product usage patterns, among others.

- Location data is defined as data describing the physical location or movement patterns of an individual, such as Global Positioning System coordinates or other related data which would enable identifying and tracking an individual's physical location.

- Personally Identifiable Information (PII) is defined as any information about an individual maintained by an entity, including (1) any information that can be used to distinguish or trace an individual’s identity, such as name, social security number, date and place of birth, mother’s maiden name, or biometric records; and (2) any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information.\(^{16}\)

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\(^{16}\) GAO Report 08-536, Privacy: Alternatives Exist for Enhancing Protection of Personally Identifiable Information, May 2008
.10 The registrant shall describe the information “life cycle” (i.e., collection, use, retention, processing, disclosure, and destruction) and how information handling practices at each stage may affect individuals’ privacy.

- With respect to data collection it may be relevant for the registrant to discuss which data or types of data is collected without consent of an individual, which requires opt-in consent, and which requires opt-out action from the individual.

- With respect to usage of data it may be relevant for the registrant to discuss which data or types of data are used by the registrant internally, and under what circumstance the registrant shares, sells, rents, or otherwise distributes data or information to third-parties.

- With respect to retention it may be relevant for the registrant to discuss which data or types of data it retains, the length of time of retention, and practices used to ensure that data is stored securely.

.11 The registrant shall discuss the degree to which its policies and practices address similar issues as outlined in the OMB Guidance for Implementing the Privacy Provisions of the E-Government Act of 2002 (M-03-22), including use of Privacy Impact Assessments (PIAs), where:

- Privacy Impact Assessment is an analysis of how information is handled that ensures handling conforms to applicable legal, regulatory, and policy requirements regarding privacy; determines the risks and effects of collecting, maintaining and disseminating information in identifiable form in an electronic information system; and examines and evaluates protections and alternative processes for handling information to mitigate potential privacy risks.

- As outlined by OMB M-03-22, PIAs must analyze and describe: (a) what information is to be collected, (b) why the information is being collected, (c) intended use of the information, (d) with whom the information will be shared, (e) what opportunities individuals have to decline to provide information (i.e., where providing information is voluntary) or to consent to particular uses of the information (other than required or authorized uses), and how individuals can grant consent, and (f) how the information will be secured, among other government-specific requirements.

.12 The registrant shall discuss how its policies and practices related to privacy of customer information address children’s privacy, which at a minimum includes the provisions of the Children’s Online Privacy Protection Act (COPPA).

**TC0301-03. Percentage of users whose customer information is collected for secondary purpose, percentage who have opted-in**

.13 The registrant shall indicate the percentage of customers whose customer information is collected for its own secondary use or for transfer to a third party, where:

- Customer information includes information that pertains to a user’s attributes or actions, including but not limited to, records of communications, content of communications, demographic data, behavioral data, location data, or personally identifiable information.

- Demographic data is defined as the quantifiable statistics which identify and distinguish a given population. Examples of demographic data include gender, age, ethnicity, knowledge of languages, disabilities, mobility, home ownership, and employment status.

- Behavioral data is defined as the product of tracking, measuring, and recording individual behaviors such as
consumers’ on-line browsing patterns, buying habits, brand preferences, and product usage patterns, among others.

- Location data is defined as data describing the physical location or movement patterns of an individual, such as Global Positioning System coordinates or other related data which would enable identifying and tracking an individual’s physical location.

- Secondary purpose is defined as the intentional use of data by the registrant (i.e., not a breach of security) that is outside of the primary purpose for which the data was collected. Examples of secondary uses include, but are not limited to, selling targeted ads, selling aggregated behavioral or location data, improving own product and service offerings, and transferring data or information to a third-party through sale, rental, or sharing.

.14 Of the users whose customer information is collected for secondary use or transfer to third parties, the registrant shall indicate the percentage that provided opt-in consent, where:

- Opt-in is defined as express affirmative consent required to use or share content.

.15 The registrant may choose to discuss what type of customer information is collected, the extent of data collected from different groups, and/or the types of secondary uses for which demographic data is collected.

**TC0301-04. Amount of legal and regulatory fines and settlements associated with customer privacy**

.16 The registrant shall disclose the amount (excluding legal fees) of all fines or settlements associated with incidents relating to customer privacy, including, but not limited to, violations of the Children's Online Privacy Protection Act, Directive 2002/58/EC (ePrivacy Directive), the US-EU Safe Harbor Program, and the Federal Trade Commission Privacy Act.

.17 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

**Note to TC0301-04**

.18 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., unauthorized monitoring, sharing of data, children’s privacy, etc.) of fines and settlements.

.19 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in operations, management, processes, products, business partners, training, or technology.

.20 All disclosure shall be sufficient such that it is specific to the risks the registrant faces, but disclosure itself would not compromise the registrant’s ability to maintain data privacy and security.

**TC0301-05. Number of government or law enforcement requests for customer information, percentage resulting in disclosure**

.21 The registrant shall disclose the number of requests for customer information received from government or law enforcement agencies during the reporting year and the percentage of requests with which it complied, where:
• Customer information includes information that pertains to a user’s attributes or actions, including but not limited to, records of communications, content of communications, demographic data, behavioral data, location data, or personally identifiable information.

• Demographic data is defined as the quantifiable statistics which identify and distinguish a given population. Examples of demographic data include gender, age, ethnicity, knowledge of languages, disabilities, mobility, home ownership, and employment status.

• Behavioral data is defined as the product of tracking, measuring, and recording individual behaviors such as consumers’ on-line browsing patterns, buying habits, brand preferences, and product usage patterns, among others.

• Location data is defined as data describing the physical location or movement patterns of an individual, such as Global Positioning System coordinates or other related data which would enable identifying and tracking an individual’s physical location.

• Personally Identifiable Information (PII) is defined as any information about an individual maintained by an entity, including (1) any information that can be used to distinguish or trace an individual’s identity, such as name, social security number, date and place of birth, mother’s maiden name, or biometric records; and (2) any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information.\textsuperscript{17}

.22 The percentage resulting in disclosure shall include requests that resulted in full or partial compliance with the disclosure request.

.23 The scope of this disclosure includes aggregated, de-identified, and anonymized data, which is intended to prevent the recipient from reconfiguring the data to identify an individual’s actions or identity.

• The registrant may choose to discuss if these characteristics apply to a portion of its data releases if this discussion would provide necessary context for interpretation of the registrant disclosure.

.24 The registrant may choose to describe its policy for determining whether to comply with a request for customer data, including under what conditions it will release customer data, what requirements must be met in the request, and the level of management approval required.

.25 The registrant may choose to describe its policy for notifying customers about such requests, including the timing of notification.

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Additional References

The NIST 800 Series is a set of documents that describe United States federal government computer security policies, procedures, and guidelines. NIST (National Institute of Standards and Technology) is a unit of the Commerce Department. The documents are available free of charge, and can be useful to businesses and educational institutions, as well as to government agencies. (Available on-line at: http://csrc.nist.gov/publications/PubsSPs.html). See for example, NIST Special Publication 800-122, Guide to Protecting the Confidentiality of Personally Identifiable Information (PII)

\textsuperscript{17} GAO Report 08-536, Privacy: Alternatives Exist for Enhancing Protection of Personally Identifiable Information, May 2008
Data Security

Description
Recent examples of cyber-attacks on critical infrastructure in both the U.S. and abroad illustrate the need for enhanced network security. As the providers of critical infrastructure, companies in this industry will face an increasing threat to shareholder value associated with data security, including potential costs associated with regulatory compliance or addressing security breaches, reputational damage, and lost revenues and market share.

Accounting Metrics
TC0301-06. Number of data security breaches and percentage involving customers’ personally identifiable information

.26 The registrant shall calculate and disclose the total number of data security breaches, which are defined as instances of unauthorized acquisition, access, use, or disclosure of protected information.

.27 The scope of disclosure shall be limited to data security breaches, cyber security risks, and incidents that resulted in the registrant’s business processes deviating from its expected outcomes for confidentiality, integrity, and availability.

- The scope of disclosure shall include incidents of unauthorized acquisition or acquisition without valid authorization, resulting from people, process, or technology deficiencies or failures.

- The scope of disclosure shall exclude disruptions of service due to equipment failures.

.28 The registrant shall disclose the percentage of data security breaches in which customers’ personally identifiable information was breached, where:

- Personally Identifiable Information is defined as any information about an individual maintained by an entity, including (1) any information that can be used to distinguish or trace an individual’s identity, such as name, social security number, date and place of birth, mother’s maiden name, or biometric records; and (2) any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information.18

- The scope of disclosure is limited to breaches in which customers were notified of the breach, either as required by state law or voluntarily by the registrant.

- Disclosure shall include incidents when encrypted data were acquired with an encryption key that was also acquired.

- The registrant may delay disclosure if a law enforcement agency has determined that notification impedes a criminal investigation until the law enforcement agency determines that such notification does not compromise such investigation.

18 GAO Report 08-536, Privacy: Alternatives Exist for Enhancing Protection of Personally Identifiable Information, May 2008
.29 Disclosure shall be additional but complementary to the U.S. Security and Exchange Commission’s (SEC) CF Disclosure Guidance: Topic No. 2, Cybersecurity.

- At a minimum, this includes when the costs or other consequences associated with one or more known incidents – or the risk of potential incidents – represents a material event, trend, or uncertainty that is reasonably likely to have a material effect on the registrant’s results of operations, liquidity, or financial condition, or would cause reported financial information not to be necessarily indicative of future operating results or financial condition (e.g., theft of intellectual property, reduced revenue, increased cybersecurity protection expenditure, litigation costs, etc.).

Note to TC0301-06

.30 The registrant shall describe the corrective actions taken in response to specific incidents, such as changes in operations, management, processes, products, business partners, training, or technology.

.31 All disclosure shall be sufficient such that it is specific to the risks the registrant faces, but disclosure itself would not compromise the registrant’s ability to maintain data privacy and security.

TC0301-07. Discussion of management approach to identifying and addressing data security risks

.32 The registrant shall identify vulnerabilities in its information systems which pose a data security threat, where:

- A data security threat is defined as any circumstance or event with the potential to adversely impact organizational operations (including mission, functions, image, or reputation), organizational assets, individuals, other organizations, or the Nation through an information system via unauthorized access, destruction, disclosure, or modification of information, and/or denial of service.

- Vulnerability is defined as a weakness in an information system, system security procedures, internal controls, or implementation that could be exploited by a data security threat source.

.33 The registrant shall describe how it addresses the threats and vulnerabilities it has identified, including but not limited to, through operational procedures, management processes, structure of products, selection of business partners, employee training, or use of technology.

.34 The registrant should discuss trends it has observed in type, frequency, and origination of attacks to its data security and information systems.

.35 Disclosure shall be additional but complementary to the disclosure of preparation, detection, containment, and post-incident activity according to the U.S. Security and Exchange Commission’s (SEC) CF Disclosure Guidance: Topic No. 2, Cybersecurity.

- At a minimum this includes when the costs or other consequences associated with one or more known incidents – or the risk of potential incidents – represents a material event, trend, or uncertainty that is reasonably likely to have a material effect on the registrant’s results of operations, liquidity, or financial condition or would cause reported financial information not to be necessarily indicative of future operating results or financial condition (e.g., reduced revenue, increased cybersecurity protection expenditure, litigation costs, etc.).
.36 All disclosure shall be sufficient such that it is specific to the risks the registrant faces but disclosure itself would not compromise the registrant's ability to maintain data privacy and security.

.37 The registrant may choose to describe the degree to which its management approach is aligned with an external standard or framework for managing data security such as:


### Definitions

**NIST-defined** attack vectors:

- External/Removable Media – an attack executed from removable media or a peripheral device—for example, malicious code spreading onto a system from an infected USB flash drive.
- Attrition – an attack that employs brute force methods to compromise, degrade, or destroy systems, networks, or services (e.g., a DDoS intended to impair or deny access to a service or application; a brute force attack against an authentication mechanism, such as passwords, captchas, or digital signatures).
- Web – an attack executed from a website or web-based application—for example, a cross-site scripting attack used to steal credentials or a redirect to a site that exploits browser vulnerability and installs malware.
- Email – an attack executed via an email message or attachment—for example, exploit code disguised as an attached document or a link to a malicious website in the body of an email message.
- Improper Usage – any incident resulting from violation of an organization's acceptable usage policies by an authorized user, excluding the above categories, for example, a user installs file sharing software, leading to the loss of sensitive data; or a user performs illegal activities on a system.
- Loss or Theft of Equipment – the loss or theft of a computing device or media used by the organization, such as a laptop or smartphone.
- Other – an attack that does not fit into any of the other categories.

### Additional References


The NIST 800 Series is a set of documents that describe United States federal government computer security policies, procedures, and guidelines. NIST (National Institute of Standards and Technology) is a unit of the Commerce Department. The documents are available free of charge, and can be useful to businesses and educational institutions, as well as to government agencies. (Available on-line at: [http://csrc.nist.gov/publications/PubSSPs.html](http://csrc.nist.gov/publications/PubSSPs.html))
Product End-of-Life Management

Description
State laws in the U.S., legislation abroad, and societal pressure indicate increasing concern with addressing the issue of electronic waste, which could materially impact brand value, market share and regulatory costs. Electronic waste laws often require vendors or manufacturers to pay for the recycling of such waste or put in place product take-back and recycling programs. Telecom companies work in partnership with phone manufacturers to bundle telecom services and mobile devices, and therefore have a shared responsibility for end-of-life management of such devices. Their relationship with customers provides an opportunity for effective management of product recycling, reuse, and disposal.

Accounting Metrics
TC0301-08. Materials recovered through take back programs, percentage of recovered materials that are (a) reused, (b) recycled, and (c) landfilled

.38 The registrant shall disclose the weight, in tons, of materials recovered including through product take-back programs and recycling services.

• The scope of disclosure shall include products, materials, and parts that are at the end of their useful life and would have otherwise been disposed of as waste or used for energy recovery, but have instead been collected.

• The scope of disclosure shall include both materials physically handled by registrant and materials of which the registrant does not take physical possession, but for which it has contracted with a third party the task of collection for the expressed purpose of reuse, recycling, or refurbishment.

• The scope of disclosure excludes products and parts that are in-warranty and have been collected for repairs.

.39 The percentage reused shall be calculated as the weight of incoming material that was reused divided by the total weight of incoming recovered material.

• Reused materials are defined as those recovered products or components of products are used for the same purpose for which they were conceived.

• The scope of reused materials includes products donated and/or refurbished by the registrant or third parties.

• The scope of disclosure includes reuse by the registrant or by third-parties through direct contract with the registrant.
.40 The percentage recycled shall be calculated as the weight of material recycled or remanufactured divided by the total weight of incoming recovered material, where:

- Recycled and remanufactured materials are defined as waste materials that have been reprocessed or treated by means of a production or manufacturing process and made into a final product or made into a component for incorporation into a product.

- The scope of recycled and remanufactured products includes primary recycled materials, co-products (outputs of equal value to primary recycled materials), and by-products (outputs of lesser value to primary recycled materials).

- The scope of disclosure includes recycling conducted by the registrant or by third parties through direct contract with the registrant.

- Portions of products and materials that are disposed of in landfills are not considered recycled; only the portions of products that are directly incorporated into new products, co-products, or by-products shall be included in the percentage recycled.

- Materials incinerated, including for energy recovery are not considered recycled. Energy recovery is defined as the use of combustible waste as a means to generate energy through direct incineration with or without other waste but with recovery of the heat.

.41 Electronic waste material (e-waste) shall be considered recycled only if the registrant can demonstrate that this material was transferred to entities with third-party certification to a standard for e-waste recycling such as Basel Action Network’s e-Steward® standard or the U.S. EPA’s Responsible Recycling Practices (R2) standard.

- The registrant shall disclose the standard(s) to which the entities it has transferred e-waste are complaint.
Managing Systemic Risks from Technology Disruptions

Description
Systemic or economy-wide disruption may be created if the network infrastructure of Telecom companies is unreliable and prone to business continuity risks. As the frequency of extreme weather events associated with climate change increases, Telecom companies will face growing physical threats to network infrastructure, with potentially significant social or systemic impacts. In the absence of resilient and reliable infrastructure, companies may face lost revenue associated with service outages and unplanned capital expenditures to repair damaged or compromised equipment.

Accounting Metrics

TC0301-09. Average Interruption Frequency and Average Interruption Duration

.42 Average Interruption Frequency is calculated as the total number of customer interruptions divided by the total number of customers served, where:

• The number of customer interruptions is the sum for all interruptions of the number of customer accounts that experienced an interruption in service during each incident (i.e., counting customer accounts multiple times if they experienced multiple service interruptions throughout the year).

• The number of customers served is the number of unique customer accounts with active service during the fiscal year.

.43 Average Interruption Duration is calculated as the total customer interruption duration divided by the total number of customers served, where:

• The customer interruption duration is the sum for all interruptions of the total downtime of each interruption multiplied by the number of customer accounts affected by each interruption.

• The number of customers served is the number of unique accounts with active service during the fiscal year.

Note to TC0301-09

.44 For each significant service interruption, the registrant shall disclose the duration of the disruption, the extent of impact, and the root cause, as well as any corrective actions taken to prevent future disruptions.

• Where relevant, the registrant shall indicate costs incurred, such as those due to organizational change, training, or technology expenditures required for remediation, lost revenues, payment of warranties, or cost associated with breach of contract.

.45 A service interruption is considered significant if it meets the thresholds set forth in Part 4 of the U.S. Federal Communication Commission’s (FCC) rules (47 C.F.R. Part 4) for reporting as part of the Network Outage Reporting System (NORS).
TC0301-10. Description of systems to provide unimpeded service during service interruptions

.46 The registrant shall discuss potential business continuity risks associated with technology disruptions affecting operations. Examples of disruptions include, but are not limited to, those caused by technical failures, programming errors, cyber-attacks, weather events, or natural disasters at hosting facilities.

.47 The registrant shall discuss measures to address business continuity risks, including an identification of critical business operations and redundancies or other measures implemented to enhance resilience of the system or to reduce impact, including insurance against loss.

.48 The registrant should discuss estimated amount of potential loss, probability of that loss, and the associated timeframe. These estimates may be based on insurance figures or other third-party or internal assessments of potential loss.
Competitive Behavior

Description

The Telecom industry provides the classic example of a network industry, where most of the services provided exhibit strong network effects, in which the value of the service rises with the number of people using it. Large-scale infrastructure requirements for both wireless and wireline communications also create barriers to entry and contribute further to creating natural monopolies, resulting in a few dominant market players. Telecom companies, therefore, face heightened risks from anti-trust laws and customer and regulatory concerns over practices affecting pricing, contracts, network neutrality, and access to services. Competitive business practices are an important governance issue for the industry. Companies face potential material impacts from the erosion of consumer confidence and government action. These risks present challenges to future revenue growth and may limit the ability to grow by acquisitions.

Accounting Metrics

TC0301-11. Amount of legal and regulatory fines and settlements associated with anti-competitive practices

.49 The registrant shall disclose the amount (excluding legal fees) of all fines or settlements associated with anti-competitive behavior such as those related to enforcement of U.S. laws and regulations on price-fixing, anti-trust behavior (e.g., exclusivity contracts), patent misuse, or network effects and bundling of services and products to limit competition including violations of the Sherman Antitrust Act of 1890 and the Clayton Antitrust Act of 1914.

.50 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to TC0301-11

.51 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., price-fixing, patent misuse, anti-trust, etc.) of fines and settlements.

.52 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but not limited to, specific changes in operations, management, processes, products, business partners, training, or technology.
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