



CENTRE for SUSTAINABILITY
and EXCELLENCE

Sustainability (ESG) Reporting Trends

North America 2018

The Influence of Sustainability on Financial Results and How to Gain Advantage
and how the Rise of A.I. and Blockchain will transform Sustainability



Welcome to CSE's third annual Research of Sustainability (ESG) Reporting Trends in North America.

This report presents sustainability reporting trends for the reporting period of 2017. Sustainability Reports of six hundred and forty-two (642) companies from the United States and Canada were analyzed, many of them included in the Fortune 500 companies.

This year the research includes a more detailed analysis of the correlation between Sustainability and Financial results and provides insight on AI and Blockchain applications that will transform the sustainability field over the next years.

Enjoy the reading,

Nikos Avlonas

Founder and President CSE

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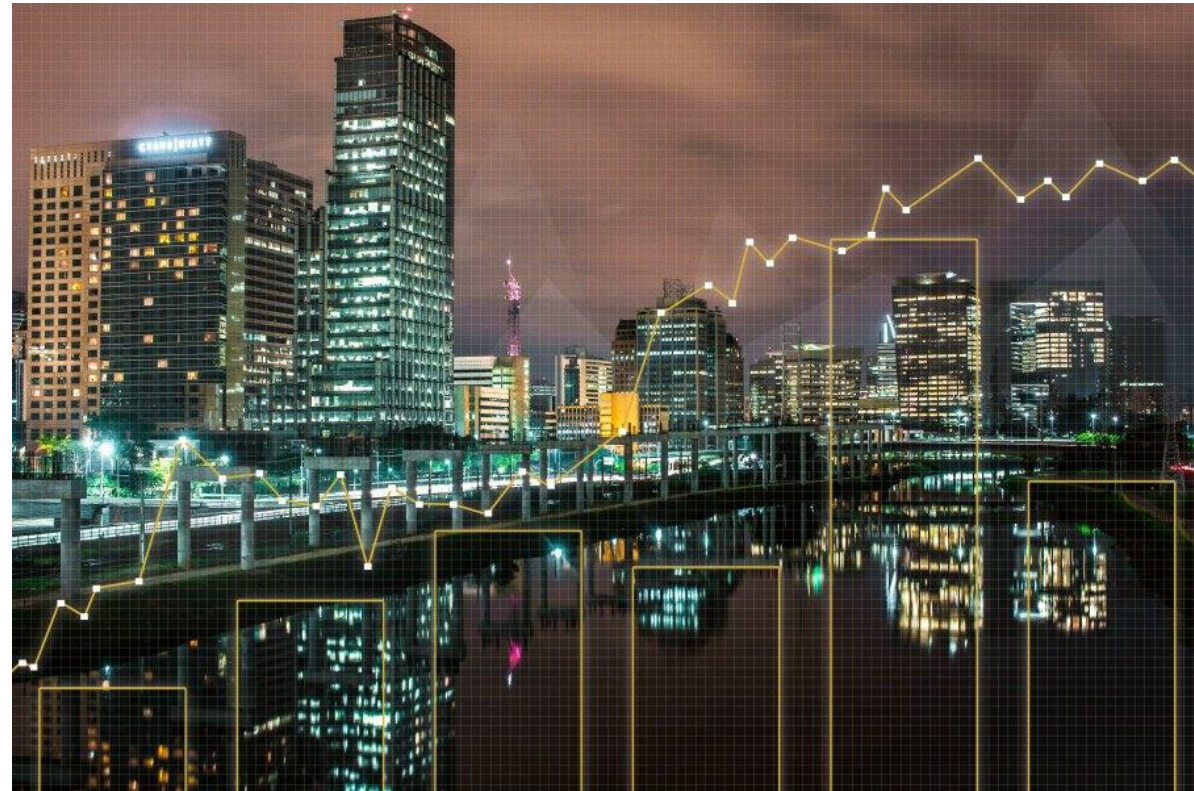
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1. Executive Summary

This research by the Centre for Sustainability and Excellence (CSE) is designed to provide a useful and convenient representation of the current state regarding Sustainability Reporting by companies and organizations that are based in North America. The research has taken place annually since 2015. This is the third report produced by CSE, taking a closer look at the sustainability reporting trends in North America, which for the first time includes an analysis of the use of artificial intelligence (AI) and Blockchain in the field of Corporate Sustainability.

The research analyzes 642 unique sustainability reports for the 2017 reporting period, published by companies and organizations based in North America (U.S.A. and Canada). It examines characteristics such as sectors, size, ownership, and companies' and organizations' reporting practices: standards and guidelines used, extent of use of most common reporting guidelines, and external assurance practices.



The analysis of the companies with the highest ESG scores shows evidence that overall Sustainability Reporting and Strategies reflected in these reports have positive impact on financial performance. CSE used the outcomes of the latest research and created a return on sustainability framework that identifies correlations between Corporate Sustainability performance and Financial results.

The sectors with the highest reporting presence in the research sample include: Financial Services, Energy and Energy Utilities, Food & Beverage, Healthcare Products and Mining. Most of the companies that publish a sustainability report in North America are from the U.S. In both the U.S. and Canada, most of the companies that published a sustainability report for the 2017 period were private companies (87.3% in the U.S. and 73.9% in Canada). Also, there is a significant percentage of Small-Medium Enterprises in both countries that published a sustainability report for the 2016-2017 reporting period: 9.3% in the U.S. and 10.5% in Canada,

greater than 5.1% and 8.0% respectively during the 2015-2016 reporting period.

Using specific guidelines for conducting these reports is a growing trend and adds value, integrity, transparency, and reliability to the reports. Fifty-nine percent (59%) of the companies that published a sustainability report for the 2016-2017 reporting period used the Global Reporting Initiative (GRI) reporting guidelines. Of these, 74.3% have not sought external assurance.

Finally the adoption of the United Nations Sustainability Goals (SDGs) in 2017, as represented in the sustainability reports, has doubled with respect to the previous research (13.9% from 6.2%). Still, the introduction and implementation of the SDGs is in the initial stage. There are many opportunities for businesses to become familiar with them and begin contributing to the realization of these universally adopted goals.

SUSTAINABILITY (ESG) REPORTING TRENDS IN **NORTH AMERICA**

01

Top reporting sectors for 2016–2017:
Energy & Energy Utilities **(11%)**, Financial Services **(10%)**, Mining **(8%)**

02

Companies have not been convinced to do External Assurance:
Only 25.7% of GRI reports have been externally assured
(5.3% decrease since 2015)

03

124% increase (from the previous year) to the number of companies referencing and reporting the Sustainable Development Goals

04

Rise of supply chain pressures and Sustainability Reporting in Medium size enterprises: **5.1% increase** in **United States** and **8.0% increase** in **Canada** since the previous reporting period

05

Rise of AI and BlockChain tools on Sustainability.
10% of GDP by 2025 will be stored on Blockchain and similar technologies (World Economic Forum Report)

06

59% of companies use the Reporting Guidelines of the GRI improving stakeholder transparency, integrity and reliability

THE INFLUENCE OF SUSTAINABILITY PERFORMANCE IN FINANCIAL RESULTS!

Strong Correlation between corporate sustainability performance and financial results: 75% of companies with Sustainability Reports & high ESG Ratings (e.g. CSRHub) recorded better financial results than the previous year.

CSE RESEARCH PROFILE

Sustainability Reports from **642 companies** from **United States (79%)** and **Canada (21%)**.
Trends on Top 50 companies with high ESG scores and Top 10 per sector.



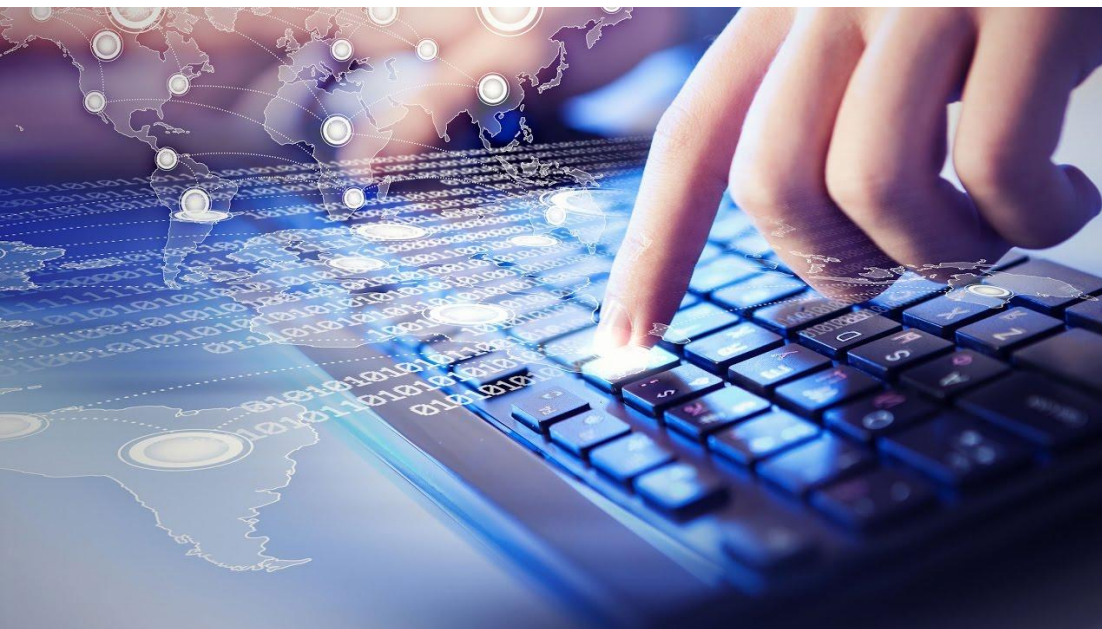
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2. About This Research

The current research by the Centre for Sustainability and Excellence provides a useful representation of the current state of Sustainability (Corporate Social Responsibility) reporting by companies based in North America. It is intended for stakeholder groups using sustainability reports, such as investors, business leaders, company boards, CSR and sustainability professionals, NGOs, customers, academics and students.

The goals of the research are to identify new trends on Sustainability Reporting and examine:

- Correlations between the sustainability reporting and strategy practices of companies and their financial results.
- Sustainability practices of the leading companies in each sector.
- Blockchain and the use of artificial intelligence practices in analyzing sustainability reports.
- Sectors most active in sustainability reporting.
- Characteristics of companies that publish sustainability reports.
- Extent of use of standards and guidelines for publishing sustainability reports (such as the Global Reporting Initiative and other guidelines).
- Compliance and application level of reports which were conducted using the GRI's reporting guidelines.
- Practices for seeking external assurance for sustainability reporting.



3. Introduction



It is estimated that about 80% of the world's largest 250 companies are already integrating non-financials in their financial reporting, demonstrating that non-financial issues are material. The risk horizon is changing fast, as indicated by the rapid growth of non-financial disclosure requirements. Navigating the complexity of non-financial issues and their impacts on business has proven to be a challenge. Sustainability Reports are organizational reports that provide information on economic, environmental, and social performance. Sustainability reporting is a tool used to report organizational data as well as to internalize and improve an organization's commitment to sustainable development. They include aspects that are directly or indirectly related to the company and can be of interest to different stakeholder groups such as shareholders, investors, employees, the public, and others. Sustainability reporting is the tool an organization can employ to understand both its exposure to risks and potential business

opportunities. Sustainability reporting has become an essential business management tool, and companies and organizations are aware that 'doing business as usual' is no longer a valid option and the shift to 'doing business in a sustainable way' is the only solution that will secure their long-term existence.

4. UN SDGs and Sustainability Reporting

4.1 Target 12.6 of the UN SDGs

The UN Sustainable Development Goals (SDGs) are the next step that humanity has set for itself towards ensuring a healthy, fulfilling life for all, on a healthy planet. Following an open consultation process led by the United Nations, governments around the world have committed themselves to achieving these goals before 2030. For the first time, they are not alone: civil society and the private sector are called to play a major role.

Ending poverty, gender equality, safeguarding our environment and climate, strong institutions, education for all, sustainable consumption and production: these new global goals require all of us to take action for a better world. The important role of the private sector has evolved since the Millennium Development Goals (MDGs), which the SDGs replace. Through their global reach, businesses have a lasting impact on people's lives and make a real difference towards building a fairer and more sustainable world.

In this view, a specific SDG target directly speaks to the role to play by companies. Within SDG #12, aiming for "sustainable consumption and production patterns", Target #6 calls for advancing sustainability reporting worldwide and supporting responsible business practices. By measuring and disclosing their social and environmental impacts, companies can work towards sustainable social and economic development. Sustainability reporting, as an enabler, is a key tool that can advance the private sector contribution to global development.

Using the SDG Target 12.6 tracker, set by the Global Reporting Initiative, governments and other interested stakeholders can visualize the state of sustainability reporting in their own countries. The tracker can be used to answer crucial questions. How many companies report on social and environmental issues in my country? In which sectors? What policies are in place globally to encourage companies to report and facilitate sustainability reporting?

❖ Target 12.6 for United States of America

The U.S. has a progressive history of business transparency and sustainability reporting. A majority of U.S. multi-nationals disclose non-financial related information. The U.S. is advanced in terms of voluntary private sector reporting. The U.S. also has several pieces of legislation requiring large companies to report on key sustainability issues, such as GHG emissions, environmental impacts and labor standards. In 2016, the White House released the U.S. National Action Plan for Responsible Business Conduct aimed at holding U.S. businesses accountable for the impacts of their operations. Other policy examples are listed below.

Title	Type of Instrument	Mandatory or Voluntary	Scope
Dodd – Frank Wall Street Reform and Consumer Protection Act (Section 1502 – Conflict Minerals)	Legislation	Mandatory	Social Governance
Securities and Exchange Commission (SEC) Regulation S-K, 17 C.F.R. 229.101	Legislation	Mandatory	Environmental
Sustainability Accounting Standards Board (SASB) Industry Sustainability Accounting Standards	Standard	Voluntary	General sustainability/ ESG/non-financial
Clean Power Act, 2015	EPA Rule	Mandatory	Environmental
NYSE Section 303A Corporate Governance Rules, 2014	Code of Conduct or Guideline	Mandatory	Governance
40 CFR Parts, 86, 87, 89 et al. Mandatory Reporting of GHG emissions, 2009	EPA Regulation	Mandatory	Environmental
Clean Air Act (CAA), 1970	Legislation	Mandatory	Environmental
Clean Water Act (CWA), 1972	Legislation	Mandatory	Environmental
Emergency Planning and Community Right-to-Know Act Section 313 –	Legislation	Mandatory	Environmental

Toxic Release Inventory (TRI), 1988			
The Sarbanes-Oxley Act, 2002	Legislation	Mandatory	Governance
Presidential Executive Order 13514, 2009	Requirement	Mandatory	Environmental
Regulation S-K, 2010	Code of Conduct or Guideline	Mandatory	Environmental
California Transparency in Supply Chains Act, 2010	Legislation	Mandatory	Social
SEC Guidance Regarding Disclosure Related to Climate Change, 2010	Code of Conduct or Guideline	Voluntary	Environmental
SECTION 709(c), TITLE VII, CIVIL RIGHTS ACT of 1967, as amended by the Equal Employment Opportunity Act of 1972	Code of Conduct or Guideline	Mandatory	Social
Chemical Data Reporting (CDR) Rule issued under Toxic Substances Control Act (TSCA), 2011	Legislation	Mandatory	Environmental
Benefit Corporation Legislation (B-Corp.Legislation.2012	Legislation	Voluntary	sustainability/ ESG/non-financial

❖ **Target 12.6 for Canada**

Canada has developed reporting legislation on non-financial issues since the 1990s. Emissions and pollutant related regulation is most common. As part of their national strategy, the Canadian government released the Building the Canadian Advantage: A CSR Strategy for the Canadian International Extractive Sector which encourages companies to voluntarily report on their economic, environmental and governance performance.

Title	Type of Instrument	Mandatory or Voluntary	Scope
Environmental Reporting Guidance, 2010 (CSA Staff Notice 51-33)	Code of Conduct or Guidance	Voluntary	Environmental
The Bank Act (Public Accountability Statements)	Legislation	Mandatory	Social
The TSX Timely Disclosure Policy, 2004	Listing Requirement	Mandatory	General sustainability/ ESG/non-financial
Canadian Environmental Protection Act (The	Legislation	Mandatory	Environmental

National Pollutant Release Inventory – NPRI)			
Canadian Environmental Protection Act (GHG Reporting)	Legislation	Mandatory	Environmental
The Extractive Sector Transparency Measures Act	Legislation	Mandatory	Social Governance
Disclosure on Corporate Governance/Gender Equality (2015)	Legislation	Mandatory	Social Governance
Building the Canadian Advantage: A Corporate Social Responsibility (CSR) Strategy for the Canadian International Extractive Sector, 2009	Code of Conduct or Guidance	Voluntary	General sustainability/ ESG/non-financial
CSR Implementation Guide for Canadian Business	Code of Conduct or Guidance	Voluntary	General sustainability/ ESG/non-financial

4.2 GRI Standards



The GRI Standards are issued by the Global Sustainability Standards Board (GSSB) according to a formally defined 'Due Process Protocol'. The Due Process Protocol sets forth the process for the development of GRI Standards and is designed to ensure that the work of the GSSB promotes the public interest and is aligned with GRI's vision and mission. It ensures that the GRI Standards move through a clearly communicated process from project identification, prioritization and commencement through to content development, including public exposure and consideration of feedback received, concluding in the final release. This process is overseen by the Due Process Oversight Committee (DPOC).

The GRI Standards are based on the latest version of the GRI Guidelines – G4 – the outcome of more than 15 years of a robust, global, multi-stakeholder development process. They are the first global standards for

sustainability reporting. The main changes and improvements of GRI Standards compared to G4 are the following:

- New modular structure: GRI Standards are organized as a set of modular, interrelated standards. The Standards bring together content from both the G4 Guidelines and the G4 Implementation Manual.
- Revised format with clearer requirements: The new format has clear distinctions between requirements (indicated by 'shall'), recommendations (indicated by 'should'), and guidance.
- Greater flexibility and transparency in how to use the Standards: For organizations preparing a report in accordance with the Standards as well as for those using selected Standards to report specific information (GRI-referenced).
- Content clarifications: Key concepts and disclosures from G4 have been clarified to improve understanding and application (e.g., how to define the topic Boundary, how to report on topics not covered by the GRI Standards, 'employee'/'worker' terminology).

The meaning of the word "impact" has been clarified. Unless otherwise stated, 'impact' now refers to the effect an organization has on the economy, the environment, and/or society, which in turn can indicate its contribution (positive or negative) to sustainable development. It does not refer to an effect upon an organization, such as a change to its reputation.

The topic Boundary now requests a description of 'where the impacts occur' for each material topic, and the organization's involvement, for example, whether the organization caused or contributed to the impacts, or is directly linked through business relationships.

Further clarified, an organization is required to identify material topics by considering: (1) the significance of the organization's economic, environmental, and social impacts and (2) their substantive influence on the assessments and decisions of stakeholders. A topic can be material if it ranks highly for only one dimension of the Materiality principle.

All key concepts and most disclosures from G4 have carried through to the GRI Standards. The Reporting Principles, reporting the management approach and the emphasis on reporting only material topics remain. For organizations already reporting in accordance with G4, impacts on the reporting process should be relatively minor.

4.3 CSRHub Ratings

CSRHub's objective is to provide consistent ratings of Corporate Social Responsibility (CSR) performance for as broad a range of companies as possible. To remove most of the inconsistency from different sources, CSRHub uses the following approach:

1. Corporate Social Responsibility performance is divided into twelve subcategories. Subcategories roll up into four categories, and there is also an open-ended number of special issue topics that do not fit one of twelve subcategory schemas. They map each element of data they receive into one or more subcategory and/or one or more Special Issue.
2. They take each data item from their sources and convert it into a rating on a 0 to 100 scale (100 = positive rating).
3. They compare the scores from different data sources for the same company by analyzing the variations between their sources, determine their biases and then adjust all of the scores from a source to create a more consistent rating.
4. They weight each source based on their estimate of its credibility and value, combine all of the available data on a company and generate base ratings at the subcategory level. These ratings are aggregated further to the category level.
5. They established their own industry category system, based loosely on the NAICS code structure. Each rated company is categorized by industry and location in which it participates to create industry and country averages.
6. They drop ratings when there is not enough information.

To earn an overall rating, a company is required to have:

- A. Ratings for all four categories. To earn a category score, a company is required to have a rating for at least one subcategory.
- B. Ratings for at least five subcategories. To rate a subcategory, a company needs:
 - a. A minimum number of sources (between two and six sources depending upon a variety of circumstances) for each subcategory.
 - b. A minimum amount of data in terms of "data weight." CSRHub software gives sources that are good predictors, generate original data and have many detailed ratings elements a higher weight.

- c. A good agreement between the data sources and not an extreme score (e.g., 0 or 100).
- C. Enough total weight.
- D. Enough total sources.
- E. The CSRHub process is mechanical. In addition, each month, a separate “human review” is conducted to ensure an obvious problem or outlier has not been missed. CSRHub has data on approximately 100.000 companies, analyzes data on 12.527 companies and offers full ratings on about 5800 companies, using 578 sources.

4.4 New methods in Sustainability: Artificial Intelligence and Block chain

Artificial Intelligence is not a new trend, but is gaining more followers as it offers useful tools for almost every kind of industry. An astonishing 70 percent of the companies surveyed last year by Forrester Research plan to use some form of AI by the end of 2018. In the not-so-distant future, AI will play an intrinsic role in enabling and scaling sustainability solutions that today we only can dream about because the task of analyzing the data manually is too complicated.

Corporate sustainability practices and reporting will be radically transformed in this era of rapid digital and technological change. Technological advances and increasing demand for real-time updates are

going to bring a number of transformations in the way sustainability is monitored, implemented and reported.

Working as a single source of truth, Blockchain can change the way business transactions take place. From a supply chain perspective, such visibility will help ensure efficient transactions, while promoting food safety, efficient recalls, the elimination of counterfeits, and the assurance of ethical trading partners.

4.5 Tools for the Integration of the UN Sustainable Development Goals



Our planet faces massive economic, social and environmental challenges. To combat these, the Sustainable Development Goals (SDGs) define global priorities and aspirations for 2030. They represent an unprecedented opportunity to eliminate extreme poverty and put the world on a sustainable path.

Governments worldwide have already agreed to these goals. Now it is time for business to take action. There are two guides about how companies align their strategies as well as measure and manage their contribution to the realization of the SDGs.

A. The SDG Compass explains how the SDGs affect businesses – offering the tools and knowledge to put sustainability at the heart of the business strategy by following five steps.

The SDG Compass is developed with a focus on large multinational enterprises. Small and medium enterprises and other organizations are also encouraged to use it as a source of inspiration and adapt as necessary. The SDG Compass is designed for use at entity level, but may be applied at product, site, divisional or regional level as required.

B. The SDG Industry Matrix is informed by a series of publications. Each matrix highlights bold pursuits and decisions made by diverse companies for each SDG. There are specific examples and ideas for corporate action related to the SDGs for each industry.

The WWF also publishes a useful guide to specific practices for high quality impact quantification, reporting and why it is important to follow the SDGs. WWF's experts analyze the key opportunities companies will have if they follow SDGs guidelines

5. Key Findings – Results

5.1 Profile of the Companies/ Organizations

CSE's research focuses on sustainability reports published by companies and organizations based in North America: 78.8% of these companies and organizations are based in the U.S. and 20.9% are based in Canada.

In North America, 47.0% of the companies that have published a sustainability report are Large companies, while 43.1% are Multinational Enterprises (MNEs). The numbers are similar to last year except for a rise in Small-Medium Enterprises (SMEs) participation from 5.6% to 9.7%.

In the U.S., there is little discrepancy between the number of Large companies (43.7%) and Multinational Enterprises (47.0%) which published a sustainability report for 2016-2017.

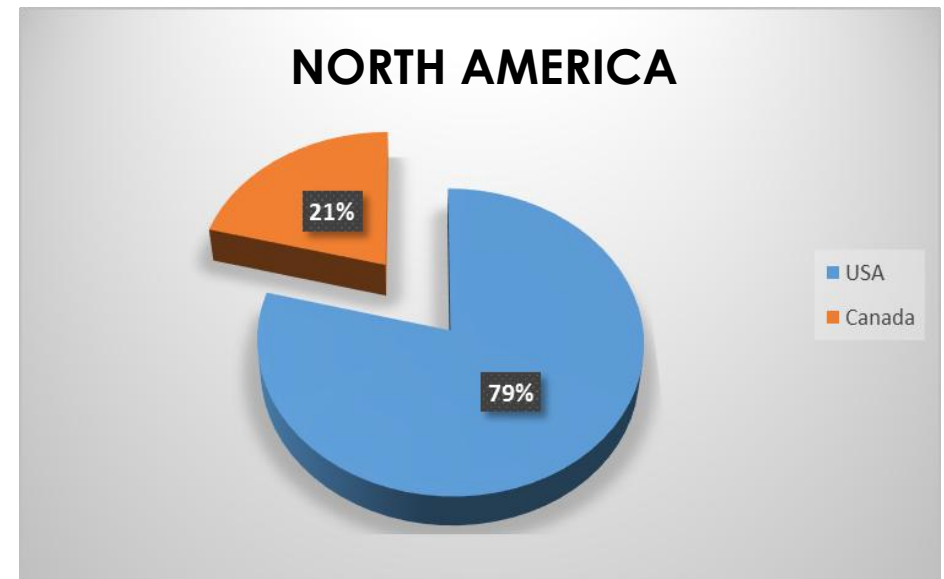


DIAGRAM 1, COUNTRY OF ORIGIN OF COMPANIES & ORGANIZATIONS WHICH PUBLISHES SUSTAINABILITY REPORT 2016/2017

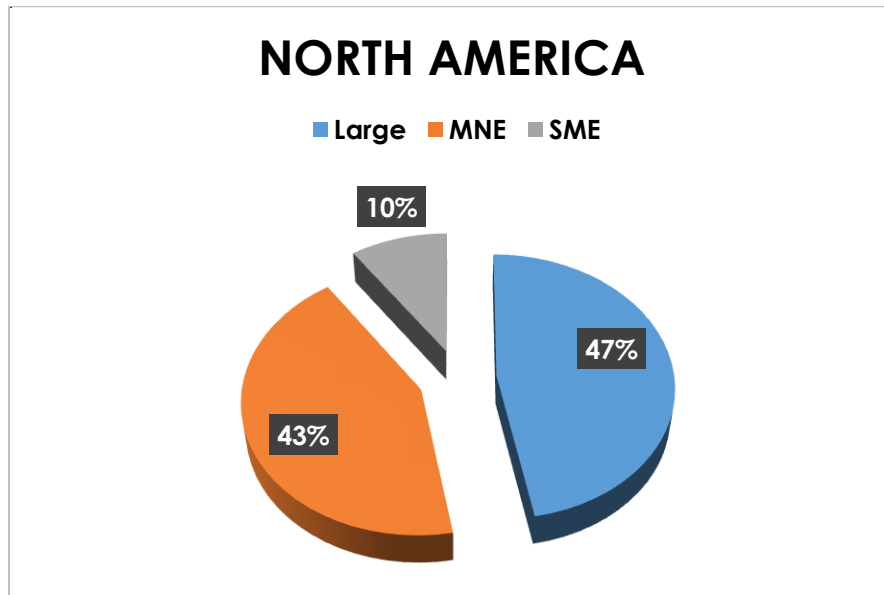


DIAGRAM 2, SIZE OF COMPANIES WHICH PUBLISHED A SUSTAINABILITY REPORT, 2016-2017

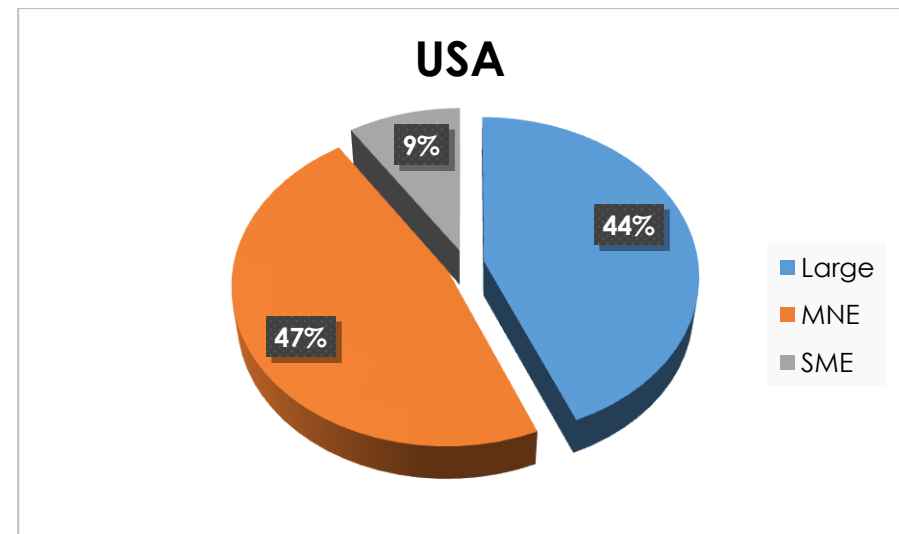


DIAGRAM 3, SIZE OF U.S. COMPANIES/ORGANIZATIONS WHICH PUBLISHED A SUSTAINABILITY REPORT FOR 2016-2017 REPORTING PERIOD.

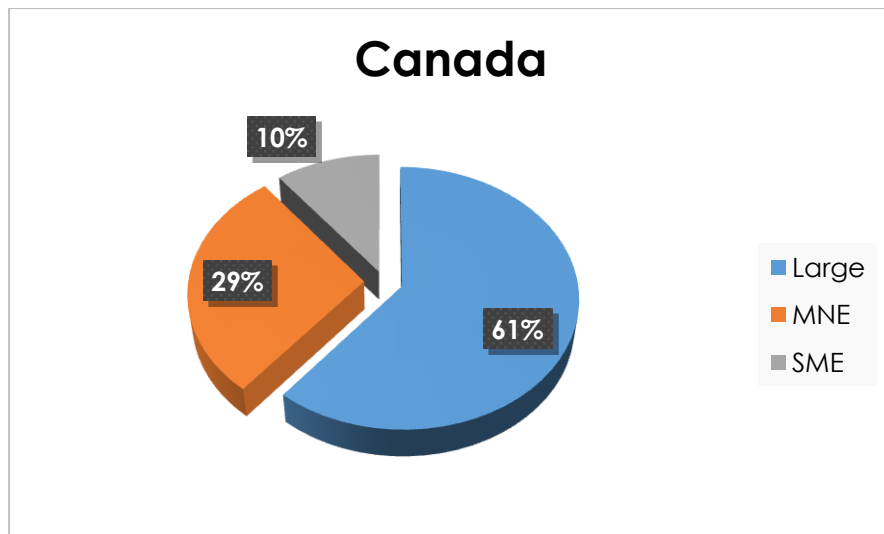


DIAGRAM 3, SIZE OF CANADIAN COMPANIES WHICH PUBLISHED A SUSTAINABILITY REPORT, 2016-2017

In Canada, the number of large companies (61%) that published a report is considerably higher than the number of Multinationals (29%) that published a report for the same period.

The percentage of SMEs that published a sustainability report in the U.S. (9.3%) has increased since last year and approaches Canada's percentage (10.4%). This rise depicts the shift towards greater recognition of sustainability reporting in the U.S. Most of the companies/organizations that publish sustainability reports are Public Companies (72.0%).

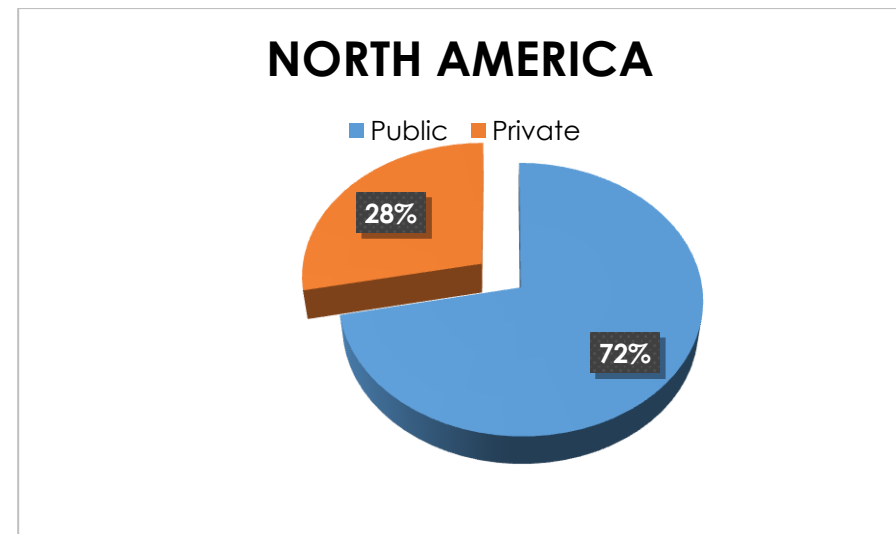


DIAGRAM 5, STATUS OF COMPANIES WHICH PUBLISHED A SUSTAINABILITY REPORT, 2016-2017

In the U.S., 72% of public companies published a corporate sustainability report for the 2016-2017 reporting period.

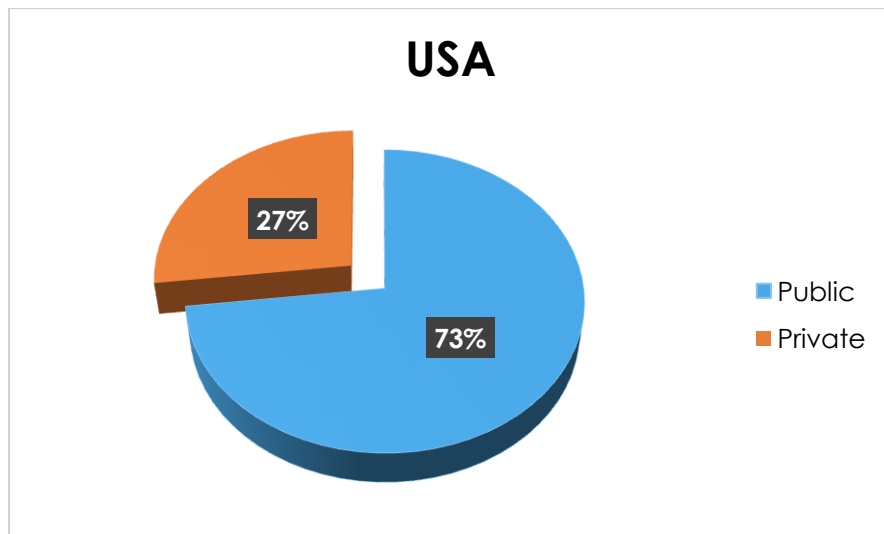


DIAGRAM 6, STATUS OF U.S. COMPANIES WHICH PUBLISHED A SUSTAINABILITY REPORT, 2016-2017

In Canada, 66% of public companies published a corporate sustainability report for the 2016-2017 reporting period.

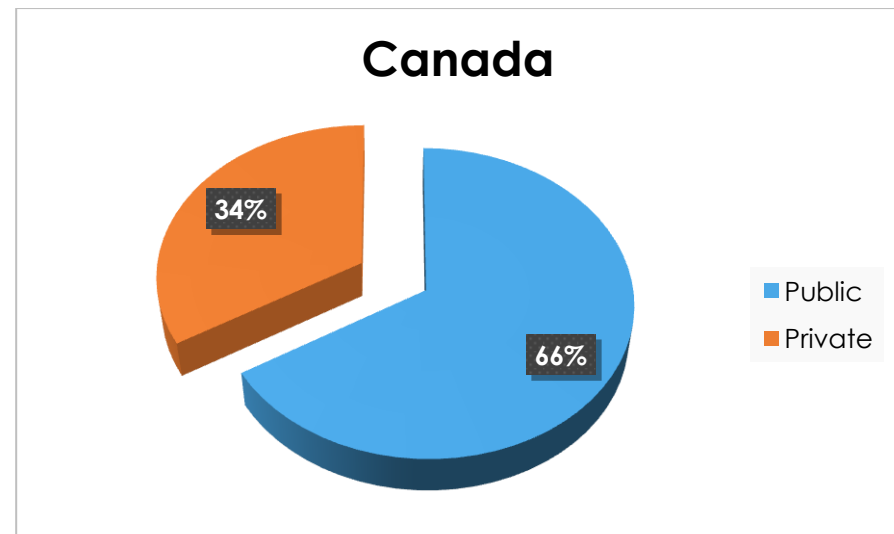


DIAGRAM 7, STATUS OF CANADIAN COMPANIES WHICH PUBLISHED A SUSTAINABILITY REPORT 2016/2017

Compared to last year's analysis, there is a rise from 21% to 28% among Not Public companies that have published a sustainability report in general. In the U.S., the rise is about the same, while in Canada Not Public Companies try to catch up and from 21% rise to 34%

5.2 Sustainability Performance and Financial Results

The following sources have been used to measure and compare relevant key performance indicators of the companies with the highest ESG ratings:

- CSRHUB (Sustainability rankings)
- Reporting database of the Global Reporting Initiative platform (GRI Standard, GRI level and use of external assurance)
- Publicly available sustainability/corporate responsibility reports of the companies

- Financial information provided by companies in their publicly available financial/annual reports

The financial performance of the companies is deduced based on their revenue data recorded for the 2017 period. The last column in the following table presents the percentage of an increase and or decrease in revenue the companies recorded within the last year. For this analysis, the top 50 companies (based on their overall rating) were considered.

A/A	Company Name	Total CSR Rating	Community	Employees	Environment	Governance	Active Sources	Sustainability Report	Revenues 2017	Change in Revenue from 2016
1	Nationwide Financial Services, Inc.	76	82	69	82	71	23	yes	\$ 46.5B	11.30%
2	KPMG International	73	76	73	76	65	45	yes	\$26.4B	5.00%
3	Ernst & Young	73	72	77	80	63	44	yes	\$31.4B	7.80%
4	Edelman	72	71	78	70	71	17	Yes	\$894M	2.10%
5	Bloomberg	71	68	73	77	66	29	Yes	\$9.2B	3.40%
6	S.C. Johnson & Son, Inc.	69	73	79	60	66	25	Yes	\$10B	-
7	Transnet	69	70	64	73	69	11	yes	\$65.5B	5.30%
8	Ben & Jerry's Homemade Holdings Inc	69	66	75	74	60	16	Yes	\$243.6M	-
9	Coca Cola Enterprises	68	63	67	77	64	25	Yes	\$35.41B	-15.41%
10	Massachusetts Mutual Life Insurance Company	68	60	77	62	73	20	Yes	\$33,49M	-11.40%
11	Johnson & Johnson	68	62	77	70	62	77	Yes	\$76,45B	3%
12	Intel Corporation	68	65	75	71	60	70	Yes	\$62.8B	6%
13	Microsoft Corporation	68	63	73	73	64	69	Yes	\$90B	6%

14	TELUS Corporation	68	64	77	67	63	28	Yes	\$13.3B	3.90%
15	MillerCoors LLC	67	73	78	51	68	19	yes	\$1.4B	3.60%
16	TIAA-CREF	67	65	77	62	64	26	yes	\$36M	-3.90%
17	HP Inc	66	60	71	68	65	58	Yes	\$52.1B	8%
18	Cisco Systems, Inc.	65	60	74	69	58	67	Yes	\$48B	-2%
19	Merck & Co., Inc.	65	62	75	65	60	67	Yes	\$40.12B	0.80%
20	KKR Financial	64	58	70	59	68	20	yes	\$2.47B	121%
21	EMC Corporation	64	59	72	66	57	37	yes	\$3.7B	16%
22	Teranga Gold Corp.	64	59	68	59	70	9	yes	\$291.7M	8.50%
23	Xerox Corporation	64	58	73	65	59	51	yes	\$10.26B	-4.70%
24	Texas Instruments Incorporated	64	60	72	63	61	48	Yes	\$14.96B	11.90%
25	Praxair, Inc.	64	59	74	64	60	41	yes	\$11.44B	8.60%
26	Baxter International Inc.	64	57	76	65	59	50	Yes	\$10.6B	4%
27	Campbell Soup Company	64	60	73	64	59	47	Yes	\$7.89B	-0.80%
28	Biogen Idec	63	54	70	64	63	45	yes	\$12.27B	7.10%
29	Colgate-Palmolive Company	63	59	72	65	55	65	Yes	\$15.45B	1.60%
30	Medtronic, Inc.	63	58	72	65	56	48	Yes	\$30B	0.80%
31	Eli Lilly and Company	63	60	73	61	57	56	yes	\$22.87B	7.80%
32	Becton Dickinson & Company	63	56	66	66	62	37	Yes	\$12.09B	-1.60%
33	Endeavour Silver Corp.	63	56	64	67	65	8	Yes	\$150.5B	-4%
34	Bristol-Myers Squibb Company	63	58	73	62	60	47	yes	\$20.78B	6.90%
35	Gildan Activewear Inc.	63	54	65	67	63	19	yes	\$2.75M	6.10%
36	Symantec Corporation	63	60	70	65	57	5	Yes	\$4.02B	11.67%
37	NIKE Inc	61	56	61	67	57	44	Yes	\$34.350B	6.10%
38	Humana Inc	61	59	65	61	60	38	yes	&53.77B	-1.12%
39	CSX Corporation	61	51	61	66	63	54	yes	\$3.1B	4.50%
40	Wells Fargo & Co	60	53	68	60	57	57	yes	25.03B	-0.03%

41	Verizon Communications Inc	60	55	69	62	55	33	Yes	32.2B	1.35%
42	Motorola Inc	59	53	66	61	54	42	yes	6.38B	5.63%
43	eBay Inc	58	50	58	62	61	43	yes	9.57B	6.57%
44	ConocoPhillips	58	52	65	58	57	52	yes	32.58B	33.74%
45	Visa International	57	51	64	55	58	21	Yes	18.36B	8.49%
46	Metro Inc	53	49	56	61	57	30	yes		
47	Walmart Stores Inc	54	50	54	63	49	6	yes	485.87B	0.78%
48	Western Digital Corp	52	48	58	51	50	5	yes	19.09B	46.96%

TABLE 1, LIST OF COMPANIES WITH HIGHEST CSR SCORE PRESENTED WITH OTHER SUSTAINABILITY INDICATORS

The list of 50 companies is based on ESG scores (CSHub) and existence of a sustainability report for the 2016-2017 period. The analysis compares the Sustainability Scores of companies from a variety of sectors: 21% from the healthcare products sector (including products, hospitals and manufacturing), 15% from financial services, 13% from the computer and technology hardware sector, 8% from the food and beverage sector. Despite the fact that ESG ratings are high for some companies, the amount of sources that these ratings relied on is low. This means that their final overall score, as well as the score per category, is not as accurate as other companies with a high number of active sources. The average number of active sources for these 50 companies is 40. The companies with the highest number of active resources are: Johnson & Johnson (77), Intel Corporation (70), Microsoft Corporation (69), Cisco Systems (67), Merck & Co (67), Colgate-Palmolive Company (65), Walmart Stores (60).

Financial analysis based on change in revenue shows that 73% of these companies, the majority, recorded improved financial results, as expressed by their revenues during 2016-2017 period. The improved financial performance of the companies with the highest Sustainability scores indicates that Sustainability Reporting and comprehensive strategies that have been presented extensively in their reports (related to community, employees, governance and environmental aspects) may have a positive impact on their revenues increase. The ratings in each sustainability category indicate that most companies focus on their Employees, having the highest average rating of 70. Next priority goes to the Environment with an average rating of 65. Community follows with 61 and Governance at 60.

The companies relate their Sustainability efforts with their profit, and this is absolutely logical. This also means that more and more companies have to set, reach and report their sustainable goals in order to be competitive.

5.3 Sustainability Trends in top 10 companies per sector

To record practices in terms of sustainability reporting and external assurance, we analyzed the ten companies in each sector with the highest revenues for 2017.

Healthcare Products Sector - 100% published a sustainability report during 2016-2017 period; 60% were according to GRI Guidelines.

Automotive Sector - 90% of companies report their sustainability progress; 70% according to GRI reporting guidelines.

Energy, Chemicals, Technology, Financial Services, Real Estate and Food & Beverage - 80% published a sustainability report during the last years. Between these reports, GRI reports are 88% in Chemicals, 75% in Technology and Financial Services, 50% in Real Estate and 38% in Food & Beverage and Energy.

As mentioned previously, Energy and Food & Beverage sectors are two of the most prominent sectors in Sustainability, though top Companies still have to make an effort in order to integrate GRI.

In the Chemicals Industry, the top companies realize the importance of an external assurance, with 5 out of 7 companies using the GRI having been externally assured.

Among Retailers and the Mining sectors, 7 out of 10 companies reported their sustainability progress. All Mining sector reports are according to GRI guidelines, and 4 out of 7 reports are externally assured. These companies understand the significance of sustainability reporting and

external assurance, and this may contribute to their high revenue performance among other companies in the same sector.

Economic growth can be related to the realization of a comprehensive sustainability strategy and reporting of companies committed to sustainable growth. Our observations indicate that the three quarters of companies with high CSR Rankings have achieved better financial results (as indicated by their revenues) because they have recognized the importance of a comprehensive sustainability strategy and reporting that includes goals, and externally assured performance information and data.



CSE's research for 2017 resulted in the formation of a return on sustainability framework linking a company's sustainability performance and practices to its financial results. The return on sustainability framework includes a number of enablers and tools. Enablers include a corporate culture of transparency, as evident by the publication of a sustainability report; setting comprehensive strategic goals; and appropriate response to stakeholder expectations.

Tools include a sustainability report based on widely accepted international standards; a materiality assessment process that involves the company's stakeholders, and a comprehensive communication plan with each stakeholder group that is also communicated through the

sustainability report in a complete manner – including the method and frequency of communication with each group, the issues of interest and concerns of each group and how the company has responded to these issues and concerns. Provided that these enablers and tools are present, then the company can expect a significant boost to its business strategy that is evident in high sustainability ratings (such as CSRHub), an increased positive stakeholder perception, and a potential positive impact to financial performance.

Checklist (Minimum Requirements)

Culture of Transparency (public reporting of sustainability performance and ESG information)

Comprehensive (S.M.A.R.T.) Sustainability Goals that respond to key concerns of Stakeholders

Sustainability Plan in place

External Verification (externally assuring sustainability information and reports)

Preferred Tools and Guidelines

Sustainability Report based on Global Reporting Initiative (GRI) Standards

Materiality Assessment through Stakeholder Engagement

Specific Communication Plan for each Key Stakeholder Group

Sustainable Development Goals (SDGs) integration to sustainability strategy and reporting

Understanding and applying the criteria of ESG Ratings (e.g. CSRHub, DJSI)

RoS Outcomes
Higher Sustainability (ESG) Ratings
Improved Stakeholder's Perception
Positive contribution to Financial Performance

The top 10 companies, in terms of their revenues, in each sector present these enablers and tools at a higher rate, in most cases, than the average of the sample of 642 companies. The following tables indicate that in most sectors the majority of the Top 10 companies issue a transparent sustainability report with clear strategic objectives and goals.

Additionally, most reports are based on the GRI reporting guidelines, and the use of external assurance is higher than the total sample's average. These parameters are an indication that these companies utilize the enablers and tools mentioned above.

	Company Name	Sustainability Report	Reporting Guidelines	Assurance
Mining				
1	Barrick Gold	Yes	GRI- Standards	Yes
2	Newmont Mining Corp	Yes	GRI-G4	Yes
3	Potash Corp	Yes	GRI-Standards	No
4	Teck Resources	Yes	GRI-Standards	Yes
5	AngloGold Ashanti Ltd	No		
6	Goldcorp Inc.	Yes	GRI-G4	Yes
7	Kinross Gold Corp	Yes	Citing GRI	No
8	Gold Fields Ltd.	Yes	GRI-G4	No
9	Agnico Eagle Mines Ltd. (AEM)	No		
10	Southern Cooper	No		
Technology				
1	Apple	Yes	Non GRI	No
2	Microsoft	Yes	GRI-G4	No
3	Alphabet	No		
4	Intel	Yes	GRI-Standards	Yes
5	IBM	Yes	Citing GRI	No
6	Facebook	No		
7	Oracle	Yes (2015)	Non GRI	No
8	Broadcom	No	GRI- Standards	No

9	Cisco Systems	Yes	GRI-Standards	Yes
10	Dell Technologies	Yes	GRI-G4	No
Automotive				
1	General Motors	Yes	GRI-Standards	No
2	Tesla	No		
3	Ford Motor Company	Yes	GRI-Standards	No
4	Bombardier Recreational Products	Yes	GRI-Standards	No
5	Honda Motor NA	Yes	Non GRI	No
6	NSK	Yes	GRI-Standards	Yes
7	Axalta Coating Systems	Yes	GRI-Standards	No
8	Cooper Standard	Yes	GRI-G4	No
9	Navistar International	Yes	Non GRI	No
10	Harley Davidson	Yes	Non GRI	No
Food and Beverage				
1	PepsiCo, Inc.	Yes	GRI-G4	Yes
2	The Coca-Cola Company	Yes	Non GRI	No
3	JBS	No		
4	Tyson Foods	Yes	Non GRI	No
5	Archer Daniels Midland Company	Yes	GRI- Standards	Yes
6	Mars	Yes	Non GRI	No
7	Cargill	Yes	Non GRI	No
8	Kraft Heinz Company	Yes	Citing GRI	No
9	Mondelez International	Yes	Non GRI	No
10	CHS Inc.	No		
Healthcare Products				
1	Johnson & Johnson	Yes	GRI-Standards	Yes

2	Pfizer	Yes	GRI-G4	Yes
3	Merck & Co.	Yes	GRI-Standards	No
4	AbbVie	Yes (2015)	Non GRI	No
5	Abbott Laboratories	Yes	Citing GRI	No
6	Eli Lilly & Co	Yes	Non GRI	No
7	Amgen	Yes	GRI-G4	Yes
8	Bristol-Myers Squibb	Yes (2015)	Non GRI	No
9	Gilead Sciences Chemicals	Yes	Non GRI	No
10	Biogen	Yes (2015)	GRI-G4	Yes
Real Estate				
1	Brookfield Asset Management	Yes	Non GRI	No
2	American Tower Corporation	Yes (2014)	Non GRI	No
3	Simon Property Group	No	-	No
4	Annaly Capital Management	No	-	No
5	Prologis	Yes	GRI-Standards	No
6	Weyerhaeuser	Yes	GRI-G4	No
7	Public Storage	No	Non GRI	No
8	AvalonBay Communities	Yes	GRI-G4	Yes
9	General Growth Properties	Yes	GRI-G4	No
10	Ventas	Yes (2015)	Non GRI	No
Retailers				
1	Walmart	Yes	Non GRI	No
2	Costco Wholesale	Yes (2015)	Non GRI	No
3	The Kroger Co	No		
4	Walgreens Boots Alliance	Yes	GRI-Standards	Yes
5	Amazon	No		

6	The Home Depot	Yes	GRI-G4	No
7	CVS Health Corp	Yes	GRI-Standards	No
8	Target Corp	Yes	GRI-Standards	No
9	Lowe's Companies	Yes	GRI-G4	Yes
10	Albertsons Companies	No		
Energy				
1	Anadarko	Yes (2015)	Non GRI	No
2	Marathon Petroleum	No		
3	Avangrid	No		
4	Cameco Mining?	Yes	Non GRI	No
5	Chevron Corporation	Yes (2015)	Non GRI	No
6	CMS Energy	Yes	Non GRI	No
7	ConocoPhillips	Yes	GRI-G4	Yes
8	Enbridge Inc	Yes	GRI-G4	No
9	Encana	Yes	Non GRI	No
10	ExxonMobil	Yes (2015)	GRI-G4	Yes
Chemicals				
1	Dow Chemical	Yes	GRI-G4	Yes
2	DuPont	Yes	GRI-G4	Yes
3	PPG Industries	Yes (2015)	GRI-G4	No
4	Praxair	Yes (2015)	GRI-G4	Yes
5	Huntsman Corp	Yes	Non GRI	No
6	Eastman Chemical	Yes	GRI-G4	No
7	Air Products & Chemicals	No		
8	Chevron Phillips Chemical	No		
9	Ecolab	Yes	GRI-G4	Yes

10	Mosaic	Yes (2015)	GRI-G4	Yes
Telecommunication				
1	AT&T	Yes	GRI-G4	Yes
2	Verizon	Yes	GRI-G4	Yes
3	Comcast Corporation	Yes	Non GRI	No
4	Charter Communications	No		
5	T-Mobile U.S.	No		
6	Sprint Corporation	Yes	Non GRI	No
7	CenturyLink	Yes	Non GRI	No
8	Dish Network	No		
9	Cox Communications	Yes	Non GRI	No
10	U.S. Cellular	No		
Forest and Paper Products				
1	International Paper	Yes	GRI-Standards	No
2	Procter and Gamble	Yes	Citing GRI	No
3	Westrock Company	Yes	GRI-G4	No
4	Kimberly Clark	Yes	GRI-Standards	Yes
5	Packaging Corporation of America	No		
6	Domtar	Yes	GRI-G4	No
7	Graphic Packaging	No		
8	KapStone Paper and Packaging Corporation	Yes	GRI-G4	No
9	Georgia-Pacific Corp.	No		
10	Weyerhaeuser Corp.	No		
Financial Services				
1	JPMorgan Chase	Yes	GRI-G4	No
2	Berkshire Hathaway	No		

3	Bank of America	No		
4	Wells Fargo	Yes (2015)	GRI-G4	No
5	Royal Bank of Canada	Yes	Citing GRI	Yes
6	Morgan Stanley	Yes (2015)	GRI-G4	No
7	TD Bank Financial Group	Yes	GRI-G4	Yes
8	Goldman Sachs Group	Yes (2015)	Non GRI	No
9	MetLife	Yes	GRI-G4	Yes
10	U.S. Bancorp	Yes (2013)	Non GRI	No

TABLE 2. COMPANIES WITH HIGHEST REVENUE IN EACH SECTOR WITH OTHER SUSTAINABILITY INDICATORS

5.4 The Future of Sustainability via Artificial Intelligence and Blockchain

Artificial Intelligence

This year and the next one are crucial for Artificial Intelligence since many of the components, such as big data, advances in hardware, and AI algorithms that allow successful implementation, are coming into maturity. The results are significant since AI is leaving the research labs and entering everyday business and personal life. Of course, careful use is required, as with all new technologies. There are identified risks associated with bias, poor decision making, low transparency, job losses and malevolent use. Regardless of these risks, the challenges are related on how AI can contribute towards sustainability, towards achieving universal goals such as addressing climate change, delivering food and water security, building sustainable cities, protecting biodiversity and advancing human wellbeing. For example, in the recent World Economic

Forum, applications were presented that AI can assist towards addressing challenges:

- Autonomous and connected electric vehicles – resulting in significant GHG emission reductions through route and traffic optimization and eco-driving algorithms
- Distributed energy grids – through enhancement of supply and demand predictability
- Smart agriculture and food systems – through automated data collection, early detection of crop diseases, timed nutrition to livestock
- Next generation weather and climate prediction
- Smarter disaster response

- AI-designed intelligent, connected and livable cities – simulation and automation of zoning law generation, real-time city-wide data, traffic and people flows and water consumption
- Digital Earth – tracking deforestation, water extraction, fishing and poaching, air pollution

Apart from these remarkable applications of AI in human and natural systems, artificial intelligence and advanced technology tools are already available within the sustainability reporting and strategy field. CSRHub, for instance, uses AI to analyze companies' data. Other tools, available today for businesses and organizations in order to enhance their sustainability strategy, as well as track and improve their sustainability performance are:

1. Mobius Intelligent Systems provides advanced tracking, reporting, analytics, and artificial intelligence services on behalf of public agencies, non-profit organizations, climate scientists, industry stakeholders, and sustainability professionals through the SustainabilityIntelligence.com platform. They offer data science and analytics services as well as custom-built business intelligence systems. Their products help track and analyze key sustainability program performance indicators among Materials, Water, Air, Soil, Energy, Climate, Agriculture and Education. mobiusintelligentsystems.com



2. Scope 5 was designed to help companies more efficiently and transparently track their sustainability performance and reduce costs. This cloud-based service allows company reporters to easily manage an array of sustainability-related data including emissions sources (everything from waste management and energy use to employee commuter and travel data), as well as social and other performance data and supply chain sources. Scope 5 also simplifies analysis of data by converting it to performance indicators such as cost, usage and emissions and producing pre-defined intensity metrics, such as emissions per employee and dollars per product manufactured, as well as those defined by the user. www.scope5.com



3. Datamaran's proprietary AI technology scans and sifts vast lakes of data for 100+ non-financial issues, from climate risk to diversity, from geopolitics to innovation and technology. Sources include company reports, major news outlets, regulators and social media. <https://www.datamaran.com/>



CASE STUDY 1



ABN AMRO is the third largest Bank in The Netherlands, headquartered in Amsterdam. They started completing their Materiality Analysis in 2014. Heavily influenced by the GRI, the bank was primarily focusing on ESG and sustainability issues. The bank is committed to becoming a “better bank contributing to a better world”.

The bank faced a number of challenges, such as a difficulty of identifying material issues, the fact the process was time-consuming and required significant manual labor and the fact that the lack of standards to follow with respect to materiality process lead to legitimacy issues with the result. Other issues included difficulty of engaging with stakeholders and securing an appropriate response rate. In general, the bank wanted to make sure that a significant new trend was not overlooked and the data collected and processed were externally audited and assured.

4. The Energy Performance and Carbon Emissions Assessment and Monitoring (ECAM) tool is a free web-based tool that enables



water utilities to measure and manage their greenhouse gas (GHG) emissions and energy consumption at a system-wide level. By identifying areas to reduce GHG emissions, increase energy savings and improve overall efficiencies to reduce costs, ECAM offers a holistic

approach for urban water utilities to shift to low energy, low carbon water management.

5. Along the production line and at the end, WIP and finished goods often get one or more labels.



When the labels are part of product history, quality, or other aspect, accuracy is critical, and efficiency with labeling and tracking can impact costs.

CipherLab Bluetooth® enabled mobile computers and industry-available Bluetooth® printers put both accuracy and efficiency within easy reach. CipherLab mobile computers with wireless LAN and Bluetooth® allow barcode scans or reading of RFID tags for fast identification. Data is transmitted through local WLAN to production system software, which can trigger the label to print on a Bluetooth®-capable printer, or to take other action. CipherLab products are key components of a seamless solution from the receiving dock to the shipping dock.

Chat apps and bots are increasingly being used beyond light customer service to engage customers during the sales process. In fact, 1.82 billion people worldwide are projected to use a chat app in 2018. By 2020, customers will manage 85% of their relationship with the enterprise without interacting with a human. These are only some of the marketing tools that use artificial intelligence and are available for individuals and companies.

- A. Acquisio Turing – A set of 30 high frequency predictive algorithms working together to ingest search marketing campaign data across platforms. Data such as seasonality, times of day, times of week, location, positioning, ad platform, campaign and others enable the platform to self-learn and make smart bid and budget decisions in real-time.

- B. Automat -AI and machine-learning technology that helps brands deliver messaging experiences that are tailor made for each individual consumer and dynamically optimizes conversion for the best results.
- C. FindTheRipple – The AI-driven platform supporting marketers in creating content with impact, finding untapped trends and resonating digital assets for target audiences.

Blockchain

Blockchain is a term that more and more people, from finance to food safety to supply chain operations, are encountering. Basically, a blockchain is a distributed database that maintains a constantly growing list of transaction records, referred to as blocks, and in which every block contains a link to the previous block. More

specifically, it is an open and distributed ledger that captures transaction data between two parties in a permanent and verifiable way. Sustainability gains in the form of reduced environmental impact and better assurance of human rights and fair work practices seem to be promising outcomes of blockchain applications. In the case of human rights and fair work, a clear record of product history helps product buyers to be confident that goods being purchased are coming only from sources that have been recognized as being ethically sound.

A recent World Economic Forum Report states that around 10 percent of GDP by 2025 will be stored on blockchain and similar technologies. The financial sector is heavily investing in related applications. For instance, Walmart announced late in 2016 that it was using blockchain in a trial to track food items in both the United States and China. Some other companies that have announced various services based on blockchain are the following:

1. IBM — sells a private cloud service that could help organizations develop and get blockchain applications up and running quickly. Its technology is behind pilots by retailer Walmart, for food safety, and Everledger, which certifies the origins of diamonds.

CASE STUDY 2



In 2017, IBM announced a major blockchain collaboration with a group of leading companies across the global food supply intended to strengthen consumer confidence in the global food system. The consortium includes Dole, Driscoll's, Golden State Foods, Kroger, McCormick and Company, McLane Company, Nestle, Tyson Foods, Unilever and Walmart who will work with IBM to identify new areas where the global supply chain can benefit from blockchain.

Blockchain technology can be used to improve food traceability by providing trusted information on the origin and state of food. In the case of the global food supply chain, all participants – growers, suppliers, processors, distributors, retailers and consumers – can gain permissioned access to known and trusted information regarding the origin and state of food for their transactions. This enables food providers and other members of the ecosystem to use a blockchain network to trace contaminated product to its source in a short amount of time to ensure a safe removal from store shelves and stem the spread of illness.

2. LO3 Energy — its Transactive Grid system helps automate the trading of power across microgrids. The startup just scored a



LO3 ENERGY

notable strategic partner, German energy management company Siemens. (A similar company is Australia's Power

Ledger.)

3. Nasdaq — has been investing in blockchain technology for more than three years. Its Linq service could be the foundation for new business models, such as a system for issuing renewable energy credits automatically.



4. Provenance — a relatively low-key London firm has piloted the use of blockchain to track tuna supply chains in Indonesia and to monitor produce for British grocer Co-op Food. It wants to make it simpler for companies to verify sustainability claims.



CASE STUDY 3

The collaboration with Co-op and Provenance resulted in pioneering a new standard in food retail. It took the concept of “source to shelf” to the next level, using real-time data to prove the journey and credentials of fresh produce. At every point of the chain data were gathered about suppliers and locations, as well as environmental and social impact of each business. The result was the creation of a digital library that was accessible by store employees, food teams and shoppers. ERP systems were integrated at every point to ensure that no disruption occurred to the day-to-day business.



5. Skuchain — the California startup's software is behind a test by Commonwealth Bank and Wells Fargo initially focused on trading cotton between Texas and China.

One of the bigger obstacles to broader adoption of blockchain applications over the next several years is that participants need to agree on the terms of a transaction or a contract. Once the rules are in place, blockchain systems could automate many processes sustainability professionals struggle to manage manually, enabling them to run far more efficiently.

Some useful blockchain tools that companies are able to use are the following:

- I. Mist is a powerful Ethereum special-purpose browser. It offers an overall view of the Ethereum blockchain and all needed tools to interact with the blockchain component like Ether, DAO, smart contracts. It is a tool for running or managing blockchain-specific DApps for the average user who doesn't need to understand technical aspects neither run Command Line Interface (a.k.a. CLI). Mist can be used when working on Ethereum to send transactions, store Ether and to deploy smart contracts. Developers can utilize mist to develop their DApps on Ethereum testnet or even on Ethereum Blockchain itself. One can simply get Mist and start working on projects, keeping in mind that in order to execute the smart contracts one has to spend Ethers.
- II. Tierion for Bitcoin offers developer tools and API to create a verifiable database of any kind of data or process on the Bitcoin Blockchain. It has also developed 'Chainpoint' an open standard to register data and to generate a receipt to verify the same, without any need of any intermediaries.
- III. Hyperledger Composer is a popular open source development tools for Blockchain applications. Its functions also help in Blockchain testing. There are three types of testing in Hyperledger composer: automated unit testing, automated system testing, and interactive testing. With its command-line interface one can easily execute tests in Ci/D system and to ensure the development is successful it can run 'smoke test' also.
- IV. Embark was designed for Ethereum Dapps. It is a developer framework that allows easy developing and deploying of Dapps or even an html5 application that uses decentralized technologies. One can utilize Embark to make new smart contracts and that too in JS code. It also looks for any updates in the contracts and automatically modifies the Dapps related to it.
- V. Solidity Compiler, also known as Solc, is a standalone module for offline compiling. Users have two choices while using Solc. Either they can use `web3.eth.compile.solidity` on their nodes to compile their own solidity files or they can go for `solc.compile` that doesn't require any external node.

VI. Blockchain Builder. Building a private/permissioned blockchains based on Hyperledger Fabric or on the Ethereum VM (using technologies like Quorum or Parity's POA-Config) is a non-trivial

task. Creation, configuration and manual onboarding of new members is usually performed using low-level command line admin tools.



5.5 Other Important Findings and Comparisons

The companies that have published Sustainability Reports for the period 2016-2017 belong to various industries. The most prominent sectors that have stood out in the research analysis, regardless of whether the organization has used any reporting guidelines for publishing the report, are: Financial Services (10.0%), Energy and Energy utilities (9.5%), Food and Beverage (7.0%), Healthcare Products (5.3%) and Mining (5.1%).

SECTOR	% of total number
Financial Services	10.0%
Energy &+ Energy Utilities	9.5%
Food & Beverage	7.0%
Healthcare Products	5.3%
Mining	5.1%
Real Estate	4.8%
Retailers	3.9%
Technology Hardware	3.1%
Universities	3.1%
Chemicals	3.0%
Public Agency	2.6%
Forest & Paper Products	2.5%
Equipment	2.3%
Telecommunications	2.3%

TABLE 3, SUSTAINABILITY REPORTING PER SECTOR 2016/2017

Considering only the companies that followed GRI reporting guidelines, the percentages are as follows: Energy and Energy utilities (11.1%), Financial Services (9.8%), Mining (7.7%), Healthcare Products (5.6%) and Food and Beverage (5.0%). The following table lists the sectors to which all 642 companies and organizations that published a sustainability report for the period 2016-2017 belong:

Commercial Services	2.2%
Construction	2.2%
Automotive	1.9%
Household & Personal Products	1.9%
Aviation	1.7%
Tourism/Leisure	1.7%
Railroad	1.6%
Computers	1.2%
Conglomerates	1.2%
Consumer Durables	1.2%
Logistics	1.2%
Media	1.2%
Metals Products	1.2%
Other (sectors with less than of 1.2% of each, such as Agriculture, Construction Material, Healthcare Services, Textiles and Apparel, Waste Management, etc.)	14.8%

Breaking down the sectors by country, the sectors with the highest volume of Sustainability reports in the U.S. are Energy and Energy Utilities, Food and Beverage and Financial services, while in Canada the most prominent sectors are Mining, Financial services and Energy and Energy utilities.

SECTOR (U.S. Companies)	% of total number of companies
Energy & Energy Utilities	8.5%
Food & Beverage	8.5%
Financial Services	8.1%
Healthcare Products	6.7%
Real Estate	4.2%
Retailers	4.0%
Technology Hardware	3.8%
Universities	3.4%
Chemicals	3.2%
Equipment	2.8%
Commercial Services	2.4%
Automotive	2.4%
household & Personal Products	2.4%
Public Agency	2.2%
Forest & Paper Products	2.2%
Telecommunications	2.2%
Construction	2.2%
Tourism/Leisure	2.0%
Railroad	1.6%
Computers	1.6%

Consumer Durables	1.6%
Mining	1.4%
Aviation	1.4%
Conglomerates	1.4%
Logistics	1.4%
Metals Products	1.4%
Construction Material	1.4%
Healthcare Services	1.4%
Non Profit Services	1.4%
Other (sectors with less than of 1.4%, such as Textiles and Apparel, Media, Agriculture, etc.)	13.4%

TABLE 4, SECTORS OF U.S. COMPANIES WHICH HAVE PRODUCED SUSTAINABILITY REPORT 2016/2017

SECTOR (Canadian Companies)	% of total number of companies
Mining	19.4%
Financial Services	15.7%
Energy & Energy Utilities	13.4%
Real Estate	7.5%
Other	5.2%
Public Agency	4.5%
Retailers	3.7%
Forest & Paper Products	3.7%
Telecommunications	3.0%
Aviation	3.0%
Universities	2.2%
Chemicals	2.2%

Construction	2.2%
Media	2.2%
Food & Beverage	1.5%
Commercial Services	1.5%
Railroad	1.5%
Agriculture	1.5%
Technology Hardware	0.7%
Equipment	0.7%
Tourism/Leisure	0.7%
Conglomerates	0.7%
Logistics	0.7%
Metals Products	0.7%
Textiles and Apparel	0.7%
Waste Management	0.7%
Other	5.2%

TABLE 5, SECTORS OF CANADIAN COMPANIES WHICH HAVE CONDUCTED SUSTAINABILITY REPORT
2016/2017

In last year's survey, the percentages were Energy and Energy utilities (14%), Financial Services (11.6%), Food and Beverage (10.2%) and Mining (6.7%). When compared with the current results, there is a shift among the top four sectors that are the ones with the highest volume of

Most Frequent Terms Used for Reporting

The sustainability reports that are published for the period 2016-2017 are found under various terms. Since there are no guidelines or standards, when it comes to naming these reports, each company/organization are

sustainability reports. Namely, the Financial Services sector has overtaken Energy & Energy Utilities sector and Healthcare Products has overtaken Mining. Moreover, the research analysis demonstrates that there has been the rise of reporting in Healthcare Products sector during the last two years.

free to choose the title which best depicts the interests, interpretations and intended audience of the company/organization and their reports. Nevertheless, there are two terms which are most commonly used:

“Sustainability Report” and “Corporate (Social) Responsibility Report”. Compare to last year’s research, companies become more creative as far as the name of their report and the percentage of other titles is raised.

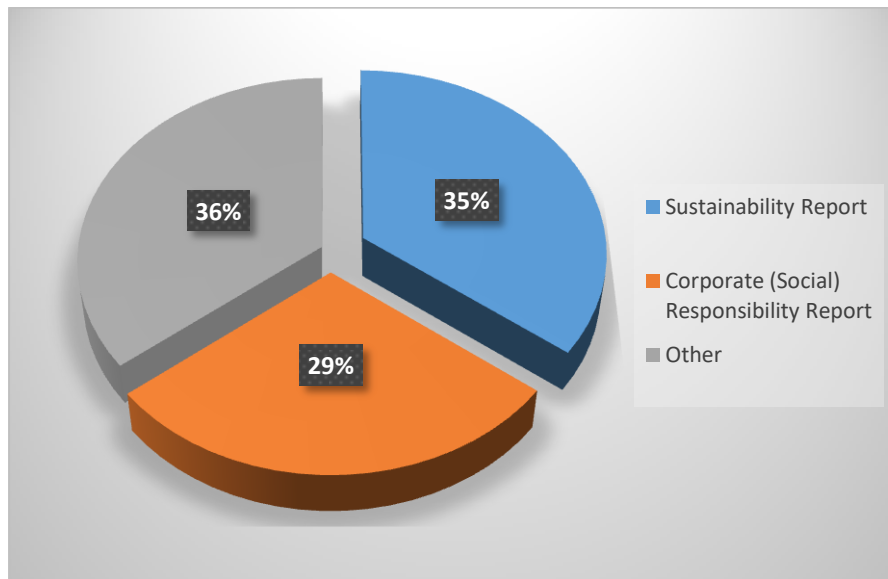


DIAGRAM 8, MOST FREQUENT TERMS USED, 2016/2017

Depth (Size) of the Reports Content

There are many ways a company or organization can choose to report on its sustainability performance. The depth of reports varies in size, and a variation mostly depends on the intended audience of the report and the

The term “Sustainability Report” seems to be reduced (last year was 50%) and there is a new trend for using the term Corporate-Global Citizenship report.

use of alternative reporting techniques (such as online reports and the use of microsites).

The average size of reports is 56 pages and the average size of GRI reports is 67 pages, both in the U.S. and Canada. There is also a considerable amount of companies (10%) that use only online reports with no printable version. We are seeing a trend towards online reporting, more regular reporting and even sustainability dashboards with real time data.

GRI's Corporate Leadership Groups formulate innovative solutions to common challenges and ultimately shape the future of digital reporting.

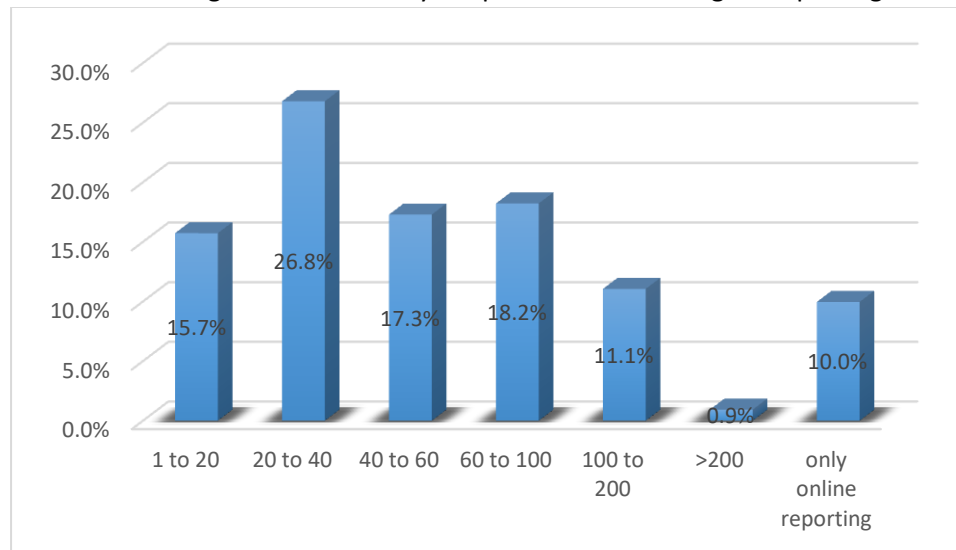


DIAGRAM 9, REPORT SIZE (PAGE NUMBERS), 2016/2017

Most Frequent Standards and Guidelines for Reporting

Although there are several standards and guidelines each company or organization can employ for conducting their sustainability report, most use the guidelines of the Global Reporting Initiative. Of the companies

Moving towards digital reporting can help report preparers better deal with the burden of information requests from data users and the inaccuracy of data mining from pdf reports, to address the growing demand for sustainability information from stock exchanges, governments, investors and consumers.

that published a sustainability report for the 2016-2017 reporting period, 16% used the Standards Reporting Guidelines of the Global Reporting Initiative, and 32% used the G4 version; 11% are characterized as “GRI

Referenced”, i.e. reports which have used the Reporting Guidelines of the GRI as a reference but have not followed the Guidelines. Thus, 59% of the reports examined in the research have used, fully or partially, the guidelines of the Global Reporting Initiative. Finally, 41% of the reports

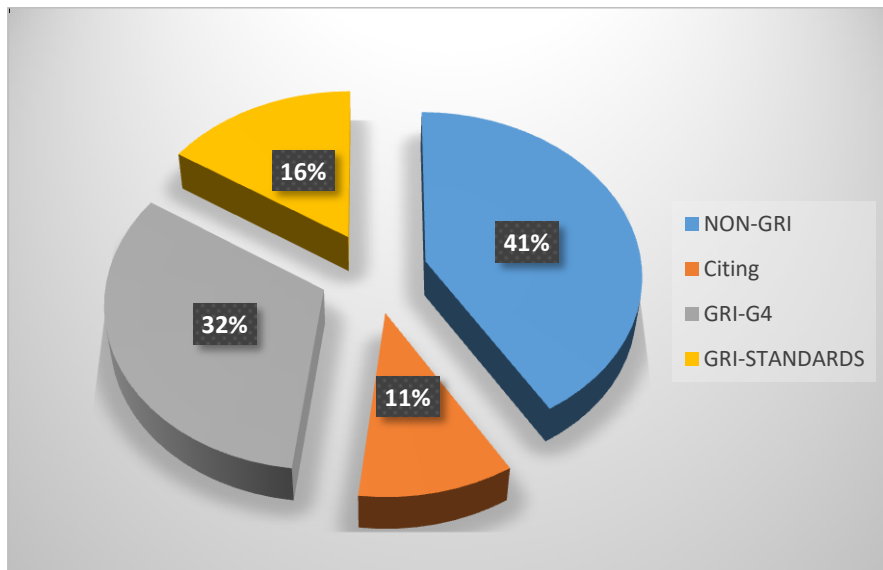


DIAGRAM 10, USE OF THE GRI'S REPORTING GUIDELINES, 2016/2017

The sustainability reports, more often than not, contain information and data that is required by other standards and guidelines that are also established on the three pillars of sustainability (society, economy, and the environment). Thus, 24% of the reports include information about the company/organization's compliance with the Carbon Disclosure Project

were created either by following other standards and guidelines (e.g. CDP, OECD Guidelines, UNGC, ISO26000) or by not following any standards or guidelines.

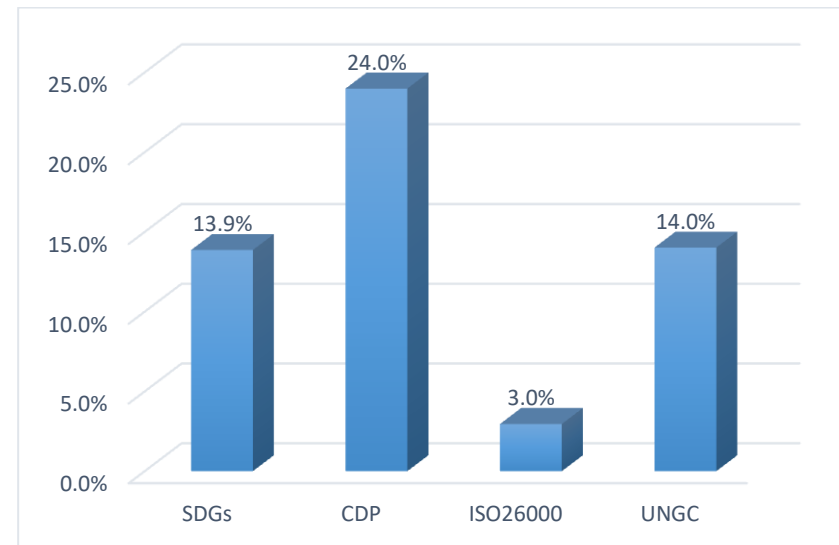


DIAGRAM 11, USE OF OTHER SUSTAINABILITY FRAMEWORKS, 2016/2017

(CDP); and 14% include information about the company/organization's compliance with the 10 Principles of the United Nation's Global Compact. There is a rise of about 124% on the percentage of companies which report according to SDGs compared to last years' research, with 13.9% including information about SDG compliance.

By examining only the companies/organizations that have used one of the versions of the GRI's Reporting Guidelines for conducting their sustainability reports, it can be determined that the sectors with the most

Sectors	% of total number
Energy & Energy Utilities	11,1%
Financial Services	9,8%
Mining	7,7%
Real Estate	5,8%
Healthcare Products	5,6%
Food & Beverage	5,0%
Technology Hardware	3,7%
Chemicals	3,4%
Forest & Paper Products	2,9%
Commercial Services	2,7%
Equipment	2,7%
Retailers	2,7%
Telecommunications	2,7%
Public Agency	2,4%
Logistics	1,9%

TABLE 6, SECTORS OF COMPANIES WHICH CONDUCTED SUSTAINABILITY REPORTING USING A VERSION OF THE GRI'S REPORTING GUIDELINES, 2016/2017

The companies/organizations that published the sustainability reports for 2016-2017 period used GRI-G4 and GRI-Standards Reporting Guidelines. The companies/organizations could choose between two compliance levels: in accordance core and in accordance comprehensive. The difference between the two levels lies in the number of indicators the

reporting companies/organizations are Financial Services (13.4%), Energy & Energy Utilities (12.9%) and Mining (10.3%).

Metals Products	1,9%
Tourism/Leisure	1,9%
Automotive	1,6%
Aviation	1,6%
Computers	1,6%
Construction	1,6%
Household & Personal Products	1,6%
Railroad	1,6%
Agriculture	1,1%
Conglomerates	1,1%
Construction Material	1,1%
Consumer Durables	1,1%
Healthcare Services	1,1%
Textiles and Apparel	1,1%
Other sectors (less than 1% like Tobacco, Waste Management, Universities, etc.)	10.4%

company/organization has chosen to disclose in the report for each identified material issue. In the "core" option, the company/organization chooses at least one indicator per material aspect, while in the "comprehensive" option the company/organization must disclose all the available indicators for each identified material aspect. Most

companies/organizations (76.4%) have chosen the “core” option; only a small number (7.1%) have chosen the “comprehensive” option; and a significant percentage (16.5%) have not declared a compliance level. Last year, companies with an undeclared level of compliance were at 26% and

with the core option 67%. This shows that companies start to understand the importance of compliance with GRI Guidelines.

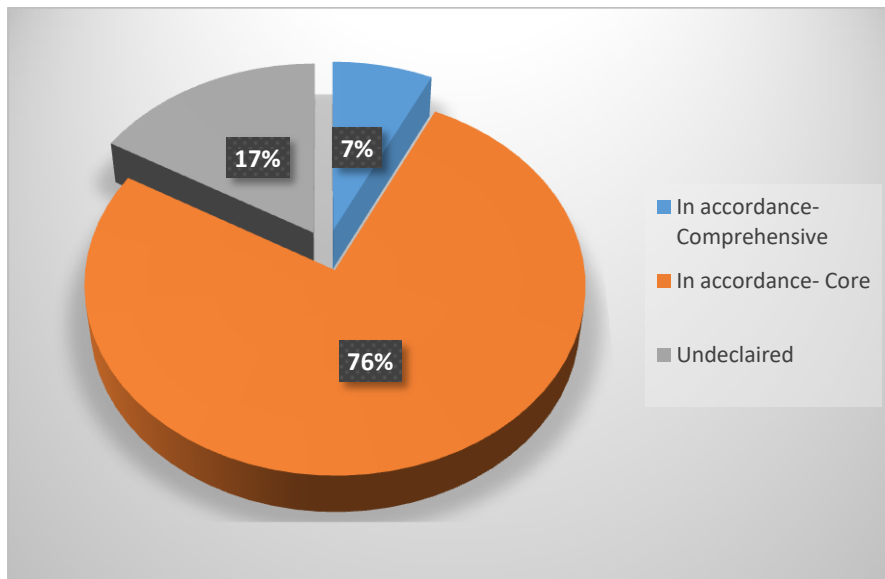


DIAGRAM 12, COMPLIANCE LEVEL OF G4 AND GRI STANDARDS SUSTAINABILITY REPORTS, 2016/2017

The External Assurance of the Sustainability Reports

The external assurance of the Sustainability Reports is the model that should confirm the quality of the report and the information (both quantitative and qualitative) that is being provided in the report. The aim

of the external assurance is to provide transparency and credibility of sustainability information, increase reliability and trust, strengthen the internal management and reporting systems and overall to improve the

communication with all relevant stakeholders. In North America, the number of external assured reports is still low compared to the EU. There is the assumption that this is due to restrictions of attestation standards on the auditing profession on providing assurance of sustainability reporting in the U.S. and Canada.

Only 25.7% of all GRI reports (full or partial use of GRI reporting guidelines) have been externally assured according to the analysis of GRI reports published for the 2016-2017 period. The optimistic perspective is that many companies are seeking external assurance for upcoming years.

It is worth mentioning that five out of twenty companies that published sustainability reports according to GRI guidelines were externally assured

and had the biggest number of active sources with CSRHub. This means that their ranking is among the top, and this information is reliable.

The element of external assurance that is of paramount importance is use of internationally accepted assurance standards. Two of the most commonly used, internationally recognized, assurance standards are the Accountability 1000 Assurance Standard (AA1000AS) and the International Standard on Assurance Engagement (ISAE3000). Of external assurances, 28.4% have been conducted using the ISAE3000, while 10.8% the AA1000AS; 3.9% were conducted with both assurance standards.

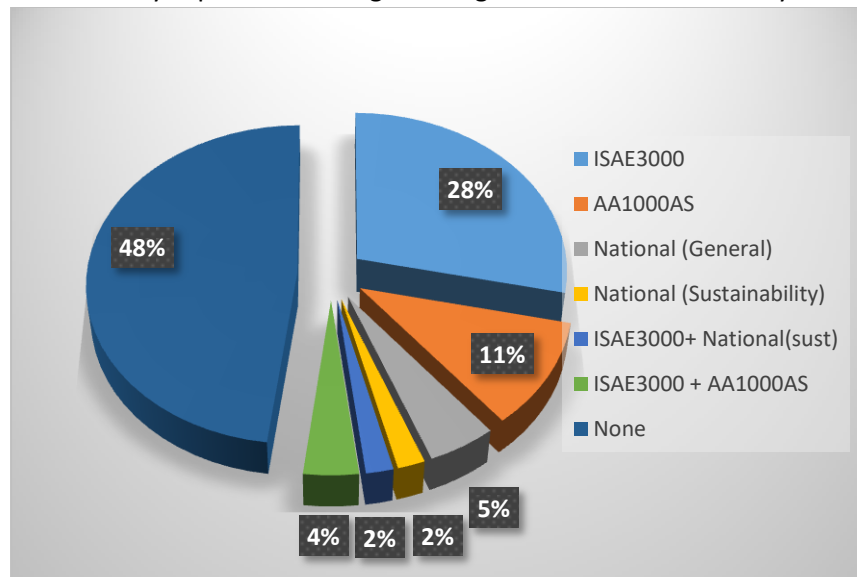


DIAGRAM 13. USE OF ASSURANCE STANDARDS FOR THE EXTERNAL ASSURANCE OF SUSTAINABILITY REPORTS

Regional Comparison

The analysis of the reporting engagement level of regions shows that North America is trying to embrace sustainability as closely as Europe and Asia do. The information given on the reporting database of the Global Reporting Initiative platform shows that the number of organizations in Latin America and the Caribbean that publish sustainability reports were

higher than North America for both 2014-2015 and the 2016-2017 reporting periods. In general, there is a significant 14.05% increase, globally, of sustainability reports (as registered in the GRI Database).

	2014-2015 reporting period	2016-2017 reporting period	& Increase/Decrease
Regions	Number of organizations with sustainability reports	Number of organizations with sustainability reports	
North America	850	801	-5.76%
Europe	2662	2580	-3.08%
Asia	2226	3329	+49.55%
Latin America & Caribbean	1037	1000	-3.57%
Africa	362	482	+33.15%
Oceania	239	220	-7.95%
TOTAL	7376	8412	+14.05%

TABLE 7, REGIONAL COMPARISON OF THE ORGANIZATIONS THAT DISCLOSED SUSTAINABILITY INFORMATION DURING THE LAST FOUR YEARS.

6. Conclusions



Highest Sustainability Score May Indicate Better Financial Results

- Analysis of the 50 companies with the highest ESG score (CSRHUB Ranking as of July 2018) indicates that there is a strong correlation between the organization's financial performance and its sustainability performance.
- 80% of these companies had an increase in their revenues between 2016 and 2017, a fact that can be interpreted as an indication that sustainability strategies and Sustainability Reporting representing a culture of transparency may have a positive impact on their revenues increase.

Artificial Intelligence and Blockchain

- Artificial Intelligence (AI) is gaining more followers as it offers useful tools for almost every kind of industry. AI will play an intrinsic role in enabling and scaling sustainability solutions. Corporate sustainability practices and reporting will be radically transformed. Technological advances and increasing demand for real-time updates are going to bring a number of transformations in the way sustainability is monitored, implemented and reported.

- Blockchain can change the way business transactions take place. From a supply chain perspective, such visibility will help ensure efficient transactions, while promoting food safety, efficient recalls, the elimination of counterfeits, and the assurance of ethical trading partners.

Sectors with High Volume of Sustainability Reports

- The sectors with the highest presence in the research sample, regardless of whether the organization has used any reporting guidelines for publishing the report, are Financial Services (10.0%), Energy and Energy utilities (9.5%), Food and Beverage (7.0%), Healthcare Products (5.3%) and Mining (5.1%). The top sectors in the U.S. are Energy and Energy Utilities (8.5%), Food and Beverage (8.5%) and Financial services (8.1%), while in Canada the top sectors are Mining (19.4%), Financial Services (15.7%) and Energy and Energy Utilities (13.4%).

Most Frequent Terms Used for Reporting

- Companies and organizations use various terms to name their reports. There is a wide range of combinations of the terms “sustainability”, “corporate”, “citizenship”, “social”, “responsibility”, “sustainable development” used by companies and organizations. However, there are two terms which are most commonly used, “Sustainability Report” and “Corporate Responsibility Report”.

Transparency of Sustainability Reports

- In both countries, the use of the GRI reporting guidelines results in larger, more comprehensive, sustainability reports, that include all the necessary information for each company’s key stakeholder groups. Non-GRI reports tend to be smaller in size, mostly focusing on the companies’ sustainability programs and initiatives and not their sustainability performance.
- Most Frequent Standards and Guidelines for Reporting
58.7% of the North American companies and organizations that published sustainability reports for the 2016-2017 reporting period used some version of the Reporting Guidelines of the Global Reporting Initiative or used it as the reference point.
- 41% of the reports were conducted either by following other standards and guidelines (e.g. UNGC, ISO26000) or by not following any standards or guidelines. 24% of the reports include the information about the company/organization’s compliance with the Carbon Disclosure Project (CDP). 14% include the information about the company/organization’s compliance with the 10 Principles of the United Nation’s Global Compact (UNGC). 13.9% include the information about the company/organization’s compliance with the 17 Sustainable Development Goals (SDGs).

Use and Compliance to GRI

- 15.7% of the companies/organizations that published the sustainability reports for 2016-2017 period used the latest version of the GRI Standards and 32.4% the GRI’s Reporting

Guidelines (G4). This is expected to change in the next reporting period, as GRI announced that every report that is published later than July 2018 should use the new GRI STANDARDS, otherwise it can only be GRI Referenced.

- The compliance levels (“in accordance- core” and “in accordance - comprehensive”) communicate the number of indicators the company/organization has chosen to disclose in the report for each identified material issue. Most companies/organizations (76.4%) have chosen the “core” option, only a small number of them (7.1%) have chosen “comprehensive” option, and a significant percentage (16.5%) have not declared a compliance level.

The decline of External Assurance

- Despite the favorable global trend, the analysis of GRI reports published for the 2016-2017 period indicates that there is enough

room for improvement in this area. Only 25.7% of all GRI reports have been externally assured.

- The most commonly used, internationally recognized, assurance standards are the Accountability 1000 Assurance Standard (AA1000AS) and the International Standard on Assurance Engagement (ISAE3000). 28.4% of the external assurances have been conducted using the ISAE3000, while 10.8% the AA1000AS. 3.9% of the external assurances were conducted using both assurance standards.
- Although the external assurance is considered a good practice globally towards credibility and transparency and has been closely linked with the sustainability ranking and score of companies, as well as their ability to attract investors, leading Fortune 500 companies do not seek external assurance for their sustainability reports.

7. Top 10 Future Trends and Challenges

There is a strong correlation between financial results and sustainability strategy, reporting and performance. Namely during the period 2016-2017, 4 out of 5 companies in our sample have achieved better financial results (as indicated by their annual revenues). All these companies had comprehensive sustainability strategies and reporting that includes goals and high ESG scores (CSRHub Ratings). Similar findings were identified in our last year research. CSE used the outcomes of both research for creating a return on sustainability framework that identify correlations between Corporate Sustainability performance and Financial results.



1. Taking a closer look at the sustainability reporting practices of the 10 leading companies per sector (as defined by their revenues in 2017) there are significant trends that can be defined.
2. The percentage of top-10 companies per sector that publish a sustainability report is very high: 100% for healthcare products, 90% for automotive, 80% for food and beverage, 80% for energy, 80% for chemicals, 80% for financial services, 70% for mining, 70% for technology, 70% for real estate, 70% for retailers, 60% for telecommunications and 60% for forest and paper products.
3. Artificial Intelligence (AI) is gaining more followers as it offers useful tools for almost every kind of industry. AI will play an intrinsic role in enabling and scaling sustainability solutions. Corporate sustainability practices and reporting will be radically transformed. Technological advances and increasing demand for real-time updates are going to bring a number of transformations in the way sustainability is monitored, implemented and reported.
4. Blockchain can also change the way business transactions take place. From a supply chain perspective, such visibility will help ensure efficient transactions, while promoting food safety, efficient recalls, the elimination of counterfeits, and the assurance of ethical trading partners.

5. Our research shows a decline in the percentage of companies that seek external assurance. Out of the total sample, 25.7% sought external assurance for their sustainability report. One of the barriers is the high cost for the external assurance of the sustainability report, especially by the large accounting firms versus the value companies get from the process.
6. There are business sectors in North America that stand out for their sustainability reporting presence and activity. These sectors are the financial services, energy and energy utilities, food and beverage, healthcare products and mining. These sectors are the most proactive when it comes to disclosing the data and information on their business activities and operations. For instance, in the financial sector the sustainability reporting is a means for companies to present to clients, and society in general, their responsible profile and operations, and to communicate with investors and attract new ones. Also, the energy sector is active in the sustainability reporting area due to its large environmental and social impact on the areas where it operates. In the U.S., the most active sector is the energy and energy utilities sector and in Canada the most active sector is the mining sector.
7. In both countries (the U.S. and Canada), most of the companies that publish sustainability reports are Large and Multinational Enterprises. The global presence of their operations and impacts makes reporting on their sustainability performance a necessity in order to keep their social and environmental license to operate. Additionally, there is a clearly visible trend of public companies to publish sustainability reports in order to disclose information and be transparent about their sustainability performance.
8. There is a growing trend for Small-Medium Enterprises to publish sustainability reports to increase their transparency, attract customers and grow their business. The number of SMEs which published reports for the 2016-2017 period is higher by 10% when compared to the 2014-2015 reporting period and is expected to grow in the coming years.
9. The reporting guidelines of the Global Reporting Initiative remain the most widely used reporting guidelines for conducting sustainability reports and support a culture of transparency in non-financial results. GRI Reporting Guidelines adds value and enhances some of the benefits of conducting a sustainability report such as improving processes and systems, progressing vision and strategy, reducing compliance costs and gaining a competitive advantage. Fifty-nine percent (59%) of the reports published for the 2016-2017 period used the guidelines of the Global Reporting Initiative.
10. The adoption of the UN Sustainability Development Goals has been progressing at a rapid pace when it comes to companies and organizations based in North America. With respect to the previous research, a whopping 124% increase was observed in the number of companies that referenced their commitment to the sustainable development goals in their sustainability reports.

8. Glossary

- **Sustainability Reporting:** an organizational report that gives information about economic, environmental, social and governance information. It is a method to internalize and improve an organization's commitment to sustainable development in a way that can be demonstrated to both internal and external stakeholders.
- **Global Reporting Initiative (GRI):** an international independent standards organization that helps businesses, government and other organizations understand and communicate their impacts on issues relating to economic, social and environmental performance.
- **Indicator (GRI):** qualitative or quantitative information about results or outcomes associated with the organization that is comparable and demonstrates change over time.
- **Material Aspect (GRI):** reflects the organization's significant economic, environmental and social impacts; or the aspects that substantially influence the assessments and decisions of stakeholders.
- **United Nations Global Compact (UNGC)** is a United Nations initiative to encourage businesses worldwide to adopt sustainable and socially responsible policies, and to report on their implementation. The UN Global Compact is a principle-based framework for businesses, stating ten principles in the areas of human rights, labour, the environment and anti-corruption.
- **International Finance Corporation Sustainability Framework (IFC):** The IFC, a member of the World Bank Group, is the largest global development institution focused on the private sector in developing countries. IFC's Sustainability Framework includes the Policy and Performance Standards on Social and Environmental Sustainability. It provides the private sector clients with a clear and comprehensive view of requirements early in their engagement with IFC.
- **ISO26000** provides guidelines for social responsibility (SR). Its goal is to contribute to global sustainable development, by encouraging business and other organizations to practice social responsibility to improve their impacts on their workers, their natural environments and their communities.
- **OECD Guidelines:** The OECD Guidelines for Multinational Enterprises are the most comprehensive corporate responsibility instrument developed by governments in existence today. They cover all major areas of business ethics and are addressed to all the activities of multinational enterprises operating in or from the 42 adhering countries. The OECD Guidelines also have a unique implementation mechanism to address issues arising from their non-observance.
- **CDP (formerly the Carbon Disclosure Project)** is an organization based in the United Kingdom which works with shareholders and corporations to disclose the greenhouse gas emissions of major corporations.
- **AA1000AS (2008)** assurance provides a comprehensive way of holding an organization accountable for its management, performance, and reporting on sustainability issues by evaluating the adherence of an

organization to the AccountAbility Principles and the reliability of associated performance information.

- ISAE3000 is a standard for assurance over non-financial information. ISAE3000 is issued by the International Federation of Accountants (IFAC). The standard consists of guidelines for the ethical behaviour, quality management and performance of an ISAE3000 engagement. Generally, ISAE3000 is applied for audits of internal control, sustainability and compliance with laws and regulations.
- MNE (Multinational Enterprises) are organizations that owns or controls production of products or services in one or more countries other than their home country.
- SME (Small Medium Enterprises) are businesses whose personnel numbers fall below certain limits. Industry Canada defines a small

business as one with fewer than 100 paid employees and a medium-sized business as one with at least 100 and fewer than 500 employees. In the United States, the Small Business Administration sets small business criteria based on industry, ownership structure, revenue and number of employees (the cap is typically 500).

- Public Company: A company that has issued securities through an initial public offering (IPO) and is traded on at least one stock exchange or in the over the counter market. Although a small percentage of shares may be initially "floated" to the public, the act of becoming a public company allows the market to determine the value of the entire company through daily trading.
- Private Company: A company whose ownership is private. As a result, it does not need to meet the strict Securities and Exchange Commission filing requirements of public companies.

9. About CSE Services (www.cse-net.org)

CSE is a leading boutique firm specialized in global sustainability consulting, coaching and training. Since 2004, early entry into the international sustainability services market, CSE has been assisting clients to achieve higher performance, build brand loyalty and innovate through the continuous integration of sustainability principles into their culture, products and/or services. Public and private sector clients benefit from CSE expertise in serving diverse sectors, markets and organizational cultures in the Americas, Europe, Asia and the Middle East.

Integrated Consulting Services from A to Z

Our services and web tools assist businesses and organizational leaders to understand and meet the evolving international standards and frameworks, such as the United Nations Global Compact (UNGC), the Global Reporting Initiative (GRI), the Carbon Disclosure Project (CDP), Green House Gas Protocol, Dow Jones Sustainability Index (DJSI), ISO 26000 guidelines and other local and international guidelines.

"CSE believes that investment in human capital through education, training and coaching is the single most important determinant of future value for all organizations."

Consulting Services

- Sustainability and Materiality Assessment
- Sustainability Strategies

- Sustainability and Integrated Reporting
- External Verification and Assurance
- SROI and Stakeholder Engagement Programs
- Carbon Reduction and Product Life Cycle Analysis
- Supply Chain Sustainability
- Green Buildings and Events

Pioneering in Sustainability Education for the last 10 years

(www.sustainability-academy.org)

CSE is accredited by CMI to provide global training to Sustainability Professionals and is a GRI organizational stakeholder. We have trained over 5,000 Sustainability Professionals from five continents through on-site, online and group training. Courses include:

Certified Sustainability Practitioner Program (Advanced Version), Online Diploma on Corporate Sustainability, Online Certificate for Sustainability Reporting, Online Certificate for Carbon Footprint Reduction, Online Certificate on ESG Performance, Online Diploma on Social Entrepreneurship, Introduction to Social Impact Assessment and SROI.

Our clients include Fortune 500 companies and organizations such as **Walmart, United, NASA, Walgreens, Lloyds Banking Group, Coca Cola, Oracle, Shell, Baker Hughes, Whole Foods, North Face, World Bank**