The Transparency Imperative in GhG Reporting: The Role of Technology in Streamlining and Enhancing Reporting

Salomon S. Salinas
Accenture, Sustainability Services Federal Practice Lead
11951 Freedom Dr, Reston, VA, USA, 20190
salomon.s.salinas@accenture.com

Mauricio Bermudez-Neubauer
Accenture, Carbon Markets Lead
Level 7, 30 Fenchurch Street London, UK, EC3M 3BD
m.bermudez.neubauer@accenture.com

Leah Stern
Carbon Disclosure Project, Senior Project Manager
6 West 48th Street, 10th Floor, New York NY, 10003
leah.stern@cdproject.net

Shaun Richardson
Accenture, Carbon Markets
Level 7, 30 Fenchurch Street London, UK, EC3M 3BD
shaun.a.richardson@accenture.com

ABSTRACT

Addressing climate change and its implications for the enterprise will be one of the greatest challenges and opportunities for many businesses over the next two decades. In the coming years most global companies will be required to report their Greenhouse Gas (GhG) emissions to regulators. Organizations face significant challenges both internally and externally to measure and manage these GhG emissions and provide the information required by stakeholders. Similarly, regulatory bodies face the challenges of designing robust data models and efficiently handling the large volumes of data as these regulations are implemented.

A carbon performance management process is central to providing robust, accurate and timely data to an organization's internal and external stakeholders. This will enable carbon accounting and reporting to serve as the foundation of an organization's strategy to comprehensively manage and optimize their carbon performance.

Technology is at the core of this new age of carbon management. For organizations, basic technology solutions will assist in measuring and reporting the GhG emissions of their operations. At a more advanced level, technology will provide them with the ability to optimize carbon performance and deliver long term, sustainable business value. For regulators, technology will support the infrastructure necessary to efficiently and securely manage the GhG emissions data tsunami and transform it into an information asset for complying organizations and other stakeholders.

INTRODUCTION

In the coming years, most global companies will be required, at a minimum, to report their direct emissions to regulators in Europe. In addition, they will likely face additional GhG control regulations, as numerous developed and developing countries adopt carbon legislation (e.g., cap-and-trade schemes, carbon taxes, standards, or other carbon abatement policies). Companies will see an increasing need to reduce emissions by "optimizing" their carbon performance, not only across their production value chain but potentially also across their product portfolios if they are required to account for cradle-to-grave emissions from their products. Much is at stake for carbon intensive industries as they attempt to minimize profitability effects from carbon regulation. For example, if the responsibility for non-transitory fuel emissions is reverted to refiners, the cost to refining could be $1 to $4 per barrel depending on refinery configuration[1].

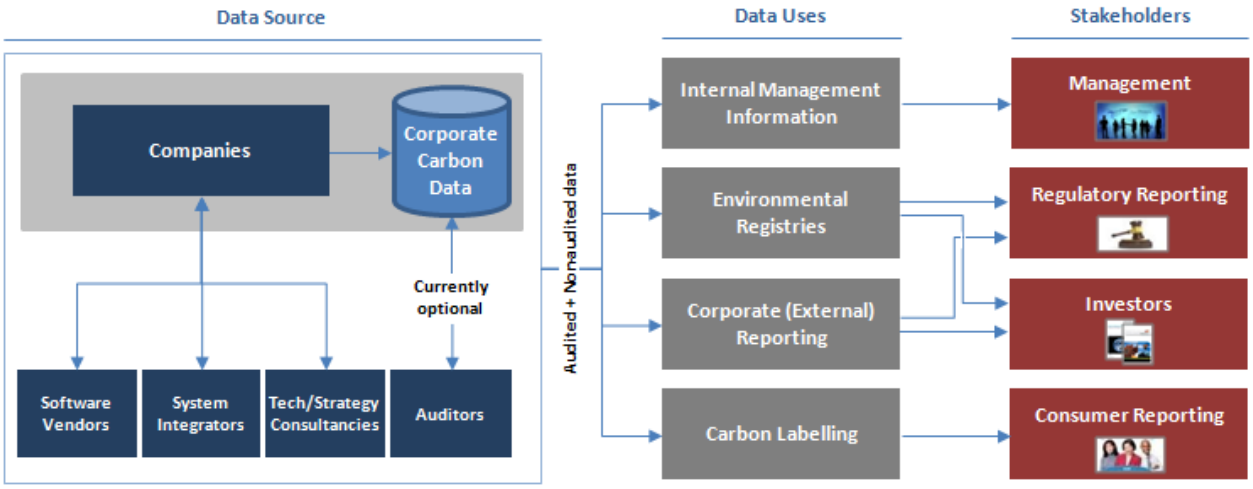
The carbon disclosure "ecosystem" encompasses multiple stakeholders who require carbon performance information for different reasons. All stakeholders, from corporate management to investors, regulators, and consumers require accurate, timely and transparent information to make decisions. The sheer volume and complexity of the carbon performance information to be collated will require increasingly sophisticated and robust IT systems. It is becoming imperative for organizations to implement such systems in order to have a streamlined process to gather the data required to comprehensively and efficiently manage carbon.

This paper describes how technology can be used to streamline the carbon accounting and reporting process. This will provide the foundation for comprehensive carbon management and the ability for organizations to optimize carbon performance within their business.

The Carbon Disclosure Ecosystem

The carbon disclosure "ecosystem" encompasses a number of players who are typically involved in the climate change data value chain, which ranges from collection, analysis, verification or validation (where required) and finally submission to internal or external stakeholders (see Figure 1). Throughout this ecosystem, robust software, IT systems and processes are required to collect and manage data for internal reporting, as well as for external disclosure to environmental compliance registries, corporate reporting and product carbon labeling. Robust carbon management systems, combined with 3rd party auditors will ensure that disclosure data is accurate and reliable, with similar levels of rigor as applied to financial performance information.

Figure 1: The carbon disclosure ecosystem.



In the United States, the federal Environmental Protection Agency (EPA) plays a major role in this ecosystem and indeed in the evolution of global carbon reporting. Through its administration of the Inventory of U.S. Greenhouse Gas Emissions and Sinks and its central role in implementing Part 98 of the Mandatory Reporting of Greenhouse Gases Rule (GHGRP), the EPA is developing the analytic, technical, and policy underpinnings of carbon performance management which will influence economic performance on a global scale. The evolution of the low carbon economy will further expand the need for the administration of GHGRP and require the management of ever growing volumes of data from regulated entities. To store and use this increasing volume of data effectively, registries with added sophistication and the ability to scale quickly will be required. This evolution will require solutions with high data integrity, security, real time reporting, enhanced efficiency, expanded standardization, greater verifiability and advanced analytics.

An Optimal Carbon Performance Management Framework

A robust Carbon Performance Management (CPM) framework is required for optimal carbon management, from measurement to disclosure. To ensure results are robust and comparable, an effective carbon reporting process is required. Once in place, this can then evolve in scope, sophistication and integration across the company. The eventual goal is to move from disclosure to performance management - enabling the company to understand and effectively manage its climate change impact, optimize its assets, and take actions to optimize carbon emissions and pursue business opportunities presented by the low-carbon economy.

Four performance categories are instrumental to optimally managing carbon:

- Information: refers to planning, engagement and understanding the requirements and desired outcomes, culminating in the industrialized collection of carbon emissions and related data. This includes metrics such as emissions by scope, energy and fuel consumption, activity data, plant and asset parameters, etc.
- Insight**:** means using analytics processes to derive meaningful and usable insight based on the Information e.g. emissions abatement and cost curves, carbon policy and regulations scenario planning, asset benchmarking, abatement opportunity dashboards, and low carbon supply chain optimization.
- Action: covers the changes in operations and assets required to improve carbon performance and management, e.g. low carbon abatement investment plans, low carbon compensation incentives, smart building and facilities management.
- Communication: focuses on effectively communicating carbon and related business performance results to internal and external stakeholders such as top management, investors or regulators, in a cohesive, consistent, transparent, easily accessible format.

These categories are all underpinned by effective processes and IT systems. High performing businesses will possess capabilities across all categories to effectively manage their carbon performance across all stages of the carbon data value chain. Organizations can use CPM to future-proof their business which will ensure they are flexible enough to adapt to new regulations, market conditions, and technology; and will ultimately assist in realizing the maximum value from carbon performance management.

From Carbon Reporting to High Performance Carbon Management

Accenture conducted a global survey focused on CPM and identified five challenges that organizations face in implementing effective CPM and reporting systems. These are: (1) lack of consistent access to granular data that spans a company's full value chain (internal operations, supply chain and distribution); (2) the highly resource- and time-intensive nature of the carbon reporting process, which diverts resources from generating actionable insight which can be used to improve carbon and business performance; (3) the rapid evolution of carbon regulation at international, national and regional levels with organizations requiring processes and systems which are larger and more complex to manage; (4) the existence of organizational complexity and legacy information systems which present significant challenges to an integrated carbon performance management system which can provide line of sight on performance across businesses, regions and sites; and (5) challenges in identifying the right CPM software solution and integrating it with existing systems.

Accenture's CPM Framework identifies the key performance categories required for companies to effectively manage carbon risk and maximize carbon opportunities. With such a framework, organizations measure carbon performance through the tracking of carbon activity data, metadata, parameter data, the deployment of carbon measurement kit, IT systems and procedures. The framework enables the production of insight into the risks and opportunities in the low carbon economy, through the use of value-added information, including analytics, forecasts, benchmarks, cost abatement curves and decision support tools. It incorporates the work of operations management and all parts of the organization to help in mitigation, adaptation and R&D investments, as well as related asset and operations optimization and integrated risk management. It helps organizations define and deliver the system requirements for managing the external forces that affect their performance, including regulations, standards and protocols, funding and incentives, competition and stakeholders.

Technology as the Foundation of the New Age of Carbon Reporting

Technology solutions will be required throughout the carbon disclosure ecosystem, both by organizations to source and report data, and by governments, regulators and investors to capture, store and analyze this data. These technologies will be required to address the challenges organizations face in implementing robust CPM processes while adapting to regulatory changes.

Enterprise Carbon Performance Management Software

Accenture research shows that many organizations today rely on spreadsheets to collate, analyze and report their emissions. However, increasingly, companies are implementing environmental sustainability software to support specific functional and regulatory requirements particular to the carbon reporting and regulation domain. There are multiple solutions that exist within the marketplace (see Figure 2)[2].

Figure 2. Environmental sustainability software solution vendors (illustrative)[2].

Large integrated enterprise software	Functional niche software
Microsoft	CA ecoGovernance
Oracle	Carbonetworks
SAP	Credit360
SAS	Ecofys
	Enablon
	Enviance
	EnviroData Solutions, Inc.
	EPS
	Hara
	IHS
	Itron
	Perillon
	Schneider Electric
	SoFi
	Verisae
	Waterscan

Carbon performance management technology solutions should be flexible with regard to internal challenges (data, systems interfaces, asset/personnel changes and joint venture partnerships) and external challenges (regulatory changes). Some of the specific regulatory requirements include:

- Managing the complexity and breadth of climate data across entities, geographic locations and existing IT systems.
- Performing specialized tasks such as emissions inventory development and GhG accounting using standard metrics.
- Tracking compliance and generating regulatory reports aligned to specific guidelines, such as the EU ETS and U.S. EPA.
- Providing timely and accurate information and alerts to mitigate sustainability-related risks and associated costs.

- Forecasting and benchmarking for sustainability performance management; managing particular data related to offsets, credits, etc.
- Initiating highly evolved activities such as demand-response programs; interfacing with external platforms such as national registries.
- Meeting the requirements for new developments, such as carbon trading.

A CPM software solution should span four specific dimensions: data generation, monitoring and reporting, performance analysis, and performance management in order to meet an organization's current mandatory reporting/regulatory needs and support more advanced management decisions that will be needed in the future to stay competitive. This software should also enable companies to effectively monetize carbon positions, as well as support strategic decision making that includes metrics as part of the equation[2].

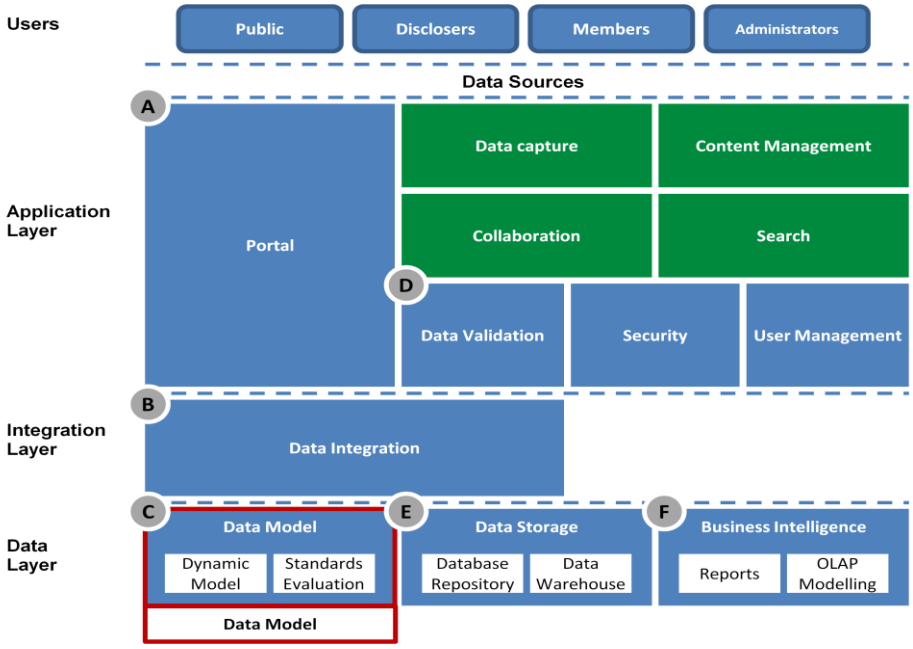
Although the environmental carbon software market is still evolving, early identification and adoption of the most appropriate solution will be beneficial for organizations for multiple reasons, including minimizing future risk. Finally, a single carbon accounting software package will increase integration between individual installations and the corporate level and result in greater confidence of data reporting.

Carbon Data Registries

To store and use increasing volumes of GhG data effectively, registries (both government run and private) with added sophistication and the ability to scale quickly will be required. This evolution will require solutions with improved data integrity, security, real-time reporting, enhanced efficiency, expanded standardization, greater verifiability and more extensive analytic capability.

As depicted in Figure 3 below, new generation carbon registries draw together several components that are common to existing registration and trading systems. These commonalities include: **(A)** a Portal / Website, which provides online access to the public, members and administrators of the data and functionality; **(B)** an integration layer, which facilitates the automated data flows through industry standard data exchange methods and technologies; **(C)** standardized registry data and cross-over model for aligning offset data from multiple voluntary registry declarations; **(D)** a data validation and integrity engine, which serves as an online service model that completes a series of business validations rules and checks to ensure that carbon offset units disclosed into different registries are not double counted; **(E)** a database repository which provides a physical place to securely store member, registry, and supporting system data and facilitates online data access, manipulation and report generation; and finally **(F)**, a reporting suite allowing for data access from the repository and presented in an intuitive format.

Figure 3. Carbon registry data model.



Technology solutions are a means to a streamlined end

However, for both enterprise carbon software and carbon data registries, these leading technological solutions are merely a means to an end. It is in the quality of the analytics that a fully transparent view of GhG information is produced, integrating granularity across GhG data streams. Example outcomes include: identifying opportunities for improved carbon information delivery; providing transparency and visibility; and optimizing the return on existing organization and IT investments, including data management, data mining, stakeholder intelligence, stakeholder relationship management and enterprise resource planning. Analytics also provide for a detailed study of stakeholder behavior relative to the published GhG information. New age carbon reporting technologies improve stakeholder experience and knowledge and help build lifetime value for the GhG information that is generated. These models reveal the untapped value of the organization's external stakeholders through their interaction with the organization's disclosed GhG information. They help to deliver online GhG content more cost-effectively while helping to improve carbon reporting tool design and performance.

Case Study: The CDP Global Climate Change Reporting Platform

The Carbon Disclosure Project (CDP), one of the world's largest voluntary climate change registries representing 534 institutional investors holding $64 trillion in assets, collects climate change data from over 5,000 companies globally. A partnership between CDP, Accenture, Microsoft and SAP represents one example of the global breadth and depth of experience required to build a comprehensive carbon management capability. This partnership led to new CDP questionnaire software, website, reporting tool and associated back-office systems to streamline the collection of annual carbon data. As a result, CDP is now able, for the first time, to deliver advanced GhG data capture capabilities to disclosing companies and provide advanced GhG emissions reporting services to the market. Beginning in 2010, corporations began to report to CDP through this improved and upgraded CDP global climate change reporting platform.

The new CDP platform streamlines disclosure for companies by providing enhanced tools and guidance through a single, fully accessible system, and enables the collection of a full set of global corporate climate change data, drilling down to business division and installation level as well as collecting information at a corporate level to provide more detailed, consistent, comparable and actionable data. The new reporting functionality can also be easily shared with and analyzed by institutional investors, corporations and the world's national regulatory systems. These enhancements not only help companies reveal emissions hot spots so they can be better managed, but also help to prepare companies for future regulation. With more user-friendly output of information, CDP's upgraded system drives scale and greater use of corporate climate change information within financial and strategic decision making. The enhanced CDP website includes:

- Improved visual design and content management system (CMS).
- Advanced search capabilities for content, reports, responses and companies.
- New member's portal providing self service capabilities for users via integration to Customer Relationship Management (CRM) and data repository.
- Multi-language, RSS feeds, and search engine optimization.

The evolution of the CDP reporting platform reflects a shift from simple disclosure to carbon management, an evolution that offers broader business benefits as companies use emissions data to meet strategic goals, drive operational improvements across their value chain, and design better products. This is happening both in the private sector as well as in the federal government. Most notably in the U.S., on October 5, 2009, the President of the United States signed Executive Order (EO) 13514 calling on Federal agencies to "establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for federal agencies." Among other initiatives, the EO requires agencies to set baselines and targets for their scope 1, 2, and 3 GhG emissions. Section 13 of the EO specifically directs the General Services Administration (GSA), in coordination with other key

agencies, to assess the feasibility of working with the Federal supplier community to measure and reduce supply chain GhG emissions, while encouraging sustainable supplier operations. In April 2010, GSA issued a preliminary conclusion that it is feasible, if employing a phased approach, for the Federal Government to track and reduce its scope 3 supply chain emissions through coordination with suppliers and other stakeholders. The partnership between CDP and Accenture is supporting GSA's efforts by conducting an analysis of the climate change emissions reporting and management practices of the top 200 federal suppliers that voluntarily participated in the Carbon Disclosure Project's (CDP) 2010 Survey.

CONCLUSIONS

In the not too distant future, the measurement of emissions footprints will expand beyond companies' direct operations, and extend to the product life cycle, a scope akin to a cradle-to-grave assessment. As with GhG emissions, companies will increasingly become accountable for their water, waste, sustainable sourcing and social impacts. These reporting and disclosure requirements will only be addressable through accurate and transparent data and metrics supported by technology solutions to streamline and industrialize the process. Some factors, however, should make the reporting, disclosure and compliance landscape simpler. Greater harmonization of reporting standards and protocols will simplify the task across geographies. Macro regional or perhaps even global regulations could reduce the complexity of compliance for international companies. The ever greater penetration of IT into processes, products and the economy could greatly simplify data collection and consolidation.

These changes are just over the horizon. The management of carbon risks and opportunities is positioned to become as central to corporate functions as financial accounting is today. As we move towards the low-carbon economy, these game-changing efforts to measure, manage and create value from the enterprise's approach to climate change, and more broadly, to sustainability, will have to be underpinned by robust, high performance IT systems and processes. Moving early to deploy them is likely to be a strategy that pays off, by enabling a sustainable foundation for a company to plan, run its businesses and discover new growth areas whilst protecting and improving society and the environment. The partnership of Accenture, SAP, Microsoft and the CDP showcases what is possible and demonstrates the role that technology can play in streamlining and enhancing GhG reporting, with the ultimate aim of delivering transparency and enabling organizations to actively and effectively manage their climate change risks and opportunities.

REFERENCES

1. Tokmakian, R.H.; Shong, F, “Carbon in oil refining–the perfect storm”, Petroleum Review, December 2009, pp 10-12.

2. Stark, M.: Shong, F.; Abood, D.J.; Gersting, A.; Horn, E.C.; Sturm, M.; Tokmakian, R.H., “Review of Carbon Accounting and Reporting in the Oil and Gas Industry – Key Findings”, Accenture, 2010.

KEYWORDS

Accenture
Carbon Disclosure Project
Carbon performance management
Greenhouse gas emissions / GhG
GhG emissions reporting
GhG emissions analytics
Sustainability software
GhG Software
Carbon reporting software