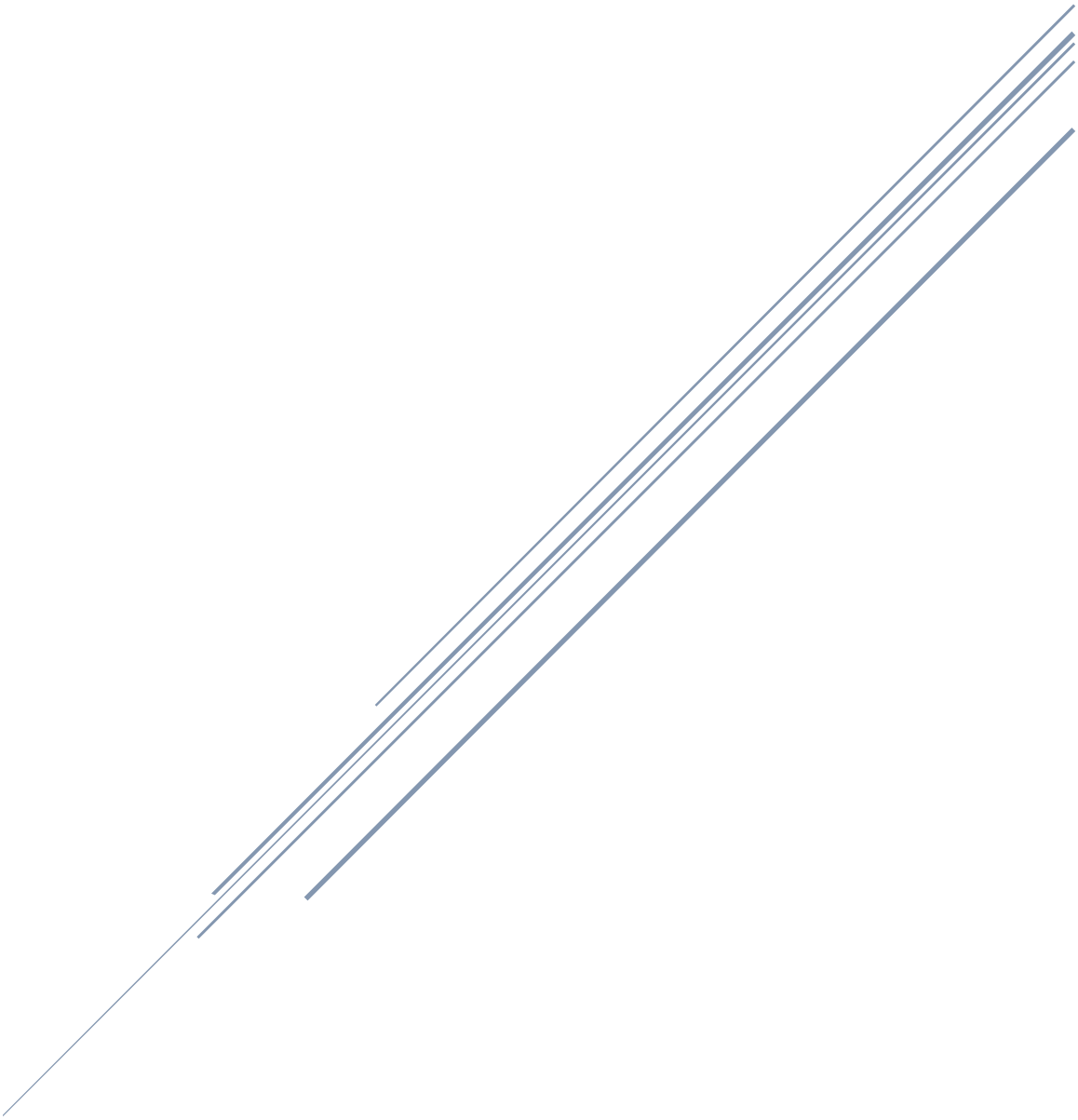
DIGITIZATION OF SUSTAINABILITY DATA

How technology consortia/ technology standard-setters contribute to the digital transformation of sustainability information in the marketplace



TPFIII & IMP Workstream A
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Table of Contents

Abstract:

In 2008, the world was caught off guard by the collapse of the financial system, a crisis resulting from many factors. The situation quickly spiraled into catastrophic territory, where despite the signals, deterioration in the underlying elements of the financial system were largely missed.

Data was everywhere, however, with the benefit of hindsight it is clear the data was not "actionable". The inconsistencies in data definitions, a lack of common entity identifiers and data dictionaries, and inconsistent data management best practices fundamentally compromised critical "information assets". While data was not the cause of the Financial Crisis, the lack of data decision-usefulness and the lack of proper data management left stakeholders without the information necessary to make critical decisions.

As we now face the challenges surrounding ESG and sustainability data management, some of the Financial Crisis data decision-usefulness parallels are evident. Why is this the case?

- The data environment supporting ESG goals and objectives lacks consistency
- Definitions of critical data elements are not clearly defined
- Consistent data management best practices are not universally applied

Although "pockets of excellence" exist, as an industry, there is a lack of consistency and confidence in aggregated data, compromising decision making ability. Therefore, it is critical that the information assets associated with ESG/Sustainability data be captured, curated, and managed with the highest levels of accuracy and professional processes.

Workstream A set out to demonstrate this concept – that data management best practice principles are critical success factors to solve the ESG/Sustainability challenge, thereby ensuring accurate and trusted data.

Hypothesis

You can't manage what you can't measure

Data is the foundational asset of everything we do. Data informs, alerts, and predicts. Data is the proverbial 'canary in the coal mine', particularly within a rapidly evolving digital world. To truly address the ESG global challenges, we must have accurate and actionable digitized data that is properly defined, captured, curated, and utilized.

ESG data is, therefore, a data management challenge. If we cannot define it, we can't measure it. And if we can't measure it, we can't manage it.

Actionable hypothesis:
The discipline of the data management, and the experience of the data management professional must be applied to the ESG/Sustainability data ecosystem to address the challenges of understanding, identifying, and collecting trusted and actionable ESG/Sustainability data.

"A" Objectives and Use Case

The workstream working group identified the following objectives:

1. Demonstrate how data management best practice principles apply to each stage of a data supply chain
2. Align these principles against a real-world ESG data use case.
3. In collaboration with workstream B, demonstrate how data management principles can be applied the real-world use case.
4. Perform a 'sprint' analysis to provide insights into how firms are dealing with their ESG data challenge.
5. Interview the major digital companies and create a 'strawman' view of the ESG data 'highway' – how ESG data should flow from reporting entities to consumers.

Applying Data Management Best Practices to a data supply chain

In a data supply chain, information moves akin to an assembly line – pieces of information move from one station to another – from provider to consumer. Information must be standardized – adhering to a common vocabulary, to insure interoperability at each stage within the supply chain. At each station, the information asset is quality checked and validated, and then, either applied to the final product, or passed along as a factor of input into the next stage of the assembly line. Along the way, strict adherence to original specifications and focus on the quality of each attribute must be maintained to ensure the integrity of the final product.

For the data supply chain integrity to be maintained, "principles of data management best practices" must be applied to each step of the process. To demonstrate this, Workstream "A" utilized the data management best practice model called ***DCAM – The Data Management Capability Assessment Model***[1]. DCAM identifies the critical capabilities needed to build and sustain an effective data management environment.

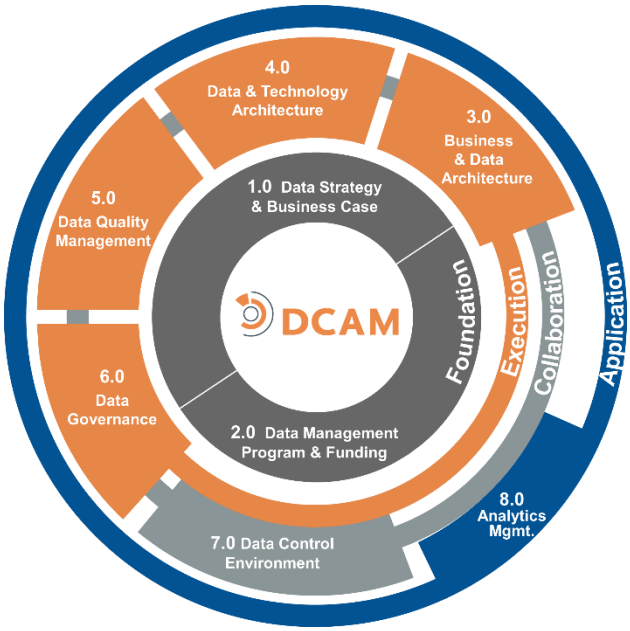

Figure 1: EDM Council DCAM Model Components

[1] EDM Council – About DCAM, developed by the EDM Council, a non-profit professional trade association focused on data management

Principles of data governance; data quality; data architecture and technology architecture must be applied to EACH STAGE within the data supply chain to produce a trusted, high quality, and auditable end-product of reliable data.

The following diagram describes how this these principles are applied to the data supply chain

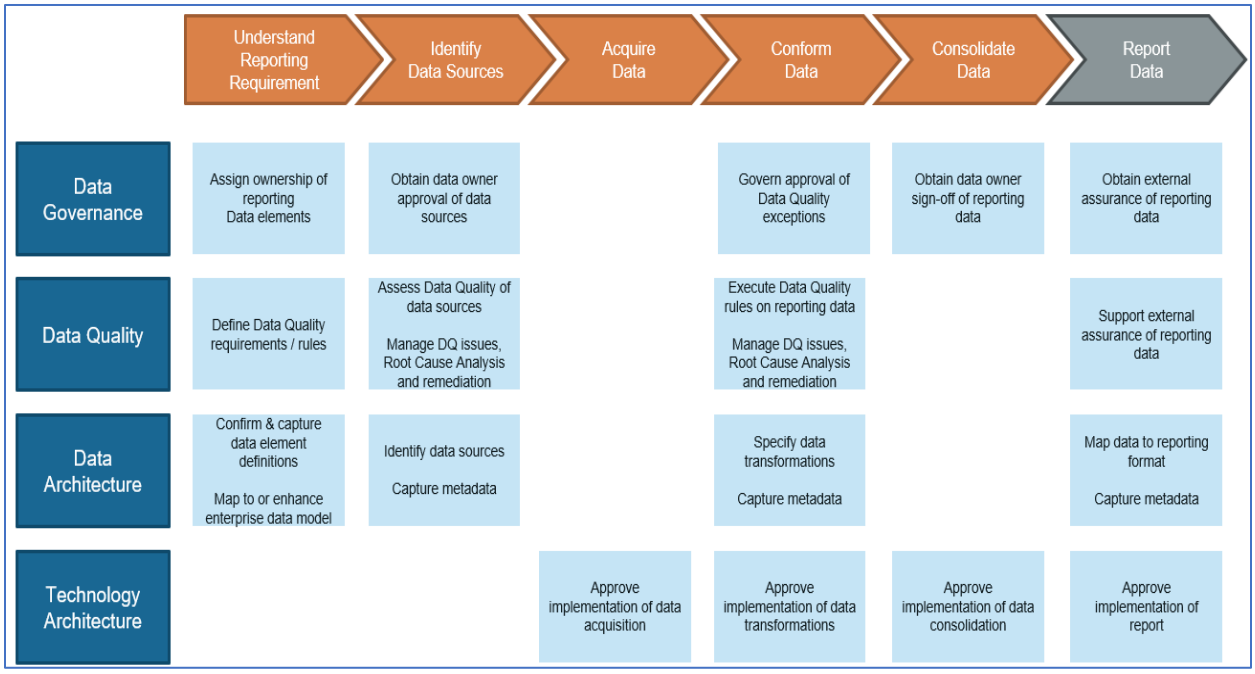

Figure 2: Data Management Principles and the Data Supply Chain

Real-World Use Case - Fishing Industry

The ocean faces significant risks including overfishing, biodiversity loss, pollution from terrestrial land use change, ocean acidification, habitat destruction, spread of alien invasive species - to name just those associated with natural capital. Significant social and human capital challenges are associated with this degradation of natural ecosystems, including health, wellbeing, and livelihood loss for stakeholders from coastal communities to countries and large corporations. The ocean is vast, deep and there is a great deal we still don't know! Some of the issues include overfishing, by-catch, IUU - Illegal, Unregulated and Unreported fishing, Seabed damage from bottom trawling and plastic and fish net pollution.

The Achilles' Heel of the industry is the **lack of consistent and comparable data** which disrupts the flow of information from ocean (origination) to plate (consumption), impacting all decision-making along the stakeholder value-chain (figure 2).

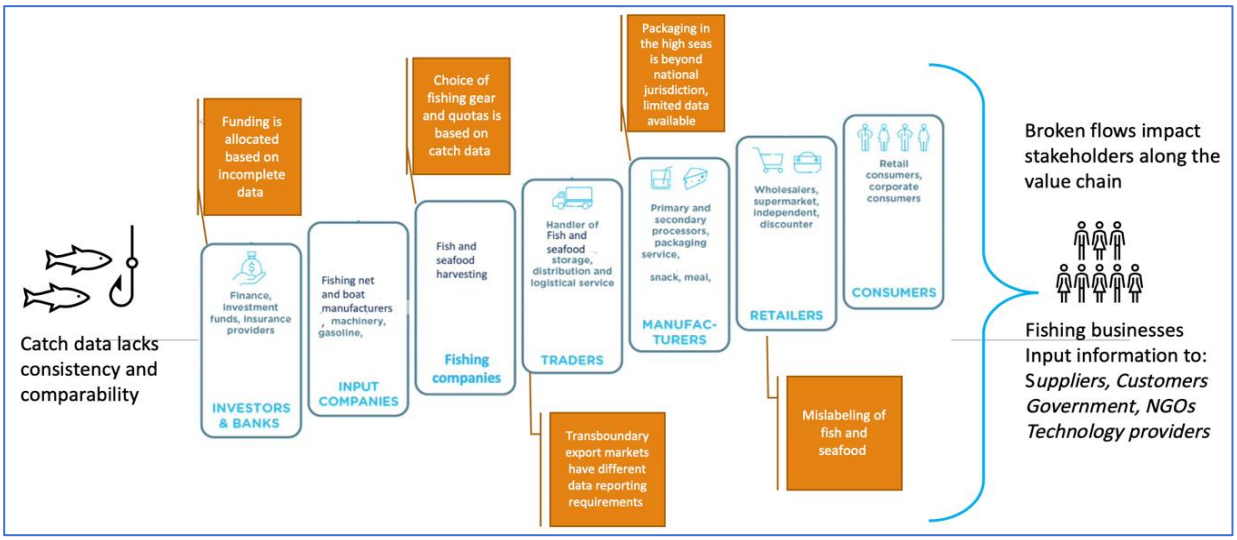

Figure 3: Simplified Information Value Chain – Fisheries

To ensure that the data captured at source is correct, consistent, and auditable, data management discipline, the application of best practice principles, must be applied to each stage of the data supply chain – each "handoff point" in the flow of information. Without a common understanding of the data, the common vocabulary, combined with the stewardship of the information asset throughout the flow, achieving trusted sustainability data is nearly impossible to achieve.

Applying Data Management Best Practices to the Data Supply Chain

Figure 3 describes the various stages in the fishery value chain. In each stage, data is captured, analyzed, modified and in many cases, new data is generated. The diagram depicts a clean, linear flow – when one stage completes, the next begins. However, in practice any value-chain has concurrent or overlapping processes. This reality creates an even greater challenge for the overlying data supply chain. Figure 4 depicts an illustration of the complexity of such events.

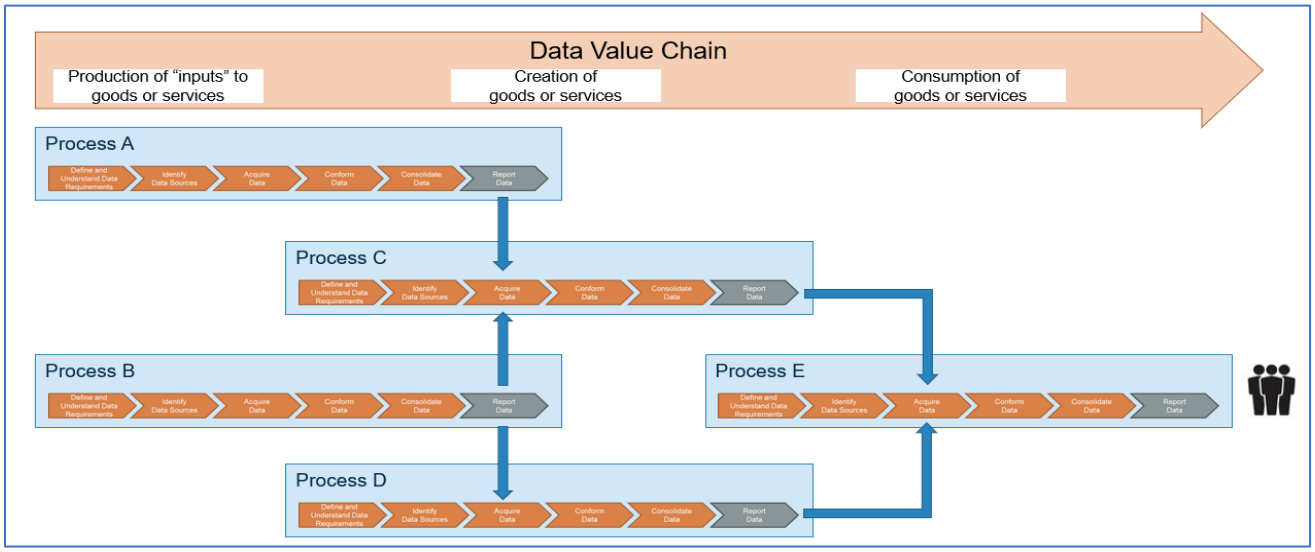

Figure 4: Information Value Chain

Considering concurrent or, at times, conflicting processes, data management discipline is imperative. Data must follow a structured and disciplined data governance paradigm, driven by established and agreed upon policies and guidelines, to ensure, not only the quality of the data, but to **enable** the effective use of data for reporting and analysis.

The following illustrative process diagrams demonstrate how three of many key elements of a mature data management discipline - consistency of data at source; transparency of data transformation; and the importance of auditability - must be applied to information value-chain.

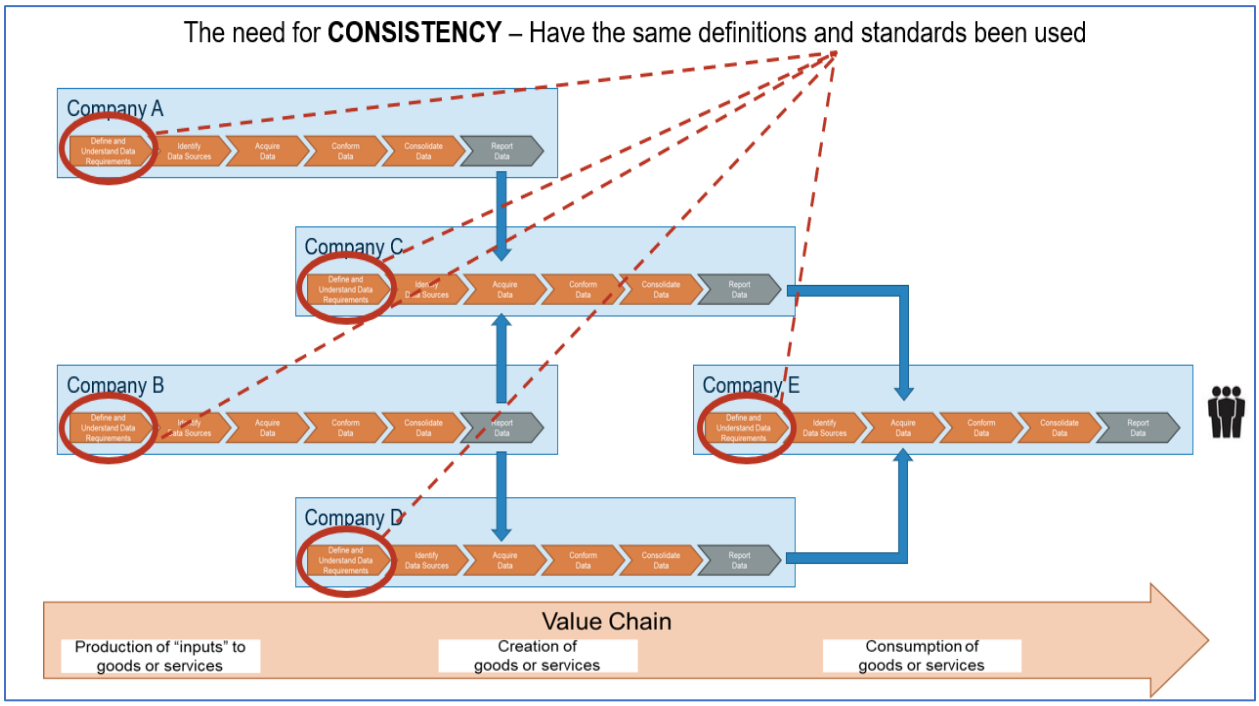

Figure 5: Consistency of data at source

Adherence to data standards must be adopted - common vocabulary, common data dictionary, unambiguous attribute definitions – at **the point of data capture**. This is foundational to any data supply chain. It clarifies the need for an agreed upon set of **global information standards** for the ESG/Sustainability data ecosystem.

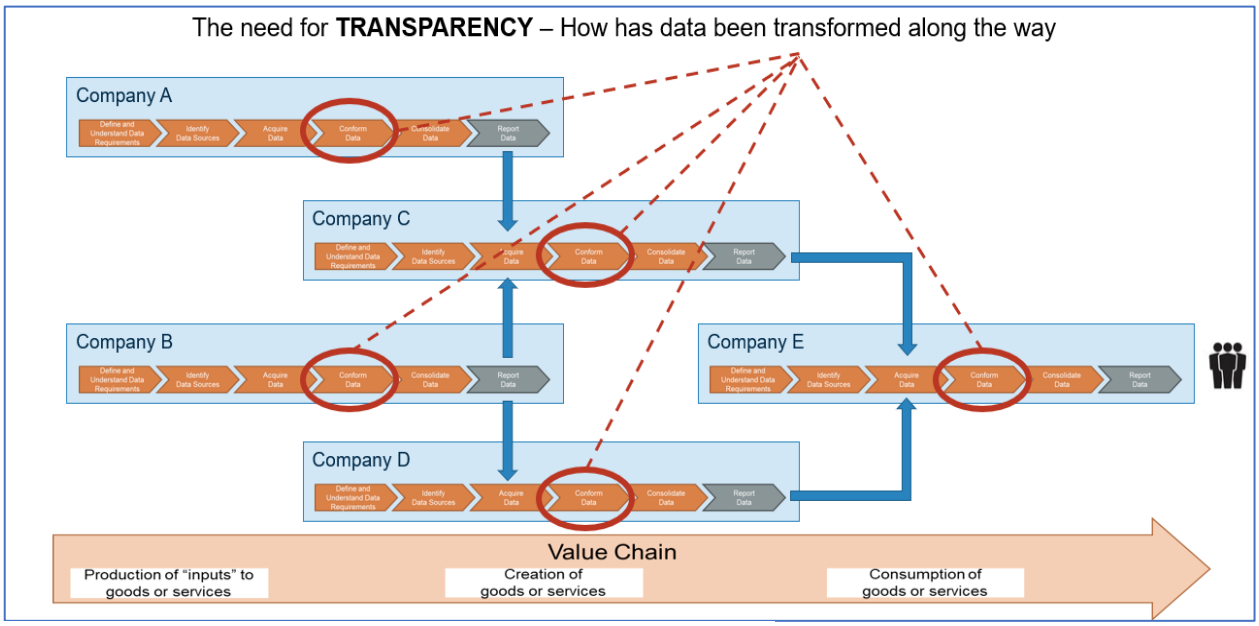

Figure 6: Transparency

As data flows across the supply chain, it will be enhanced, modified, and transformed. Auditable processes describing these enhancements and transformations **must be provided** to understand how the information is being used and passed along from one stage to the next in the information value-chain.

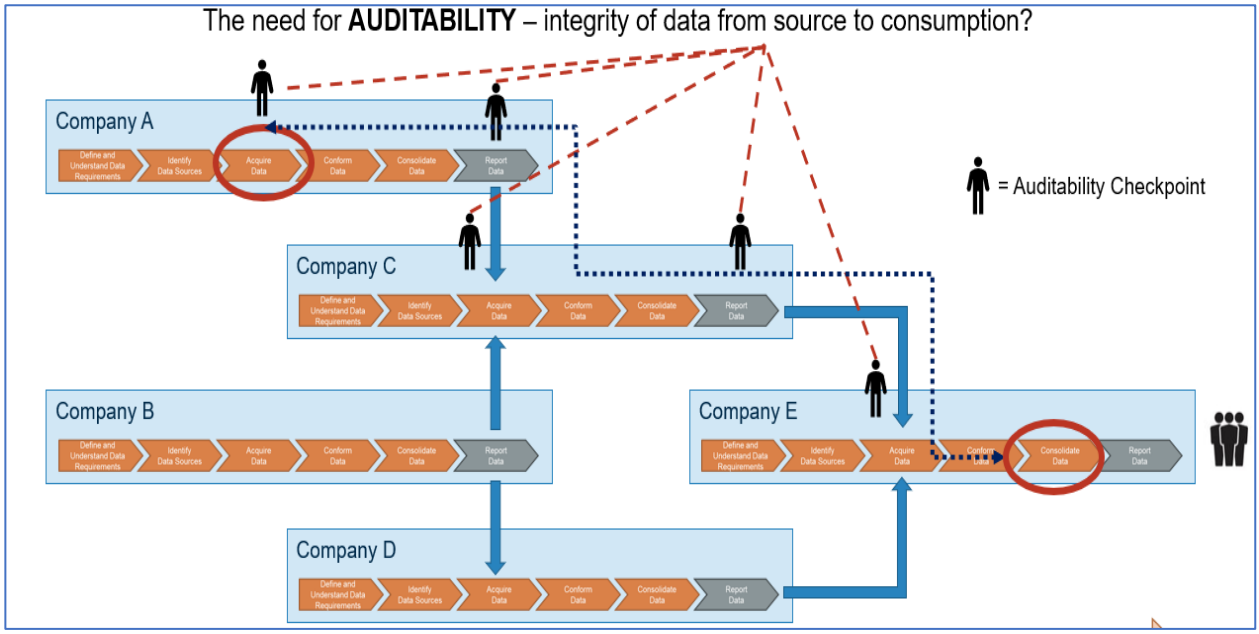

Figure 7: Data Assurance

Every step of the data supply chain must provide auditable steps – "artifacts of evidence" – describing how information is captured, processed, and reported. Approved business processes, establishment of and adherence to agreed-upon business policy and standards, and enforced of such policies, are critical to the integrity of the information supply chain.

In summary:
As we saw during the 2008 Financial Crisis, a lack of standards and best practices in acquiring, curating, and managing critical information put decision makers at a major disadvantage in responding to the financial crisis. If all stakeholder groups are going to address the environment and social challenges of today, it needs data that is accurate and trusted – data that can be relied upon. Information standards, coupled with data management best practices, are foundational in addressing these challenges.

How firms are dealing with their ESG data challenges

Over the course of the 6-week analysis sprint, interviews were conducted with enterprise organizations to ascertain how they are practically addressing their ESG/Sustainability data challenges. The following questions were asked:

Drivers and Accountability
- Why is sustainability data being collected and what are your *main drivers*?
- What role/function is being *held accountable* for this data collection?

Data and Frequency
- What is the *scale and frequency* of data collection?
- What *industry standards* are being used?
- How is this data being used?
- Are there any significant gaps?

Platforms & Technologies
- What *platforms* are you using (home-grown or commercial platforms)?
- What *technologies* are you using?

Data Assurance & Quality
- What processes are in place for *internally and externally data assurance*?
- Are your audit teams are involved?

Challenges and Successes
- What significant some of the *challenges*? - What significant *challenges* have still to be *addressed*?
- What have been your *main successes*? - what *contributed* to these successes?

The following summary highlights key aspects of the responses obtained:

DRIVERS & ACCOUNTABILITY
Why is sustainability data being collected?
- ESG metrics are needed to earn stakeholder trust
- ESG metrics link to shareholder value creation
- Driven by investors; shareholder pressure; regulatory concerns

Who is responsible?
- Firms forming 'sustainability' steering committees
- Appointment of new "C" titles: eg: Chief Impact Officer; Chief ESG Officer; Director of Diversity, Inclusion; Head of ESG Reporting and Disclosure

DATA & FREQUENCY

What is the scale and frequency of collected data?

- Varied: firms pointed to monthly, quarterly, annually, based on the type of data collected.
- Collection frequencies largely driven by internal and/or external need

What industry standards are being used?

- Variety of different standards were being used by different firms: GRI; IIRC; UN Global Compact: CDP; EEIO; SASB

How is ESG data being used?

- Internally, to measure ESG performance
- Aggregated for reporting (internally and regulatory)
- Aggregated for reporting to shareholders

What gaps exist?

- A variety of internal processes are in play with varying levels of maturity
- Granular data is needed for expected adherence to net zero obligations

PLATFORMS & TECHNOLOGIES

What platforms are being used?

- Combination of 'home-grown' and commercial applications
- Manual processes; EXCEL spreadsheets; emails
- SharePoint

What technologies?

- Reporting and visualization tools (i.e.: Tableau)
- SLACK
- ERP systems

DATA ASSURANCE & QUALITY

What processes are in place for internal and external data assurance?

- Use of external auditors where possible
- In some cases, no DQ steps are taking place. 3rd party data DQ is assumed (not verified)
- Some self-reported data is not verified

Are internal audit teams involved?

- Yes, within some organizations
- Some firms have established specialized ESG audit teams
- Use of ESG and accounting firms, use of ESG consultancies has significantly increased

CHALLENGES AND SUCCESSES

What are some of the significant challenges?

- Acquiring granular data (ex: certain KPIs cannot be expressed at the country level - only global metrics are available)
- Not always clear who 'owns' the data
- Digitization problems at the supply chain source makes data assurance challenging
- Good data cost money! Budgeting challenges exist
- Changing requirements
- Anticipation/expectation of regulatory demands

What are some of the successes?

- Seeing good support from executive management
- Some firms "read the tea-leaves" and were more prepared than others

Interview Summary:

There is a real acknowledgement that improving the collection and analysis of ESG/sustainability data is a critical function for today's organizations. According to the **ESG Pulse Report**[2], a recent study performed by *DFIN (Donnelley Financial Solutions)*, 90% of business executives agree that increasing investment in ESG can drive bottom-line value for business.

However, that same study reported that 79% of firms feel they are currently inadequately prepared for upcoming reporting requirements and 84% of the respondents stated that they recognize that outside support will be needed to drive ESG initiatives. Companies are making positive strides in addressing their ESG data challenges but remain hampered by conflicting data standards and a lack data management discipline to support their ESG operations.

The ESG Data Highway

In every data management environment, there are basically two critical elements – the data itself (the 'water') and the pipes (the 'infrastructure') that it flows through. Obviously, this symbiotic relationship is essential to ensure an efficient information flow. The next natural aspect to consider is what the infrastructure would look like. What are the paths that ESG data and any related information should follow to address the needs of *all* stakeholders within the ecosystem?

The following diagram – the "art of the possible" depicts an illustration of the infrastructure flows would consider:

[2] https://www.dfinsolutions.com/products/esg

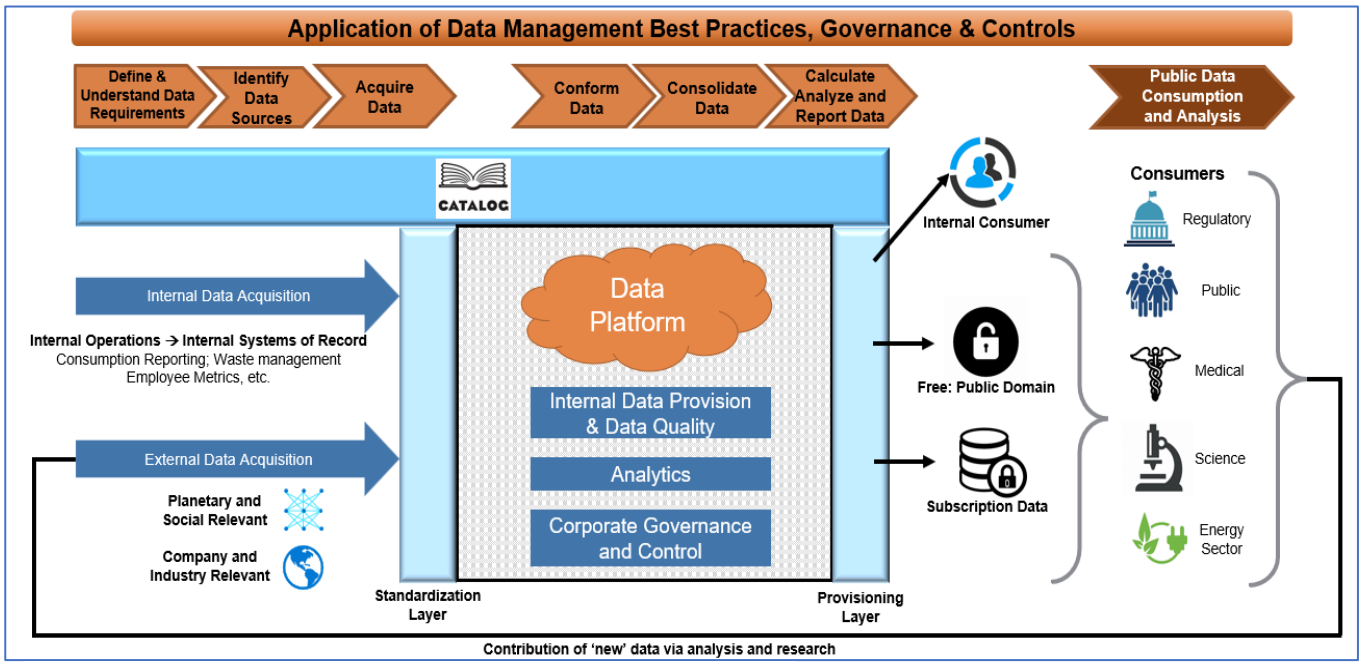

Figure 8: ESG Information Flow

The diagram is best understood from left to right:

1. Organizations set out to capture ESG and related data from their internal operations. There must be assigned accountability for each source, adherence to standards and best practices.
2. In addition to internal sources, there will be a need for the capture of additional ESG related data from external sources. Like any provider, these sources must demonstrate that they are following information standards and best practices to ensure their product is accurate, complete, and trusted.
3. In the desired infrastructure, an 'ingestion' layer exists, used to standardize, and harmonize all inbound data, perform data quality, and validate checks, and then store that data within an organization's data environment (or platform).
4. Ideally, the platform is cloud-based offering flexibility, expandability, and high levels of data protection. Best practice frameworks, such as the ***EDM Council's CDMC (Cloud Data Management Capability) Framework*** [3]provide a guide to the assessment and certification of managing data in cloud, multi-cloud, and hybrid cloud environments.
5. Once established, organizations will be able to provision, analyze and control this information, enabling increased, but controlled access to data critical to an organization's operations.
6. With data captured and stewarded, firms will be well positioned to provide standardized and digitized ESG data to all ESG stakeholders – some via open and free access and others offered through subscription services (where the data is enhanced through analytics or other value-added insights).
7. ESG stakeholders include, not only the global regulatory bodies, but all other consumers – science, medicine, energy research, and of course, the public, enabling greater access to global ESG characteristics

[3] https://edmcouncil.org/page/CDMC

8. Finally, as greater number of consumers access this information, a greater amount of research will be performed, generating more data which will feed back into the ESG data ecosystem.

If we analogize the ESG Information Flow to an ESG highway, we can draw a few fundamental conclusions:

- To ride on this, one must adhere to the "rules of the road" (standards, best practices).
- Following the rules does not restrict access – it enables access – to a richer, more robust, and trusted source of information that is and will be needed by ESG decision makers globally.

In Summary

The world learned the hard way through the Financial Crisis just how important data assets are, and how important it is to properly curate and manage the assets. Today we face the same decision-useful data challenge. Successfully managing the challenges of environment, climate and social matters will require accurate and trusted data to drive the right initiatives and enable the right decisions.

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