INTERNET MEDIA & SERVICES

Research Brief

SASB’s Industry Brief provides evidence for the material sustainability issues in the industry. The brief opens with a summary of the industry, including relevant legislative and regulatory trends and sustainability risks and opportunities. Following this, evidence for each material sustainability issue (in the categories of Environment, Social Capital, Human Capital, Business Model and Innovation, and Leadership and Governance) is presented. SASB’s Industry Brief can be used to understand the data underlying SASB Sustainability Accounting Standards. For accounting metrics and disclosure guidance, please see SASB’s Sustainability Accounting Standards. For information about the legal basis for SASB and SASB’s standards development process, please see the Conceptual Framework.

SASB identifies the minimum set of sustainability issues likely to be material for companies within a given industry. However, the final determination of materiality is the onus of the company.

Related Documents

- Technology & Communication Sustainability Accounting Standards
- Industry Working Group Participants
- SASB Conceptual Framework
- Example of Integrated Disclosure in Form 10-K

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The Internet’s contribution to sustainability has a dual nature. On the one hand, the Internet breaks traditional communications barriers and physical boundaries within and across countries, races, ages etc. Using this power of the Internet, innovative companies in the Internet Media & Services industry have significant potential to transform all other industries and human activities. They have already enabled new models of collaboration, and are beginning to leverage the power of “Big Data,” providing openness and transparency and helping promote individual rights in previously opaque sectors and countries.

The freedom enjoyed by companies operating over the Internet, and disruptions to other industries, such as traditional media or telecommunications, which may be heavily regulated, can create significant positive externalities. On the other hand, the very nature of the Internet, its openness and lack of regulation can pose sustainability risks if these are misused by companies in the industry, knowingly or unknowingly. Unless Internet Media & Services companies ensure fair business practices and compliance with laws that may not directly impact the industry, but are nevertheless relevant, their own actions or those of their customers can lead to negative societal impacts such as violations of intellectual property, lack of oversight of offensive or explicit content, or violations of consumer protection laws. The increasing swathe of user data accessible to Internet Media & Services companies means that the sustainability impacts and potential contribution to society of this new and rapidly changing industry are still evolving. Management (or mismanagement) of material sustainability issues has the potential to affect the valuation of companies in the industry through impacts on profits, assets, liabilities, and cost of capital.

Internet Media & Services companies reporting in their regulatory filings metrics on the material sustainability risks and opportunities that could affect value in the near- and long-term,
would provide investors with a more holistic and comparable view of performance. This would include both positive and negative externalities, and the non-financial forms of capital that the industry relies on for value creation.

The sustainability issues that will drive competitiveness within the Internet Media & Services industry include:

- Managing energy and water consumption, particularly for companies with large or fast-growing data center operations;
- Ensuring the privacy of customer data, particularly through effective data use and advertising standards, and managing government relations or business strategy on issues related to data privacy and freedom of expression;
- Managing the increasing risk of cyber-attacks threatening exposure of sensitive customer information;
- Managing intellectual and human capital in an environment of limited availability of workers trained in Science, Technology, Engineering, and Mathematics (STEM) disciplines, and recruiting and developing a more diverse workforce that reflects the talent pool and diverse customer base;
- Balancing the need to protect intellectual property (IP) that incentivizes innovation with the need to ensure competitive business practices.

### INDUSTRY SUMMARY

Internet Media & Services is a global industry with annual revenues of around $152 billion. Internet media is the largest segment and accounts for around 80 percent of global industry revenues. It consists of search engines and Internet advertising channels, online gaming, and online communities, such as social networks, as well as online content, usually easily searchable, such as educational, medical, health, sports, and news. The industry’s other main segment – Internet-based services – consists of companies selling services mainly through the Internet, such as event ticket sales, travel booking, photo sharing, price- and service-comparison. The industry is increasingly delivering its services using applications (“apps”) on mobile communications devices such as smartphones.

The industry generates revenues primarily from online advertising, while mostly delivering free content to users. Other sources of revenue include subscription fees for online video games, purchases of digital content, and sale of user information to third parties. Industry revenue is driven by global advertising expenditures, as well as the percentage of those expenditures moving to online advertising, which is increasing as online advertising gains popularity as a cost-effective and targeted means of advertising. For example, in search advertising, advertisers pay Internet companies for hosting ads based on performance – whether Internet users click on the ad. The growing percentage of

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1 A list of representative companies appears in Appendix I.
commerce and services conducted online also influences the move from traditional to online advertising.3

Major industry players like Google, which dominates the market particularly in search engines, and Facebook (see Appendix I for others), are headquartered in the U.S., but provide services globally. Google earns a little more than 50 percent of its revenues from abroad and over 50 percent of Facebook users live outside the U.S. Internet penetration in emerging markets and mobile Internet expansion in both developed countries and emerging markets are key drivers of growth for the industry. Internet penetration is at 35 percent globally, compared to 78 percent in the U.S.4 China, India, Brazil, and Nigeria are currently among the top ten countries by Internet users. However, Internet penetration is low in these markets, ranging from ten percent in India to 45 percent in Brazil, presenting significant potential for market expansion for the industry.5 In addition, the number of mobile Internet connections in the U.S. has increased at an annualized rate of 53 percent over the past five years, and growth in the use of mobile computing devices, like smartphones and tablet computers, has expanded the utility and scope of the industry’s offerings.6

Other opportunities for growth include social media and local advertising. Consumer data from social networking websites can be used to target advertisements to specific demographics, with the potential to increase advertising effectiveness.7 Internet companies are looking to provide services and advertisements tailored to users’ real-time location, a trend that will be facilitated by the expected expansion of mobile Internet usage.8 Lastly, the trends towards cloud-computing and software provided as a service over the Internet create both risks and opportunities for the industry, blurring the lines between the products and services of the Software & IT Services industry and the Internet Media & Services industry.9

The main industry costs consist of traffic acquisition costs (TAC),10 patent and copyright licensing, employee compensation, and marketing. Rent and utilities costs can also be significant, estimated at over five percent of industry revenues in 2013. Major sources of investment and capital expenditures include data centers, computer hardware, and patent and copyright acquisitions. The relative proportions of these costs vary across firms in the industry, depending on their size, user base, and type of services or products they provide.9

The industry is characterized by rapid technology change, using Big Data (large, diverse, evolving data sets containing customer, supplier, or other information) and techniques such as machine learning. Innovations are focused on increasing or accurately tracking advertising effectiveness for advertisers, ‘click’ fraud detection,11 changing how customers access content (such as content on mobile devices), and improving search results offerings.10

While rapid technological change creates intense competition, smaller firms in the industry

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3 For a discussion of these trends, refer to the Software & IT Services Industry Brief.
4 These are payments by Internet advertising portals to content websites or other Internet Media & Services firms for hosting advertisements and driving traffic to their site; essentially a sharing of advertising revenues between the two.
5 Click fraud refers to fraudulent clicks on advertisements by competitors or others that could increase “pay-per-click” advertising costs for advertising customers.

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face barriers to entry from “network effects,” where the value of a network increases with its size. For market leaders like Google and Facebook, network effects create a virtuous cycle – as the number of users grows, it becomes easier to attract advertisers, and with greater ad revenues, the firms can invest in further improving advertising platforms and user services, thereby attracting more users and advertisers. This phenomenon makes it harder for new entrants, especially small companies, to compete. Many smaller companies operating in niche markets are acquired by their larger peers as a way to access a particular technology or skill set.11

At the same time, smaller firms can benefit from network effects of larger systems, such as Google’s advertising system AdSense, Amazon Web Services (AWS), and Facebook’s social network, utilizing them to generate revenues, scale their products, and increase their user base relatively quickly and with low levels of investment. The recent $19 billion acquisition of Whatsapp by Facebook exemplifies the value of large networks of users and user activity for industry players, even if this comes from a relatively small company.

LEGISLATIVE AND REGULATORY TRENDS IN THE INTERNET MEDIA & SERVICES INDUSTRY

The Internet Media & Services industry is lightly regulated. However, as data privacy and security concerns grow with the increasing storage and use of customer data, the industry is facing more regulations to address these concerns, with a potential impact on shareholder value. In addition, the industry is greatly affected by IP laws and exposed to anti-competitive practices and related laws due to the strong network effects in some of the industry’s main products – online advertising and social networking – leading to a situation of natural monopoly. The following section provides a brief summary of key regulations and legislative efforts related to this industry.V

There is increasing regulatory interest in the U.S. and the European Union (E.U.) in data privacy, with specific implications for online advertising and mobile apps. In the U.S., data privacy is enforced by the Bureau of Consumer Protection of the Federal Trade Commission (FTC), which is charged with stopping “unfair, deceptive or fraudulent practices in the marketplace” in areas such as advertising and marketing, and privacy and identity protection.12 In December 2012, the FTC revised its Children’s Online Privacy Protection Rule to keep pace with changing technology and ways in which children use and access the Internet, including the use of mobile devices and social networking. The amended Rule seeks to increase FTC oversight of the “safe harbor” provision, which allows industry groups to seek FTC approval of self-regulatory guidelines.13

E.U. regulations on data use and privacy directly impact Internet Media & Services companies with European operations or sales. Directive 2002/58/EC regulates data protection and privacy for electronics communications,
with specific provisions related to spam and cookies; the latter are often used by Internet Media & Services companies to gather consumer data. The Directive establishes the principle of obtaining consumer’s prior consent (“opt-in”) for such activities. Furthermore, the European Commission has proposed new data privacy regulations to replace its existing Data Protection Directive, which will bring U.S.-based technology companies without access to or ownership of physical operations in the E.U. under its purview for the first time if such companies offer goods or services to, or monitor data of, E.U. citizens. Under the revised Directive, the E.U. is introducing more stringent and harmonized rules regarding fines imposed on companies.

Furthermore, a working group comprising national data protection authorities of E.U. Member States (Article 29 Working Party) recently adopted an opinion addressing data protection risks of mobile apps. The group highlighted that, on average, a smartphone user downloads 37 apps, which collect large quantities of personal information about the user, including location and contact details, and banking information. According to the group’s Chairman, “[t]his often happens without the free and informed consent of users, resulting in a breach of European data protection law.” The opinion by the Article 29 Working Party places specific obligations on app developers and all other parties involved in the development and distribution of apps, and it grants power to national authorities to take action against companies, including levying fines.

In addition to data privacy regulations, companies are likely to be subject to emerging cybersecurity laws. Forty-six U.S. states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam have enacted legislation requiring companies to notify their customers when security breaches of personal information occur. Other legislative actions on cybersecurity, bolstered by U.S. intelligence officials’ warnings about the threat of electronic attacks, include attempts to enact the Cyber Intelligence Sharing and Protection Act (CISPA) to provide immunity to companies from lawsuits when they share information voluntarily with each other and the government. CISPA was recently passed by the House of Representatives, but faces opposition from the White House and activist groups due to concerns about inadequate privacy protections.

Internet Media & Services companies must strike a difficult balance between protection of customer privacy and requirements to share customer information with governments in the U.S. and other countries. The U.S. Department of Justice agreed in January 2014 to relax standards over company disclosures of government data requests. The decision came in response to changes to the government data collection policy in the wake of the 2013 exposure of government surveillance programs conducted by the National Security Agency (NSA) since 2007. Technology firms welcomed the decision, as they are concerned that uncertainty over the degree of government surveillance could significantly affect their operations. Companies are now allowed to report the number of gov-
ernment data requests in broad ranges after a six-month waiting period. By February 2014, several companies in the industry, including Google, Facebook, and Yahoo released government request information and the number of customer accounts affected.

The potential for governments to use data at their disposal to restrict freedom of expression raises concerns for operations in countries where the notion of personal freedom may differ from the U.S. For example, in China, the government has been able to gain access to user identities. The Beijing municipal government introduced a blogger identity rule in 2012, requiring microblog sites to register the real identities of members who post messages on the site.

Besides emerging data privacy and cybersecurity laws, the two main types of regulations governing this industry are those related to anti-trust and IP protection, in the U.S. and other markets. The U.S. Congress has passed several laws related to unfair competition, not specific to the Internet Media & Services industry, but nevertheless affecting it, particularly as the prevalence of network effects leads to market dominance by a few players. The industry is also highly impacted by IP regulations in the U.S. and other markets. On the one hand, companies in the industry rely on strong legal protection of IP, including brands, patents, and copyrights, to deliver their services. On the other hand, their services can directly or indirectly result in the violation of IP, especially as companies enable users to share content. Federal copyright laws in the U.S. protect owners of copyrighted material from unauthorized use of the material. The legal precedents for these laws related to the Internet Media & Services industry are still emerging. The Digital Millennium Copyright Act (DMCA) of 1998 criminalized some cases of copyright infringement. The safe harbor provisions of this Act protect companies offering customers the ability to upload and share content.

**SUSTAINABILITY-RELATED RISKS AND OPPORTUNITIES**

Industry drivers and recent regulations suggest that while traditional value drivers will continue to impact financial performance, intangible assets, such as environmental, social and human capitals, company leadership and governance, and the company’s ability to innovate to address environmental and social issues are likely to contribute increasingly to financial and business value.

Broad industry trends are driving the importance of sustainability performance in the Internet & Media Services industry:

- **Growing data:** Rapidly growing data transmission and storage raises concerns over security and privacy of data to which Internet Media & Services companies have access.

- **Expanding IT hardware infrastructure:** As the volume of services provided over the Internet expands, the need for hardware storage and processing infrastructure at Internet Media & Services companies is growing with it. Environmental impacts of hardware energy and water consumption therefore get concentrated in these firms, as consumers generate and store data on the Cloud, rather than on their own machines.
• **Network effects**: Inherent network effects in the industry pose anti-trust risks, as previously discussed.

• **Diversity as an engine of innovation**: The contribution of a diverse workforce to innovation and customer empathy is increasingly being recognized, even as the industry faces challenges in improving the proportion of women and minorities in the workforce, and recruiting workers from STEM disciplines.

As previously described, the regulatory and legislative environment surrounding the Internet & Media Services industry emphasizes the importance of sustainability management and performance. Specifically, recent trends suggest a regulatory emphasis on customer protection, which will serve to align the interests of society with those of investors.

The following section provides a brief description of each sustainability issue that is likely to have material implications for the Internet Media & Services industry. Included in the description is evidence of materiality as well as an explanation of how the issue could impact valuation. A table indicating the nature of the value impact and evidence of interest from stakeholders appears in Appendix IIA. Appendix IIB expands on the channels of financial impacts of each sustainability issue and the recommended disclosure framework appears in Appendix III.

**ENVIRONMENT**

The environmental dimension of sustainability includes corporate impact on the environment, either through the use of non-renewable natural resources as inputs to the factors of production (e.g., water, minerals, ecosystems, and biodiversity) or through environmental externalities or other harmful releases to the environment, such as air and water pollution, waste disposal, and greenhouse gas (GHG) emissions.

The Internet Media & Services industry does not utilize natural resources in its operations directly; therefore, its direct environmental impact tends to be limited on aggregate, and in comparison to other industries. However, with major players in the industry delivering cloud-based services or storing vast amounts of data and information, energy and water management in data centers and other hardware owned or operated by Internet Media & Services companies is becoming a material issue. Energy consumption translates into companies’ indirect contribution to GHG emissions. This has potential implications for costs (as pricing of GHG emissions could be passed on to companies purchasing fossil fuel-based electricity) and reputation in the medium- to long-term. Furthermore, access to reliable, cheap supplies of water for cooling computing centers is increasingly a focus during planning and operating such facilities.
Environmental Footprint of Hardware Infrastructure

A large part of the energy consumed by the industry is used to power critical hardware and IT infrastructure in data centers. Data centers need to be powered continuously; disruptions to energy supply can have a material impact on operations, depending on the magnitude and timing of the disruption. Companies also face a tradeoff between energy and water consumption for their data center cooling needs. Cooling data centers with water instead of chillers is a means of improving energy efficiency but can lead to dependence on significant local water resources.

Managing the environmental footprint of the significant hardware infrastructure used in this industry is important for managing costs, obtaining reliable supplies of energy and water, and lowering reputational risks. With increasing global focus on climate change, regulatory and customer actions place greater emphasis on resource conservation. At the same time, innovations in energy efficiency and renewable energy provide new avenues for energy management. Furthermore, water is becoming a scarce resource around the world, due to increasing consumption from population growth and rapid urbanization, and reduced supplies due to climate change. Many important river basins can already be considered “stressed”. Water scarcity can result in higher supply costs, supply disruptions, and social tensions, which companies with large water needs for cooling data centers may need to contend with.

Internet Media & Services companies can pursue various strategies to achieve energy efficiency, including purchasing more efficient hardware, optimizing data center locations, managing energy “hotspots” in data centers, cooling with outside air rather than using chillers or water, and implementing efficient software coding and server virtualization, which can reduce the need to install more physical servers. In addition, long term power purchase agreements with renewable energy providers, or on-site generation based on fuel cells or other alternative energy sources can provide a hedge against rising energy prices, while enhancing reputation and brand value.

With the emergence of cloud-computing, Big Data analytics, and growth in mobile device usage, an increasing amount of data is being generated and stored globally and the need for computing power is growing. Companies in the industry, therefore, may need to acquire more servers and data centers, significantly increasing the materiality of energy and water consumption over time.

Evidence

Data centers use between 10 to 20 times more energy than the average commercial building, according to the Electric Power Research Institute. Although data centers are becoming more energy-efficient, overall data center
energy consumption in the economy is increasing as the number and size of data centers expands.

According to Jonathan Koomey of Stanford University, global data center electricity use doubled from 2000 to 2005, while the rate of growth slowed down between 2005 and 2010. Nevertheless, he estimates that during this latter period, global and U.S. data center electricity use increased by about 56 percent and 36 percent respectively to reach 1.3 percent of global electricity use and two percent of U.S. electricity use in 2010. He attributes the slower growth rate in electricity consumption during this period to the global economic crisis of 2008-2009, the increasing use of virtualization in data centers, and the “data center” industry’s efforts at improving energy efficiency since 2005, following discussions with the U.S. Environmental Protection Agency (EPA). This period coincided with large data center building projects from companies such as Microsoft, Google, Yahoo, Apple, and Facebook, and significant additional data center leasing deals with wholesale providers of such services, as provision of cloud-based services expanded.

Depending on the source of energy and the efficiency of its generation, data centers can contribute significantly to environmental externalities such as climate change. According to Google, purchased electricity for offices and data centers (Scope 2 emissions) is the primary source of GHG emissions from its operations, with Google’s 2012 electricity consumption being about 3,325 gigawatt-hours (GWh), including on-site generation. To put this into perspective, Google’s total electricity consumption (not limited to California) would be equivalent to three percent of California’s commercial sector electricity consumption in 2012.

Expenditures on energy can be significant in the industry. Industry-level reports show that companies spend on average about 5.5 percent of revenue on combined rent and utilities expenditures. While regulatory incentives related to GHG emissions mitigation have not been implemented consistently across the world or continuously over time, they are likely to increase costs of fossil fuel-based energy and make renewable energy options relatively more attractive in the medium- to long-term. In the U.S., average retail price of electricity for the commercial end-use sector has gone from 7.9 cents per kilowatt-hour (kWh) in 2001 to 10.3 cents per kWh in 2013. The U.S. Energy Information Administration (EIA)’s long-term projections show that nominal electricity prices paid by the commercial end-use sector will increase to around 18 cents per kWh by 2040 in the Reference case. At the same time, as the impacts of climate change intensify, grid disturbances are likely to increase, impacting data center operations. Weather-related significant grid disturbances have been steadily increasing in the U.S. from just over 20 incidents in 2003 to almost 140 incidents in 2011.

Attesting to the importance of this issue, Internet Media & Services companies are focusing on energy management, particularly in their data centers. Power Usage Effectiveness (PUE) is a common measure of data center energy efficiency, with 1.0 being the theoretically ideal PUE. While the average PUE is about 1.8 for firms in this industry and the Software & IT Services industry, some companies like Google and Facebook have achieved industry-leading PUEs of 1.10 and 1.09, respectively. Facebook recently built a new data center in
Oregon because the naturally occurring low humidity there would allow the use of evaporative cooling instead of traditionally chilled air to cool servers, improving energy efficiency.38 In one of its case studies, Google shows that a capital investment of $25,000 for data center energy efficiency retrofits led to annual energy savings of over 670 megawatt-hours, saving $67,000 in yearly energy expenses.39 According to Google, “our efficient data center designs have saved us over a billion dollars to date.”40

Companies are also using renewable energy to protect against fluctuation in energy prices, protect their reputation, and make their offerings more attractive to their energy-conscious customers. Google is entering into long-term power purchase agreements with renewable energy developers to power some of its data centers and acquire renewable energy credits (RECs).41 Partly in response to public pressure, which included a Greenpeace campaign involving over 700,000 people demanding that it use clean energy to power its data centers, Facebook recently expanded efforts to source renewable energy, including supporting the development of a wind project to meet all the energy needs of a new data center in Iowa.42

Water consumption at computing facilities and data centers is also of material concern to the industry. Data centers consume significant amounts of water for cooling, and although some of the water is returned to the cooling system, a significant amount is evaporated, similar to cooling towers in power plants. Large computing facilities can make significant demands on local water infrastructure; an Amazon.com data center manager estimates that a 15 megawatt facility (which is a small size compared to data centers being built by major Internet and software companies) consumes 360,000 gallons of water per day,43 the equivalent of daily water consumption by 900 American households.44

If local water sources are stressed, or local municipalities do not have the capacity to provide adequate water supply, companies could face service interruption and additional costs that can significantly affect their operations. Furthermore, permitting for surface water supplies may be difficult in some areas, affecting project timetables, especially if waste water is to be returned to the environment. To address water risks, Google built a water treatment facility to treat water from a local industrial canal, for cooling a data center in Ghislain, Belgium.45

Value Impact

Sustainable energy and water consumption at data center and computing facilities can improve Internet & Media Services companies’ reputation and brand value, contributing to customer acquisition and retention, with an impact on long-term revenue growth.

Improving water and energy efficiency can reduce operating costs through lower utility bills, directly affecting profit margins. Such improvements may lead to both short-term cost savings through individual efficiency initiatives, and a lower cost structure in the long-term through ongoing efficiency strategies that leverage technological and financial innovation. Additionally, energy efficiency improvements can bring other operational efficiencies, such as faster processing of data through efficient coding. Data center energy efficiency solutions like virtualization are also likely to reduce the need for additional servers and other hardware, po-
tentially reducing capital expenditures and rent payments over the medium- and long-term.

Energy efficiency and the use of renewable energy can increase energy independence and mitigate operational risks related to energy availability and reliability as well as price fluctuations, with direct impact on a firm’s risk profile and cost of capital.

As energy and water are key inputs in the predicted growth of this industry, the probability and magnitude of these impacts are likely to increase in the future.

**SOCIAL CAPITAL**

Social capital relates to the perceived role of business in society, or the expectation of business contribution to society in return for its license to operate. It addresses the management of relationships with key outside stakeholders, such as customers, local communities, the public, and the government. It includes issues around access to products and services, affordability, responsible business practices in marketing, and customer privacy.

Financial performance in the Internet Media & Services industry depends on companies’ ability to attract more customers and expand market share. Management of issues related to social capital will enable companies to be well-positioned to deal with emerging regulations and public and customer concerns about the use and protection of customer data. Performance on the issues of data privacy, freedom of expression, and cybersecurity is likely to influence whether companies can attract and retain customers, and build brand value.

**Data Privacy, Advertising Standards and Freedom of Expression**

The amount of data being generated as a result of the increasing use of the Internet in customers’ daily lives and businesses is expanding. Companies in this industry must carefully manage two separate and often conflicting priorities. On the one hand, companies compete on their ability to deliver free services and to leverage data from their user-base for well-targeted and increasingly valuable advertising products for companies. Internet Media & Services companies can also use the data to provide customers with increasingly relevant services based on their preferences, behavior patterns, and more relevant advertising. Lastly, tracking of personal data (for example, by asking users to register with their real names and other information) can be used to prevent criminal activities, online predators, especially those targeting children, and hacking.46

On the other hand, companies having access to a wide range of customer data, such as personal, demographic, content, and behavioral data, raises privacy concerns among users and the public at large, and is leading to increased regulatory scrutiny from the FTC, authorities in Europe, and other jurisdictions (see Legislative and Regulatory Trends section).47

These trends are driving companies to engage in self-policing and to adopt and communicate policies on customer data use, including providing customer data to third parties, and storing and using the data for secondary purposes.

To avoid further regulations, companies also engage in industry self-regulation activities spe-
specific to advertising, such as the Digital Advertising Alliance’s program for online behavioral advertising, which aims to provide consumers with choice and control over how and whether they receive targeted or “interest-based” ads.\textsuperscript{48} The seven principles of this program are said to be consistent with the FTC’s guidelines for the industry on “Self-Regulatory Principles for Online Behavioral Advertising” proposed in 2009.\textsuperscript{49}

Collection of personal and content data is also a concern for invasion of privacy by governments, as accentuated by the recent national debate on the Foreign Surveillance Intelligence Act (FISA) and the role of the NSA in surveillance activities in the U.S. In certain foreign markets, there are further concerns around censorship and restrictions on freedom of expression. The industry is highly globalized, with the top two companies earning a significant proportion of their revenues from outside the U.S. In some of these markets, government access to customer data could be used to restrict freedom of expression. In some countries, certain features or entire service offerings provided by Internet Media & Services companies could be blocked. Furthermore, there may be local laws requiring censorship of culturally- or politically-sensitive material on websites, and these may differ from country to country.

Internet Media & Services companies could benefit from evaluating, managing, and disclosing risks and opportunities in markets where freedom of expression and data protection can be compromised. When companies are required to track user information or remove contentious material from their websites, transparency about their privacy and content practices will enhance their reputation and lower the risk of legal actions against them. This is true particularly for content-related issues, where companies often exercise their own policies and decisions about whether to remove allegedly offensive material from websites, and need to balance these with the requirements of local law.

**Evidence**

E.U. and U.S. laws on data privacy and protection pose regulatory risks for companies in this industry and demonstrate public concern about this issue. Recent fines by the FTC highlight industry practices leading to data privacy breaches, and the impact on companies. Path Inc., a social networking site, was fined $800,000 in February 2013 for unauthorized collection of user data; W3 Innovations was fined $50,000 in 2011 for allowing children to post personal information on public message boards.\textsuperscript{50} In 2012, the FTC fined Google $22.5 million, the largest fine in the agency’s history, to settle charges that it breached the privacy protections on Apple’s Safari Internet browser, illegally planting cookies to track users’ browsing behavior. In October of that year, the privacy rights regulator in France said that Google’s new uniform privacy policy for all its services violated European data protection rules, including failing to give users adequate means to opt out of the collection and use of their personal data.\textsuperscript{51}

Furthermore, a dynamic regulatory environment can affect how some companies in the industry gather useful information on their customers and can increase penalties for data privacy violations. In October 2013, the E.U. introduced draft rules for fines of up to EUR 100 million ($137 million) or five percent of annual global sales (whichever is greater) for data-protection violations under revisions to the E.U.’s privacy law (discussed in the Legisla-
Previously, the maximum fine imposed on a company by privacy regulators was only EUR 100,000.52

Highlighting the link between transparency of privacy practices and company revenues from advertising, a study from Carnegie Mellon University found that subjects were more likely to purchase from sites where the privacy policy was clear and transparent. In fact, the study reveals that online shoppers would even be willing to pay a premium for goods sold on sites with stronger privacy policies.53

Internet Media & Services companies are receiving an increasing number of government or law enforcement requests for access to customer data around the world. Google reports that in the six months ending December 2009, it received a total of around 12,500 user data requests; in the six months ending June 2013, the number had increased to around 26,000.54

Until recently, companies were not allowed to disclose certain types of data requests by the U.S. government. However, following the recent ruling by the U.S. Department of Justice allowing disclosures in broad ranges (see Legislative and Regulatory Trends section), companies including Facebook, Google, Yahoo and LinkedIn revealed the number of users affected by such requests and the type of data (content and non-content) that was accessed. For example, Yahoo revealed that, in the first six months of 2013, it received 0-999 FISA-related requests, affecting 30,000-30,999 user accounts.55 Other sources report that the NSA accessed additional content clandestinely at companies’ international locations.56

Companies face content filtering requirements in countries like China, which may be in conflict with their own principles and the expectations of their customers and may require modifications to services provided. Companies deciding not to operate in such markets may face lower market shares. For example, in order to expand its market, LinkedIn recently launched a Chinese version of its service, but expects government requests to filter content and having to comply with the requests in order to operate in the country. Unlike its regular versions, the Chinese version of LinkedIn will not allow group discussions.57,58 Sina Weibo, a microblog site in China, recently filed a report with the SEC, admitting that the company had not complied with the Beijing municipal government’s blogger identity rule and that website traffic and advertising revenue were at risk from reduced user activity.59

In countries such as India, where citizens generally expect freedom of expression, Internet companies face reputational risks related to government censorship. Internet companies have been forced to take down content that was considered offensive, anti-religious or anti-social. For example, Google reports that it received a total of 163 content removal requests from government authorities in India between January and June 2013 and that it complied with about 20 percent of all requests received.60 In 2012, Google and Facebook faced a civil lawsuit related to the displaying of objectionable content on their social networking sites and consented to removing content in response to a court order.61,62 The Indian market is a significant source of growth for the companies, with the monthly active users...
in the country for Facebook increasing by 132 percent between 2010 and 2011. The companies’ association with government censorship could affect reputation, with an impact on user acquisition and loyalty.

In response to increasing government interest in acquiring or filtering user data in the U.S. and abroad, and related customer concerns, industry leaders are being more transparent about their data privacy policies and acting to limit access to data by government agencies. In January 2013, Google posted its policy for responding to government data requests, stating that it requires a search warrant for agencies conducting criminal investigations, and it notifies users of legal demands where possible. In response to concerns about Chinese censorship, the company moved its operations outside of mainland China in 2010, which affected its market share in the country. Additionally, Google has recently begun to encrypt search queries globally, to thwart government attempts at unauthorized surveillance, as well as censorship in countries like China.

All the leading Internet Media & Services companies provide disclosures on this issue in their annual 10-K filings. In its Form 10-K for fiscal year (FY) 2013, Facebook provides a comprehensive discussion on data privacy, covering the principles of control, transparency, and accountability, and discussed the regulatory scrutiny it faces. For example, it states, “In August 2012, the Federal Trade Commission formally approved a 20-year settlement agreement requiring us to enhance our privacy program and to complete biennial third-party assessments.”

Priceline.com discloses in its Form 10-K for FY 2012 the potential material impacts of European privacy laws, particularly those relating to the use of cookies. It states that such laws “might adversely affect our ability, […] to serve certain customers in the manner we currently do and impair our ability to continue to improve and optimize performance on our websites, which could in turn negatively affect a customer’s experience using our services.”

**Value Impact**

In order to generate profits, industry players depend on attracting new customers, providing new services using customer data, and making such data and user networks available to advertisers and third parties to obtain revenues. Therefore, breaches of data privacy and freedom of expression or unclear communication to users regarding privacy policies and use of data for advertising purposes are likely to affect company reputation and brand value. Companies are likely to face erosion in their customer base as a result, with an impact on market share and revenue. In addition, companies relying on customer data for new products and services or those earning significant revenues from the sale of customer data may face limits on new product development and sources of revenue as a result of increasing privacy standards and regulations.

New and emerging data privacy regulations are likely to affect the operational expenses of companies through increased costs of compliance. Companies may face chronic selling, general, and administrative (SG&A) expenses and extraordinary expenses for small but frequent
incidents, while high impact, low probability data privacy incidents can generate substantial one-time remediation costs and contingent liabilities, with an impact on companies’ risk profile and cost of capital.

Internet Media & Services companies operating in countries where privacy and freedom of expression standards are in conflict with the core value of products or services risk losing their license to operate and a segment of their revenue, increasing their risk profile and cost of capital.

As customers and regulators begin to understand the privacy implications of customer data generated and saved on the systems of Internet Media & Services companies, the probability and magnitude of these impacts are likely to increase in the future.

Data Security

Companies in the Internet Media & Services industry and other industries are facing increasing cybersecurity threats from hackers. Internet Media & Services providers that cater to sensitive markets need to be especially mindful of the security of such information. The Financials sector in particular is increasing its use of the Internet to display and transmit financial data and orders, and individuals use the Internet for making purchases and investing or trading purposes, putting their personal information and other data at risk from cyber-attacks.

Internet Media & Services companies need to ensure that policies and processes are in place to manage these risks and that they utilize hardware or software systems that enable them to tackle cybersecurity threats, both to their own and their customers’ data. As hackers get more sophisticated, companies’ security systems will also need to evolve continuously. Data may also be compromised in ways that cannot easily be mitigated by software tools. Perpetrators can use methods of social engineering, whereby they will obtain information or secretly install malware on unsuspecting victims’ accounts through, for example, phone calls pretending to be legitimate company salesmen or customer service representatives.

Evidence

A recent global study on the cost of cybercrime found that the cost, frequency, and time to resolve cyber-attacks had increased for four consecutive years. The study finds that the average annualized cost of cybercrime incurred per organization ranged from $1.3 million to $58 million. The average time to resolve a cyber-attack was 32 days, with an average cost to organizations of just over $1 million during this period. The technology sector was among the top five sectors in terms of average annualized costs incurred for FY 2013.

The issue of data security is especially significant for Internet Media & Services companies, for which business is conducted over the Internet and generates and depends on customer data. Internet Media & Services companies are the target of thousands of cyber-attacks attempting to gain access to user and company data, particularly to usernames and passwords that can provide hackers with the key to other types of customer data stored with these companies. In December 2013, cybersecurity firm Trustwave stated that hackers had stolen user-
names and passwords for approximately two million accounts at Google, Twitter, Facebook, Yahoo, and other Internet sites. The breach was perpetrated by malicious installation of keylogging software on users’ computers and shows the vulnerability of even industry leaders to attacks.70

In another major incident, a data breach in June 2012 at LinkedIn resulted in the publication of approximately 6.5 million hashed user passwords on the Internet, of which nearly 60 percent were later unencrypted. LinkedIn’s Chief Financial Officer disclosed that the breach would cost the company between $500,000 and $1 million. The company planned to spend an additional $2-3 million to strengthen its security following the breach. Furthermore, a class action lawsuit was filed against the company by two LinkedIn users, alleging that the company had neglected to implement industry standard technology to protect customers’ personally identifiable information, violating its stated user agreement and privacy policy. The case was dismissed in 2013, but signifies the risk of litigation and reputational impacts from weak data security practices leading to data breaches.71,72 Besides the one-time major incidents, attacks or attempts at cybersecurity breaches are also an ongoing problem for companies to manage. Google comes across 9,500 new malicious websites each day and responds by sending notifications to webmasters. In addition, about 12 to 14 million Google Search queries per day display warnings to users about compromised sites.73

There is investor interest in disclosures on the issue of cybersecurity. According to a survey of 405 investors released in February 2013 by security firm HBGary Inc., more than 70 percent of investors are interested in reviewing company cybersecurity practices.73 The U.S. Securities and Exchange Commission (SEC) issued guidance in October 2011 asking all companies to disclose any material information on cyber-attacks or risks. Furthermore, the SEC has asked companies in several sectors for more information than they provided in their initial 10-K filings.74

Leading companies in the industry are all providing some disclosure on the issue in their 10-K filings (see Appendix IV). Priceline.com discusses the potential value impact in its Form 10-K for FY 2012, saying, “Security breaches could result in negative publicity, damage our reputation, expose us to risk of loss or litigation and possible liability and subject us to regulatory penalties and sanctions. Security breaches could also cause customers and potential customers to lose confidence in our security and choose to use the services of our competitors, which would have a negative effect on the value of our brand, our market share and our results of operations. Our insurance policies carry low coverage limits, and would likely not be adequate to reimburse us for losses caused by security breaches.”

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70 Note that the survey does not refer only to companies in this industry, but to all companies.
Value Impact

In order to generate profits, companies in the Internet Media & Services industry depend on attracting new customers, building customer loyalty, and using customer data to generate revenues through advertising and sales to third parties. Therefore, their ability to combat cyber-attacks can affect their reputation and the competitiveness of their services, with direct impact on market share and revenues. Companies providing tools to their customers to enhance cybersecurity could benefit from significant growth in revenues.

Technology and system upgrades may be necessary to meet higher standards for data security, resulting in additional research and development (R&D) and capital expenditures. New and emerging data security regulations are likely to affect the operating expenses of companies through increased costs of compliance. Companies may face chronic SG&A and extraordinary expenses for small but frequent incidents while high impact, low probability data security incidents can generate substantial one-time costs to remediate and contingent liabilities, with an impact on companies’ risk profile and cost of capital.

As customers and regulators begin to understand the security implications of customer data generated and saved on the systems of Internet Media & Services companies, the probability and magnitude of these impacts are likely to increase in the future.

HUMAN CAPITAL

Human capital addresses the management of a company’s human resources (employees and individual contractors), as a key asset to delivering long-term value. It includes factors that affect the productivity of employees, such as employee engagement, diversity, and incentives and compensation, as well as the attraction and retention of employees in highly competitive or constrained markets for specific talent, skills, or education.

Companies in the Internet Media & Services industry are both affected by and can influence human capital in society, through their workforce recruitment, development, and retention policies. The industry provides valuable services to modern economies, and its expanding workforce correlates with its growing contribution to economies. The U.S. Bureau of Labor Statistics projects that the data processing, hosting, related services, and other information services industry will realize some of the fastest growth among all industries in real output to 2022, with employment projected to increase by an annual 0.7 percent. This would reverse the decline in employment seen in the previous decade.  

However, projected growth in industry employment is accompanied by a shortage of employees trained or educated in STEM disciplines.
This skills shortage influences a company’s decisions regarding developing or recruiting from domestic talent pools and recruiting foreign employees. It also affects its ability to ensure diversity in its workforce. This is further influenced by employee engagement practices and work-life balance. An Internet Media & Services company’s employee recruitment, inclusion, and engagement practices and policies directly influence the results of its operations, while having implications for the development of human capital resources in modern economies.

**Employee Recruitment, Inclusion, & Performance**

Internet Media & Services companies rely on employees with STEM-based skills for innovation and new product development. In addition, these companies are increasingly competing for marketing and content development personnel and customer service representatives, given the importance of advertising revenues to the industry. While the number of job openings in the Internet Media & Services industry is growing, companies are finding it difficult to recruit qualified employees to fill software engineering and research positions. This is due in part to a shortage of qualified STEM workers in the U.S. and leads to intense competition among Software & IT Services and Internet Media & Services companies to acquire highly-skilled employees.

To respond to the talent shortage for STEM-based skills, companies are actively recruiting foreign nationals for their domestic operations, with risks related to perceived social implications in the host and home countries of workers. Recruitment of foreign workers can create social tensions in both the host and home countries, as the broader societal impacts of migration are not always fully understood. While migration of skilled labor benefits the migrating worker, overall, the issue is typically perceived in terms of its negative impacts, which could include ‘brain drain’ over the longer-term in the home country of foreign workers and negative pressure on wages in the host country. As a result, Internet Media & Services companies can face uncertainties about the stability and growth of their migrant workforce in the context of social tensions, immigration policy changes, and protectionist tax or trade policies.

In order to attract employees, improve employee engagement, and therefore retention and productivity, companies offer significant monetary and non-monetary benefits. Additionally, flexible working arrangements are typical in the industry, which may, on the one hand, support and respect personal needs leading to greater employee satisfaction and commitment, but on the other hand, have the potential to affect work-life balance negatively. Employee engagement initiatives and flexibility in working conditions might influence the recruitment and retention of a more diverse workforce.

As the industry is characterized by relatively low representation from women and minority groups, Internet Media & Services company efforts to recruit from and develop diverse tal-
ent pools can serve to address the STEM-talent shortage and generally to improve the value of their offerings. Greater workforce diversity is important for innovation, and helps companies understand the needs of their diverse and global customer base, to be able to design desirable products and services and communicate effectively with customers. It is also a means of attracting and retaining employees generally in a competitive labor market.

Companies are constrained by low diversity in education and training related to the required skills. However, those companies that are successful in recruiting and developing a diverse and inclusive workforce that at least reflects the make-up of local talent pools and their customers, in providing adequate career support to traditionally under-represented employees, and discouraging implicit biases in promotions, have the potential to enhance shareholder value over the long-term.

In general, companies that are able to put in place education, training, or recruitment policies that develop and leverage the talents of skilled employees will likely gain a competitive advantage over peers that are unable to develop talent pools or utilize available ones effectively.

**Evidence**

Productivity of employees is important for value creation in the Internet Media & Services industry, as employees account for a significant proportion of operating costs. Employee compensation accounts for approximately 20-26 percent of industry costs. Internet Media & Services companies are finding it difficult to obtain highly-skilled and creative software engineers and computer research scientists, and often compete with software companies to attract and retain top talent. Between 2010 and 2020, the number of additional annual computing jobs in the U.S. that will require at least a bachelor’s degree is expected to be around 120,000; in 2010, however, only approximately 60,000 bachelor’s, master’s and PhD degrees were awarded in computer science in the U.S.²⁰

Companies in the industry are employing various measures to address the skills shortage, including recruiting foreign nationals. Reflecting the importance of this issue to the industry, technology sector CEOs are lobbying for U.S. immigration and education reform for highly-skilled labor, recently setting up an advocacy group called Fwd.us.⁸¹ Computer occupations account for almost three-quarters of STEM requests and 50 percent of all requests for capped H-1B foreign worker visas, which are limited by annual quotas, with Google among the top employers requesting H-1B visas.⁸²

Internet Media & Services companies provide significant compensation to their top employees. Publicly-listed companies like Twitter, Yahoo, LinkedIn, and Google paid software engineers among the highest salaries, and these companies were also among the top 15 highest paying companies overall in the economy. Median salaries at Twitter and Yahoo were around $125,000, or 3.5 times the median income in the U.S. in 2012.⁸³ Additionally, stock-based compensation is an important strategy

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²⁰ This refers to overall computing jobs, not limited to software developers or information research scientists.
to attract and retain top industry talent. For example, average share-based compensation was 8.8 percent of revenues in FY 2012 for companies in the Internet Media segment. Google recently made news for offering $100 million in stock to retain one of its employees, Neal Mohan, who was offered a job at competitor Twitter. In its Form 10-K for FY 2012, Facebook discusses the potential for hiring strategies and skills shortages to affect its business, saying, “...[O]ur costs may increase as we hire additional employees, particularly as a result of the significant competition that we face to attract and retain technical talent.”

Some companies also provide flexible working arrangements and other amenities to enhance employee satisfaction and engagement and, therefore, improve recruitment and retention. A study on work-life balance among software workers discusses their long hours of work and expectations of flexible working arrangements, autonomy, and significant rewards in return. The study concludes that time flexibility, organizational support for non-work commitments in terms of their effect on career advancement, and low negative work-life spillover are all associated with greater trust in the organization, organizational commitment, and satisfaction with pay, supervision, and career prospects. Evidence not specific to the industry suggests a relationship between these attitudes and actual employee turnover. The study also highlights continued negative attitudes towards workers taking advantage of family-friendly benefits like career breaks, which could affect the careers of women and those with care responsibilities.

Recent changes to employee policies by Yahoo CEO Marissa Mayer indicate that the best method to increase employee engagement and productivity is still a matter of debate. Going against the trend towards more flexibility, the company’s new limitation on employees’ ability to work from home drew criticism from some, while others agreed that this was important to ensure employee productivity and creativity, and prevent abuse of the previous “working from home” policy by employees.

The industry’s challenge with acquiring and retaining sufficient talent is further accentuated by relatively low levels of gender diversity and representation of minority groups in the workforce. While companies in this industry make efforts to recruit a more diverse talent pool, overall industry performance is poor. Only one in five software engineers are women. Women represent only 30 percent of computer and information system managers and computer scientists; and ethnic minorities only around 25 percent. In part, this is due to the lack of qualified women and minority candidates. A recent study by the Computing Research Center determined that a typical computer and information science undergraduate class at U.S. universities was about 87 percent men, 66 percent white, 15 percent Asian, six percent Hispanic and four percent African-American.

While this can create a ‘pipeline’ problem, the industry suffers from even lower diversity in leadership positions, suggesting a failure to develop and promote a diverse workforce beyond initial recruitment. The industry median for women on boards in 2011 was about 4.5 percent for the Internet Media segment, and the median for women executives was zero percent in 2011, but 25 percent in 2010.
Pay differential among workers is considered both a factor and a symptom of lack of development opportunities for women and minorities, illustrating the potential for implicit or explicit biases, or lack of opportunities to undertake core activities that drive value in the industry. U.S. Department of Labor data shows that in 2009, women earned around 76 percent of men’s salaries in the Information sector.\textsuperscript{92}

A diverse and inclusive workforce is increasingly being recognized in Human Resources (HR) literature as contributing to company value. Recent research suggests that companies with effective management of gender diversity, especially at the leadership levels, outperform their peers. For example, companies with sustained high representation of women on their board of directors outperformed those with sustained low representation by 46 percent on Return on Equity.\textsuperscript{93} In a survey of 321 executives from global companies with annual revenues of more than $500 million, 85 percent of respondents agreed that a diverse and inclusive workforce provides different perspectives and ideas that foster innovation.\textsuperscript{94}

In retail and consumer goods industries, research on the effect of diversity shows that diverse employees understand cultural nuances, enable companies to understand their diverse customer base, and provide better consumer insights. By creating a diverse and inclusive workforce, in a way that reflects the population overall and the specific communities served,\textsuperscript{95} Internet Media & Services companies could establish a brand relationship with their customers, improving financial performance. Although it is difficult to establish general causality between employee diversity and profitability in the economy, academic studies suggest that diversity is likely to add value for high-tech, knowledge-intensive industries,\textsuperscript{96} such as the Internet Media & Services industry. A 2013 working paper synthesizing research on the impacts of diversity on productivity, wages, and profits finds that when gender diversity increases by one standard deviation in high-tech or knowledge-intensive firms, productivity increases on average by between 2.5 to 6 percent. This can be explained by research suggesting that firms that depend on innovative activities with complex tasks are likely to benefit more from diversity than traditional firms.\textsuperscript{97} The paper concludes that effective diversity management, such that benefits of a more diverse workforce outweigh costs, is critical for a firm’s success. For increased productivity to translate into higher profitability, according to the paper, “the gains of a more diverse workforce in terms of complementary skills and information sets” need to outweigh “additional costs related to communication and conflicts.”

\textbf{Value Impact}

Internet Media & Services companies’ performance in recruiting and managing a diverse, skilled workforce can influence their revenue-generation ability and cost structure.

Companies’ performance in recruiting and managing domestic STEM-qualified employees and ensuring workforce diversity can lead to value creation in the long-term through stronger innovation, and superior ability to cater to

\textsuperscript{9} There was no one-to-one match with the Internet Media & Services industry, but the Information sector would include such companies.
a diverse customer base, with an impact on both market share and pricing power. It can also influence their reputation and ability to attract employees, as well as operating costs related to recruiting, developing, and retaining employees.

As more industries compete for STEM-qualified workers, and the debate on the social benefits of high-skill immigration continues to evolve, the probability and magnitude of these impacts are likely to increase in the future.

LEADERSHIP AND GOVERNANCE

As applied to sustainability, governance involves the management of issues that are inherent to the business model or common practice in the industry and that are in potential conflict with the interest of broader stakeholder groups (government, community, customers, and employees) and therefore create a potential liability, or worse, a limitation or removal of license to operate. This includes issues such as risk management, safety management, supply chain and resource management, conflict of interest, anti-competitive behavior, and corruption and bribery. It includes regulatory compliance, lobbying, and political contributions.

In the context of the Internet Media & Services industry, governance issues manifest themselves in the form of IP protection and compliance with IP laws, which have implications both for innovation and competition. The materiality of IP-related governance issues is accentuated for companies that have a dominant market position due to network effects.

Intellectual Property Protection & Competitive Behavior

Despite the openness of the Internet, companies in the Internet Media & Services industry spend a significant proportion of their revenues on IP protection, including acquiring patents and copyrights. While IP protection is inherent to the business model of some companies in the industry, companies’ IP practices can sometimes conflict with the best interests of society. IP protection, on the one hand, is an important driver of innovation. On the other hand, companies could sometimes acquire patents and other IP protection to restrict competition and access to benefits from innovation, particularly if they are dominant market players. In this context, open-source software (OSS) poses an interesting dilemma for companies in this industry, as in the Software & IT Services industry. It creates opportunities for some companies – encouraging competition – while posing risks for players that have proprietary software with closely-guarded IP.

Due to the complexity of software, its abstract nature, and increasing IP rights protection related to software, Internet Media & Services companies have to navigate overlapping patent claims to be able to operate. At times, companies may require multiple licenses to commercialize a single product. Larger companies may have more resources to accumulate patents, presenting potentially unfair competition. As a result, companies in the industry may find themselves constantly in litigation or subject to regulatory scrutiny either due to allegations of patent violations if they engage in unethical
business practices, or are perceived as doing so, or because they are suing others for IP infringement.  

Network effects accentuate the governance issues around IP and anti-competitive practices. The industry provides the classic example of a network industry, where services such as social networks and the related advertising-based business models exhibit strong network effects, with the value of the service increasing with the number of people using it and the expanding data generated by these users. This positive feedback effect can result in the market “tipping” towards a single company and its network. Companies with large networks face heightened regulatory risk from anti-trust laws, which can also limit their ability to protect and enforce their IP rights. The intense anti-trust scrutiny for dominant industry players is best exemplified by a series of anti-trust challenges brought against Google in the U.S., E.U., and India.

Companies that are able to protect their IP and use it to spur innovation resulting in new products and services, while ensuring their IP management practices do not unfairly restrict competition, have the potential to lower regulatory scrutiny and legal actions, while improving revenues.

**Evidence**

Internet Media & Services companies face a growing number of lawsuits related to patent protections, due to the complexities discussed above. The Internet and online services industry ranked 11th among all industries in terms of the total number of patent cases with decisions between 2007 and 2012, with 25 cases during this period. This is compared to no such cases in prior years, signifying a new and growing industry trend. The increase in cases in this industry is indicative of the overall increase in patents granted by the United States Patent and Trademark Office and patent case filings among all industries, particularly in the last five years.

Leading companies in the industry, some with dominant market positions, have faced a number of patent-related lawsuits in recent years. For example, between 2011 and 2013, Google was involved in an average of 66 patent-related lawsuits per year; the corresponding figures for Facebook and Yahoo were lower at 19 and 14 per year respectively.

Companies in the industry spend a significant proportion of their resources on IP generation, including acquiring patents and copyrights. For example, with Google’s purchase of Motorola Mobility for $12.5 billion in 2012, it acquired about 17,000 patents. Facebook paid Microsoft $550 million in 2012 to buy 650 patents, and license an additional 275. However, companies also risk spending substantial amounts on legal fees for enforcing IP protections and on penalties or legal costs when legal action is brought against them. Sometimes lawsuits can end in settlements that can prove costly to companies. For example, Facebook acquired the patents from Microsoft mentioned above (as well as IBM) in order to counter-sue Yahoo in a recent case in 2012. Yahoo had filed suit against Facebook in March 2012 alleging infringements on 10 web technology patents. In response, Facebook counter-sued the following month, claiming that Yahoo had violated some of Facebook’s own patents. The case ended in July 2012, when the companies agreed to cross-license their patented technologies, which may preclude future IP clashes and expand their pre-existing collaboration.
IP cases are not always settled amicably; in 2004, Yahoo and Google settled a lawsuit over a search patent related to auction systems for paid search ads. Yahoo had obtained the patent, and inherited the lawsuit, when it acquired Overture Services in 2003. In the settlement, Google granted Yahoo 2.7 million shares of stock. At the time, Google was not yet a public company. At Google’s IPO price of $85, the settlement was worth approximately $230 million.105

In December 2013, the U.S. Supreme Court agreed to hear arguments on limiting software patents for the first time in decades. The technology sector is broadly divided on the issue, with some firms supporting an open-source, collaborative IP environment, while other companies want to protect proprietary IP. Companies are concerned that relaxing patent laws for software could undermine their business model, and an eventual ruling could deeply affect valuations if some types of software can no longer be patented. A ruling in favor of limiting software patents could alter how some companies value their intellectual property. The court’s review has no defined timeline,106,107 but the review suggests that the issue of IP protection and competitive behavior is likely to pose higher risks for the industry in the future.

In its Form 10-K for 2012, Google discloses the risks from IP-related litigation. “We have had patent, copyright, and trademark infringement lawsuits filed against us claiming that certain of our products, services, and technologies, […], infringe the intellectual property rights of others. Adverse results in these lawsuits may include awards of substantial monetary damages, costly royalty or licensing agreements, or orders preventing us from offering certain features, functionalities, products, or services, and may also cause us to change our business practices, and require development of non-infringing products or technologies, which could result in a loss of revenues for us and otherwise harm our business.”

Google has also been subject to regulatory scrutiny related to anti-trust, in the U.S., E.U., and India. While Google recently only had to make modest concessions related to the FTC’s investigation of its monopolistic behavior, European regulators made a preliminary ruling in April 2013 that Google may be abusing its dominance over the search segment of the Internet Media & Service industry. In response, Google, while acknowledging no wrongdoing, agreed to make a series of changes to the display of its search results to ensure that users understand the difference between neutral results and those from which the company profits directly. If Google later violates the terms of this agreement with European regulators, the company could face a fine equal to ten percent of its global revenues.108 After further back and forth on the terms of the concessions, in February 2014, the European Commission accepted the latest concessions offered by the company, suggesting that the case may be near an end.109

The company also faces a probe from Indian anti-trust authorities alleging that the company
abused its dominant position in Internet search and advertising. If found guilty, the company could face a penalty of up to $5 billion.¹⁰

**Value Impact**

Internet Media & Services companies can face extraordinary expenses and contingent liabilities from adverse legal or regulatory rulings related to anti-trust and IP. Such rulings may also affect a company’s market share and pricing power if its patents or dominant position in key markets are legally challenged, with significant impact on revenues. Strong reliance on IP and market dominance can also be a source of risk if they are vulnerable to legal challenge, increasing the risk profile of companies and their cost of capital. Risk profile can be impacted further by possible changes to the regime of IP protection for software.
APPENDIX I: Five Representative Companies | Internet Media & Services

<table>
<thead>
<tr>
<th>COMPANY NAME (TICKER SYMBOL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google, Inc. (GOOG)</td>
</tr>
<tr>
<td>Priceline.com, Inc. (PCLN)</td>
</tr>
<tr>
<td>Facebook, Inc. (FB)</td>
</tr>
<tr>
<td>Yahoo!, Inc. (YHOO)</td>
</tr>
<tr>
<td>Expedia, Inc. (EXPE)</td>
</tr>
</tbody>
</table>

* This list includes five companies representative of the Internet Media & Services industry and its activities. This includes only companies for which the Internet Media & Services industry is the primary industry, that are U.S.-listed but are not primarily traded Over-the-Counter, and where at least 20 percent of revenue is generated by activities in this industry, according to the latest information available on Bloomberg Professional Services. Retrieved on 23 January 2014.
### APPENDIX IIA:
Evidence for Material Sustainability Issues

<table>
<thead>
<tr>
<th>EVIDENCE OF INTEREST</th>
<th>EVIDENCE OF FINANCIAL IMPACT</th>
<th>FORWARD-LOOKING IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HM</strong> (1-100)</td>
<td>IWWGs</td>
<td>EI</td>
</tr>
<tr>
<td>Environmental footprint of hardware infrastructure</td>
<td>67</td>
<td>85</td>
</tr>
<tr>
<td>Data privacy, advertising standards, and freedom of expression</td>
<td>95</td>
<td>90</td>
</tr>
<tr>
<td>Data security</td>
<td>N/A</td>
<td>95</td>
</tr>
<tr>
<td>Employee recruitment, inclusion, and performance</td>
<td>80</td>
<td>85</td>
</tr>
<tr>
<td>Intellectual property protection &amp; competitive behavior</td>
<td>60</td>
<td>90</td>
</tr>
</tbody>
</table>

**HM**: Heat Map, a score out of 100 indicating the relative importance of the issue among SASB's initial list of 43 generic sustainability issues. The score is based on the frequency of relevant keywords in documents (i.e., 10-Ks, shareholder resolutions, legal news, news articles, and corporate sustainability reports) that are available on the Bloomberg terminal for the industry's publicly listed companies.

**IWWGs**: SASB Industry Working Groups

**%**: The percentage of IWG participants that found the issue to be material. (-) denotes that the issue was added after the IWG was convened.

**Priority**: Average ranking of the issue in terms of importance. One denotes the most material issue. N/A denotes that the issue was added after the IWG was convened.

**EI**: Evidence of Interest, a subjective assessment based on quantitative and qualitative findings.

**EFI**: Evidence of Financial Impact, a subjective assessment based on quantitative and qualitative findings.

**FLI**: Forward Looking Impact, a subjective assessment on the presence of a material forward-looking impact.
# APPENDIX IIB:
Evidence of Financial Impact for Material Sustainability Issues

<table>
<thead>
<tr>
<th></th>
<th>REVENUE &amp; EXPENSES</th>
<th>ASSETS &amp; LIABILITIES</th>
<th>RISK PROFILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>Operating Expenses</td>
<td>Non-operating Expenses</td>
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<tr>
<td>Environmental footprint of hardware infrastructure</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Data privacy, advertising standards, and freedom of expression</td>
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<tr>
<td>Data security</td>
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<tr>
<td>Employee recruitment, inclusion, and performance</td>
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<tr>
<td>Intellectual property protection &amp; competitive behavior</td>
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<td>•</td>
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</table>

<table>
<thead>
<tr>
<th>HIGH IMPACT</th>
<th>MEDIUM IMPACT</th>
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## APPENDIX III: Sustainability Accounting Metrics | Internet Media & Services

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental Footprint of Hardware Infrastructure</strong></td>
<td>Total energy consumed, percentage grid electricity, percentage renewable energy</td>
<td>Quantitative</td>
<td>Gigajoules, Percentage (%)</td>
<td>TC0401-01</td>
</tr>
<tr>
<td></td>
<td>Total water withdrawn, percentage recycled, percentage in regions with High or Extremely High Baseline Water Stress</td>
<td>Quantitative</td>
<td>Cubic meters (m³), Percentage (%)</td>
<td>TC0401-02</td>
</tr>
<tr>
<td></td>
<td>Description of the integration of environmental considerations to strategic planning for data center needs</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TC0401-03</td>
</tr>
<tr>
<td><strong>Data Privacy, Advertising Standards, and Freedom of Expression</strong></td>
<td>Discussion of policies and practices relating to behavioral advertising and customer privacy</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TC0401-04</td>
</tr>
<tr>
<td></td>
<td>Percentage of users whose demographic data is collected for secondary purpose, percentage who have opted-in</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>TC0401-05</td>
</tr>
<tr>
<td></td>
<td>Amount of legal and regulatory fines and settlements associated with customer privacy&lt;sup&gt;x&lt;/sup&gt;</td>
<td>Quantitative</td>
<td>U.S. dollars ($)</td>
<td>TC0401-06</td>
</tr>
<tr>
<td></td>
<td>Number of government or law enforcement requests for customer information, percentage resulting in disclosure</td>
<td>Quantitative</td>
<td>Number, Percentage (%)</td>
<td>TC0401-07</td>
</tr>
<tr>
<td></td>
<td>List of countries where core products or services are subject to government-required monitoring, blocking, content filtering, or censoring&lt;sup&gt;x&lt;/sup&gt;</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TC0401-08</td>
</tr>
<tr>
<td></td>
<td>Number of government requests to remove content, percentage compliance with requests</td>
<td>Quantitative</td>
<td>Number, Percentage (%)</td>
<td>TC0401-09</td>
</tr>
<tr>
<td><strong>Data Security</strong></td>
<td>Number of data security breaches and percentage involving customers’ personally identifiable information&lt;sup&gt;xv&lt;/sup&gt;</td>
<td>Quantitative</td>
<td>Number, Percentage (%)</td>
<td>TC0401-10</td>
</tr>
<tr>
<td></td>
<td>Discussion of management approach to identifying and addressing data security risks</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TC0401-11</td>
</tr>
</tbody>
</table>

<sup>x</sup> Note to TC0401-06 – Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.

<sup>xi</sup> Note to TC0401-08 – Disclosure shall include a description of the extent of the impact in each case and, where relevant, a discussion of the registrant’s policies and practices related to freedom of expression.

<sup>xv</sup> Note to TC0401-10 – Disclosure shall include a description of corrective actions implemented in response to data security incidents or threats.
### APPENDIX III: Sustainability Accounting Metrics | Internet Media and Services

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Recruitment, Inclusion, and</td>
<td>Percentage of employees that are foreign nationals(^{xv})</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>TC0401-12</td>
</tr>
<tr>
<td>Performance</td>
<td>Employee engagement as a percentage(^{xvi})</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>TC0401-13</td>
</tr>
<tr>
<td></td>
<td>Percentage of gender and racial/ethnic group representation for: (1) executives</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>TC0401-14</td>
</tr>
<tr>
<td></td>
<td>and (2) all others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of patent litigation cases, number successful, and number as patent holder</td>
<td>Quantitative</td>
<td>Number</td>
<td>TC0401-15</td>
</tr>
<tr>
<td>Intellectual Property Protection &amp;</td>
<td>Amount of legal and regulatory fines and settlements associated with anti-</td>
<td>Quantitative</td>
<td>U.S. dollars ($)</td>
<td>TC0401-16</td>
</tr>
<tr>
<td>Competitive Behavior</td>
<td>competitive practices(^{xvii})</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^{xv}\) Note to TC0401-12 – Disclosure shall include a description of potential risks of recruiting foreign nationals and management approach to addressing these risks.

\(^{xvi}\) Note to TC0401-13 – Disclosure shall include a description of methodology employed.

\(^{xvii}\) Note to TC0401-16 – Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.
APPENDIX IV: Analysis of 10-K Disclosures | Internet Media & Services

The following graph demonstrates an aggregate assessment of how the top ten U.S. domiciled companies, by revenue in the Internet Media & Services industry are currently reporting on material sustainability issues in the Form 10-K.

**DISCLOSURE ON MATERIAL SUSTAINABILITY ISSUES**

- **Environmental footprint of hardware infrastructure**
  - No disclosure: 20%
  - Boilerplate: 30%
  - Industry-specific: 40%
  - Metrics: 30%
  - IWG Feedback*: 85%

- **Data privacy, advertising standards, and freedom of expression**
  - No disclosure: 10%
  - Boilerplate: 90%
  - Industry-specific: 0%
  - Metrics: 0%
  - IWG Feedback*: 90%

- **Data security**
  - No disclosure: 5%
  - Boilerplate: 95%
  - Industry-specific: 0%
  - Metrics: 0%
  - IWG Feedback*: 95%

- **Employee recruitment, inclusion, and performance**
  - No disclosure: 15%
  - Boilerplate: 85%
  - Industry-specific: 0%
  - Metrics: 0%
  - IWG Feedback*: 85%

- **Intellectual property protection & competitive behavior**
  - No disclosure: 10%
  - Boilerplate: 90%
  - Industry-specific: 0%
  - Metrics: 0%
  - IWG Feedback*: 90%

*Percentage of IWG participants that agreed issue was material
References

1 Data from Bloomberg Professional service accessed on 12 February 2014 using ICS <GO> command. The data represents global revenues of companies listed on global exchanges and those trading over-the-counter (OTC) from the Internet Media & Services industry, using Level 2 of the Bloomberg Industry Classification System.


4 Based on featured data for 2011 from Bloomberg Professional service accessed in 2013 using the BI INETG <GO> command.

5 Based on macro data from Bloomberg Professional service accessed in 2013 using the BI INETG <GO> command.


8 Ibid.


10 Ibid.

11 Ibid.


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References (Cont.)


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References (Cont.)


81 Fwd.us. Web <http://www.fwd.us/about_us>


84 According to the latest annual data on Share Based Compensation as % of Revenue available on Bloomberg Professional Service for the Internet Media segment using the BI INETG <GO> command. Accessed on 24 March 2014.

85 Carlson, N., “Google Paid This Man $100 Million: Here’s His Story,” Business Insider, 6 April 2013.

86 Form 10-K, Facebook Inc., Filed 02/01/13 for the Period Ending 12/31/12.


91 Based on data from Bloomberg Professional service using the BI ESG <GO> command. Data obtained on 3 May 2013.


97 Ibid. Pages 4-5.


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101 SASB analysis of Bloomberg Professional service data using the LITI <GO> function. Data obtained on 20 March 2014.


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