STANDARDS OUTCOME REPORT

Technology & Communications

September 25, 2013

Contents

Executive Summary

The following report provides a reference and framework for the SASB Standards Council 'Technology and Communications Sector Content Review' on September 25, 2013. Included are a brief description of SASB's research process (Part I), an account of the Industry Working Group participation rates (Part I), a description of the Standard Council's role (Part II), examples of how SASB responded to stakeholder feedback (Part III), and a list of issues that warrant special consideration by the Standards Council (Part IV). Although feedback on all content is welcome, SASB encourages the Standards Council to focus on the issues identified in Part IV of this report.

Introduction

In the second quarter of 2013, SASB's research team identified the material sustainability issues (or disclosure topics) that impact shareholder value in six industries (Electronic Manufacturing Services & Original Design Manufacturing (EMS/ODM), Software & IT Services, Hardware, Semiconductors, Telecommunications, and Internet Media & Services)[1] across the Technology and Communications sector. These issues and the associated accounting metrics or key performance indicators (KPIs) have subsequently been vetted by external stakeholders through the Industry Working Group (IWG). This process allowed for each issue and KPI to be evaluated on the basis of materiality, investor interest, and cost-benefit analysis. Based on this feedback and additional research, SASB will put forward for a 90-day public comment period (PCP) on October 2, 2013, accounting standards for the six industries.

Part I: Description of SASB's Process for Issue Identification, Disclosure Topic Determination, and Response to Stakeholder Comments

In an effort to develop industry-specific sustainability accounting standards, SASB identifies issues that are material, of interest to investors, and cost-beneficial. These issues are identified through an analysis of corporate reporting (10-Ks, annual reports, and social responsibility reports), news articles, and academic journals. The accounting metrics reflect what the research team determined to be the most cost-effective, comparable, and direct method of reporting on the risks and opportunities associated with each issue.

After the standards are developed, each disclosure topic and accounting metric is vetted by market participants, corporate representatives, and third party stakeholders through the IWG on the basis of the same criteria (A materiality assessment of each disclosure topic by the IWG appears in Appendix II). A 'Process Review' by the Standards Council – conducted concurrently with this 'Content Review' – examines the strength and representativeness of the stakeholders who participated in the IWG, and performs an initial assessment of the overall feedback.

The goal of this 'Content Review' is for the Standards Council to assess the process and outcome of SASB's response to the feedback received during the Technology and Communications IWG. Disclosure topics that were determined to be material by less than 75 percent of IWG respondents received additional consideration. The research team then responded to the IWG comments and integrated those that represent a consensus

[1] The Internet Media & Services industry was originally classified under the Services sector in the Sustainable Industry Classification System™. After careful consideration, the industry was moved to the Technology and Communications sector.

opinion or provide significant evidence for inclusion. A list of all IWG comments on Issues and SASB actions taken or planned appear in Appendix I.

When assessing the feedback on the KPIs, the research team generally found a correlation with the feedback on issues (i.e. strong issues were accompanied by strong KPIs or vice versa). SASB focused its initial revisions on areas where there was a discrepancy between the feedback on the issue and KPIs. In cases with a strong issue but weak KPIs this meant addition, removal, or significant revision to KPIs. In cases with a weak issue but strong KPIs this sometimes meant retaining the KPIs under a more suitable or revised issue (SASB, however, removed KPIs accompanying issues that were completely removed). Cutting across the entire KPI review, SASB incorporated specific improvements/suggestions wherever necessary. A list of KPIs currently under development for each industry in preparation for the PCP is provided in Appendix IV.

The full standards (including disclosure topics, KPIs and technical protocols providing detailed guidance on the KPIs) will again be vetted through the PCP, which provides another opportunity for revision. During the PCP, the Standards Council undertakes a review of the full standards in the form of an 'Accounting Metrics and Protocols Review'.

In sum, 141 IWG surveys (7 EMS/ODM, 58 Software & IT Services, 21 Hardware, 14 Semiconductors, 20 Telecommunications, and 21 Internet Media & Services) were completed throughout the six Technology and Communications industries compared to 240 in Financials, and 72 in Health Care. Although there is room for improvement, the IWG again provided valuable insight into how companies, market participants, and third party stakeholders view materiality. Issues and KPIs were analyzed on the basis of several factors including: relevance, usefulness, comparability, and cost-effectiveness.

Part II: Role of the Standards Council in the Content Review

As mentioned in Part I, the goal of this 'Content Review' is for the Standards Council to assess the process and outcome of SASB's response to the feedback received during the Technology and Communications IWG. Similar to the assessment conducted by these external stakeholders, this review should focus on three inter-related dimensions: materiality, investor interest, and cost-benefit.

- **Material information.** 'Material information' is defined by the U.S. Supreme Court as presenting a substantial likelihood that disclosure of the omitted fact would have been viewed by the 'reasonable investor' as significantly altering the 'total mix' of information made available.

- **Investor interest**. Related to the concept of material information, SASB seeks to create industry-specific accounting standards, and relies heavily on interest from the hypothetical 'reasonable investor'. This interest is largely determined by: (a) a keyword search for social, environmental and governance issues, by industry, of 10K, and 20F forms, and shareholder resolutions; and (b) the market participants who contribute to the IWG, and engage in investing primarily as an economic activity (mainstream, SRI, and others).

- **Cost-benefit**. Cost-benefit is an essential element of SASB's proposed sustainability accounting standards. The elements of this analysis that SASB considers include costs to companies for incremental reporting and auditing, the current availability of the information, and the cost savings to companies from more streamlined communication with investors on material issues. The benefits considered include not only the benefits to companies from improving performance on these issues that will improve operational and/or financial performance and the related attractiveness to the capital markets, but also the benefits to investors from having readily available, decision-useful information

with which to assess portfolio risks and opportunities, and the broader benefits to society from improved market stability and more sustainable outcomes.

***Note*:** As part of the analysis suggested above, members of the Standards Council should pay particular attention to the total volume of disclosure implied by the proposed standards, at the industry level.

Part III: Examples of IWG Feedback and Action Taken by SASB Research Team

The following section provides examples of the comments received during the IWG, along with SASB's rationale for including or excluding issues raised by the feedback, or modifying them, and the final action being considered in preparation for the PCP.[2] KPIs are also included in cases where they can provide additional context. A list of all comments appears in Appendix I of this report, and a materiality assessment of each disclosure topic by the IWG appears in Appendix II. Appendix III provides a revised list of disclosure topics that incorporates the feedback received during the IWG. Appendix IV includes the set of KPIs currently being developed for each industry, and is provided for reference.

Example 1: Retaining 'Sustainable Energy Management' in EMS/ODM and Semiconductors, and broadening the scope of the disclosure topic in Software & IT Services, and Internet Media & Services.

Comment and Topic: Remove 'Sustainable Energy Management' from EMS/ODM and Semiconductors. For the Software & IT Services industries, and Internet Media & Services industries, include water use in data centers, hardware utilization, and procurement and disposal of hardware.

Source and Timing: The issue of 'Sustainable Energy Management' was determined to be material by 71 percent of Semiconductors IWG respondents (10 out of 14 respondents replied saying Yes, the issue is material, and 3 responded "I don't know"). One IWG participant indicated that the issue was of limited interest. For EMS/ODM, 71 percent (5 out of 7 respondents) replied that the issue is material, with 1 respondent disagreeing about materiality.

For Software & IT Services, and Internet Media & Services, over 85 percent of IWG respondents agreed that the issue of Sustainable Energy Management is material. However, additional comments and discussions with industry experts suggested that SASB should consider broadening the issue to include (i) water use for cooling hardware and (ii) hardware utilization. Respondents and other industry experts also highlighted the importance of supply chain management for these companies, including procurement and disposal of hardware (electronic waste issue). Some IWG participants also expressed concerns about the use of the Power Usage Effectiveness (PUE) disclosure metric, in their survey response and follow-up conversations.

Rationale for Inclusion / Exclusion: SASB's research team decided to retain the Sustainable Energy Management issue (renamed to 'Energy Management in Manufacturing') for Semiconductors and

[2] In some cases, the name of the issue was somewhat modified for consistency and clarity. These cases are not discussed here but are provided in Appendix III.

EMS/ODM, due to only one respondent in each case disagreeing about materiality, and evidence suggesting energy use in manufacturing is material for these industries.

After further research and discussions with industry experts, the issue was broadened and renamed to 'Environmental Footprint of Data Center and Office Hardware' for the Software & IT Services and Internet Media & Services industries. The issue will now include energy consumption of non-data center hardware (office hardware), and a water management component for data centers. The research team decided to retain the PUE metric and supplement it with others to provide a more holistic view of energy management for data centers and office hardware. SASB considered also the inclusion of electronic waste and sourcing of hardware. However, at this time, there is limited data available on the amount of e-waste generated by these industries, and a conversation with data center sustainability analysts suggests that while there is value to companies in recycling or re-using old hardware, peer companies are already implementing best practices.

Action Taken: The disclosure topic will be retained for both the Semiconductors and EMS/ODM industries. The topic will be renamed, 'Environmental Footprint of Data Center and Office Hardware' for the Software & IT Services, and Internet Media & Services industries, and broadened to include overall energy consumption, and data center water consumption. SASB will consider including the purchase and disposal of hardware under this issue, depending on PCP feedback and further research.

Accounting Metrics Proposed to IWG for Software & IT Services:

- Median Power Usage Effectiveness (PUE) for all owned data centers.

- Median server CPU utilization for all data centers.

Example 2: Adding KPI on 'Labor Relations' for Telecommunications and including 'Workplace Safety' under the 'Fair Labor Practices' issue for EMS/ODM (previously called 'Labor Management').

Comment and Topic: Current reporting related to labor unions in Telecommunications 10-Ks does not include enough detail. Add KPIs for the issue of 'Labor Relations' in the industry (The issue was flagged for the IWG but SASB did not ask for KPIs during that time). Add workplace safety as a separate issue for EMS/ODM.

Source and Timing: Comments from the IWG suggested that current 10-K reporting in the Telecommunications industry does not address the issue of Labor Relations adequately, and that SASB should include KPIs for the issue. Two IWG members suggested in their survey responses the inclusion of workplace safety as an additional Human Capital issue for EMS/ODM.

Rationale for Inclusion / Exclusion: Major Telecommunications companies already have detailed disclosures on the issue of Labor Relations. However, further research by SASB indicates that the SEC currently does not have a reporting framework for labor relations issues, and disclosure does not appear to be standardized across all companies. SASB finds that workers in the EMS/ODM industry do not face unique health and safety hazards that warrant an additional issue separate from that of Fair Labor Practices, which includes working conditions and labor unrest. KPIs for the issue already discuss the health and safety aspect of working conditions.

Action Taken: SASB will include specific KPIs for the Labor Relations issue in Telecommunications. At this stage, SASB will highlight the health and safety aspect of working conditions within the description of the Fair Labor Practices issue for EMS/ODM, and consider strengthening the KPI for this aspect.

Accounting Metrics Proposed to IWG for EMS/ODM:

- Percentage of facilities with third party certification of health and safety systems to the OHSAS 18001 Standard or equivalent.

- Description of legal and regulatory fines and settlements associated with health and safety violations. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.

Example 3: Adding an issue of 'Intellectual Property Protection and Competitive Behavior' for Semiconductors

Comment and Topic: Add issue of Intellectual Property (IP) Protection and Competitive Behavior for Semiconductors, covering collusion and price fixing, and IP infringement issues.

Source and Timing: One of the 14 Semiconductors IWG members, an investor, suggested adding the issue and provided related evidence.

Rationale for Inclusion / Exclusion: After further research based on the IWG suggestion, SASB found evidence to show fines for several semiconductor companies for collusion and price fixing. Evidence also shows that the industry is highly dependent on IP protection, and companies are involved in legal actions related to IP violations. This is similar to the Software & IT Services and Internet Media & Services industries, where the issue is discussed as a conflict between protecting IP and ensuring that it is not used as a tool to restrict competition, particularly by dominant market players.

Action Taken: SASB will add the issue for the Semiconductors industry.

Example 4: Removing 'Digital Inclusion' from Telecommunications, and discussing that aspect under the issue of 'Competitive Behavior'

Comment and Topic: Remove the 'Digital Inclusion' issue from Telecommunications.

Source and Timing: According to IWG survey respondents, this issue is not of interest to the reasonable investor, and does not have a significant financial impact on companies. Only 65 percent of IWG participants considered this issue to be material (13 out of 20 respondents), with an equal percentage of both corporations and market participants.

Rationale for Inclusion / Exclusion: The Telecommunications industry brief for the IWG discussed digital inclusion in the context of the universal service obligation of telecom companies, and access to new communications technology being viewed as a basic and necessary good, with an increasing number of essential services such as health care and finance being provided through telecommunications networks. It highlighted the opportunity for telecom companies to reduce the digital divide while expanding their customer base, particularly in emerging markets. Companies are also required to comply with provisions in existing legislation that aim to improve access to telephone services for people with disabilities. However, the issue of digital inclusion could instead be discussed in the context of the concentrated nature of the industry due to network effects, and the need for industry competition and consumer protection, discussed under the issue previously named 'Market Manipulation and Anti-Competitive Practices' (to be renamed, 'Competitive Behavior').

Action Taken: SASB will remove the issue of 'Digital Inclusion' from Telecom, and discuss it as an aspect of the issue of 'Competitive Behavior.' SASB will consider modifying the KPI for the Competitive Behavior issue to reflect this.

Accounting Metrics Proposed to IWG for Telecommunications:

- Discuss products and services targeted at increasing access for customers and markets underserved by broadband internet or cellular data networks. Where relevant, include a discussion of efforts to promote technological literacy. (Digital Inclusion issue)

- Description of legal and regulatory fines and settlements associated with anti-competitive practices, market manipulation, or intellectual property violations. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events. (Market Manipulation and Anti-Competitive Practices issue)

Part IV: Disclosure Topics for Special Consideration of the Standards Council

The following section identifies some disclosure topics that warrant additional consideration by the Standards Council. Each topic has been evaluated following comments that arose during the IWG and during SASB's Delta Series on the Technology and Communications sector. A description of the topic, the associated KPIs, and SASB's proposed action are included below.

Talent Recruitment, Development, and Retention

Comment and Topic: Consider renaming the issue of 'Talent Recruitment, Development, and Retention,' for the Software & IT Services, Internet Media & Services, Semiconductors, and Hardware industries. Better define the scope of the issue and its relationship to SASB's Conceptual Framework. Consider the impacts of the significant offshore and outsourced operations of industry players.

Source and Timing: SASB decided to re-consider the issue in the context of previous discussions on the topic for the Financials and HealthCare sectors, and the evolution of the Conceptual Framework. For Semiconductors, 71 percent of IWG respondents agreed that the issue is material (with only one respondent disagreeing). It was the lowest ranked issue for the industry (driven by market participants' ranking). But corporations considered it a material issue (80 percent agreed, and ranked it 5th out of 8 issues). For other industries, this was a strong issue (80-90 percent agreed).

Topic Description for Software & IT Services: The industry brief prepared for the Software & IT Services IWG highlighted some key aspects of Talent Recruitment, Development, and Retention, including: the quality of domestic STEM education and the lack of availability of a skilled workforce for this industry, industry vulnerability to immigration policies, decisions about offshoring and outsourcing, and developing local talent pools. The brief also mentioned the importance of non-monetary compensation and amenities to attract and retain talent, of training and professional development, and recruiting a diverse workforce.

Based on further research, and guided by the revised Conceptual Framework, SASB's research team has decided to discuss the material elements of the 'Talent Recruitment, Development and Retention' issue under two separate issues, to be named 'Recruiting and Managing a Global Skilled Workforce' and 'Employee inclusion and performance.' The descriptions for each topic are provided below.

Recruiting and Managing a Global Skilled Workforce: While the number of job openings in the Software and IT Services industry is growing, companies are finding it difficult to recruit qualified employees to fill these positions. Intense competition in the industry to acquire highly-skilled employees has resulted in significant monetary and non-monetary compensation being offered. Companies are vulnerable to immigration policy changes as they try to recruit foreign nationals with the necessary skills to meet the

shortage in skilled domestic employees. Companies increasingly seeking to offshore operations to countries with available skilled labor or to lower employee costs may be affected not only by social tensions, and protectionist tax or trade policies in their home country, but also by difficulties in recruiting and leveraging a global workforce with the right skills, and minimizing the risks from such a workforce. These risks, which could affect profitability or brand value, include intellectual property theft, or potential data privacy breaches by offshore employees (or outsourced companies or their employees in the case of outsourced job functions), etc. Offshoring or outsourcing can also cause restructuring in the home market, with potential to harm employee relationships. Some companies are contributing to relevant education and training to expand the availability of domestic skilled employees, in order to lower offshoring risks and address local labor market constraints.

Employee inclusion and performance: Employees are key contributors to value creation in the Software & IT Services industry, and employee costs are a major proportion of operating expenses. The industry also experiences high employee turnover rates. Companies offer significant monetary and non-monetary benefits in order to improve employee engagement, and therefore retention and productivity, both of which affect profitability. Workers in the industry are said to experience lower separation between 'work' and 'life' than more traditional occupations, with implications for job satisfaction. Flexibility in working conditions might influence the recruitment and retention of a more diverse workforce. While constrained by low diversity in education and training related to the skills needed in the industry, companies would benefit from recruiting a more diverse workforce, providing adequate support to traditionally under-represented employees, and discouraging implicit biases in promotions. Greater workforce diversity is important for innovation, helps companies understand the needs of their diverse and global customer base, and communicate with customers effectively.

Rationale for Inclusion / Exclusion for Software & IT Services: There is support from the IWG for the Talent Recruitment, Development and Retention issue, which also has a material impact on companies. SASB considered further how the two issues now being put forward under Human Capital impact society, and are therefore a sustainability concern in addition to being material for companies.

According to the Conceptual Framework, sustainability includes the management of social capital necessary to corporate value creation. Human capital in this industry is a key asset to delivering long-term value. More specifically, related to this issue, the Conceptual Framework says that human capital issues include the attraction and retention of employees in highly competitive or constrained markets for specific talents, skills or education. Human capital issues also include factors that affect the productivity of employees, such as employee engagement, diversity, and incentives and compensation. This applies to the Software and IT Services industry.

Company choices to address the skills shortage have social impacts. Recruiting of foreign workers can create social tensions, and potentially lead to 'brain drain' over the longer-term in the home country of these workers. Large inflows of immigrants may drive down wages in the host country. Yet, migration of skilled labor benefits the workers migrating – they migrate to countries where they are paid more, and the wage differentials are related to differentials in productivity arising from specific host country characteristics. The ethical question of freedom of movement also applies to migration.[3]

Decisions about offshoring also have sustainability implications. According to one study, looking at anecdotal evidence as well as economic theory, offshoring between developed and developing

[3] For a discussion of these points on migration, see: Collier, Paul. "Migration Is Expensive, but Pays Off in Productivity." *Bloomberg*, August 27, 2013. http://www.bloomberg.com/news/2013-08-27/migration-is-expensive-but-pays-off-in-productivity.html (accessed September 12, 2013).

countries can benefit both on the whole. For example, US-based corporations improve financial performance from cost savings, and can invest the higher profits in other business opportunities that create new jobs. India benefits from generating revenues and creating jobs. However, even if the country as a whole benefits from offshoring, individuals and local communities can be affected negatively, for example, through job losses if workers are not able to transfer easily to new roles.

The issues being discussed also include considerations of diversity and work-life balance, both of which have social impacts. Finally, contributing to education and training efforts that create domestic skilled labor pools has social benefits. 'Education' and 'Experience' premiums improve salaries and therefore standards of living.[4]

Proposed Action: SASB will put forward two issues under Human Capital for public comment, instead of the issue of Talent Recruitment, Development, and Retention for the Software & IT Services industry: (i) *Recruiting and Managing a Global Skilled Workforce* and (ii) *Employee inclusion and performance.* New KPIs are being developed for these two issues for the PCP. SASB will consider additional evidence under this new framework for the other industries to determine the issue/s to include under Human Capital.

Environmental and Social Products and Services

Comment and Topic: Remove issue of 'Products and Services Enabling Environmental Efficiency and Positive Social Impacts' from Software & IT Services, Internet Media & Services, and Semiconductors. Retain issue in Telecommunications.

Source and Timing: 69 percent of IWG respondents (40 out of 58 respondents) for Software & IT Services, 62 percent (13 out of 21 respondents) for Internet Media & Services, and 64 percent (9 out of 14 respondents) for Semiconductors considered this to be a material issue. (For Telecommunications, the percentage agreeing was 80 percent). For Software & IT Services, those that considered the issue not to be material responded that the issue does not present a significant risk for companies, or is of limited interest. 53 percent of market participants found the issue to be material, ranking it last out of 7 issues in terms of priority, while 74 percent of corporations considered it material (but also gave it the lowest rank). During the Delta Series workshop, SASB discussed the issue with attendees. While some considered the issue highly material given the innovation potential of this sector, everyone acknowledged that it is difficult to develop KPIs for the issue. Some participants considered the current scope of KPIs too narrow.

Topic Description for Software & IT Services: The industry brief prepared for the Software & IT Services IWG discussed the potential for, and actions by, companies in the industry to create offerings that enable environmental efficiency and positive social impacts through the use of their products in other industries or by retail customers. Emerging environmental and social trends, along with higher regulatory requirements and scrutiny in some other industries, are creating new software and consulting opportunities for companies in the industry. The industry is characterized by a high degree of innovation. Companies' intellectual capital and access to vast amounts of data can be used to enable game-changing solutions in other industries to address significant environmental, social and governance challenges.

[4] Lacker, Jeffrey. Federal Reserve Bank of Richmond, "Technology and Labor Markets." Last modified January 18, 2005. Accessed September 12, 2013. http://www.richmondfed.org/press_room/speeches/president_jeff_lacker/2005/lacker_speech_20050118.cfm.

Based on further research that identified specific evidence of materiality related to the concept of IT-for-Sustainability, and guided by the revised Conceptual Framework, SASB's research team has decided to present the issue for public comment, and rename it as 'Delivering Sustainability Solutions for Customers.' The new issue description is provided below.

Delivering Sustainability Solutions for Customers: As companies in the industry look to expand their offerings, provide more high-value services, and acquire customers in emerging markets, where sustainability challenges may be more acute, sustainability-related IT solutions for customers are becoming important drivers of long-term value creation. Business, government and retail customers of Software and IT Services companies all face growing Environmental, Social and Governance challenges in varying forms and degrees, including those related to operational risk management, product safety and sustainable supply chains, sustainability analytics and reporting, and energy and environmental resource management, among others, depending on the industry being served. Through intelligent IT services that leverage the trends of cloud computing, data analytics, machine learning, and machine-to-machine communication to enable customers to address their sustainability concerns, companies in the industry will be able to meet evolving customer needs and expectations, differentiate their offerings, increase brand value, and expand their addressable market.

Rationale for Inclusion / Exclusion for Software & IT Services: SASB identified further evidence that suggests that companies are beginning to develop software solutions and consulting services aimed at addressing the complex sustainability challenges that their business, government and retail customers face. These may be embedded into existing software and services, or may be provided as new offerings. Such initiatives are becoming important as a means of differentiating companies in a highly competitive environment. Research not specific to this industry shows that companies now consider 'sustainability' investments as important growth drivers (as opposed to risk mitigation strategies) and being motivated by customer expectations. However, revenues derived from such software and services are currently a small fraction of overall industry revenues, although some estimates suggest this is a growing market. The link to materiality is best illustrated by IBM's Smarter Planet initiative, which it discusses extensively in its Form 10-K. Evidence suggests that IBM's brand value increased significantly as a result of this initiative, as did its market potential.

Proposed Action: SASB will retain the issue in the Software & IT Services industry for the PCP, renaming it, 'Delivering Sustainability Solutions for Customers.' Depending on PCP feedback, the issue is likely to be categorized as an Emerging Issue, due to the as-yet-small but growing market size of IT-for-Sustainability products and services. SASB will propose revised KPIs focusing on sustainability-related needs and expectations of customers. SASB will consider additional evidence before deciding on whether to retain this issue for the other industries. The issue is likely to be retained for Internet Media & Services, where companies provide services that are increasingly similar to the Software & IT Services industry, and for Telecommunications, for which IWG respondents agreed about materiality. For the Semiconductors industry, SASB will consider including some element of this issue under 'Product Lifecycle Management,' which already discusses energy efficiency of semiconductors in the use-phase.

Accounting Metrics proposed to IWG for Software & IT Services:

-Description of products and services that generate positive social impacts in one or more categories: healthcare (including global health), education, safety and security (including cyber security). Indicate how the social benefit relates to the product or

service - if it is the primary purpose, a co-benefit, an auxiliary feature, etc. Include current revenue from each product and service and projected growth.

- Description of products and services that enable environmental improvement for users in one or more categories: smart grid applications, data center efficiency, environmental efficiency in terms of materials, energy, water, or waste. Indicate how the environmental improvement relates to the product's functionality - if it is the primary purpose, a co-benefit, an auxiliary feature, etc. Include current revenue from each product and service and projected growth.

Appendix I: IWG Comments on Disclosure Issues and SASB Action

The following table provides a brief description of all the comments received during the IWG including: the industry, disclosure topic, feedback type, interest group, comment(s), and the action taken by SASB.

Industry	ESG Topic	Feedback Type	Interest Group	Comment	Proposed SASB Action
EMS/ODM	Security	Add Issue	Corporation or Industry Association	Supply chain security protecting against counterfeit products and taint is of critical importance.	A KPI relating to the issue of counterfeiting will be considered for the Supply Chain Management issue.
EMS/ODM	This list should more closely align with GHG protocol (Scope 1, 2, 3)	Add Issue	Corporation or Industry Association	There is overlap among the issues listed.	Comment noted.
EMS/ODM	Workplace safety issues	Add Issue	Market Participant -Investor, Research Analyst	Workplace safety issues should be considered a subset of labor management issues. The intense pressure to complete projects along with exposure to chemicals present a unique risk to companies in this sector.	Comment noted. This issue is addressed in the KPIs for Labor Management.
EMS/ODM	Not Applicable - Comment of Brief	Comment on Brief	Public Interest Group - Government, NGO, Intermediaries	Additional information required on the metrics	Comment noted.
EMS/ODM	Not Applicable - Comment of Brief	Comment on Brief	Market Participant -Investor, Research Analyst	Value impact matrix not supported by evidence switching costs could have been Jabil was only top 5 US-based EMS cited in evidence... most other companies were hardware manufacturers from a different SIC--does it make sense to break out this industry???	SASB considered merging the EMS/ODM industry with Hardware, but finds that this industry has a distinct set of material issues and a significant set of U.S. listed companies to warrant being considered a separate industry.
EMS/ODM	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	In general, the brief is an admirable attempt to be comprehensive, but the document is naïve, and reflects a lack of appreciation for some of the nuance and complexity in the industry.	Comment noted.
EMS/ODM	Not Applicable - Brief Inaccuracy	Inaccuracy	Market Participant -Investor, Research Analyst	"the industry faces risks and opportunities associated with environmental, social, and human capital" but the social section on page 1 is blank "employees were forced to work through a holiday week to meet demands by Apple" most research I read indicates EMS employees want more hours especially overtime Conflict minerals is not about mineral scarcity; it is about responsible purchasing decisions (page 7 second paragraph) "stingier" pg 4 might be better "stricter"?	Comment noted.
Hardware	Fair Competition and Ethics	Add Issue	Corporation or Industry Association	As developing countries look to grow their IT infrastructure and catch up with the developed world, global companies may take less-than-ethical approaches to selling their technology products. Bribery, misinformation, etc. may be used to close a sale and the lack of 'sophistication' of the developing country's market may make it easier for companies to get away with these techniques.	This issue will be considered for inclusion.

Hardware	Health and safety for manufacturers	Add Issue	Market Participant -Investor, Research Analyst	Probably related to supply chain for most companies, but some have in-house manufacturing, or are contract manufacturers.	This issue will be considered for inclusion.
Hardware	Diversity	Add Issue	Corporation or Industry Association	Part of talent should be diversity.	SASB is considering this aspect in its re-evaluation of the Talent Recruitment, Development and Retention issue.
Hardware	Water	Add Issue	Corporation or Industry Association	Water use and resource protection is important particularly during manufacturing.	This issue was initially not included because many firms in this industry are not manufacturers, however SASB will reconsider this issue.
Hardware	Regulatory issues	Add Issue	Corporation or Industry Association	Regulations severely impact the industry. They are related to all material topics listed.	Comment noted, but there is no evidence of materiality of this as a standalone issue for the industry.
Hardware	Water	Add Issue	Corporation or Industry Association	Water scarcity and quality. Whether this issue is material is, to some extent, company specific (based on location, geography of suppliers, amount of manufacturing, etc.). This is true of most issues.	This issue was initially not included because many firms in this industry are not manufacturers, however SASB will reconsider this issue.
Hardware	Products enabling positive environmental and social impacts	Add Issue	Corporation or Industry Association	Similar to internet services, technology hardware companies can have a much bigger impact downstream (and generate significant revenue) than in their operations and supply chain	This issue was considered, but was determined not to be material.
Hardware	Labor and Human Rights	Add Issue	Corporation or Industry Association	Social impacts of producing hardware products, including labor and human rights, are lacking from the categories given.	This issue is addressed in the Supply Chain Management issue.
Hardware	Addressing the Guiding Principles on Business & Human Rights	Add Issue	Corporation or Industry Association	IT sector is very engaged with the GPs and addressing many human rights issues.	This comment is not relevant to this industry.
Hardware	Addressing the Digital Divide	Add Issue	Corporation or Industry Association	IT companies are doing amazing work around the world to provide access to the internet/information/freedom of expression, improved healthcare and education, economic empowerment (particularly to women)... etc. I feel strongly that this work is contributing to the economic development at the personal, family and country level.	This comment is not relevant to this industry, and was initially included in the Telecommunications industry.
Hardware	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	While the industry brief had some areas that I felt needed further explanation, it was as a whole useful. I think you need to add a note that the description of each capital and sub-area is an example and not an exhaustive list of all material areas that an organization may determine to impact its business or ability to create value. I was more frustrated with the survey itself as it is not as simply as a cut and dry "yes" or "no" and we were not able to include explanations for our determination (which I beleive are required given the importance or the assertions: relevant, comparable, etc.). The survey was also designed without a time horizon and some of the issues that you've determined are material are not material in the near-term but are over time. This time horizon needs to be considered and definied in the determination of materiality.	Comment noted, and has been considered for changes to the survey going forward.

Hardware	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	I think there are insufficient distinctions made between the key industry segments, e.g. semiconductor is dramatically different than OEMs and EMSs. Telecommunications is also considerably different in terms of the data privacy and security issues than the other segments. It amounts to an overly simplistic view of ICT.	Comment noted. Distinctions between ICT segments are addressed in individual industry briefs and will be clarified in revisions.
Hardware	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	Other than the high level introduction (too general), the industry brief did not focus on current disclosures, their limitations and the benefits of providing the new disclosure standards. The industry brief provided a good introduction to the five material items noted.	Comment noted.
Hardware	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	I sent an email with several questions that did not get responded to with this info. I would say generally that the brief relied to a great extent on press reports and company self-published materials, neither of which could be considered unbiased sources of information. For example, citing EMC's data on the financial benefits of virtualization - when EMC owns VMWare, a major virtualization software provider - is like asking Cisco to provide data on the financial benefits of videoconferencing. Also much of the evidence provided was anecdotal and/or very suspect in terms of the cause/effect linkages implied (example, the change in EMC's PE ratio over a 2-year period being attributed to a security breach.. there is simply no causality evidence there and the linkage implied seems quite unsubstantiated). More generally, the hardware industry is extraordinarily broad and expecting people who are experts in one domain (like data privacy) to have enough knowledge to comment meaningfully as an "expert" on items like how to disclose energy use, is a stretch - the brief should have either had substantially more info to level the playing field, or the survey should have allowed us to skip sections.	The evidence will be reconsidered.
Hardware	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	Much of it was too vague - e.g., "PUE", and some of the rationals for materiality were questionable.	Comment noted and will be considered for revisions.
Hardware	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	Depth of examples were limited.	Comment noted and will be considered for revisions.
Hardware	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	I am not sure the brief properly segregated hardware into a "pure play" as it intended.	Comment noted and will be considered for revisions.
Hardware	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	In general, the brief is an admirable attempt to be comprehensive, but the document is naïve, and reflects a lack of appreciation for some of the nuance and complexity in the industry. Some assumptions appear to be incorrect (e.g., status of federal eWaste legislation).	SASB will reexamine the eWaste legislation issue.

Hardware	Not Applicable - Brief Inaccuracy	Inaccuracy	Market Participant -Investor, Research Analyst	As an example of the importance of Data Privacy and Security, the report notes that EMC's market valuation declined after RSA experienced a security breach. The decline in valuation was a result of investors lowering their expectations for growth in EMC's information storage segment and VMware. I estimate that RSA accounts for less than 10% of EMC's intrinsic value, and I do not believe that a single security breach would have a material impact on EMC's valuation.	SASB will reword the evidence to make this point clear.
Hardware	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	First and foremost, the idea that because the IT hardware industry provides data center hardware, it is the IT industry's data centers that are the most material energy consumers. Please see document sent under separate cover for more details.	Comment noted, but the meaning is unclear.
Hardware	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	Many of the issues were not related to sustainability.	Comment noted, but SASB considers the issues highlighted closely related to sustainability as per its Conceptual Framework.
Hardware	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	Nothing inaccurate - but even within the tech sector every company is different in terms of vertical integration, product groups, hardware/software/both, etc. I like the fact that the tech companies are together as a group, but there will need to be flexibility in reporting to accommodate the unique structures of each company. Please work closely with the EICC and CDP to ensure alignment.	These issues and metrics are a guide, and materiality is ultimately determined by the company.
Internet Media & Services	Relationship with the community, schools and communities progrmas without access to telecommunications technologies	Add Issue	Public Interest Group - Government, NGO, Intermediaries	The license to operate is its relationship with the community, with programs to schools and communities without access to telecommunications technologies	Not clear from the comment how this issue applies to the Internet Media industry. Potentially relevant for Telecom industry. No evidence provided to support the issue, and SASB did not come across evidence of materiality for it.
Internet Media & Services	Governance and directors compensation	Add Issue	Public Interest Group - Government, NGO, Intermediaries	The compensation of directors should be rational and should be responsible for managing ESG.	SASB found no evidence of material compensation issues in this industry. No evidence provided by respondent.
Internet Media & Services	Human rights issues and labor practices in supply chain	Add Issue	Public Interest Group - Government, NGO, Intermediaries	Human rights sumnistro chain is a critical issue today, espcially in poor countries where much child and slave labor, contractors especially cheap labor.	Applicable for hardware and semiconductors companies, and already discussed in those briefs.
Internet Media & Services	Foreign regulation trends	Add Issue	Corporation or Industry Association	Different countries are at different stages in regulating IP and privacy. Since these businesses are global, the investor needs to understand the implications of potential new regulation.	Global regulatory risks for privacy are discussed under the issue of Data Privacy. We can discuss the global IP context further in the description of the Management of Intellectual Property issue. Also will consider forward-looking statements regarding global regulations as part of the KPIs for these issues, although companies generally discuss these already.

Internet Media & Services	Sustainable Water Management	Add Issue	Corporation or Industry Association	Water consumption is also a management challenge for data center operators. Increasing drought conditions and climate change impacts make smart water supply management something investors should be interested in with respect to data center siting and operations. However, I would suggest metrics for water management be developed with care -- qualitative metrics may be most appropriate given the highly local nature of managing water.	The aspect of water use in data centers is being addressed in the revisions under the Environmental Footprint of Data Center and Office Hardware issue.
Internet Media & Services	Human capital management (additional metrics) - see section	Add Issue	Corporation or Industry Association	Other human capital management issues: gender/ethnic equity. Board, senior (and other) management breakdown; representation and pay status. Pay structure/incentives: time horizon, performance metrics and compensation linkages, employee engagement/satisfaction (%) or composite index Note re: Guidance/interconnected metrics. For any finalize metrics that overlap with other leading indicators, you may want to flag the relationship to help companies manage the metrics proliferation and to encourage reporting based on those frameworks (e.g., GRI, CDP, etc.).	Will consider for inclusion in KPIs for Human Capital issue.
Internet Media & Services	Supply chain management (upstream/downstream-incl. customers	Add Issue	Corporation or Industry Association	Supply chain management: Customer service, engineering/R&D outsourced? Customer satisfaction? How are customers engaged? To what degree are ESG issues considered/assessed in supply chain? Expectations for supply chain (including data centers and business processes such as call centers)? Supplier code of conduct developed? How widely applied and enforced? Resiliency of supply chain? Large companies in this sector have opportunities to influence their supply chains through their expectations, particularly of suppliers.	Will consider supply chain issues related to purchase and disposal of hardware, infrastructure, for Software & IT Services and Internet Media & Services companies. Need to investigate evidence of materiality given that environmental and social impacts are farther up the supply chain (e.g. at contract manufacturer level).
Internet Media & Services	Supplier management/code of conduct	Add Issue	Corporation or Industry Association	Though they do not have traditional manufacturing, these companies spend substantial resources with suppliers and should be transparent about how their ESG standards are applied to suppliers.	Will consider supply chain issues related to purchase and disposal of hardware, infrastructure, for Software & IT Services and Internet Media & Services companies. Need to investigate evidence of materiality given that environmental and social impacts are farther up the supply chain (e.g. at contract manufacturer level).
Internet Media & Services	Sustainable supply chain	Add Issue	Corporation or Industry Association	Same sustainable supply chain issues as the Technology Hardware industry - which Internet companies are buying from	Will consider supply chain issues related to purchase and disposal of hardware, infrastructure, for Software & IT Services and Internet Media & Services companies. Need to investigate evidence of materiality given that environmental and social impacts are farther up the supply chain (e.g. at contract manufacturer level).
Internet Media & Services	Infrastructure utilization maximization	Add Issue	Corporation or Industry Association	Many internet companies are growing fast and sitting on extra compute capacity - further improving utilization can save dozens of millions of dollars in deferred data center capex and opex	Considered in the revision to KPIs for the Sustainable Energy Management issue, now called Environmental Footprint of Data Center and Office Hardware.

Internet Media & Services	Synergistic activities that mitigate/create other ESG issues.	Add Issue	Market Participant -Investor, Research Analyst	More specificially, what are the individual standard requirements of what information can be shared from one person to another and how, without violating any present or future IP, security, other law - current or into the future.	These high-level questions will be investigated further as part of the Management of Intellectual Property issue (related to OpenSource) and/or the Data Privacy and/or Cyber Security issues.
Internet Media & Services	Extended Producer Responsibility (wrt customer usage)	Add Issue	Public Interest Group - Government, NGO, Intermediaries	All companies have to start looking at not just the sustainability of their direct activities but also of the activities that are caused by them: the manner in which their customers use and dispose of their products/services.	All industry briefs consider this aspect. SASB talks about it in terms of innovative products and services that reduce use phase impacts. This is particularly relevant for Hardware, EMS/ODM, and Semiconductor industries, but our Internet and Software briefs also cover this issue.
Internet Media & Services	Sustainability in Supply Chain	Add Issue	Public Interest Group - Government, NGO, Intermediaries	All companies have to start looking at not just the sustainability of their direct activities but also of the activities that are caused by them, such as the sustainability of their supply chain operations	This is a generic statement not specific to this industry. Nevertheless, given other comments, we will investigate supply chain issues for this industry, related to hardware and infrastructure purchases and disposal.
Internet Media & Services	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	I did not answer all of accounting metric questions -- only the two specific to energy/environment and social issues. Given the wide range of topics covered in this brief -- privacy, human capital and IP -- I could not collect and vet answers from all of those departments. Given how large an issue all of those other topics are for companies in this industry, most have entire departments dedicated to them. In order to capture direct feedback on the topics, the advisory group might seek to include reps from a much wider group than the ESG or Sustainability professionals. For those KPIs on which I could not comment, I stated "no" for each category - those are intended to be "i don't know" however in the event that will help you with coding responses to your survey.	Will be considered for IWG recruiting and recording KPI responses.
Internet Media & Services	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	There are some metrics that are not required for financial reporting but that are traditionally requested by investors, particularly the responsible investment community (e.g., governance related). To what degree do you wish to cover metrics that may not be sector specific, but common to all companies?	SASB's approach to cross-cutting issues is laid out in its Conceptual Framework
Internet Media & Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	Reference to Google's renewable energy programs were incomplete/inaccurate. For the purposes of the sustainability energy management section, we have an entire team focused on procuring RE for our data centers via a variety of PPA models. I would suggest point to that work instead or at least in addition to our on campus solar array that powers our offices, but is not related to our data centers. thanks!	SASB will revise the evidence section, based on this feedback, additional research, and discussions with the respondent.

Internet Media & Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Public Interest Group - Government, NGO, Intermediaries	Actually the industry brief was not inaccurate. However the facts described in the brief were not accurately translated into the Metric Criteria dealing with freedom of expression whose wording could easily be interpreted by companies (and by experts on Internet censorship) to address only filtering/blocking by the network level and not demands by government on companies to remove content. There is a major difference between network-level filtering by nation-states (over which companies have little control) and government demands on companies to carry out intermediary censorship (which are not implemented unless the company actively complies). This difference needs to be clear and the metric criteria need to be very clear about which one of these it is asking companies to report on. Ideally they should be asked to report on both - but they are very different.	We will consider for KPI revision.
Internet Media & Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	This wasn't an inaccuracy perse, but there was no mention of the affiliate marketing and lead generation component of online advertising. This is not the model where a site runs targeted ads and hopes someone "clicks the ad". Instead, this is where someone generates revenue by getting you to buy things from their site (affiliate). Lead gen is when a company is paid money if they can send a provider the data they capture during another activity, using "request a quote" or some odd survey. Many abuses in the advertising and data field started with these forms of advertising---and lead gen in particularly has been heavily implicated as a factor in two major financial crises (mortgage and the for profit college/student loan connection). Here's some decent data on affiliate: http://www.socialmediopolis.com/resources/538-affiliate-marketing-market-size-infograph-2	SASB will consider adding a discussion about affiliate marketing in the industry brief and consider for KPI revision.
Semiconductors	Investments in STEM education	Add Issue	Corporation or Industry Association	Investments in STEM education - in order to ensure supply of trained and technically capable human resources over the long-term, a company should invest in STEM education which will build reputational capital and can secure a pool of resources for future success.	This issue is already discussed under the Semiconductors industry issue on Talent and there is a related KPI specific to it. SASB will consider emphasizing the discussion on the development of local talent pools in the issue description.
Semiconductors	Community relations	Add Issue	Market Participant -Investor, Research Analyst	Semiconductor fabs can be very troublesome neighbors, not only because of emissions, which you have already (correctly) identified as key issues, but because of odors, traffic, etc. If you look at the history of Rio Rancho, where one of Intel's fabs is, you should be able to see how the community consultative group was instrumental in helping to keep the tensions around the plant's odors and nuisance to a manageable level, rather than devolving into conflict.	SASB investigated this further and found no industry-wide evidence of materiality to support the inclusion of this issue separately from the issues covered under the Environmental Capital category.
Semiconductors	Contractor employment health and benefits	Add Issue	Corporation or Industry Association	Many companies outsource manafacturing to contractors overseas and this needs to be managed appropriately (and broader then just saftery incidents) but around chemical exposure limits etc.	This is covered under the Supply Chain Management issue of the industry brief. SASB will consider elaborating on and identifying specific social and environmental risks for the KPI for this issue.

Semiconductors	Remediation/legacy management of manafacturing facilities	Add Issue	Corporation or Industry Association	Due to it being an industry with large chemical usage for manafacturing facilities - there are additional risks that come with this. Both from an environmental perspective such as remediation as well as water discharge etc but also from health and safet and exposure limits.	These aspects of manufacturing are discussed under several issues in the brief, including Waste Management, for example.
Semiconductors	Health exposure of manafacturing employees	Add Issue	Corporation or Industry Association	Due to it being an industry with large chemical usage for manafacturing facilities - there are additional risks that come with this. Both from an environmental perspective such as remediation as well as water discharge etc but also from health and safet and exposure limits.	These aspects of manufacturing are discussed under several issues in the brief, including Employee Health and Safety, for example.
Semiconductors	STEM education / skills development	Add Issue	Public Interest Group - Government, NGO, Intermediaries	Like materials sourcing, ensuring a flow of highly skilled talent in STEM will be critical to long-term viability of the sector as well as socioeconomic growth and well-being of humankind. Companies should be aware of and seeking to influence educational policy as well as contributing expertise and where appropriate, funding, to STEM education initiatives as well as tracking results.	This issue is already discussed under the Semiconductors industry issue on Talent and there is a related KPI specific to it. SASB will consider emphasizing the discussion on the development of local talent pools in the issue description and will consider the evidence provided for this purpose. Also will consider for KPIs whether to include an item specific to outcome tracking.
Semiconductors	Digital inclusion	Add Issue	Corporation or Industry Association		This issue is included in the Telecommunications brief. SASB considered including this issue for the Internet Media and Services industry, but found no evidence of materiality.
Semiconductors	Product energy usage	Add Issue	Corporation or Industry Association	Amount of energy used by the product tends to be one of the highest impacts in the life cycle.	This is included under Product Design and Environmental Lifecycle Impacts, and there is a KPI specific to it.
Semiconductors	Building health and safety	Add Issue	Corporation or Industry Association	In light of Bangladesh, and based on supplier audits I've viewed, building safety doesn't seem to be as big an issue as it should be. I think shareholders think it's covered by local governments, but it's clearly not. Maybe it's less of an issue given the products that semiconductor contract manufacturers are making are move expensive and so they have taken appropriate measures to protect themselves...	While building safety is not in itself a material issue, this would be covered by the Supply Chain Management issue. SASB will consider making KPIs more specific to environmental and social risks in this industry.
Semiconductors	Corruption	Add Issue	Market Participant -Investor, Research Analyst	Corruption aka business behavior or business conduct. High risk areas for semis include collusion or price fixing and technology theft or IP infringement.	SASB considered the evidence and added an issue of Management of Intellectual Property and Competitive Behavior.
Semiconductors	Not Applicable - Comment of Brief	Comment on Brief	Market Participant -Investor, Research Analyst	What metrics area already reported by companies in this industry. Over-emphasis on risks and underemphasis of opportunities, espeically environmental opportunities of increased power efficiency of semiconductors. Would have been useful to have a reference for energy used in manufacture versus energy used over lifetime of average chip/wafer... Overemphasis of healthcare market opportunity. why no examples from Qualcomm or Broadcomm? where is the support for the Appendix II vallue impact? especially cost of capital--was cost of capital discussed in the paper?	Comments noted, and will be considered in revisions.

Semiconductors	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	While not an inaccuracy, the data on the industry's water use in silicon valley is very out of date (from the 1990s). Also, on page 11, the reference to the explosion at an Intel fab was picked up from a news story covering the event which mentioned explosion at a fab, but it was a flash fire in a support building on the site and the building's fire suppression system activated immediately to put out the fire.	SASB will include more up-to-date data on industry water usage in the next draft of the brief, and also edit the Intel reference as suggested. However, on the latter, the point still stands that the explosion related to Intel's semiconductors manufacturing led to worker injury.
Semiconductors	Not Applicable - Brief Inaccuracy	Inaccuracy	Market Participant -Investor, Research Analyst	Was the report reviewed by a semi specialist to confirm some of the generalizations about the market? Talent section did not discuss "development"... perhaps better to remove that word from the title. product design evidence better supports waste and air pollution kpi, and revenue (or market entry/access) missing from value impact section revenue opportunity missing from environmental product section	Regarding the first point, SASB's Research team discussed the industry with industry experts when preparing the briefs, and also obtained feedback from industry experts through the IWGs. The Talent section does discuss development both in terms of employee training and in developing local talent pools through university research partnerships. Product design evidence is different from waste and air pollution KPIs since it discusses use of harmful chemicals in the product and energy efficiency of the product when in use, rather than waste and air pollution generated as by-products of manufacturing. The value impact section mentions customer acquisition, but SASB will consider adding language to discuss market entry. In environmental products, in talking about returns on investments, revenue is implied.
Software & IT Services	Managing conflicting global laws	Add Issue	Market Participant -Investor, Research Analyst	This should be separate. Software and IT services firms operate and sell globally. They are subject to a confusing array of conflicting laws. The world's laws were designed around physical goods, rather than information goods. And the updates may only make things worse -- conflicting privacy and cybersecurity proposals may act as barriers between countries.	SASB will consider whether there is evidence to support this as a separate issue. Currently, dealing with conflicting global laws around IP protection, data privacy and cyber security would be dealt with under each of those issues.
Software & IT Services	GHG Emissions (Scopes 1-3)	Add Issue	Corporation or Industry Association	GHG Emissions, across the value chain of IT service companies can be sizable.	SASB considered direct GHG emissions for this industry but finds that direct emissions are relatively small compared to industries in other sectors. GHG emissions related to purchased energy are covered by the Sustainable Energy Management issue. SASB will consider including KPIs related to energy consumption of all IT hardware (not just data centers) and asking for the energy mix. (Energy mix and energy efficiency are currently mentioned in the brief, with particular emphasis on data centers).
Software & IT Services	Overall Energy Consumption	Add Issue	Corporation or Industry Association	Overall energy consumption across operations, in addition to data centers.	See comment above in response to GHG emissions issue.
Software & IT Services	Gender diversity in the workplace	Add Issue	Corporation or Industry Association	Gender diversity is particularly important in this sector becuase of the deficit of women in technology. An issued that needs to be addressed across the sector.	Gender diversity is already mentioned in the Talent issue and there are specific KPIs related to it. SASB will review the evidence to include in the brief if it provides an additional perspective to what is already included.

Software & IT Services	Supply chain practices for critical suppliers.	Add Issue	Corporation or Industry Association	There are multiple issues that could be considered material within the context of supply chain including environmental human rights & social risks to regulatory risks related to conflict minerals. Critical suppliers defined as high volume suppliers, critical component suppliers and non-substitutable suppliers.	This comment applies more to hardware-type industries but given other comments, SASB will consider supply chain issues related to purchase and disposal of hardware, infrastructure, for Software & IT Services and Internet Media & Services companies. Need to investigate evidence of materiality given that environmental and social impacts are farther up the supply chain (e.g. at contract manufacturer level).
Software & IT Services	conflict minerals	Add Issue	Corporation or Industry Association	While prices decline the volume of computing equipment manufactured is growing exponentially. Supply chains are multi tiered and companies have little or no visibility beyond tier 1. Computers consume plastic (oil), water for cleaning of circuit boards, and conflict minerals to name 3. Software companies are indirectly exposed to this risk and IT services companies are directly exposed. Its a lurking monster, that could be generally characterized as supply chain labor and natural capital risk.	This comment applies more to hardware-type industries but given other comments, SASB will consider supply chain issues related to purchase and disposal of hardware, infrastructure, for Software & IT Services and Internet Media & Services companies. Need to investigate evidence of materiality given that environmental and social impacts are farther up the supply chain (e.g. at contract manufacturer level).
Software & IT Services	supply chain natural capital managment	Add Issue	Corporation or Industry Association	While prices decline the volume of computing equipment manufactured is growing exponentially. Supply chains are multi tiered and companies have little or no visibility beyond tier 1. Computers consume plastic (oil), water for cleaning of circuit boards, and conflict minerals to name 3. Software companies are indirectly exposed to this risk and IT services companies are directly exposed. Its a lurking monster, that could be generally characterized as supply chain labor and natural capital risk.	See comment above in response to other similar comments by this respondent.
Software & IT Services	supply chain labor risk	Add Issue	Corporation or Industry Association	While prices decline the volume of computing equipment manufactured is growing exponentially. Supply chains are multi tiered and companies have little or no visibility beyond tier 1. Computers consume plastic (oil), water for cleaning of circuit boards, and conflict minerals to name 3. Software companies are indirectly exposed to this risk and IT services companies are directly exposed. Its a lurking monster, that could be generally characterized as supply chain labor and natural capital risk.	See comment above in response to other similar comments by this respondent.
Software & IT Services	Sustainability disclosures	Add Issue	Market Participant -Investor, Research Analyst	For global firms in this market sustainability disclosures have emerged as a standard requirement	SASB's work directly relates to sustainability disclosures by Software & IT Services companies.
Software & IT Services	Procurement, Retirement and diposal of IT equipments	Add Issue	Corporation or Industry Association	In addition to data centers , software and IT services is also use computers, printer, photocopier , Telephone , AC units, mobile phones etc. Managing these assets end to end provides opportunity for reducing operational cost (energy, efficiency, etc), better experience to employees (latest gadgets, BYOD policy), environment safety (proper disposal result into better recovery of metals and handling of toxic).Operational efficiency, employee experience and compliance to disposal regulation are critical for software company.	SASB will consider supply chain issues related to purchase and disposal of hardware, infrastructure, for Software & IT Services and Internet Media & Services companies. Need to investigate evidence of materiality given that environmental and social impacts are farther up the supply chain (e.g. at contract manufacturer level) and that software companies are generally not impacted by extended producer responsibility-related laws. But this comment provides rationale for value impact and gets to the core of the disclosure topic, so SASB will take this into consideration.

Software & IT Services	Legitimacy of supply chain manufacturers.	Add Issue	Market Participant -Investor, Research Analyst	Manufactures must be investigated for improper conduct.	Comment relates to hardware industry, where SASB has raised this as an issue.
Software & IT Services	Human capital management (beyond the metrics identified)	Add Issue	Corporation or Industry Association	Consider adding some future oriented innovation metrics. Some suggest that employee engagement statistics may be statistically tied to future innovation success. Reputation/perceptions of innovation?	SASB will consider including engagement-related KPIs under the Talent issue.
Software & IT Services	Supply chain management (upstream/downstream-incl. customers	Add Issue	Corporation or Industry Association	Supply chain management: Customer service, engineering/R&D outsourced? Customer satisfaction? How are customers engaged? To what degree are ESG issues considered/assessed in supply chain? Resiliency of supply chain? Expectations for supply chain (including data centers and business processes such as call centers)? Supplier code of conduct developed? How widely applied and enforced? Other human capital management issues: gender/ethnic equity. Board, senior (and other) management breakdown; representation and pay status. Market access? For whom is software developed? Pay structure/incentives: time horizon, performance metrics and compensation linkages,employee engagement/satisfaction (%) or composite index	See response above in relation to supply chain issues.
Software & IT Services	Innovation	Add Issue	Corporation or Industry Association	Innovation: includes planned obsolescence/responsible marketing, customer satisfaction and the systems in place to foster medium and long-term survival and enhance shareholder value. While you note the critical role of innovation for this sector in your industry brief, you may not be sufficiently capturing this--admittedly difficult to capture--issue. Specific metric options: Percentage of sales from new products/services in a given time period or even asking what innovation process/outcome assessments a company uses to assess its progress and asking companies to report on progress (beyond the SEC requirement of R&D expenditures), e.g., innovation at different stages and of different types (input, process, products, organizational; input or outcomes), level of collaboration with other organizations? Consider adding some future oriented innovation metrics. Some suggest that employee engagement statistics may be statistically tied to future innovation success. Reputation/perceptions of innovation?	Innovation is discussed under SASB's Business Model and Innovation category. SASB will consider comment in its re-evaluation of the issue of Products and Services Enabling Environmental Efficiency and Positive Social Impacts.
Software & IT Services	Relationships with Suppliers	Add Issue	Market Participant -Investor, Research Analyst	In most cultures Suppliers are the least engaged stakeholders. Highly sustainable cultures do a great job at engaging suppliers and treating them as partners and not servants.	SASB discusses supply chain issues in the Hardware, EMS/ODM and Semiconductors briefs, where there is evidence of material impact on companies. Supplier engagement/relationships, while maybe important business drivers, are less relevant as a sustainability issue in the case of Software companies.
Software & IT Services	Measurement of Employee Engagement	Add Issue	Market Participant -Investor, Research Analyst	Employee engagement, is a subset of culture but can be used as a proxy. IE the extent to which employees feel empowered and are willing to give discretionary efforts	SASB will consider including engagement-related KPIs under the Talent issue.

Software & IT Services	Measurement of Corporate Culture	Add Issue	Market Participant -Investor, Research Analyst	The only thing that really matters or shall I say the most important issue for every industry is the degree to which management has created a culture that is aligned with sustainable practices. Short of that specific processes or initiatives will always be sub-optimal.	General comment, not applicable to this industry. No evidence provided.
Software & IT Services	escalating energy costs when price is put on carbon	Add Issue	Public Interest Group - Government, NGO, Intermediaries	Nor does it fully address the rapid rise in energy costs when price is put on carbon	SASB will consider KPIs for the Sustainable Energy Management issue that ask management to discuss future energy costs.
Software & IT Services	disruption of operations due to climate chaos	Add Issue	Public Interest Group - Government, NGO, Intermediaries	It also does not fully address business interruption from storms/other climate disasters.	While the issue description in the brief does not specifically mention disruptions due to weather-related events, KPIs for the issue of Managing Systemic Risks from Technology Disruptions ask companies to disclose the same.
Software & IT Services	e-waste recycling	Add Issue	Public Interest Group - Government, NGO, Intermediaries	Your brief does not address e-waste.	SASB will consider e-waste when investigating the additional issue of procuring and disposing of IT hardware and managing the supply chain, as mentioned in response to other comments above.
Software & IT Services	Supply chain management	Add Issue	Market Participant -Investor, Research Analyst	Labour rights in supply chain: Supply chain management in the context of human rights and labour rights risks is still an issue for the industry despite many improvements and measures undertaken by the companies in this area. The companies are targeted by NGOs for alleged labour rights violations especially in countries where national law is silent or actively conflicts with international human rights standards. EXAMPLE: There have been various reports from NGOs, labour organizations, workers unions and environmental protection organizations criticising Apple Inc. for their practices at their suppliers. Reportedly Wintek Corporation, a supplier to Apple Inc., has violated labour laws and exploited workers in Taiwan and mainland China. Allegedly, the company cut workers' salaries, forced unpaid leaves, cancelled statutory holidays, failed to compensate overtime work and illegally laid off over 600 workers in December 2008. The case continued and new allegations were raised through 2010 and 2011. e-Waste management (another issue under supply chain management): Electronic wastes can have severe adverse environmental and health impacts when not disposed of properly. Due to external requirements and regulations, companies more often assess the policies and practices of their recycling partners regarding e-Waste and trace sample waste shipments.	The supply chain management issue as noted here, and the example of Apple are discussed in the Hardware industry brief.
Software & IT Services	procurement of conflict-mineral-related equipment	Add Issue	Public Interest Group - Government, NGO, Intermediaries	the companies in this industry consume an enormous amount of electronic product - which has sustainability aspects on both ends of the life-cycle value chain. From sourcing (are the servers in data centers using conflict-mineral-free components?) to end of life (are the eWaste components disposed of in a responsible way?)	SASB will consider these comments when investigating the additional issue of procuring and disposing of IT hardware and managing the supply chain, as mentioned in response to other comments above.

Software & IT Services	the management of electronic waste (avoiding landfill)	Add Issue	Public Interest Group - Government, NGO, Intermediaries	the companies in this industry consume an enormous amount of electronic product - which has sustainability aspects on both ends of the life-cycle value chain. From sourcing (are the servers in data centers using conflict-mineral-free components?) to end of life (are the eWaste components disposed of in a responsible way?)	SASB will consider these comments when investigating the additional issue of procuring and disposing of IT hardware and managing the supply chain, as mentioned in response to other comments above.
Software & IT Services	Health and Safety of the workforce	Add Issue	Corporation or Industry Association	iii) Additional Issue 3: IT Services companies employ thousands of employees with the largest employing upwards of 100,000 employees across the globe. The nature of several of the jobs in this sector result in both, physical and mental stress e.g. BPO jobs where employees work in very stringent conditions.This coupled with long commutes to and from the workplace and a sedentary role that requires the employee to be at his or her desk all day can lead to multiple occupational health problems. This in turn can lead to increased absenteeism or attrition or both. Safety is a related but distinct issue that assumes special importance in certain contexts e.g. in 24/7 BPO operations, employees often have to commute to the workplace during the night in franchised cabs and buses. This poses a safety risk, especially to women employees	While these comments are more applicable to employees in BPOs/call centers outside the U.S., SASB will consider whether this is a material issue for U.S.-listed companies and if so, whether this should be considered as an additional issue, or within the Talent issue.
Software & IT Services	Labor rights for the large contract workforce	Add Issue	Corporation or Industry Association	ii) Additional Issue @ :Many IT Services companies employ a significant proportion of contractors - both as part of their core software production work as well as part of the many auxiliary services e.g. Housekeeping, Physical Security etc. This workforce can form anything between 5% to 20% of the total workforce and constitutes an important part of the company's supply chain. Critical workplace conditions - health and safety, equitable pay, Number of working hours, Days off allowance etc - must come under the oversight of the primary company and ignoring these may lead to compliance and reputational risks iii) Additional Issue 3: IT Services companies employ thousands of employees with the largest employing upwards of 100,000 employees across the globe. The nature of several of the jobs in this sector result in both, physical and mental stress e.g. BPO jobs where employees work in very stringent conditions.This coupled with long commutes to and from the workplace and a sedentary role that requires the employee to be at his or her desk all day can lead to multiple occupational health problems. This in turn can lead to increased absenteeism or attrition or both. Safety is a related but distinct issue that assumes special importance in certain contexts e.g. in 24/7 BPO operations, employees often have to commute to the workplace during the night in franchised cabs and buses. This poses a safety risk, especially to women employees	SASB will consider this aspect in its re-evaluation of the Talent Recruitment, Development and Retention issue.
Software & IT Services	Water scarcity posing business continuity risk	Add Issue	Corporation or Industry Association	i) Additional Issue 1: In many countries, water stress is already a reality today and will continue to increase.To the extent that it poses business continuity risk for large operations like the typical offshore center in countries like India. This, thus, poses a risk for the customers in the U.S. who depend on such offshoring centers	The link between water stress and business continuity risks to offshore centers is not clear. SASB has not come across evidence to support this issue, and has not received other IWG comments about it.

Software & IT Services	Responsible Supply Chain Management	Add Issue	Corporation or Industry Association	Supply chain management and procurement	SASB will consider this issue for inclusion. See response to similar comments above.
Software & IT Services	Data center impacts	Add Issue	Corporation or Industry Association	Facilities and data centers may have significant environmental impacts associated with energy consumption, water consumption, etc.	This issue is already discussed under Sustainable Energy Management. SASB is considering broadening the issue and renaming it Environmental Footprint of Data Center and Office Hardware.
Software & IT Services	Environmental impact associated with facilities	Add Issue	Corporation or Industry Association	Facilities and data centers may have significant environmental impacts associated with energy consumption, water consumption, etc.	Same as above.
Software & IT Services	Work-life balance	Add Issue	Corporation or Industry Association	Proper attention paid to work time -in particular overtime kept within reasonable limits vs. personal/family time. The software development and the delivery of IT services are high-pressure environments. Pressure comes from management or from clients, e.g. to ensure teams meet release or go-live deadlines, etc. Potential impact on the business: employee turnover, reputation.	Discussed under the Talent issue. SASB will elaborate on this and consider relevant KPIs if needed.
Software & IT Services	Accounting governance	Add Issue	Market Participant -Investor, Research Analyst	How discretionary accounting methodology decisions reflect upon larger decisions regarding ESG issues, governance structure and management ethics, etc.	General comment, not applicable to this industry. No evidence provided.
Software & IT Services	Human health issues associated with wireless technology use	Add Issue	Corporation or Industry Association	In 2011, cell phones were listed by the WHO as a possible carcinogen for the first time ever. While the data is by no means conclusive, if substantive proof is established and consumer backlash or regulation ensue, it could materially affect device providers but also those software companies who depend on distribution through wireless devices or whose primary access is from wireless computers over the cloud. Whether this should be considered material today or just on a watch list, figure it couldn't hurt to raise it.	The impacts on software companies will be indirect and do not appear to be material at this time.
Software & IT Services	Standards Compliance. Particularly as it relates to IEEE	Add Issue	Market Participant -Investor, Research Analyst	Regulatory requirements for the design and governance of gaming and standard development software is a component of 25 CFR 547 as well as tribal and local governmental concerns.	These are technical standards. SASB has not come across evidence for the IEEE or the Indian gaming standards that relate to a sustainability issue and that also have a material financial impact on companies in the industry. This issue has not been raised by other respondents. The links submitted by the respondent do not provide evidence of materiality, but highlight that software standards exist.
Software & IT Services	Regulatory Impacts. Particularly in gaming software, Class 2	Add Issue	Market Participant -Investor, Research Analyst	Regulatory requirements for the design and governance of gaming and standard development software is a component of 25 CFR 547 as well as tribal and local governmental concerns.	Same as above.
Software & IT Services	Not Applicable - Comment of Brief	Comment on Brief	Market Participant -Investor, Research Analyst	Discussion about events or situations that indicated the materiality issues selected for the survey.	Comment is not clear. The Evidence section of the brief provides information on why issues were deemed to be material.

Software & IT Services	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	There are some metrics that are not required for financial reporting but that are traditionally requested by investors, particularly the responsible investment community (e.g., governance related). To what degree do you wish to cover metrics that may not be sector specific, but common to all companies?	SASB's treatment of cross-cutting issues is discussed in its Conceptual Framework.
Software & IT Services	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	Depth of examples were limited.	SASB will consider including additional evidence as needed.
Software & IT Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	I think there is a very big distinction between software and IT Services and social media companies. Software companies sell software (oracle). It services companies sell consulting (SAIC) and social media companies sell content or content delivery. I was surprised to find references to social media companies in the document. I know as a former CEO of a public software company we see our business as very different from IT services or content providers. The distinctions are meaningful and should be called out.	SASB will try to make the distinctions more clear in the brief and standards. However, these different industry segments face similar material sustainability issues. Ultimate determination of materiality depends on the company and its unique business.
Software & IT Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	The definitions of cloud computing were incorrect. Please see NIST definition, and document sent under separate cover with more comprehensive feedback.	SASB will review the documents sent and make changes to the description if needed. The brief does not 'define' cloud computing but rather describes some of its elements.
Software & IT Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Public Interest Group - Government, NGO, Intermediaries	not really inaccurate, but left out e-waste. cost of energy is greater than cost of IT equipment over its life. did not address potential carbon cost added to energy cost. did not really address business interruption from increasingly catastrophic weather events.	See response to the same comments from the respondent above.
Software & IT Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	Page 1, 1st bullet: Software is usually not installed using CDs any more in any case. I would write "...rather than a product that has to be installed on a system owned by the user" Also, later on, Skype is defined as IaaS, which is not. IaaS means that the cloud provider is making available server, networking and storage resources to the user and the user pays a fee for using them without ever owning them. The resources are also hosted in the provider's space. Examples are Amazon Web Services, Microsoft Azure, HP Cloud etc. Skype would fall in the Unified Communications category, it's not really related to Cloud as it needs software to be installed on the local system. Page 4, 1st paragraph: I don't believe Cloud computing significantly facilitates Big Data processing. Big Data can be processed both in-house and in the Cloud without any issues. Page 7, 2nd paragraph: "The following sections *provide*" Page 10, 2nd paragraph: "In addition *the* policies" Page 12, 2nd paragraph: "Similar *to* data privacy" Page 18, 3rd paragraph: "while posing risks for players" word players is written twice	SASB will make the suggested changes to the brief.
Software & IT Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Corporation or Industry Association	Many of the issues were not related to sustainability.	SASB operates at the intersection of sustainability and financial/traditional business issues. The link to sustainability has been made clear in the brief.

Software & IT Services	Not Applicable - Brief Inaccuracy	Inaccuracy	Market Participant -Investor, Research Analyst	Omissions. Regulations DO exist in the area of software design and creation. IEEE standards and the video game (Class II) software are just two examples. There are likely more.	Regulatory Trends section primarily covers regulations that affect the sustainability issues in the industry, as the footnote in the section mentions. IEEE standards are not enforceable. This comment relates to the additional issues raised by the respondent previously, and the same SASB response applies.
Telecommunications	Censorship and Freedom of Expression	Add Issue	Public Interest Group - Government, NGO, Intermediaries	The increasing use of mobile technology has blurred the lines moreso between pure Internet Service Providers and Telecommunications companies. Therefore there are increasing risks beyond traditional consumer privacy and more related to content management and relationships with law enforcement.	This issue was considered, and will be revisited.
Telecommunications	Product Innovation	Add Issue	Corporation or Industry Association	Product Innovation demonstrates not only the long term viability of a company but how the company intends to address and monetize the opportunities of a changing world.	This issue is addressed in Environmental and Social Products and Services
Telecommunications	Climate Change Strategy	Add Issue	Corporation or Industry Association	Climate Change Strategy is indicative of a company understanding and working towards a solution that fits their business model.	This issue was considered, but was determined not to be material.
Telecommunications	Labor Issues/ Diversity	Add Issue	Corporation or Industry Association	Labor/Diversity-Investors want companies to have diverse workforce overall as to help bring new ideas to the table. Having an overall	SASB will consider this in its re-evaluation of the issue of Talent Recruitment, Development and Retention for the sector.
Telecommunications	Use of materials sourced from conflict zones	Add Issue	Public Interest Group - Government, NGO, Intermediaries	In the product life cycle management section, reference is made only to the potential hazards associated with the disposal of mobile phones. Companies should also pay attention to the hazards associated with the manufacturing and use of phones.	This issue will be considered for inclusion.
Telecommunications	Use of hazardous materials in equipment	Add Issue	Public Interest Group - Government, NGO, Intermediaries	Companies should also ensure that the materials used in the manufacturing of cell phones are conflict-free - ie they are responsibly sourced	This issue was considered, but was determined to be relevant for the manufacturers.
Telecommunications	Conflict Minerals	Add Issue	Corporation or Industry Association	3. COnflict minerals may potentially be in the IT products used by telecom operators and in the products they sell to consumers. This potentially assciates their brand to this issues	This issue was considered, but was determined to be relevant for the manufacturers.
Telecommunications	Sustainability labelling of consumer prodcuts	Add Issue	Corporation or Industry Association	2. Major US and Global carriers have developed consumer facing eco rating programs for the handsets they sell.	Additional evidence will be considered, but this issue is addressed in 'Product Lifecycle Management'
Telecommunications	Environmental Procurement policies for IT equipment/handsets	Add Issue	Corporation or Industry Association	1. Telecom operators procurement policies have a direct impact on improving the sustainability attributes of the products they buy driving the industry to better performance.	Additional evidence will be considered, but this issue is addressed in 'Product Lifecycle Management'
Telecommunications	Labor issues--more detail needed, especially at nonunion firms.	Add Issue	Market Participant -Investor, Research Analyst	Given there are a number of nonunion firms in the industry (such as Verizon Wireless) the efforts of employees to unionize should be detailed. For union shops, more detail around current contract terms would be useful in each 10-K (duration of contract, key terms, employees covered, etc.). I also believe firms should provide more detail around pension obligations -- average time to retirement, number of employees in retirement/health care plans, etc.	This issue is being considered for inclusion.

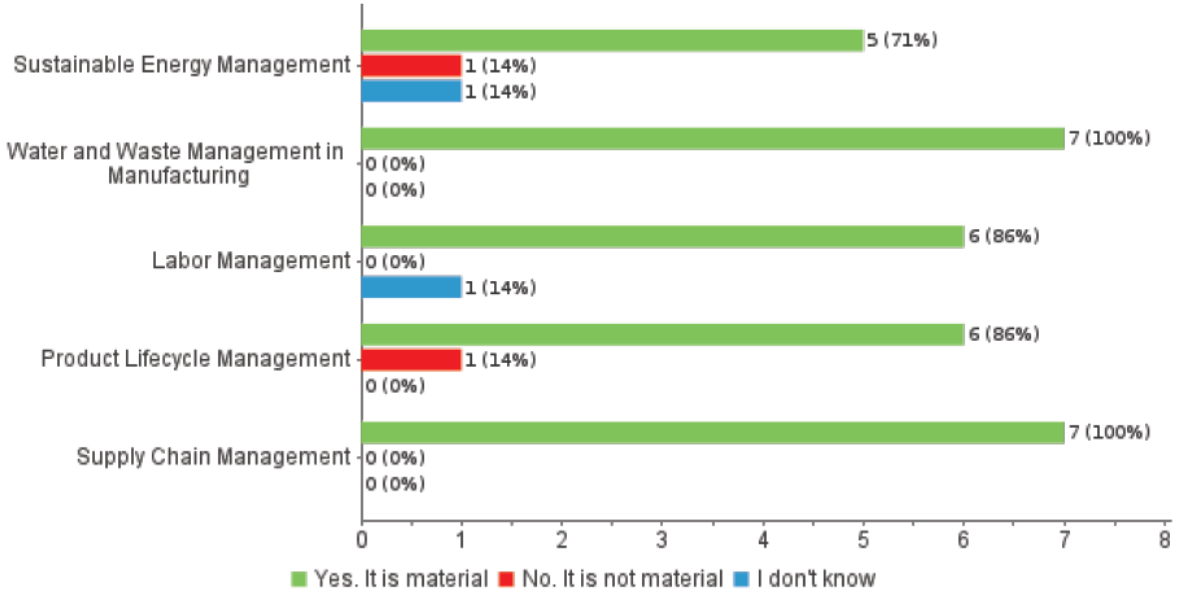
Telecommunications	conflict minerals and responsible mining practices	Add Issue	Market Participant -Investor, Research Analyst		This issue is more relevant for the manufacturers.
Telecommunications	Water Management: risk & opps (impact of supply chain)	Add Issue	Market Participant -Investor, Research Analyst		This issue is more relevant for the manufacturers.
Telecommunications	Diversity - both employees & senior managers	Add Issue	Market Participant -Investor, Research Analyst		SASB will consider this in its re-evaluation of the issue of Talent Recruitment, Development and Retention for the sector.
Telecommunications	Child protection (tv and internet)	Add Issue	Market Participant -Investor, Research Analyst	2. Initiatives in order to protect children from content that may harm their psychological and physical development (for example, content that is violent, racist, offensive to religious sentiment, pornography etc.).	This issue was considered, but was determined not to be material.
Telecommunications	Phone mobile Radiation	Add Issue	Market Participant -Investor, Research Analyst	1. Human and environmental health impacts of radiation from mobile phone devices and network infrastructure	There is no evidence of materiality, but this issue will be considered for inclusion in the future, and is currently identified internally as an Industry Watch List issue.
Telecommunications	Water management	Add Issue	Corporation or Industry Association	Issue #2 It's unclear from the industry brief whether or not water consumption and management was considered as an issue and found to be immaterial. The Green Grid has developed a KPI for data center water consumption efficiency, Water Usage Effectiveness (WUE) as they consider this to be a material aspect of data center operations. From our experience very few data centers have metrics for water consumption and therefore it is unclear at this time whether it can be determined to be a material issue or not. Since water is used for cooling and cooling is directly proportional to IT power load it follows that water consumption for cooling will increase over time in an environment where water as an operational resource is becoming scarcer and more expensive.	This issue will be considered for inclusion.
Telecommunications	Disposal that includes telecom data centers & equipment	Add Issue	Corporation or Industry Association	Telecom companies are more than just voice communications. AT&T, Verizon and others have extensive infrastructure and operations supporting Internet/digital communications. Issue #1: In addition to communication products, telecom infrastructure end-of-life also represents a significant environmental impact and challenge. Only including end-of-life of products omits a material portion of disposal volume and impact.	Additional issues and KPIs related to data will be considered.
Telecommunications	Community engagement (expansion of business, poles, etc)	Add Issue	Corporation or Industry Association	Community engagement: pro-active engagement to implement expansion and growth plans, no disruptions due to local resistance against poles etc)	This issue was considered, but was determined not to be material.
Telecommunications	radiation	Add Issue	Corporation or Industry Association	Radiation: increasingly companies are being criticised	There is no evidence of materiality, but this issue will be considered for inclusion in the future, and is currently identified internally as an Industry Watch List issue.
Telecommunications	Products to promote sustanable work place (e.g.	Add Issue	Corporation or Industry Association	Products: high perception in public given current discussions on how to make society more sustainable (less commuting, flying etc)	Environmental and Social Products and Services is already included as a disclosure topic.

	webconferencing, work at home				
Telecommunications	CSR reporting structure	Add Issue	Market Participant -Investor, Research Analyst		Comment noted.
Telecommunications	Pension management with regard to principal-agent conflicts	Add Issue	Market Participant -Investor, Research Analyst	Describe situations in which management seeks to use alternative securities as pension assets, require fuller disclosure about the composition and treatment of those securities; require fulller explaination of quarterly pension funding decisions; better transparency regarding the treatment of post-retirement debt.	This issue is not a Sustainability issue.
Telecommunications	Not Applicable - Comment of Brief	Comment on Brief	Corporation or Industry Association	An appendix showing a list of issues that were considered and found to be relevant but not sufficiently material, cost-effective, etc. Per my earlier comment, why is telecommunications industry only considered to be voice communications? Certainly all of the major telecom players listed in the brief are also heavily into Internet/data communications for which there are potential additional issues, KPI's, etc. For the survey I would recommend having an "I don't know" option as i didn't feel qualified to respond one way or another for some of the questions but only had a "yes" or "no" response options.	The issues and KPIs for the Telecommunications industry consider the provision of data services. No additional issues or KPIs were found to be material. SASB will consider elaborating on data services in the revised industry briefs and issue descriptions.
Telecommunications	Not Applicable - Comment of Brief	Comment on Brief	Public Interest Group - Government, NGO, Intermediaries	More information on the metrics would have been helpful.	Comment noted.

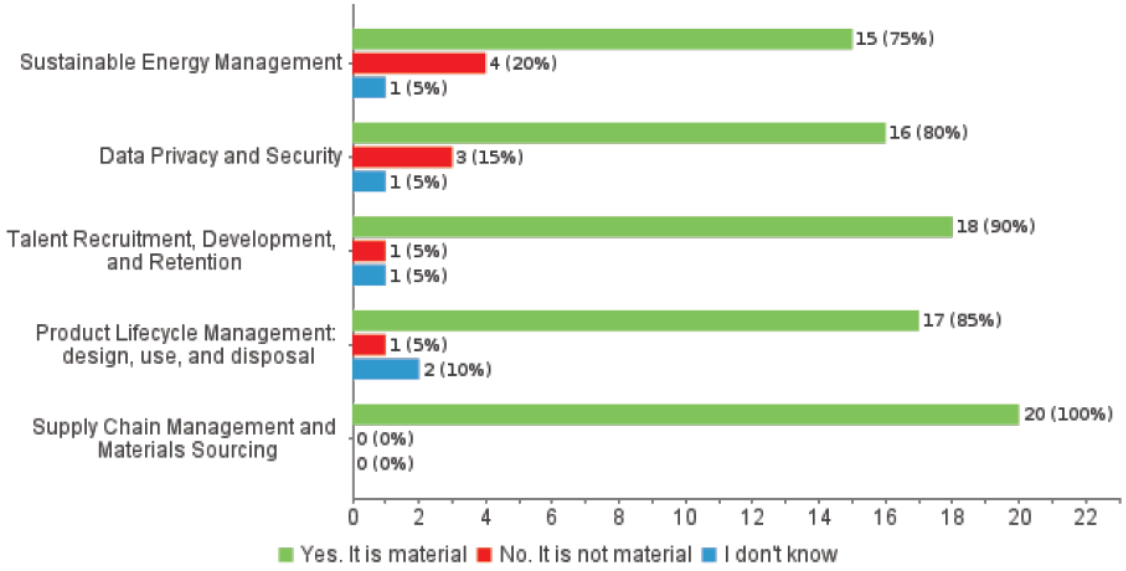
Appendix II: IWG Assessment of Materiality

The following tables provide a summary (by industry) of each issue, and the percentage of IWG members that determined it to be material. (Green = material, Red = not material, Blue = maybe material).

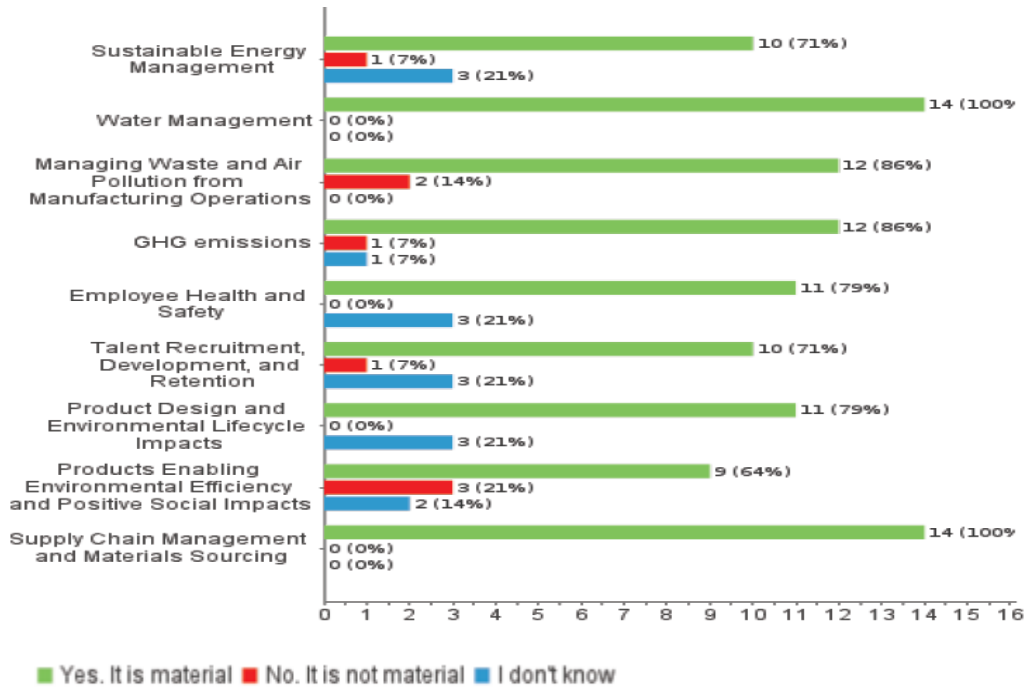
Electronic Manufacturing Services & Original Design Manufacturers



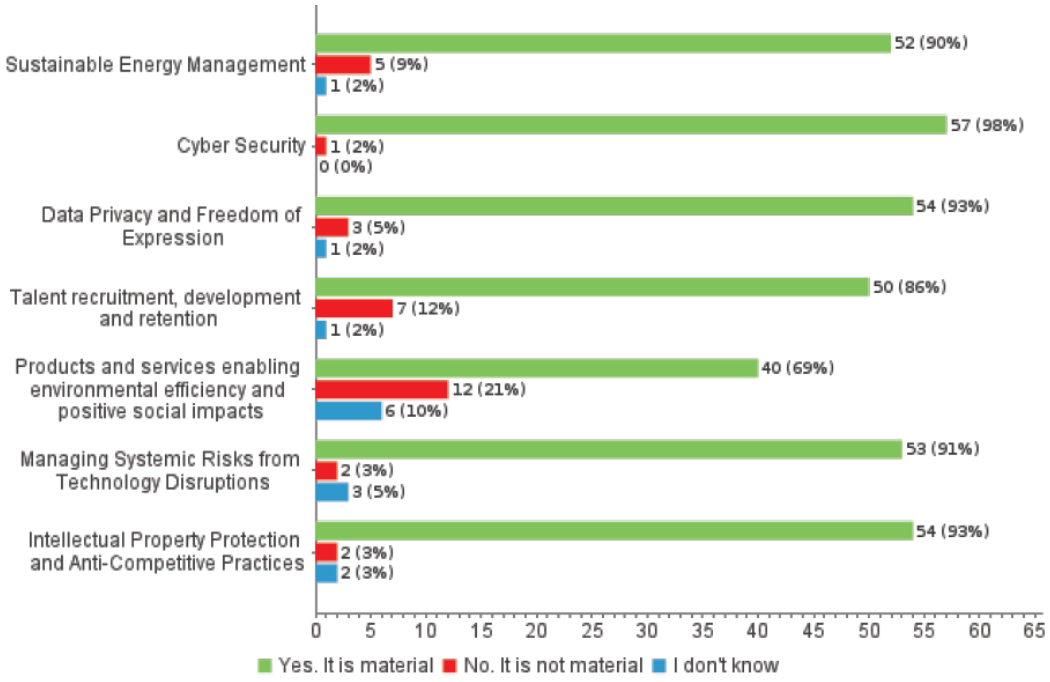
Hardware



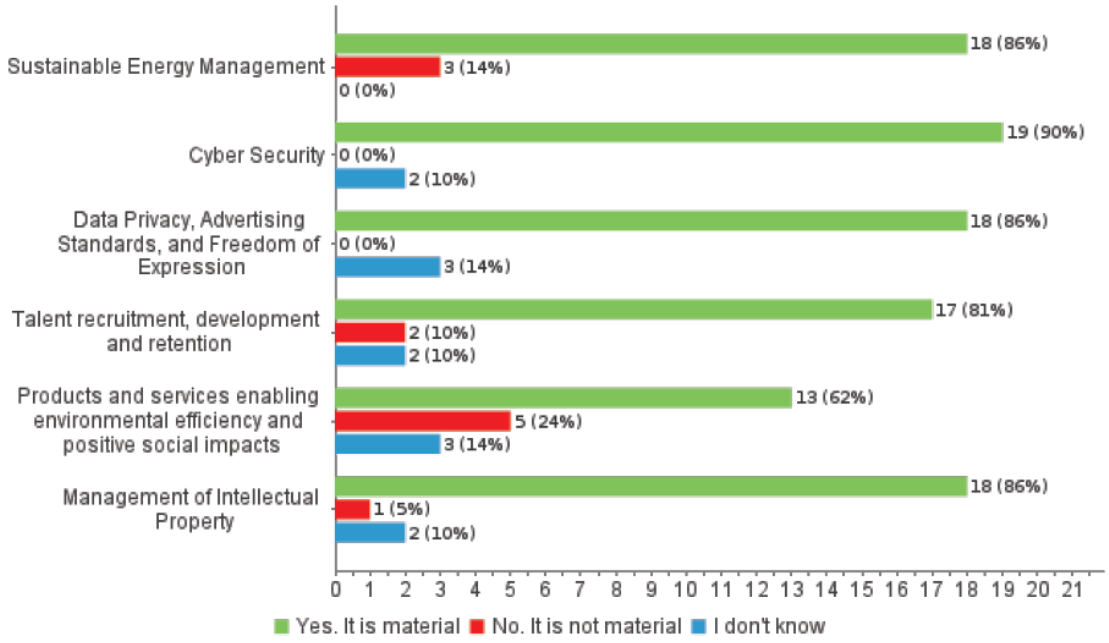
Semiconductors



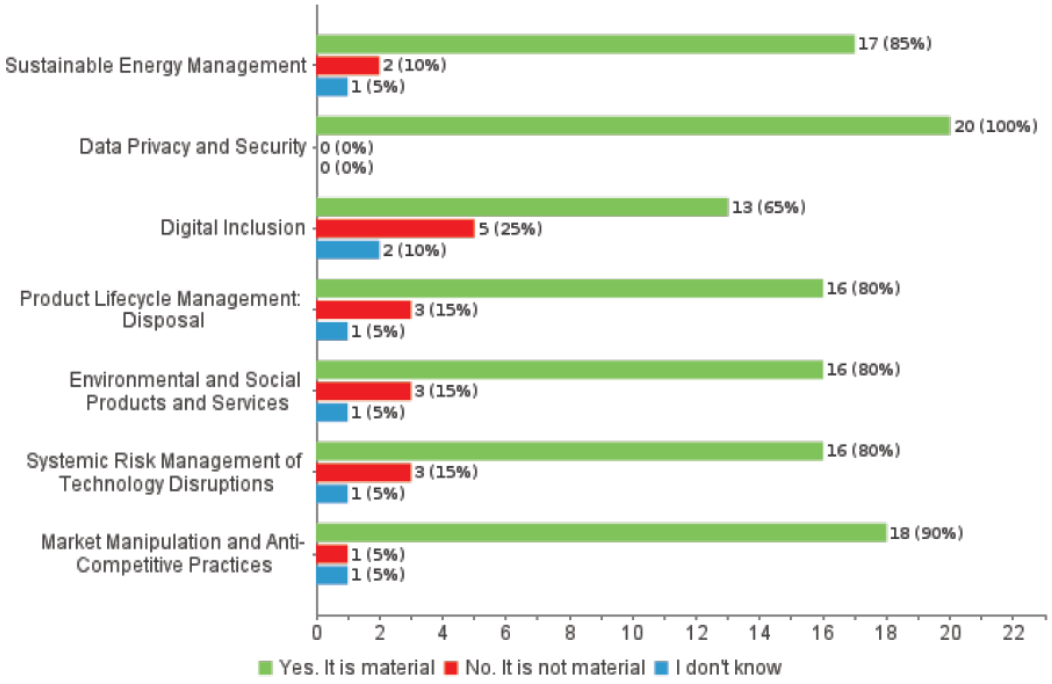
Software & IT Services



Internet Media & Services



Telecommunications



Appendix III: Updated List of Disclosure Topics Post IWG

The following table lists sustainability topics post IWG feedback.

	EMS/ODM	Hardware	Software & IT Services	Semiconductors	Telecommunications	Internet & Media Services
Environmental Capital	Energy management in manufacturing Water and waste management in manufacturing		Environmental Footprint of Data Center and Office Hardware	Greenhouse Gas Emissions and Air Quality Energy management in manufacturing Water and waste management in manufacturing	Energy management in operations	Environmental Footprint of Data Center and Office Hardware
Social Capital		Data security	Data privacy and freedom of expression Data security		Data privacy Data security	Data privacy, advertising standards and freedom of expression Data security
Human Capital	Fair labor practices	Employee recruitment and inclusion	Recruiting and managing a global skilled workforce Employee inclusion and performance	Employee recruitment and inclusion Employee health and safety	Labor Relations	Recruiting and managing a global skilled workforce Employee inclusion and performance

Business Model & Innovation	Product lifecycle management	Product lifecycle management	Delivering Sustainability Solutions for Customers	Product lifecycle Management Delivering Sustainability Solutions for Customers	Product Disposal Delivering Sustainability Solutions for Customers	Delivering Sustainability Solutions for Customers
Governance	Supply chain management and materials sourcing	Supply chain management and materials sourcing	Managing systemic risks from technology disruptions Intellectual Property Protection & Competitive Behavior	Supply chain management and materials sourcing Intellectual Property Protection & Competitive Behavior	Managing systemic risks from technology disruptions Competitive Behavior	Intellectual Property Protection & Competitive Behavior

Appendix IV: Current Status of KPIs Related to Post-IWG Sustainability Topics

The following tables list the disclosure items (KPIs), as they stand currently, for the sustainability topics determined by SASB to be material for each industry following IWG feedback (see table in Appendix III). These tables are provided for reference only. The KPIs are currently being revised further based on IWG feedback and additional research, and final KPIs put forward for public comment may be different from the ones outlined below.[5]

[5] KPIs in <red> are being drafted or revised, but may be excluded from the final standards.

EMS/ODM

Topic	Accounting Metric
Energy Management in Manufacturing	Total annual energy consumed (gigajoules), indicate percentage from purchased grid electricity, percentage from onsite power production or fuel consumption, and percentage renewable (e.g., wind, biomass, solar).
	<Energy Intensity>
Water and Waste Management in Manufacturing	Total water withdrawn (m^3), returned to watershed (m^3), internally recycled (m^3); and percentage in water-stressed regions, defined as High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas.
	<Water intensity (m3 of water per ton of product) in water-stressed regions - High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas.>
	Amount of waste (tons); percentage that is recycled, treated, incinerated, and landfilled; weighted average cost ($) per ton for each disposal method, by waste type: (1) Hazardous (broken down by solvent, heavy-metal containing, and other); (2) Non-hazardous (industrial and municipal waste); (3) Electronic waste (e-waste).
	Amount (weight) of electronic waste recycled though entities with Basel e-Stewards certification; amount (weight) of electronic waste disposed of through other entities.
	Description of legal and regulatory fines and settlements associated with federal, state, and local environmental protection laws covering air, water, waste, or cleanup. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events. Disclosure Notes: EPA laws include: CWA, CAA, RCRA (including those relating to underground storage tanks), and potentially CERCLA liabilities, etc. Scope includes domestic and international laws and regulations.
Fair Labor Practices	Percentage of facilities with third party certification of health and safety systems to the OHSAS 18001 Standard or equivalent.
	Description of legal and regulatory fines and settlements associated with health and safety violations. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Percent of facilities with third party certification of fair labor conditions (socially acceptable workplace practices), such as SA8000 certification; third party audits/certification for labor, social acceptability in the workplace.
	Number of strikes and lockouts resulting in work stoppages of at least one day, including the number and duration of the stoppage (in days).
	<Employee turnover by voluntary and involuntary for all employees, technical staff (including research scientists, electrical engineers, and process engineers).>
Product Lifecycle Management	Discuss usage of REACH substances of very high concern (SVHC) and chemicals listed in Joint Industry Guide (JIG) 101 ed. 4.1., Table A. Declarable Substance List.
	Percentage of products, by revenue, that meet RoHS, the Restriction of Hazardous Substances Directive (directive 2002/95/EC) requirements.

Topic	Accounting Metric
	Discuss how Design for Environment (DfE), Environmentally Conscious Design (IEC-62075), Energy-related Products Directive (ErP) 2009/125/EC or other environmentally focused principles are incorporated into product designs, include the percentage of products designed in that manner.
	Revenue from products designed to achieve certification to one of the following programs: EPEAT, Energy Star, Green Mark, TCO Certified, Japan PC Green, EU Flower, and KEMPS/e-Standby.
	Revenues associated with repair, refurbishing, and recycling services, including those associated with WEEE compliance.
Supply Chain Management and Materials Sourcing	Discuss any existing or projected risks or constraints with obtaining raw materials (or components) within the supply chain, including those related to political situations, local labor conditions, natural disasters, climate change, geography, regulations, or restricted/limited availability.
	Discuss any production shortfall caused by material supply constraints (actual production vs. theoretical production of relevant units).
	Discuss the process for managing environmental and social risks within the supply chain including screening, codes of conduct, audits, and certifications. Indicate if audits are first party, second party, or third party. Report the percentage of Tier I suppliers who are EICC members and have implemented the EICC Code of Conduct.

Hardware

Topic	Accounting Metric
Data Security	Number and description of data security breaches that resulted in the actual outcomes of a business process deviating from the expected outcomes with respect to confidentiality, integrity, and availability. Include a discussion of: (a) The impact of the incident, such as loss of information, compromise of data, litigation, regulatory fines, loss of revenue, lost time, damage to reputation (qualitative measure of severity). (b) Corrective actions taken in response to the incident and associated costs, such as remediation costs or increased costs for additional security measures.
	Discussion of management approach to identifying and addressing risk from the following US Department of Commerce National Institute of Standards and Technology (NIST)-defined cyber vulnerabilities and threats: external/removable media, attrition (e.g., a DDoS or brute force attack), web, email, improper usage, and loss/theft of equipment.
	<Discuss the integration of data privacy and security features into product design. Where relevant, include revenue from specific security-related products such as hardware-based encryption products or multi-factor authentication devices (such as security tokens or biometric scanners).>
Employee Recruitment and Inclusion	Current and target percent of workers that are foreign nationals, indicate percent located offshore from the host country. Describe management approach to addressing potential risks from immigration issues and protectionist policies.
	Number of new domestic employees hired through workforce training programs funded by or facilitated by the company. Discuss constraints on local hiring due to difficulty in finding qualified personnel.
	<Diversity - # or % by minority group, age, gender. % in leadership positions (senior management, executives) Retention by minority group, age, gender>

Topic	Accounting Metric
Product Lifecycle Management	For each phase of product lifecycle noted below, indicate percent of products meeting the requirements or certified to the standards listed. If other requirements or standards are used, indicate the specific standards and disclose the percent of products complying.
	Description of approach to minimizing the product lifecycle impacts; include environmental and social considerations made at product lifecycle stages such as design, procurement, distribution, use, and end-of-life, and the type and percentage of products to which efforts apply.
	Fees (Program costs) associated with compliance product take-back and extended producer responsibility (EPR) initiatives, including the Waste Electrical and Electronic Equipment Directive (WEEE).
Supply Chain Management and Materials Sourcing	Discuss existing or projected risks or constraints with obtaining raw materials (or components) within the supply chain, including those related to political situations, local labor conditions, natural disasters, climate change, geography, regulations, or restricted/limited availability.
	Number of Tier 1 suppliers, and percentage of critical supply base, for which suppliers are sole-source.
	Discuss any production shortfall resulting from material supply; indicate the cause and the relative impact on production.

Lifecycle Phase	Standard or Program	Percent of Products (by Revenue)	Percent of Products (by Weight)
Materials	REACH		
	RoHS		
	Other, specify		
Design	DfE		
	ErP		
	Other, specify		
Use	EPEAT		
	Energy Star		
	Green Mark		
	TCO Certified		
	Japan PC Green		
	EU Flower		
	EcoLogo		
	KEMPS/e-Standby		
	Other, specify		
End-of-Life	Take back		
	Reused		
	Remanufactured		
	Recycled thru Basel e-Stewards		
	Landfilled		

Topic	Accounting Metric
	Discuss the process for managing environmental and social risks within the supply chain including screening, codes of conduct, audits, and certifications. Indicate if audits are first party, second party, or third party. Report the percentage of Tier I suppliers who are EICC members and have implemented the EICC Code of Conduct.
	<For each Tier I supplier, report: (1) The percentage in full compliance with the registrant's environmental requirements; (2) The percentage receiving local environmental fines or citations; (3) The percentage in full compliance with the registrant's social/labor requirements; (4) The percentage receiving local labor-related fines or citations. Discuss incidents of noncompliance, include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.>

Software & IT Services

Topic	Accounting Metric
Environmental Footprint of Data Center and Office Hardware	(a) Total annual energy consumed (gigajoules), indicate percentage from purchased grid electricity, percentage from onsite power production or fuel consumption, and percentage renewable (e.g., wind, biomass, solar). (b) Total annual energy consumption by data centers (aggregate), indicate portion of this total attributable to collocated equipment. Indicate percent of data center operations that are outsourced, (if they are not included in the total).
	Weighted average carbon intensity of energy usage
	Weighted Average Power Usage Effectiveness (PUE) for all owned data centers
	Weighted Average Server Compute Efficiency (ScE) for all owned data centers
	Total water withdrawn (m^3), returned to watershed (m^3), internally recycled (m^3); and for each indicate the percentage in water-stressed regions, defined as High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas.
	Description of decision criteria for determining the location of new data centers; include any environmental considerations (e.g. humidity, average temperature, water availability, regional- or state-level carbon legislation or pricing, or carbon intensity of grid electricity).
Data Privacy and Freedom of Expression	<Percent of revenue derived from hosting of or use of personal or business-sensitive data from customers, respectively. Describe SaaS offerings that host sensitive customer data and describe any revenue-generating activities that use sensitive customer data (e.g. selling targeted ads, or selling information to third party); indicate the nature of the consent obtained for use of this sensitive data.>
	Number of government or law enforcement requests received and number resulting in disclosure of (a) customer content and (b) non-content data. Discuss policy regarding the provision of personal data to law enforcement and notification to customers about such requests.

Topic	Accounting Metric
	Description of legal and regulatory fines and settlements associated with customer privacy including, but not limited to, violations of the Children's Online Privacy Protection Act, Directive 2002/58/EC (ePrivacy Directive), and Federal Trade Commission Act. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Discuss regions where core products or service offerings are monitored, censored, blocked, or subject to content filtering, even if required by local law. Indicate the number and type of products and services that were subject to the action and the duration of the effect.
Data Security	Number and description of data security breaches that resulted in the actual outcomes of a business process deviating from the expected outcomes with respect to confidentiality, integrity, and availability. Include a discussion of: (a) The impact of the incident, such as loss of information, compromise of data, litigation, regulatory fines, loss of revenue, lost time, damage to reputation (qualitative measure of severity). (b) Corrective actions taken in response to the incident and associated costs, such as remediation costs or increased costs for additional security measures.
	Description of policy to notify users when there is a security breach of personal data, such as required by California's Information Practices Act, by a contractual agreement, or by a reasonable expectation of privacy.
	Discussion of management approach to identifying and addressing risk from the following US Department of Commerce National Institute of Standards and Technology (NIST)-defined cyber vulnerabilities and threats: external/removable media, attrition (e.g., a DDoS or brute force attack), web, email, improper usage, and loss/theft of equipment.
	Description of organizational responsibility for and commitment to data security, include highest level of management responsibility for data security. Indicate any relevant certifications (such as ISO 27001) and the scope of each, as well as preventive measures taken to ensure data security.
Recruiting and Managing a Global Skilled Workforce	<Employee turnover by voluntary and involuntary for employees, technical staff (including software engineers, software developers, and computer scientists).>
	Current and target percent of workers that are foreign nationals, indicate percent located offshore from the host country. Describe management approach to addressing potential risks from immigration issues and protectionist policies.
	<Percent (by spend) of research activities located offshore or outsourced. Describe management approach to addressing potential risks from theft of intellectual property and protectionist policies. Discuss impact of home country operations resulting from offshoring activities; include number of domestic worker layoffs resulting from positions that were moved offshore. Describe management approach to minimizing impact from offshoring activities.>
	<Percent (by revenue) of data processing or storage outside the customer's home country. Describe management approach to addressing potential risks from data privacy concerns.>
	Number of new domestic employees hired through workforce training programs funded by or facilitated by the company. Discuss constraints on local hiring due to difficulty in finding qualified personnel.
Employee Inclusion and Performance	<Employee compensation and benefits – monetary v. non-monetary>
	<Annual Talent Quotient>

Topic	Accounting Metric
	<Diversity - # or % by minority group, age, gender. % in leadership positions (senior management, executives) Retention by minority group, age, gender>
Delivering Sustainability Solutions for Customers	Annual revenue derived from products or services that directly address environmental and/or social trends affecting key customers; include the total addressable market (TAM) and the Segmented Addressable Market (SAM) that the product line or service offering is targeting, as well as the forecast Share of the Market (SOM) within a 2-3 year time horizon. Describe strategic approach to identifying and incorporating ESG trends into new or existing product lines or service offerings; include which environmental and social trends have been selected for investment, and provide percent of research and development funding allocated to these product lines or service offerings.
Managing Systemic Risks from Technology Disruptions	Disclose Mean Time Between Failures (MTBF) and Mean Time to Recovery (MTTR).
	For all significant performance issues and/or service disruptions, describe the type (e.g. network outage, technical disruption), extent (number of users/accounts affected), duration (number of days), root cause (e.g. weather-related, human error, etc.), and corrective actions.
	Discussion of business continuity risks related to disruptions affecting operations such as those caused by technical failures, weather events, or natural disasters at hosting facilities. Discussion should include a focus on cloud services such as SaaS, IaaS, PaaS and relate to both owned and outsourced operations.
Intellectual Property Protection and Competitive Behavior	Description of legal and regulatory fines and settlements associated with anti-competitive practices and market manipulation. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Description of legal and regulatory fines and settlements associated with intellectual property violations. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.

Semiconductors

Topic	Accounting Metric
GHG Emissions and Air Quality	Total Scope I greenhouse gas emissions, indicate percent of total from countries or regions in which greenhouse gas emissions are regulated. Provide total GHG emissions broken down by PFCs and all other gases.
	Discuss efforts (including costs) associated with meeting current and future regulatory obligations such as emissions reductions (e.g. through process improvements, chemical replacement), use of renewable energy, or purchase of carbon credits.
	Description of legal and regulatory fines and settlements associated with federal, state, and local environmental protection laws covering air emissions. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
Energy Management in Manufacturing	Total annual energy consumed (gigajoules), indicate percentage from purchased grid electricity, percentage from onsite power production or fuel consumption, and percentage renewable (e.g., wind, biomass, solar).
	Energy (GJ) per chip basis (or per unit basis, if applicable) used in the manufacturing process.

Topic	Accounting Metric
	<Weighted average carbon intensity of energy usage.>
Water and Waste Management in Manufacturing	Total water withdrawn (m^3), returned to watershed (m^3), internally recycled (m^3); and percentage in water-stressed regions, defined as High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas.
	<Percentage of manufacturing facilities withdrawing water in water-stressed regions (High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas).>
	Overall manufacturing water intensity (m3 of water per chip) <and manufacturing water intensity in water-stressed regions (High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas).>
	Amount of waste (tons); percentage that is recycled, treated, incinerated, and landfilled; weighted average cost ($) per ton for each disposal method, by waste type: (1) Hazardous (broken down by solvent, corrosive liquid, contaminated debris, and other); (2) Non-hazardous (industrial and municipal waste).
	Description of legal and regulatory fines and settlements associated with federal, state, and local environmental protection laws covering water, waste, or cleanup. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Total releases (tons) of EPA 33/50 Program chemicals as reported in the Toxic Release Inventory (TRI). Discuss the management of these and other known toxic wastes, including source reduction efforts, recycling or reclamation efforts, and recovery efforts (such as regeneration or energy recovery).
<Employee Recruitment and Inclusion>	<Employee turnover by voluntary and involuntary for all employees, technical staff (including research scientists, electrical engineers, and process engineers).>
	<Percentage of women, men, Asian (including Pacific Islander), Hispanic, White, Black, and Other for each of the following employee types: Executives/Sr. Managers, Mid-level Managers, Professionals, All others (EEO-1 categories technicians, sales, admin support, service workers).>
	<Percentage of foreign nationals employed, by region (NOAM, CALA, APAC, EMEA).>
	<Median length of job vacancies for technical positions, including researchers, developers, and engineers.>
	<Discuss talent acquisition and retention strategy for scientists, engineers, and other R&D staff, including reliance on foreign nationals, outsourcing and/or offshoring activities, and development of the domestic talent pool (e.g. through government, academic, or industry research partnerships).>
Employee Health and Safety	Discuss efforts to assess, monitor, and reduce exposure of employees to human health hazards including solvents, corrosives, lead (and its compounds), arsenic (and its compounds), as well as known or suspected carcinogens, teratogens, and mutagens. Include a discussion of management of both short-term (acute) and long-term (chronic) risks.
	Description of legal and regulatory fines and settlements associated with employee health and safety. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Discuss usage of REACH substances of very high concern (SVHC) and chemicals listed in Joint Industry Guide (JIG) 101 ed. 4.1., Table A. Declarable Substance List.

Topic	Accounting Metric
Product Lifecycle Management	Percentage of products, by revenue, that meet RoHS, the Restriction of Hazardous Substances Directive (directive 2002/95/EC) requirements.
	Discuss how Design for Environment (DfE), IEC62075 Environmentally Conscious Design (IEC-62075), or other environmentally focused principles are incorporated into product designs. Discussion should include into which lifecycle stages these principles are incorporated as well as specific design efforts (e.g. use of recycled materials, reduction of packaging, focus on green chemistry, etc.)
	Median SPEC CPU200 per watt for all chipsets; SPEC CPU200 per watt for top 10 bestselling chipsets. Median MIPS per watt for all chipsets; MIPS per watt for top 10 bestselling chipsets.
Delivering Sustainability Solutions for Customers	<Annual revenue derived from products or services that directly address environmental and/or social trends affecting the technology and communications industry and key customers; include the total addressable market (TAM) and the Segmented Addressable Market (SAM) that the product line or service offering is targeting, as well as the forecast Share of the Market (SOM) within a 2-3 year time horizon.> <Describe strategic approach to incorporating ESG trends into new or existing product lines or service offerings, including which environmental and social trends have been selected for investment; provide percent of development funding allocated to these product lines or service offerings.>
Supply Chain Management and Materials Sourcing	Discuss any existing or projected risks or constraints with obtaining raw materials within the supply chain, including those related to political situations, local labor conditions, natural disasters, climate change, geography, regulations, or restricted/limited availability.
	Discuss any production shortfall caused by material supply constraints (actual production vs. expected production of relevant units).
	Discuss the process for managing environmental and social risks within the supply chain including screening, codes of conduct, audits, and certifications. Indicate if audits are first party, second party, or third party. Report the percentage of suppliers who are EICC code of conduct members.
Intellectual Property Protection and Competitive Behavior	<New issue. KPI to be drafted>

Telecommunications

Topic	Accounting Metric
Energy Management in Operations	Total annual energy consumed (gigajoules), indicate percentage from purchased grid electricity, percentage from onsite power production or fuel consumption, and percentage renewable (e.g., wind, biomass, solar).
	Weighted average carbon intensity of energy usage.

Topic	Accounting Metric
	Average Power Usage Effectiveness (PUE) for all owned data centers.
	Average Server Compute Efficiency (ScE) for all owned data centers.
	Total water withdrawn (m^3), returned to watershed (m^3), internally recycled (m^3); and percentage in water-stressed regions, defined as High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas.
	Description of decision criteria for determining the location of new data centers; include any environmental considerations (e.g. humidity, average temperature, water availability, regional or state-level carbon legislation or pricing, or carbon intensity of grid electricity).
	Network data intensity (kWh of energy per petabyte of data transmitted), for (1) cellular networks and (2) fixed networks.
Data Privacy	Number of government or law enforcement requests received and number resulting in disclosure of (a) customer content and (b) non-content data. Discuss policy regarding the provision of personal data to law enforcement and notification to customers about such requests.
	<Percent of revenue derived from hosting of or use of personal or business-sensitive data from customers, respectively. Describe SaaS offerings that host sensitive customer data and describe any revenue-generating activities that use sensitive customer data (e.g. selling targeted ads, or selling information to third party); indicate the nature of the consent obtained for use of this sensitive data.> <Discuss how the registrant addresses the following principles as they relate to customer information for behavioral advertising or other uses: education, transparency, consumer control, data security, material changes to policies and practices, sensitive data, and accountability>
Data Security	Number and description of data security breaches that resulted in the actual outcomes of a business process deviating from the expected outcomes with respect to confidentiality, integrity, and availability. Include a discussion of: (a) The impact of the incident, such as loss of information, compromise of data, litigation, regulatory fines, loss of revenue, lost time, damage to reputation (qualitative measure of severity). (b) Corrective actions taken in response to the incident and associated costs, such as remediation costs or increased costs for additional security measures.
	Description of policy to notify users when there is a security breach of personal data, such as required under California's Information Practices Act.
	Where relevant, discuss how the following NIST-defined attack threats are addressed: external/removable media, attrition (e.g., a DDoS or brute force attack), web, email, improper usage, and loss/theft of equipment.
Labor Relations	<KPI to be drafted>
Product Disposal	Ratio of handsets recycled though entities with Basel e-Stewards certification to sales of new handsets.

Topic	Accounting Metric
Delivering Sustainability Solutions for Customers	<Annual revenue derived from products or services that directly address environmental and/or social trends affecting the technology and communications industry and key customers; include the total addressable market (TAM) and the Segmented Addressable Market (SAM) that the product line or service offering is targeting, as well as the forecast Share of the Market (SOM) within a 2-3 year time horizon.> <Describe strategic approach to incorporating ESG trends into new or existing product lines or service offerings, including which environmental and social trends have been selected for investment; provide percent of development funding allocated to these product lines or service offerings.>
Managing Systemic Risks from Technology Disruptions	Description of systems to provide unimpeded service during weather events, natural disasters, security breaches, and other service interruptions.
	Average Interruption Duration - sum of all customer interruption durations/ total number of customers served.
	Average Interruption Frequency - total number of customer interruptions/total number of customers served.
Competitive Behavior	Description of legal and regulatory fines and settlements associated with anti-competitive practices and market manipulation. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.

Internet Media & Services

Topic	Accounting Metric
Environmental Footprint of Data Center and Office Hardware	(a) Total annual energy consumed (gigajoules), indicate percentage from purchased grid electricity, percentage from onsite power production or fuel consumption, and percentage renewable (e.g., wind, biomass, solar). (b) Total annual energy consumption by data centers (aggregate), indicate portion of this total attributable to collocated equipment. Indicate percent of data center operations that are outsourced, (if they are not included in the total).
	Weighted average carbon intensity of energy usage.
	Weighted Average Power Usage Effectiveness (PUE) for all owned data centers.
	Weighted Average Server Compute Efficiency (ScE) for all owned data centers.
	Total water withdrawn (m^3), returned to watershed (m^3), internally recycled (m^3); and for each indicate the percentage in water-stressed regions, defined as High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas.
	Description of decision criteria for determining the location of new data centers; include any environmental considerations (e.g. humidity, average temperature, water availability, regional- or state-level carbon legislation or pricing, or carbon intensity of grid electricity).

Topic	Accounting Metric
Data Privacy, Advertising Standards, and Freedom of Expression	Discuss how the registrant addresses the following principles as they relate to customer information for behavioral advertising or other uses: education, transparency, consumer control, data security, material changes to policies and practices, sensitive data, and accountability.
	<Percent of revenue derived from hosting of or use of personal or business-sensitive data from customers, respectively. Describe SaaS offerings that host sensitive customer data and describe any revenue-generating activities that use sensitive customer data (e.g. selling targeted ads, or selling information to third party); indicate the nature of the consent obtained for use of this sensitive data.>
	Description of legal and regulatory fines and settlements associated with customer privacy including, but not limited to, violations of the Children's Online Privacy Protection Act, Directive 2002/58/EC (ePrivacy Directive), and Federal Trade Commission Act. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Number of government or law enforcement requests received and number resulting in disclosure of (a) customer content and (b) non-content data. Discuss policy regarding the provision of personal data to law enforcement and notification to customers about such requests.
	Discuss regions where core products or service offerings are monitored, censored, blocked, or subject to content filtering, even if required by local law. Indicate the number and type of products and services that were subject to the action and the duration of the effect.
	Number of requests received from governments to remove content. Describe the process and criteria for evaluating these requests and indicate the percentage of requests complied with on a country by country basis.
Data Security	Number and description of data security breaches that resulted in the actual outcomes of a business process deviating from the expected outcomes with respect to confidentiality, integrity, and availability. Include a discussion of: (a) The impact of the incident, such as loss of information, compromise of data, litigation, regulatory fines, loss of revenue, lost time, damage to reputation (qualitative measure of severity). (b) Corrective actions taken in response to the incident and associated costs, such as remediation costs or increased costs for additional security measures.
	Description of policy to notify users when there is a security breach of personal data, such as required by California's Information Practices Act, by a contractual agreement, or by a reasonable expectation of privacy.
	Discussion of management approach to identifying and addressing risk from the following US Department of Commerce National Institute of Standards and Technology (NIST)-defined cyber vulnerabilities and threats: external/removable media, attrition (e.g., a DDoS or brute force attack), web, email, improper usage, and loss/theft of equipment.
	Description of organizational responsibility for and commitment to data security, include highest level of management responsibility for data security. Indicate any relevant certifications (such as ISO 27001) and the scope of each, as well as preventive measures taken to ensure data security.
Recruiting and Managing a Global Skilled Workforce	<Employee turnover by voluntary and involuntary for employees, technical staff (including software engineers, software developers, and computer scientists).>
	Current and target percent of workers that are foreign nationals, indicate percent located offshore from the host country. Describe management approach to addressing potential risks from immigration issues and protectionist policies.

Topic	Accounting Metric
	<Percent (by spend) of research activities located offshore or outsourced. Describe management approach to addressing potential risks from theft of intellectual property and protectionist policies. Discuss impact of home country operations resulting from offshoring activities; include number of domestic worker layoffs resulting from positions that were moved offshore. Describe management approach to minimizing impact from offshoring activities.>
	<Percent (by revenue) of data processing or storage outside the customer's home country. Describe management approach to addressing potential risks from data privacy concerns.>
	Number of new domestic employees hired through workforce training programs funded by or facilitated by the company. Discuss constraints on local hiring due to difficulty in finding qualified personnel.
Employee Inclusion and Performance	<Employee compensation and benefits – monetary v. non-monetary>
	<Annual Talent Quotient>
	<Diversity - # or % by minority group, age, gender. % in leadership positions (senior management, executives) Retention by minority group, age, gender>
Delivering Sustainability Solutions for Customers	<Annual revenue derived from products or services that directly address environmental and/or social trends affecting key customers; include the total addressable market (TAM) and the Segmented Addressable Market (SAM) that the product line or service offering is targeting, as well as the forecast Share of the Market (SOM) within a 2-3 year time horizon. Describe strategic approach to identifying and incorporating ESG trends into new or existing product lines or service offerings; include which environmental and social trends have been selected for investment, and provide percent of research and development funding allocated to these product lines or service offerings.>
Intellectual Property Protection and Competitive Behavior	Description of legal and regulatory fines and settlements associated with anti-competitive practices and market manipulation. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Description of legal and regulatory fines and settlements associated with intellectual property violations. Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.
	Description of legal and regulatory fines and settlements associated with information published, to which links are provided, or that is posted online (either self-generated or by third parties, including users). Include dollar amount of fines and settlements and a description of corrective actions implemented in response to events.