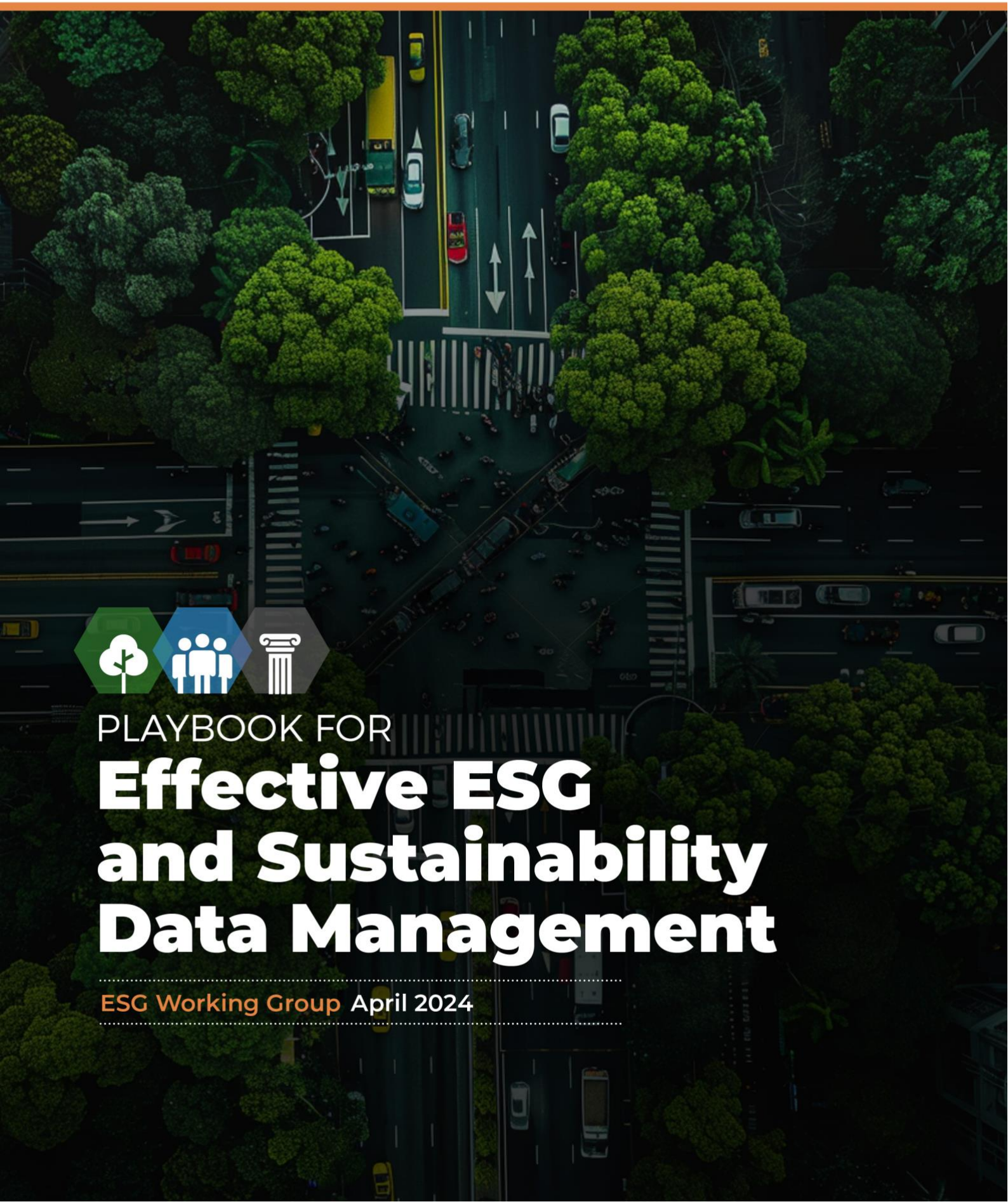
EDMCouncil

edmcouncil.org/page/ESG

ESG EDMCouncil



PLAYBOOK FOR

# Effective ESG and Sustainability Data Management

ESG Working Group April 2024

# Playbook for Effective ESG and Sustainability Data Management

April 2024

## EDM Council


### Abstract

This Playbook has been produced through the collaboration of the EDM Council's ESG Data Working Group. It is intended to be a guide to help companies understand how to leverage existing tools and known data management capability requirements to accelerate the design and execution of a data governance and management strategy for ESG and sustainability data and reporting.


### Feedback

The ESG Data Working Group of EDM Council welcomes your feedback. Please use the following link to provide your feedback and suggestions. Thank you!

https://app.smartsheet.com/b/form/e4de59d481db496e89a5a5fe8c27b1a2



### About EDM Council & the ESG Data Working Group

The EDM Council is the member-driven trade association dedicated to elevating data management and analytics as a strategic business priority. Founded in 2005, we provide best practices, standards and education to data and business professionals in our data-driven world. Through its ESG Data Special Interest Group and Working Group, the EDM Council brings together stakeholders from across multiple industries to collaborate on establishing ESG data management best practices, create awareness, educate industry participants, and assist regulators and standards organizations when and where applicable. Learn more at www.edmcouncil.org.

# Table of Contents



# Acknowledgements


## Contributors to This Playbook

This playbook is the fruit of the collaboration and generous contributions of the following members of the EDM Council ESG Working Group:

- **Edward Morgan,** Director, Financial Services Consulting, AI & Data, EY
- **John Muntges,** Senior Manager, Product Management, EDM Council
- **Marie-Josée Privyk,** ESG Advisor, FinComm Services
- **John Truzzolino,** Director Corporate Governance and Compliance Solutions, Global Capital Markets, DFIN
- **Stuart Wallace,** Director, Financial Services Consulting, AI & Data, EY
- **David Wray,** ESG Chair, International CFO Alliance and President, DFCG International Group

*Special thanks to **Lina Schröer** and **Winnie Leung** of EY for their coordination contributions.*

*Special thanks also to **Ashlee Dutton, Bryce McFadden,** and **John Tobin** of Solidatus for their collaboration and contribution.*


## About the EDM Council

The EDM Council is a member-driven trade association dedicated to elevating data management and advanced analytics as a strategic business priority. Founded in 2005, it provides best practices, standards, and education to data and business professionals in our data-driven world. As of this publication, the Council's members include 350+ organizations from multiple industries and the public sector, with participation from 25,000+ professionals.

## About the Committee of Sponsoring Organizations of the Treadway Commission (COSO)

The Committee of Sponsoring Organizations' (COSO) mission is to help organizations improve performance by developing thought leadership that enhances internal control, risk management, governance, and fraud deterrence. COSO was initially organized in 1985 to sponsor the National Commission on Fraudulent Financial Reporting, an independent private-sector initiative that studied the causal factors that can lead to fraudulent financial reporting. It also developed recommendations for public companies and their independent auditors, for the SEC and other regulators, and for educational institutions. The National Commission was sponsored jointly by five major professional associations headquartered in the United States: the American Accounting Association (AAA), the American Institute of Certified Public Accountants (AICPA), Financial Executives International (FEI), the Institute of Internal Auditors (IIA), and the National Association of Accountants, now known as Institute of Management Accountants (IMA).

# 1. Introduction

## 1.1 Intended Purpose of This Playbook

Markets are moving from voluntary and unstructured environmental, social, and governance (ESG) data and sustainability reporting to mandatory and standardized sustainability disclosures. There is also a trend towards the convergence of sustainability and financial disclosures and, eventually, integrated reporting. To deliver and sustain these reporting trends, companies need a framework for properly managing ESG and sustainability data.

This playbook is intended to be a guide to help companies understand how to leverage existing tools and known data management (DM) capability requirements to accelerate the design and execution of a data governance and management strategy for ESG and sustainability data and reporting.

**Why Do We Need a Playbook?**

There is a global shift in the way that ESG and sustainability data is used. The velocity of change in data requirements and regulatory expectations is very rapid. However, many companies currently lack:

1. A coherent approach for ESG and sustainability data management
2. An embedded data culture and appreciation for the value of data as a means to meet disclosure requirements *and* manage sustainability-related issues
3. Clarity on standards required to meet regulatory and assurance requirements for ESG and sustainability data
4. Technology strategies to address ESG data-related challenges

By understanding the above, sustainability managers can effectively engage with their counterparts in finance, data management, internal controls, and technology to achieve appropriately governed and managed ESG and sustainability data and disclosures.

## 1.2 Process and Inputs to Producing This Playbook

This playbook picks up where the EDM Council's ESG Data Management for Corporate Reporting Entities paper left off, by addressing the ESG data and disclosure challenges identified.

In the interest of reuse, this playbook has been prepared using two well-established frameworks in their respective fields. The first is the Committee of Sponsoring Organizations of the Treadway Commission (COSO)'s Achieving Effective Internal Control Over Sustainability Reporting (ICSR) publication on how the COSO *Internal Control—Integrated Framework* applies to sustainable business activities and information. The second is the EDM Council's Data Management Capability Assessment Model (DCAM) framework for effective data management.

By mapping relevant contents from both of these resources, this playbook demonstrates how the DCAM framework can support the application of the COSO ICSR framework to achieve high-quality ESG and sustainability reporting data through proper internal controls.

To illustrate how these findings could be applied in practice, the playbook further maps the relevant contents from both these resources to the challenges identified in the *ESG Data Management for Corporate Reporting Entities* paper.

### 1.2.1 Corporate Reporting Entities Paper

In November 2021, the EDM Council's ESG Data Working Group reviewed ESG data management challenges and the corresponding best practices relating to corporate reporting entities. The paper was part of a larger series that exhibited the results of a two-year study to investigate, review, and document ESG data challenges for various constituents of the ESG ecosystem.

In total, 14 ESG data challenges for corporate reporting issuers were identified[1]:

1. Data Materiality – Authority to Decide
2. Assigning Accountability
3. Data Ownership – Technology vs Business
4. Data Quality
5. Data Reporting Requirements
6. Logical Data Model
7. Management Responsibilities
8. Preparation of Reporting Data
9. Internal Audit
10. External Assurance of ESG Reporting Data
11. Data Acquisition
12. Identification of Data Sources
13. Identifying Authoritative Providers of Data
14. Prioritizing Issue Resolution

The EDM Council's ESG Working Group performed an initial mapping of these challenges to the DCAM framework to help ESG report preparers and data professionals support their organization's ESG reporting objectives. In this playbook, we demonstrate how the DCAM framework can be used to apply the recommendations of the COSO ICSR framework.

### 1.2.2 COSO – Internal Control - Integrated Reporting Framework

First issued in 1992, the COSO's *Internal Control - Integrated Reporting* framework focuses on three interrelated subjects: enterprise risk management (ERM), internal control, and fraud deterrence. In 2013, its focus expanded to include all corporate reporting, revising its definition to include internal, external, financial, and nonfinancial aspects. The COSO framework aligns well with other commonly used regulated approaches, such as Sarbanes-Oxley (SOX), which cover most corporate entity reporting activities around the world.

In March 2023, Internal Control over Sustainable Reporting (ICSR), a non-authoritative, interpretative publication, was released and provided guidance on how the five components (and 17 principles of the COSO *Internal Control—Integrated Framework* may apply to sustainable business activities and information. The five COSO components are:

1. Control Environment
2. Risk Assessment
3. Control Activities
4. Information and Communication
5. Monitoring Activities

This playbook leverages the ICSR framework to address the challenges identified in the *ESG Data Management for Corporate Reporting Entities* paper. This results in using an approach that is widely recognized by the finance community and used extensively in financial reporting processes, expanding its potential adoption by ESG data and report preparers/all those involved in collecting, curating, and reporting ESG information.

### 1.2.3 DCAM – Framework for Data Management Best Practices

First published in 2014, DCAM is a resource that defines and describes the capabilities needed to establish and sustain a successful data management initiative in any organization. It was created by the EDM Council based on the practical experiences and lessons learned by many of the world's leading organizations. DCAM addresses the strategies, organization-wide structures, technology, and operational practices needed to drive

[1] Please note that the order and numbering of these challenges has been slightly modified for the purposes of this playbook.

data management successfully. It addresses the tenets of data management based on an understanding of business value combined with the hard reality of implementation.

In the past decade, the DCAM framework has increasingly been recognized as an industry standard for data management. Companies use DCAM to initiate data management and analytics programs, demonstrate adoption of best practices, and benchmark against industry peers. Several supervisory bodies now include it in their guidance expectations.

DCAM v2 consists of eight components:

1. Data Management Strategy & Business Case
2. Data Management Program & Funding Model
3. Business & Data Architecture
4. Data & Technology Architecture
5. Data Quality Management
6. Data Governance
7. Data Control Environment
8. Analytics Management

This playbook points to specific DCAM framework components, controls, and capabilities that enable the implementation of the ICSR framework's internal control practices, once again using an approach already recognized by the finance community and used extensively in financial reporting processes, expanding its potential adoption by ESG data and report preparers/all those involved in collecting, curating, and reporting ESG information.

### 1.2.4 Our Approach

Time and again, the authors of this playbook have observed that the knowledge and tools to achieve quality ESG data and disclosures already exist within an organization and simply need to be brought to the rapidly emerging sustainability management and reporting practices. The COSO ICSR framework for internal controls and the DCAM framework for data management represent complementary and established industry standards that can be leveraged to accelerate effective ESG and sustainability data management and reporting activities. The best practices set out by both are likely already being used by companies at some level of their organization and could relatively easily be applied to ESG data and disclosures. Conversely, in seeking to establish proper ESG and sustainability data management practices, gaps in a company's overall data management processes may come to light, which, once addressed, lift the quality of data throughout the organization.

This playbook focuses on the actions required to execute a proper data management strategy for ESG and sustainability data and reporting practices. Detailed mapping analysis is provided in appendix D and supplementary mapping artifacts are available as an open graph model to EDM Council members.

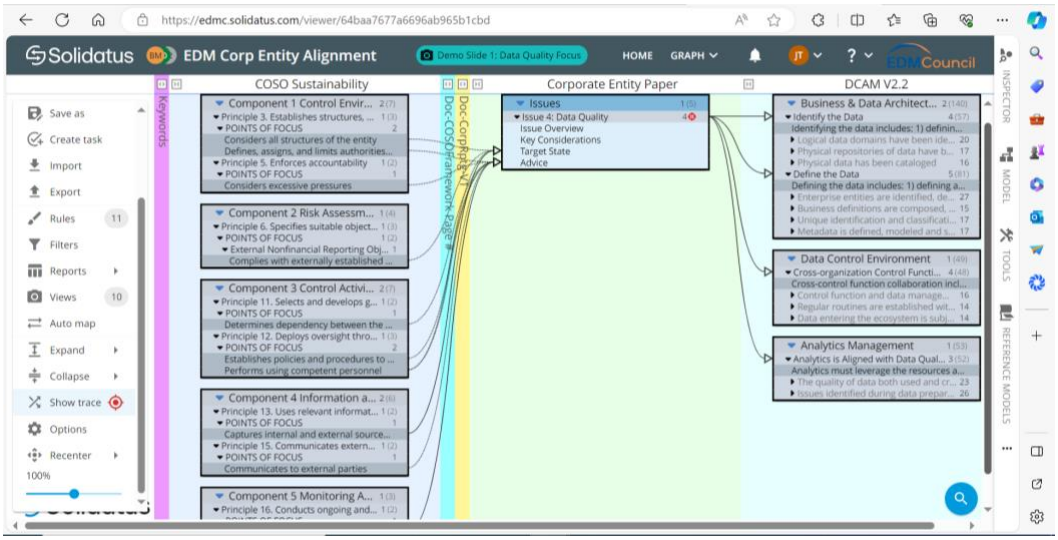



*Illustration of the five COSO components and principles and the DCAM components and capabilities mapped to issue 4-Data Quality of the Corporate Reporting Entities paper in the Solidatus platform (see Appendix D)*

# 2. Who Should Use This Playbook

This playbook has been designed for anyone involved in producing, sourcing, collecting, transforming, aggregating, and reporting on their corporate ESG and sustainability data. Depending on the size and specific circumstances of each organization, these responsibilities may be assigned to any number of functions and departments. This playbook is intended to build the necessary collaboration between them, and in particular, those acting as a chief sustainability officer (CSO), chief financial officer (CFO), and chief data officer (CDO), whether or not such titles officially exist within an organization. Other prominent functions likely involved in the data management process include the internal controller and internal auditor.

## 2.1 Chief Sustainability Officer (CSO) Role

The CSO is the executive responsible for developing and implementing the organization's sustainability strategy aligned with the overall vision, mission, and values of the company. They work closely with other executives and functions to embed sustainability in business processes, align sustainability efforts with the company's goals and values and manage risks and opportunities associated with economic, social, and environmental factors. The CSO acts as a champion for sustainability and promotes transparent disclosures and reporting, stakeholder engagement, and innovative solutions to drive sustainable growth and create long-term value for all stakeholders.

In relation to ESG data management and reporting, the CSO's role to date typically has been to help define the broad data requirements. However, they do not usually have the resources, or the authority, to source and manage the data appropriately.

This playbook aims to equip the CSO with an understanding of the internal control and data management concepts that should be applied to their ESG data requirements.

## 2.2 Chief Financial Officer (CFO) Role

The CFO is the executive responsible for overseeing the financial strategy, planning, and management of an organization, ensuring the integrity of financial reporting, and making strategic decisions that align with the company's financial goals and objectives. The CFO is widely recognized as a key partner across businesses and functions and is the CEO's strategic partner in maximizing value creation. They are instrumental in major investment and financing decisions, strategic planning and value creation, and communicating with stakeholders, while leading a multi-disciplined and digitally competent finance team. CFOs are responsible for building credibility (internally and externally) for the strategic direction of the company. They are also responsible for risk management—specifically, managing risks associated with cash, capital, resources, accounting compliance, and strategy. In doing so, they are naturally experts at applying internal controls over financial reporting.

In relation to ESG data management and reporting, the CFO's role to date has arguably been limited but can be expected to grow to assume accountability for ESG and sustainability disclosures.

This playbook intends to illustrate how application the DCAM framework complements and supports the COSO principles and requirements familiar to the CFO and how both frameworks can support all forms of reporting, including non-financial reporting.

## 2.3 Chief Data Officer (CDO) Role

The CDO is the executive responsible for the organization's governance, management, and use of data. The CDO is typically tasked with defining the organization's data strategy, ensuring data quality, security, privacy, and compliance, and overseeing data-related projects and initiatives. They work closely with other executives and business functions to align data initiatives with organizational goals and to promote a data-driven culture

that leverages the value of data assets to enhance business performance. The CDO plays a critical role in transforming data from a tactical asset to a strategic asset that drives business growth and innovation.

In relation to ESG data management and reporting, the CDO's role typically has been a supporting one. This potentially limits the reuse and development of existing data management standards and controls in the onboarding of ESG data as a novel data type for most entities. Where CDOs take a more leading role in the sustainability agenda for an entity, the development of a single, integrated ESG data hub is often a target state ambition.

This playbook aims to equip the CDO with an understanding of the complementarity of the COSO internal control framework to their own data management standards and promote the contribution of their existing capabilities to the establishment of proper data governance and management strategy for ESG and sustainability data and reporting.

# 3. Addressing ESG Data Challenges Identified by Corporate Reporting Entities

This section is intended as a cross-reference guide, illustrating the relevant COSO ICSR internal control principles and DCAM data management capabilities that serve to address the data and reporting challenges facing corporate reporting issuers.

Each challenge is presented separately, with a mapping from the two reference documents. While this creates some duplication of content, it makes it possible to read each issue page independently of the others. Furthermore, this mapping is intended as a starting point for practitioners to grasp the relevance of the reference documents and to dig into them, recognizing that these resources are most effective when implemented holistically, rather than in a piecemeal fashion.

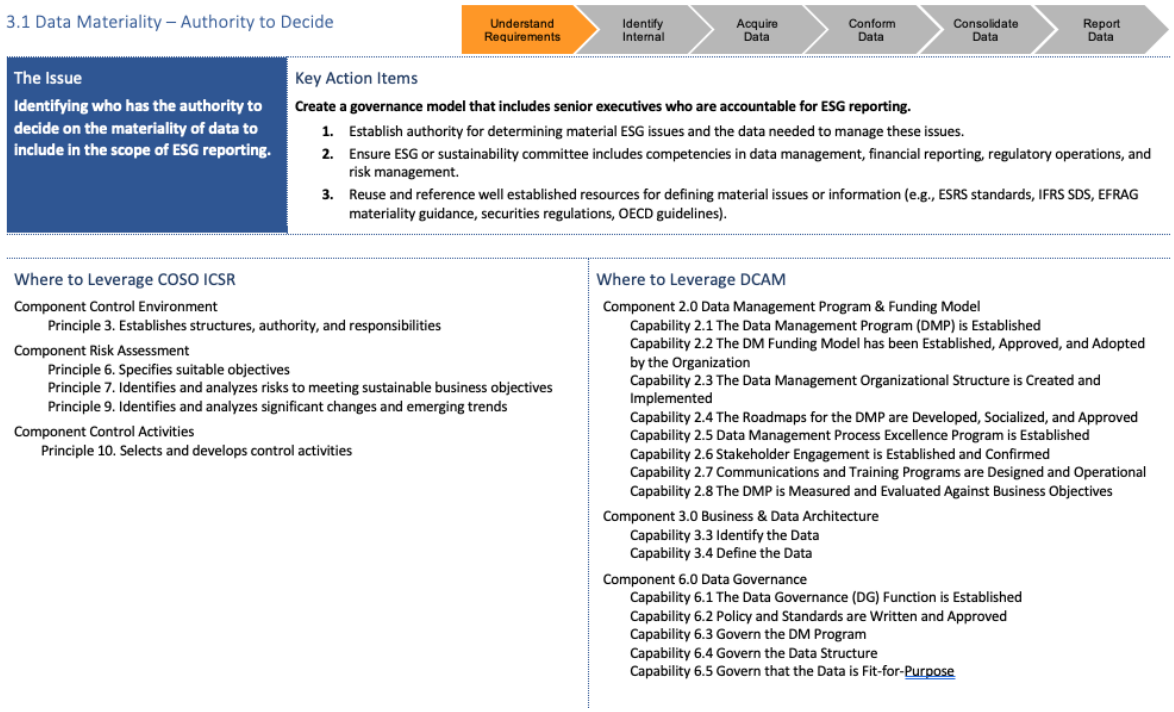



*Illustration of the COSO ICSR and DCAM mapping to reporting issuers' data challenges*

Key action items leverage those initially offered in the *ESG Data Management for Corporate Reporting Entities* paper, finetuned and improved by drawing on the principles, capabilities, and recommendations of the two reference documents.

In addition, the visual cue in the top right corner of the following pages helps readers situate themselves along the simplified value chain of data management capabilities that the EDM Council's Sub-Group used when it began its journey of producing the *ESG Data Management for Corporate Reporting Entities* paper. The illustration below indicates the main data management milestones achieved at each step.


*Illustration of the data management capabilities value chain and milestones*

**Milestones:**

| | | | | | |
|---|---|---|---|---|---|
| Materiality decision-makers identified<br>Reporting accountability established<br>Reporting needs, objectives & goal linkage established<br>Data identified & data ownership established<br>Data literacy training delivered<br>Data catalogued; data provenance & lineage established<br>Data modelled; information chain designed/ revised<br>Data management capabilities, controls & accountabilities established for both structured & unstructured data | Data sources identified & prioritized<br>Selected data providers engaged<br>Data provider management responsibilities assigned<br>Data provider performance baselined<br>Data provider performance tracked & improved | Data provider sourcing plan operational | Data quality requirements applied | Data quality issues managed<br>Sign-off obtained on reporting data & associated methodology | Internal & external compliance with disclosure regulations assured |

Readers less familiar with data management terminology are invited to consult the EDM Council's glossary of terms.

## Summary of Key Action Items

Below is the list of the Key Action items for each of the 14 ESG data challenges for corporate reporting issuers addressed in this playbook. A detailed consolidated list of all the individual action items can be found in Appendix C.

| Issue | Key Action Item |
|---|---|
| 3.1 Data Materiality – Authority to Decide | Create a governance model that includes senior executives who are accountable for ESG reporting. |
| 3.2 Assigning Accountability | Update board charters, roles, and responsibilities to embed accountability for ESG and sustainability reporting. |
| 3.3 Data Ownership - Technology vs Business | Secure executive-level support to develop and sustain the ESG data management strategy. |
| 3.4 Data Quality | Define high-quality and trusted data as the critical objective of an ESG data management program. |
| 3.5 Data Reporting Requirements | Define the scope of ESG reporting. |
| 3.6 Logical Data Model | Develop and integrate the required ESG data model to existing cross functional data models. |
| 3.7 Management Responsibilities for Narrative | Expand data management processes to qualitative data. |
| 3.8 Identification of Data Sources | Reuse existing data management best practice to mitigate ESG data complexity (multiple sources, formats, measurement units, etc.). |
| 3.9 Identifying Authoritative Providers of Data | Reuse data management infrastructure and processes to support multiple ESG data providers. |
| 3.10 Prioritizing Issue Resolution | Reuse the data issue management system and processes to manage ESG data issues. |
| 3.11 Data Acquisition | Reuse data management infrastructure and processes to support internal acquisition of ESG data. |
| 3.12 Preparation of Reporting Data | Formalize ESG reporting as an integral component and outcome of proper management practice. |
| 3.13 Internal Audit | Extend internal audit processes and best practices to sustainability-related considerations. |
| 3.14 External Assurance of ESG Reporting Data | Define approach to obtain external assurance of ESG disclosures in a realistic timeframe, even if not yet mandatory in the organization's jurisdiction. |

# 3.1 Data Materiality – Authority to Decide


## The Issue

**Identifying who has the authority to decide on the materiality of data to include in the scope of ESG reporting.**

## Key Action Items

**Create a governance model that includes senior executives who are accountable for ESG reporting.**

1. Establish authority for determining material ESG issues and the data needed to manage these issues.
2. Ensure ESG or sustainability committee includes competencies in data management, financial reporting, regulatory operations, and risk management.
3. Reuse and reference well established resources for defining material issues or information (e.g., ESRS standards, IFRS SDS, EFRAG materiality guidance, securities regulations, OECD guidelines).

## Where to Leverage COSO ICSR

Component Control Environment
- Principle 3. Establishes structures, authority, and responsibilities

Component Risk Assessment
- Principle 6. Specifies suitable objectives
- Principle 7. Identifies and analyzes risks to meeting sustainable business objectives
- Principle 9. Identifies and analyzes significant changes and emerging trends

Component Control Activities
- Principle 10. Selects and develops control activities

## Where to Leverage DCAM

Component 2.0 Data Management Program & Funding Model
- Capability 2.1 The Data Management Program (DMP) is Established
- Capability 2.2 The DM Funding Model has been Established, Approved, and Adopted by the Organization
- Capability 2.3 The Data Management Organizational Structure is Created and Implemented
- Capability 2.4 The Roadmaps for the DMP are Developed, Socialized, and Approved
- Capability 2.5 Data Management Process Excellence Program is Established
- Capability 2.6 Stakeholder Engagement is Established and Confirmed
- Capability 2.7 Communications and Training Programs are Designed and Operational
- Capability 2.8 The DMP is Measured and Evaluated Against Business Objectives

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 6.0 Data Governance
- Capability 6.1 The Data Governance (DG) Function is Established
- Capability 6.2 Policy and Standards are Written and Approved
- Capability 6.3 Govern the DM Program
- Capability 6.4 Govern the Data Structure
- Capability 6.5 Govern that the Data is Fit-for-Purpose

## 3.2 Assigning Accountability


### The Issue

**Assigning accountability for reporting data at a level that carries executive authority.**

### Key Action Items

**Update board charters, roles, and responsibilities to embed accountability for ESG and sustainability reporting.**

1. Directly link sustainability responsibility and oversight with explicit titles, functions, and job descriptions at all levels, including clear accountability for disclosures.
2. Include ESG reporting performance in executive, middle management, and subject matter expert evaluations and compensation.
3. Ensure feedback and approval mechanisms or controls are working effectively, change them as needed, and define sign-off on reporting.

### Where to Leverage COSO ICSR

Component Control Environment
- Principle 2. Exercises board of directors' oversight responsibilities
- Principle 3. Establishes structures, authority, and responsibilities
- Principle 5. Enforces accountability

Component Risk Assessment
- Principle 6. Specifies suitable objectives

Component Control Activities
- Principle 10. Selects and develops control activities
- Principle 12. Deploys oversight through policies and procedures

Component Information and Communication
- Principle 14. Communicates internally
- Principle 15. Communicates externally

### Where to leverage DCAM

Component 1.0 Data Management Strategy & Business Case
- Capability 1.1 The Data Management Strategy (DMS) is Specified and Shared

Component 2.0 Data Management Program & Funding Model
- Capability 2.3 The Data Management Organizational Structure is Created and Implemented

Component 5.0 Data Quality Management
- Capability 5.1 Data Quality Management (DQM) is Established
- Capability 5.3 DQ Issues are Remediated

Component 6.0 Data Governance
- Capability 6.1 The Data Governance (DG) Function is Established
- Capability 6.4 Govern the Data Structure
- Capability 6.5 Govern that the Data is Fit-for-Purpose

Component 7.0 Data Control Environment
- Capability 7.2 Cross-organization Control Function Collaboration

## 3.3 Data Ownership -Technology vs Business


### The Issue

**Data ownership is often seen as an IT responsibility rather than a business responsibility.**

### Key Action Items

**Secure executive-level support to develop and sustain the ESG data management strategy.**

1. Create, deliver, and embed ESG data literacy by deploying a variety of training experiences throughout the organization.
2. Reuse existing data management technology resources to digitize the ESG data management process (i.e., collection, validation, traceability, storage, export).
3. Reuse and extend existing data ownership practices to ESG and sustainability data.

### Where to Leverage COSO ICSR

Component Control Environment
- Principle 5. Enforces accountability

Component Risk Assessment
- Principle 6. Specifies suitable objectives

Component Control Activities
- Principle 12. Deploys oversight through policies and procedures

Component Information and Communication
- Principle 14. Communicates internally

### Where to Leverage DCAM

Component 2.0 Data Management Program & Funding Model
- Capability 2.3 The Data Management Organizational Structure is Created and Implemented
- Capability 2.7 Communications and Training Programs are Designed and Operational
- Capability 2.8 The DMP is Measured and Evaluated Against Business Objectives

Component 3.0 Business & Data Architecture
- Capability 3.2 Business Architecture (BA) is Integrated with Data Architecture (DA)
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 6.0 Data Governance
- Capability 6.4 Govern the Data Structure
- Capability 6.5 Govern that the Data is Fit-for-Purpose

Component 7.0 Data Control Environment
- Capability 7.1 The Data Control Environment (DCE) is Evidenced
- Capability 7.2 Cross-organization Control Function Collaboration

Component 8.0 Analytics Management
- Capability 8.2 Analytics is Aligned with Business and Data Management Strategy
- Capability 8.3 Analytics is aligned with Data Architecture
- Capability 8.4 Analytics is aligned with Data Quality

## 3.4 Data Quality


### The Issue

**Effective and appropriate data quality rules are dependent upon both clear definitions and clear ownership.**

### Key Action Items

**Define high-quality and trusted data as the critical objective of an ESG data management program.**

1. Ensure adequate resourcing for effective data management, recognizing new ESG data requirements.
2. Maintain a business glossary that corresponds with the technical concepts in the organization.
3. Identify and document ESG data lineage aligned to business process architecture and controls.
4. Identify and document the ESG data decisioning traceability including the use of manual and automated models and calculations.

### Where to Leverage COSO ICSR

Component Control Environment
- Principle 3. Establishes structures, authority, and responsibilities
- Principle 5. Enforces accountability

Component Risk Assessment
- Principle 6. Specifies suitable objectives

Component Control Activities
- Principle 11. Selects and develops general controls over technology
- Principle 12. Deploys oversight through policies and procedures

Component Information and Communication
- Principle 13. Uses relevant information
- Principle 15. Communicates externally

Component Monitoring Activities
- Principle 16. Conducts ongoing and/or separate evaluations

### Where to Leverage DCAM

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 7.0 Data Control Environment
- Capability 7.2 Cross-organization Control Function Collaboration

Component 8.0 Analytics Management
- Capability 8.4 Analytics is aligned with Data Quality

## 3.5 Data Reporting Requirements


### The Issue

**Requirements for data to be reported are often vague or ambiguous and lack standardization.**

### Key Action Items

**Define the scope of ESG reporting.**

1. Define ESG reporting objectives, leveraging applicable or relevant standards to identify data requirements for both internal management and external reporting.
2. Agree on representation from multiple business functions to review data availability, identify gaps, and prioritize sourcing.
3. Directly link sustainability responsibility and oversight with explicit titles, functions, and job descriptions at all levels, including clear accountability for disclosures.

### Where to Leverage COSO ICSR

Component Risk Assessment
- Principle 6. Specifies suitable objectives
- Principle 7. Identifies and analyzes risks to meeting sustainable business objectives
- Principle 9. Identifies and analyzes significant changes and emerging trends

Component Control Activities
- Principle 10. Selects and develops control activities
- Principle 13. Uses relevant information

### Where to Leverage DCAM

Component 1.0 Data Management Strategy & Business Case
- Capability 1.1 The Data Management Strategy (DMS) is Specified and Shared
- Capability 1.2 The Data Management Business Case is Defined

Component 2.0 Data Management Program & Funding Model
- Capability 2.3 The Data Management Organizational Structure is Created and Implemented

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 5.0 Data Quality Management
- Capability 5.2 Data is Profiled and Measured
- Capability 5.3 DQ Issues are Remediated

Component 6.0 Data Governance
- Capability 6.1 The Data Governance (DG) Function is Established
- Capability 6.2 Policy and Standards are Written and Approved
- Capability 6.3 Govern the DM Program
- Capability 6.4 Govern the Data Structure
- Capability 6.5 Govern that the Data is Fit-for-Purpose

## 3.6 Logical Data Model


### The Issue

**Few organizations have a comprehensive logical model that positions ESG data in the broader data landscape.**

### Key Action Items

**Develop and integrate the required ESG data model to existing cross functional data models.**

1. Define ESG reporting objectives, leveraging applicable standards to identify data requirements for both internal management and external reporting.
2. Agree on representation from multiple business functions to review data availability, identify gaps, and prioritize sourcing.
3. Maintain a business glossary that corresponds with the technical concepts in the organization.
4. Identify and document ESG data lineage aligned to business process architecture and controls.

*Note: An enterprise data (logical) model identifies high-level subject areas mapped to different sources.*

### Where to Leverage COSO ICSR

Component Information and Communication
- Principle 13. Uses relevant information
- Principle 14. Communicates internally
- Principle 15. Communicates externally

### Where to Leverage DCAM

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 6.0 Data Governance
- Capability 6.2 Policy and Standards are Written and Approved
- Capability 6.3 Govern the DM Program
- Capability 6.4 Govern the Data Structure

## 3.7 Management Responsibilities for Narrative


### The Issue

**Evaluating whether data management responsibilities extend to the narrative and qualitative data involved in ESG reporting.**

### Key Action Items

**Expand data management processes to qualitative data.**

1. Reuse existing data management capabilities to collect, classify, trace, and access sources of structured and unstructured information used to make qualitative statements including those provided by third-party sources when applicable.
2. Reuse existing data management controls in place for qualitative financial reporting (e.g., SOX control type teams) for validating qualitative sustainability reporting.
3. Directly link sustainability responsibility and oversight with explicit titles, functions, and job descriptions at all levels, including clear accountability for disclosures.

### Where to Leverage COSO ICSR

Component Control Environment
- Principle 3. Establishes structures, authority, and responsibilities
- Principle 4. Demonstrates commitment to competent human resources

Component Control Activities
- Principle 11. Selects and develops general controls over technology
- Principle 12. Controls deployed through policies and procedures

Component Information and Communication
- Principle 14. Communicates internally
- Principle 15. Communicates externally

### Where to Leverage DCAM

Component 1.0 Data Management Strategy & Business Case
- Capability 1.1 The Data Management Strategy (DMS) is Specified and Shared

Component 2.0 Data Management Program & Funding Model
- Capability 2.1 The Data Management Program (DMP) is Established

Component 3.0 Business & Data Architecture
- Capability 3.2 Business Architecture (BA) is Integrated with Data Architecture (DA)

Component 4.0 Data & Technology Architecture
- Capability 4.1 Technology Architecture (TA) is defined in support of the data management initiative

Component 5.0 Data Quality Management
- Capability 5.3 DQ Issues are Remediated
- Capability 5.4 DQ is Monitored and Maintained

Component 6.0 Data Governance
- Capability 6.5 Govern that the Data is Fit-for-Purpose

Component 8.0 Analytics Management
- Capability 8.2 Analytics is Aligned with Business and Data Management Strategy

## 3.8 Identification of Data Sources


### The Issue

**Identification of data sources is complicated by the multiplicity/ variety of data sources across a company.**

### Key Action Items

**Reuse existing data management best practice to mitigate ESG data complexity (multiple sources, formats, measurement units, etc.).**

1. Standardize the ESG data collection and consolidation processes.
2. Maintain a business glossary that corresponds with the technical concepts in the organization.
3. Identify and document ESG data lineage aligned to business process architecture and controls.
4. Reuse existing data management technology to digitize the ESG data management process (i.e., collection, validation, traceability, storage, export).
5. Reuse and extend existing data ownership practices to ESG and sustainability data.

### Where to Leverage COSO ICSR

Component Risk Assessment
- Principle 7. Identifies and analyzes risks to meeting sustainable business objectives

Component Control Activities
- Principle 10. Selects and develops control activities

Component Information and Communication
- Principle 13. Uses relevant information

Component Monitoring Activities
- Principle 16. Conducts ongoing and/or separate evaluations

### Where to Leverage DCAM

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 4.0 Data & Technology Architecture
- Capability 4.1 Technology Architecture (TA) is defined in support of the data management initiative

Component 8.0 Analytics Management
- Capability 8.3 Analytics is aligned with Data Architecture

## 3.9 Identifying Authoritative Providers of Data


### The Issue

**Companies can be challenged to identify authoritative providers of data—either because there are multiple providers or there are none.**

### Key Action Items

**Reuse data management infrastructure and processes to support multiple ESG data providers.**

1. Agree on representation from multiple business functions to review data availability, identify gaps, and prioritize sourcing.
2. Maintain a business glossary that corresponds with the technical concepts in your organization.
3. Identify and document ESG data lineage aligned to business process architecture and controls.
4. Assess the resilience of external data sourcing processes, including consideration of staff dependencies and opportunities to automate.
5. Implement a common ESG data hub for data regardless of source and tools that enable population to a consistent standard regardless of source and format of the data provided.

### Where to Leverage COSO ICSR

Component Control Activities
- Principle 12. Deploys oversight through policies and procedures

Component Monitoring Activities
- Principle 16. Conducts ongoing and/or separate evaluations

### Where to Leverage DCAM

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 6.0 Data Governance
- Capability 6.5 Govern that the Data is Fit-for-Purpose

Component 8.0 Analytics Management
- Capability 8.3 Analytics is aligned with Data Architecture


# 3.10 Prioritizing Issue Resolution

## The Issue

**Companies need to prioritize the resolution of issues in business processes and applications that impact the quality of ESG data.**

## Key Action Items

**Reuse the data issue management system and processes to manage ESG data issues.**

1. Reuse existing data issue identification and resolution workflow to enable continuous monitoring of data quality.
2. Extend data stewardship responsibilities to ESG data.
3. Compare and leverage tracking of data issues from both IT and management perspectives.

## Where to Leverage COSO ICSR

Component Risk Assessment
- Principle 7. Identifies and analyzes risks to meeting sustainable business objectives

Component Information and Communication
- Principle 13. Uses relevant information

Component Monitoring Activities
- Principle 16. Conducts ongoing and/or separate evaluations
- Principle 17. Evaluates and communicates deficiencies

## Where to Leverage DCAM

Component 2.0 Data Management Program & Funding Model
- Capability 2.6 Stakeholder Engagement is Established and Confirmed
- Capability 2.7 Communications and Training Programs are Designed and Operational

Component 5.0 Data Quality Management
- Capability 5.2 Data is Profiled and Measured
- Capability 5.3 DQ Issues are Remediated

Component 6.0 Data Governance
- Capability 6.1 The Data Governance (DG) Function is Established

Component 7.0 Data Control Environment
- Capability 7.2 Cross-organization Control Function Collaboration

Component 8.0 Analytics Management
- Capability 8.4 Analytics is aligned with Data Quality

# 3.11 Data Acquisition


## The Issue

**Companies lack formal processes and systems for internal acquisition of ESG related data.**

## Key Action Items

**Reuse data management infrastructure and processes to support internal acquisition of ESG data.**

1. Agree on representation from multiple business functions to review data availability, identify gaps, and prioritize sourcing.
2. Maintain a business glossary that corresponds with the technical concepts in the organization.
3. Identify and document ESG data lineage aligned to business process architecture and controls.
4. Assess the resilience of external data sourcing processes, including consideration of staff dependencies and opportunities to automate.
5. Implement a common ESG data hub for data regardless of source and tools that enable population to a consistent standard regardless of source and format of the data provided.

## Where to leverage COSO ICSR

Component Risk Assessment
- Principle 6. Specifies suitable objectives
- Principle 9. Identifies and analyzes significant changes and emerging trends

Component Control Activities
- Principle 10. Selects and develops control activities
- Principle 11. Selects and develops general controls over technology
- Principle 12. Deploys oversight through policies and procedures

Component Information and Communication
- Principle 13. Uses relevant information

## Where to leverage DCAM

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 5.0 Data Quality Management
- Capability 5.1 Data Quality Management (DQM) is Established
- Capability 5.2 Data is Profiled and Measured

Component 6.0 Data Governance
- Capability 6.1 Data Governance (DG) Function is Established
- Capability 6.3 Govern the DM Program
- Capability 6.4 Govern the Data Structure

Component 8.0 Analytics Management
- 8.2 Analytics is Aligned with Business and Data Management Strategy

## 3.12 Preparation of Reporting Data


### The Issue

**Preparation of company-sourced reporting data is often performed as an end-user activity without formal review and approval.**

### Key Action Items

**Formalizing ESG reporting as an integral component and outcome of proper management practice.**

1. Directly link sustainability responsibility and oversight with explicit titles, functions, and job descriptions at all levels, including clear accountability for disclosures.
2. Create, deliver, and embed ESG data literacy through deploying a variety of training experiences throughout the organization.
3. Train executive management and departments on the importance of identifying and managing ESG and sustainability-related issues.
4. Ensure feedback and approval mechanisms or controls are working effectively, change them as needed, and define sign- off on reporting.
5. Implement attestation of both management processes (methodology) and reporting outputs, including executive sign-off of ESG disclosures.
6. Align ESG and financial data collection and reporting practices.

### Where to Leverage COSO ICSR

Component Control Environment
- Principle 3. Establishes structures, authority, and responsibilities

Component Risk Assessment
- Principle 7. Identifies and analyzes risks to meeting sustainable business objectives

Component Control Activities
- Principle 10. Selects and develops control activities

Component Information and Communication
- Principle 13. Uses relevant information
- Principle 14. Communicates internally

### Where to Leverage DCAM

Component 2.0 Data Management Program & Funding Model
- Capability 2.6 Stakeholder Engagement is Established and Confirmed
- Capability 2.7 Communications and Training Programs are Designed and Operational
- Capability 2.8 The DMP is Measured and Evaluated Against Business Objectives

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 5.0 Data Quality Management
- Capability 5.2 Data is Profiled and Measured
- Capability 5.3 DQ Issues are Remediated
- Capability 5.4 DQ is Monitored and Maintained

Component 8.0 Analytics Management
- 8.2 Analytics is Aligned with Business and Data Management Strategy

## 3.13 Internal Audit


### The Issue

**Currently, there is limited involvement of Internal Audit in the assurance of non-financial data in most organizations.**

### Key Action Items

**Extend internal audit processes and best practices to sustainability-related considerations.**

1. Provide adequate training and incentives to support embedding sustainability considerations into strategy; management of impacts, risks, and opportunities; performance measurement; and reporting, involving multiple departments and functions.
2. Engage with the CFO to identify material information and with internal audit in the management of this information to comply with disclosure regulations (i.e., the audit committee function of overseeing disclosure controls and procedures for data produced in a regulatory report).[2]
3. Extend the existing internal financial data and process controls to serve as both a baseline for internal use ESG information and paves a natural path to prepare for future external assurance requirements.[3]

### Where to Leverage COSO ICSR

Component Risk Assessment
- Principle 6. Specifies suitable objectives
- Principle 7. Identifies and analyzes risks to meeting sustainable business objectives
- Principle 9. Identifies and analyzes significant changes and emerging trends

Component Information and Communication
- Principle 13. Uses relevant information
- Principle 14. Communicates internally
- Principle 15. Communicates externally

Component Monitoring Activities
- Principle 16. Conducts ongoing and/or separate evaluations
- Principle 17. Evaluates and communicates deficiencies

### Where to Leverage DCAM

Component 2.0 Data Management Program & Funding Model
- Capability 2.7 Communications and Training Programs are Designed and Operational

Component 3.0 Business & Data Architecture
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 7.0 Data Control Environment
- Capability 7.2 Cross-organization Control Function Collaboration
- Capability 7.3 Data Risk is Managed

[2] Two useful references include EFRAG (data points and definitions) and Harvard Law School (a Corporate Guide for Directors to ESG).
[3] Helpful references include COSO ICSR, DCAM, and DAMA.

## 3.14 External Assurance of ESG Reporting Data


### The Issue

**Best practices for the processes or standards that apply to the external assurance of ESG reporting data are evolving.**

### Key Action Items

**Define the approach to obtain external assurance of ESG disclosures in a realistic timeframe, even if not yet mandatory in your jurisdiction.**

1. Apply at least one set of reporting standards (e.g., ESRS or IFRS SDS) in producing ESG reporting.
2. Create and deliver training on the external assurance process and its requirements to those involved in ESG data and reporting activities.
3. Conduct an internally led assessment, through the finance and internal audit functions, on external assurance readiness for ESG disclosures as soon as is practicable.

### Where to Leverage COSO ICSR

Component Information and Communication
- Principle 15. Communicates externally

Component Monitoring Activities
- Principle 16. Conducts ongoing and/or separate evaluations
- Principle 17. Evaluates and communicates deficiencies

### Where to Leverage DCAM

Component 2.0 Data Management Program & Funding Model
- Capability 2.3 The Data Management Organizational Structure is Created and Implemented

Component 7.0 Data Control Environment
- Capability 7.3 Data Risk is Managed

# 4. Conclusion

Companies need to execute a proper data management strategy for ESG and sustainability data and reporting practices. It is a critical prerequisite for the delivery of standardized, audited, and digitized sustainability disclosures.

The good news is they do not need to start from scratch; the knowledge and tools to achieve quality ESG data and disclosures already exist and simply need to be brought to the rapidly emerging sustainability practices. They certainly should not reinvent the wheel. This playbook has demonstrated that the COSO ICSR framework and the DCAM framework represent complementary and established industry standards that can be leveraged to accelerate effective ESG and sustainability data management and reporting activities. Both are likely already being used by companies at some level of their organization and could relatively easily be applied to ESG data and disclosures.

Therefore, we encourage corporate reporting practitioners to take three steps:

1. Use this playbook to convene the discussion in their organization.
2. Assess which recommendations are already implemented and where there are gaps.
3. Address these gaps using the advice in this playbook and, critically, monitor progress.

This approach will save time and make efficient use of resources. It will also help develop a common language that can boost collaboration between departments, which is essential to successfully integrating sustainability into companies' business model and operations.

The only constant is change, and the corporate sustainability reporting landscape will continue to evolve quickly, with more regulations, greater clarity on the standards to apply, and increasing data on sustainability performance and, ultimately, impact measurements. We've barely scratched the surface. Amid all this change, another constant will be the need for trusted data and the mechanisms to produce and manage such data. This playbook provides a guide to deliver on both.

# Appendices

## Appendix A: Complete List of COSO ICSR Components and Principles

Component: Control Environment
- Principle 1. Demonstrates commitment to integrity and ethical values
- Principle 2. Exercises board of directors' oversight responsibilities
- Principle 3. Establishes structures, authority, and responsibilities
- Principle 4. Demonstrates commitment to competent human resources
- Principle 5. Enforces accountability

Component: Risk Assessment
- Principle 6. Specifies suitable objectives
- Principle 7. Identifies and analyzes risks to meeting sustainable business objectives
- Principle 8. Assesses fraud risk
- Principle 9. Identifies and analyzes significant changes and emerging trends

Component: Control Activities
- Principle 10. Selects and develops control activities
- Principle 11. Selects and develops general controls over technology
- Principle 12. Deploys oversight through policies and procedures

Component: Information and Communication
- Principle 13. Uses relevant information
- Principle 14. Communicates internally
- Principle 15. Communicates externally

Component: Monitoring Activities
- Principle 16. Conducts ongoing and/or separate evaluations
- Principle 17. Evaluates and communicates deficiencies

# Appendix B: Complete List of DCAM Components & Capabilities

Component 1.0 Data Management Strategy & Business Case
- Capability 1.1 The Data Management Strategy (DMS) is Specified and Shared
- Capability 1.2 The Data Management Business Case is Defined
- Capability 1.3 The Data Management Vision is Defined

Component 2.0 Data Management Program & Funding Model
- Capability 2.1 The Data Management Program (DMP) is Established
- Capability 2.2 The DM Funding Model has been Established, Approved, and Adopted by the Organization
- Capability 2.3 The Data Management Organizational Structure is Created and Implemented
- Capability 2.4 The Roadmaps for the DMP are Developed, Socialized, and Approved
- Capability 2.5 Data Management Process Excellence Program is Established
- Capability 2.6 Stakeholder Engagement is Established and Confirmed
- Capability 2.7 Communications and Training Programs are Designed and Operational
- Capability 2.8 The DMP is Measured and Evaluated Against Business Objectives

Component 3.0 Business & Data Architecture
- Capability 3.1 Data Architecture (DA) function is established
- Capability 3.2 Business Architecture (BA) is Integrated with Data Architecture (DA)
- Capability 3.3 Identify the Data
- Capability 3.4 Define the Data

Component 4.0 Data & Technology Architecture
- Capability 4.1 Technology Architecture (TA) is defined in support of the data management initiative
- Capability 4.2 DM Technology Tool Stack is Identified and Governed
- Capability 4.3 Operational Risk Planning is in Place

Component 5.0 Data Quality Management
- Capability 5.1 Data Quality Management (DQM) is Established
- Capability 5.2 Data is Profiled and Measured
- Capability 5.3 DQ Issues are Remediated
- Capability 5.4 DQ is Monitored and Maintained

Component 6.0 Data Governance
- Capability 6.1 Data Governance (DG) Function is Established
- Capability 6.2 Policy and Standards are Written and Approved
- Capability 6.3 Govern the DM Program
- Capability 6.4 Govern the Data Structure
- Capability 6.5 Govern that the Data is Fit-for-Purpose
- Capability 6.6 Govern the Data Ethics

Component 7.0 Data Control Environment
- Capability 7.1 Data Control Environment (DCE) is Evidenced
- Capability 7.2 Cross-organization Control Function Collaboration
- Capability 7.3 Data Risk is Managed

Component 8.0 Analytics Management
- Capability 8.1 The Analytics Function is Established
- Capability 8.2 Analytics is Aligned with Business and Data Management Strategy
- Capability 8.3 Analytics is aligned with Data Architecture
- Capability 8.4 Analytics is aligned with Data Quality
- Capability 8.5 The Analytics Platform is Designed and Operational
- Capability 8.6 Model Operationalization is Established
- Capability 8.7 The Analytics Culture and Education Needs are Managed

## Appendix C: Consolidated List of Detailed Action Items

1. Establish authority for determining material ESG issues and the data needed to manage these issues.
2. Ensure ESG or sustainability committee includes competencies in data management, financial reporting, regulatory operations, and risk management.
3. Reuse and reference well established resources for defining material issues or information (e.g., ESRS standards, IFRS SDS, EFRAG materiality guidance, securities regulations, OECD guidelines).
4. Directly link sustainability responsibility and oversight with explicit titles, functions, and job descriptions at all levels, including clear accountability for disclosures.
5. Include ESG reporting performance in executive, middle management, and subject matter expert evaluations and compensation.
6. Ensure feedback and approval mechanisms or controls are working effectively, change them as needed, and define sign-off on reporting.
7. Create, deliver, and embed ESG data literacy by deploying a variety of training experiences throughout the organization.
8. Reuse existing data management technology resources to digitize the ESG data management process (i.e., collection, validation, traceability, storage, export).
9. Reuse and extend existing data ownership practices to ESG and sustainability data.
10. Ensure adequate resourcing for effective data management, recognizing new ESG data requirements.
11. Maintain a business glossary that corresponds with the technical concepts in the organization.
12. Identify and document ESG data lineage aligned to business process architecture and controls.
13. Identify and document the ESG data decisioning traceability including the use of manual and automated models and calculations.
14. Define ESG reporting objectives, leveraging applicable or relevant standards to identify data requirements for both internal management and external reporting.
15. Agree on representation from multiple business functions to review data availability, identify gaps, and prioritize sourcing.
16. Directly link sustainability responsibility and oversight with explicit titles, functions, and job descriptions at all levels, including clear accountability for disclosures.
17. Reuse existing data management capabilities to collect, classify, trace, and access sources of structured and unstructured information used to make qualitative statements including those provided by third-party sources when applicable.
18. Reuse existing data management controls in place for qualitative financial reporting (e.g., SOX control type teams) for validating qualitative sustainability reporting.
19. Standardize the ESG data collection and consolidation processes.
20. Assess the resilience of external data sourcing processes, including consideration of staff dependencies and opportunities to automate.
21. Implement a common ESG data hub for data regardless of source and tools that enable population to a consistent standard regardless of source and format of the data provided.
22. Reuse existing data issue identification and resolution workflow to enable continuous monitoring of data quality.
23. Extend data stewardship responsibilities to ESG data.
24. Compare and leverage tracking of data issues from both IT and management perspectives.

25. Train executive management and departments on the importance of identifying and managing ESG and sustainability-related issues.
26. Ensure feedback and approval mechanisms or controls are working effectively, change them as needed, and define sign-off on reporting.
27. Implement attestation of both management processes (methodology) and reporting outputs, including executive sign-off of ESG disclosures.
28. Align ESG and financial data collection and reporting practices.
29. Provide adequate training and incentives to support embedding sustainability considerations into strategy; management of impacts, risks, and opportunities; performance measurement; and reporting, involving multiple departments and functions.
30. Engage with the CFO to identify material information and with internal audit in the management of this information to comply with disclosure regulations (i.e., the audit committee function of overseeing disclosure controls and procedures for data produced in a regulatory report).
31. Extend the existing internal financial data and process controls to serve as both a baseline for internal use ESG information and paves a natural path to prepare for future external assurance requirements.
32. Apply at least one set of reporting standards (e.g., ESRS or IFRS SDS) in producing ESG reporting.
33. Create and deliver training on the external assurance process and its requirements to those involved in ESG data and reporting activities.
34. Conduct an internally led assessment, through the finance and internal audit functions, on external assurance readiness for ESG disclosures as soon as is practicable.

# Appendix D: Solidatus Data Management Mapping Solution

Solidatus is a data management solution that allows organizations to create living data blueprints that connect and visualize their data relationships, simplifying how they identify, access, and understand them. By creating an interactive map of metadata related to people, processes, policies, and technology, the platform tool converts technical data flows into a format that the business can easily understand. This combination of live data flows with business intelligence makes the metadata accessible, analyzable, and actionable.

### Navigating the EDMC ESG Playbook Model

Members of the EDM Council gain read-only access to the EDM Council ESG Playbook Model 2024. This access enables members to view the frameworks, their connectivity and start to understand and visualize the analysis and recommendations provided by the ESG working group.[4]

## Model Access

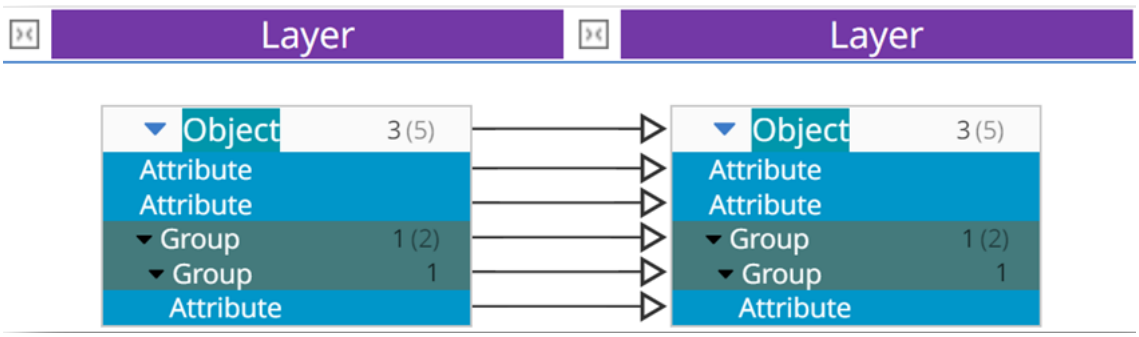
If you are an EDM Council Member, it's easy to log in and view the model. All EDM Council members are Model Viewers and have read-only access to the models via SSO from your EDM Connect account.

### Quick-Start Guide

This section will give you a brief overview of Solidatus' Model Viewer (read-only) features and introduce some of the terms used in the app. Find more detailed information on Model Viewer features here and watch these introductory videos also available here.

## Lineage Models

Solidatus Models are made up of hierarchically structured "containers" of information that can be connected to one another to display meaningful relationships. The highest-level container is a **Layer**, and Layers appear as columns in the Model Viewer. **Objects** are the next highest-level container within a Layer. Objects contain **Attributes** that can be further collected into Groups of Attributes.




*Solidatus Lineage Models*

**Transitions** represent the connectivity in Solidatus and are arrows that show relationships between Layers, Objects, Groups, and Attributes in the Model. Transitions can be direct, inferred, interconnected to another source of data not shown, or linked to a child within the parent relationship.

When entering the EDM Council instance you will see a list of Lineage Models available to view. These models were created by the Council and their partners to showcase the frameworks and how they are connected to each other, regulations, and/or other policies. The connectivity is shown through the Transitions.

Each model includes a "Model Description" with information related to the specific Knowledge Model. You can use the search bar to search for specific terms relevant to your goals.

[4] Please note that if you are not an EDM Council member and instead registered as a guest, you will have restricted views.

## Model Viewer Tool Bar

The Model Viewer Toolbar provides access to a variety of great features. Features that are most important for read-only model viewers are:

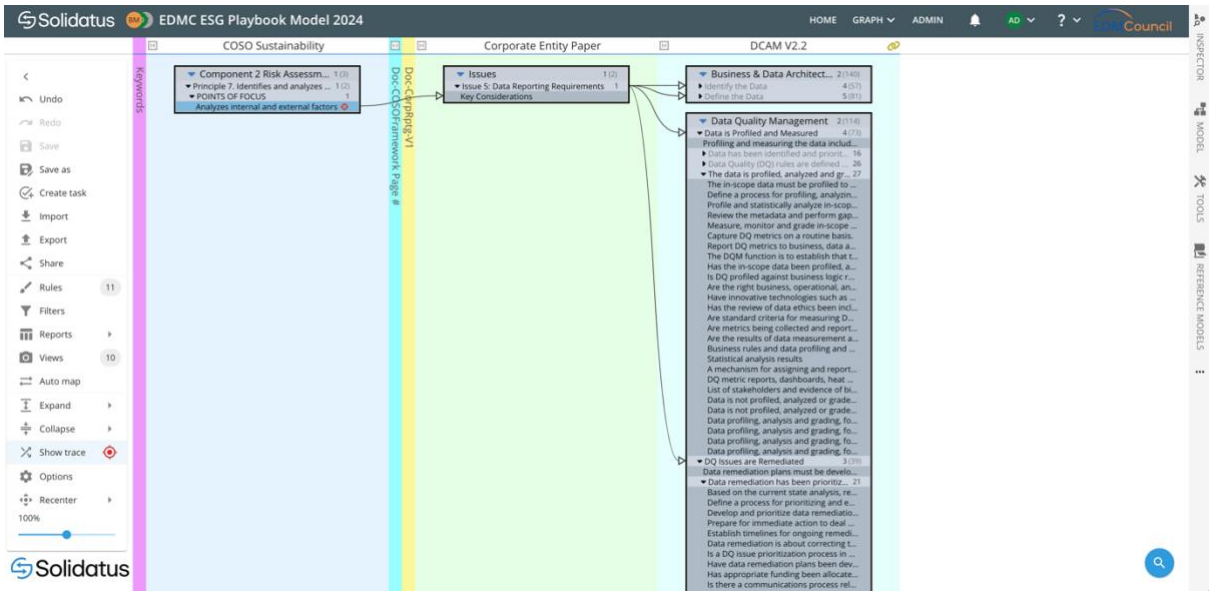
1. **Rules**
2. **Views**
3. **Show Trace**
4. **Zoom**

Below is more information on some of these capabilities.

## Show Trace

To help navigate the models, you can click on a component, issue, capability or sub-capability and hit the target button beside **Show trace**. This immediately allows you to trace the connections and relationships between the frameworks.

Below is an example of targeting how Component 2 and a Point of Focus for *Principle 7: Analyzes internal and external factors* of the COSO ICSR framework connects to *Issue 5: Data Reporting Requirement*s of the *Corporate Reporting Entities* Paper and then to two DCAM 2.2 capabilities and their sub-capabilities: *Business & Data Architecture* and *Data Quality Management*.




*Example of Targeting in Solidatus*

## Model View Side Bar

On the right-hand side of the models, there are four tabs:

1. **Inspector**
2. **Model**
3. **Tools**
4. **Reference Models**

Each tab represents a different set of capabilities. For a read-only model viewer, the **Inspector** tab is most important. It provides information about the currently selected entity or entities and in some cases includes a descriptor of the **Object, Layer,** or **Attribute.**

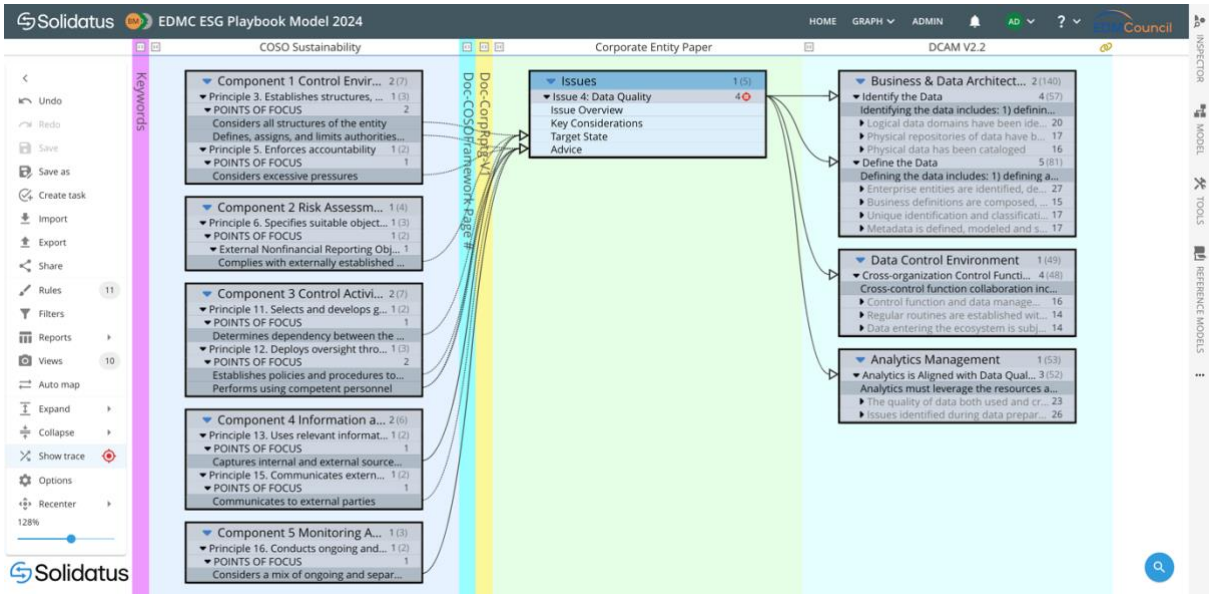
## Views

**Views** have been created within the detailed Model to give users the ability to instantaneously obtain a tailored perspective on a subset of information. **Views** are a time and effort-saving addition to demonstrations, a valuable aid to presentations, and a useful way to quickly return to a captured scenario in the future. Views enable you to build a sophisticated library of use-case-specific, shareable snapshots of a Model.

The **Default** view shows the full model. Below is more information on select views.[5]

### VIEW 1: Data Quality Issue

As outlined in the above report, this view provides context and traceability to focus only on what has been mapped to Issue 4 Data Quality in the *Corporate Reporting Issuers* paper using the **Show trace** functionality.

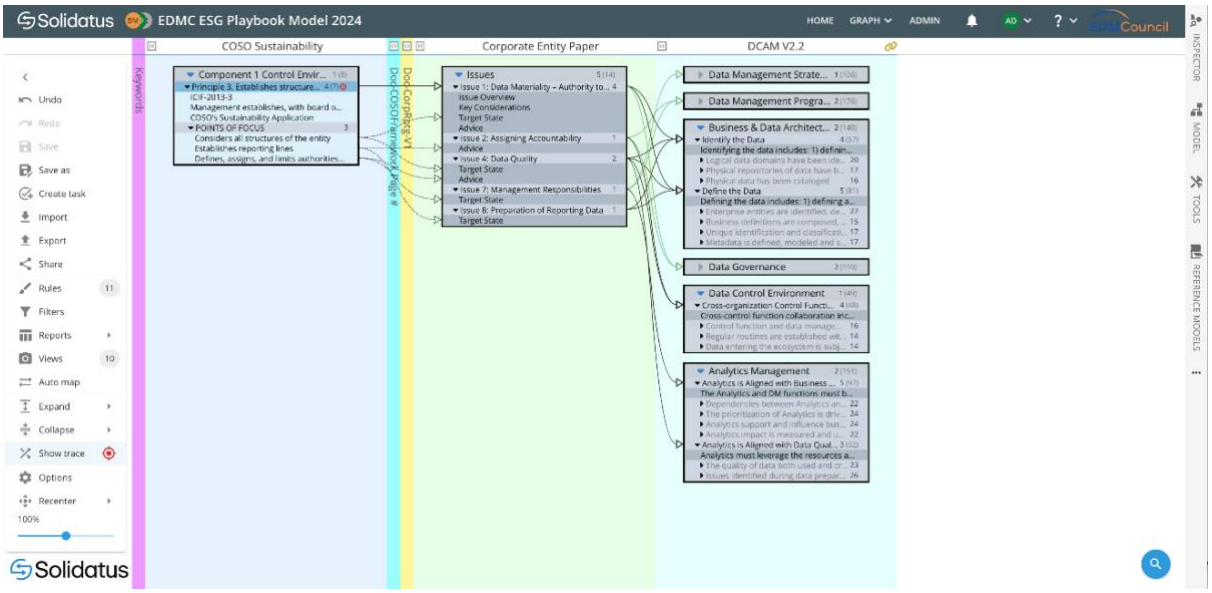



*View 1: Data Quality Issue*

[5] Please note: if a view appears and the transitions don't, click the show trace target icon within the model.

## VIEW 2: COSO ICSR Principle 3 – Establish Structures, Authorities and Responsibilities Focus

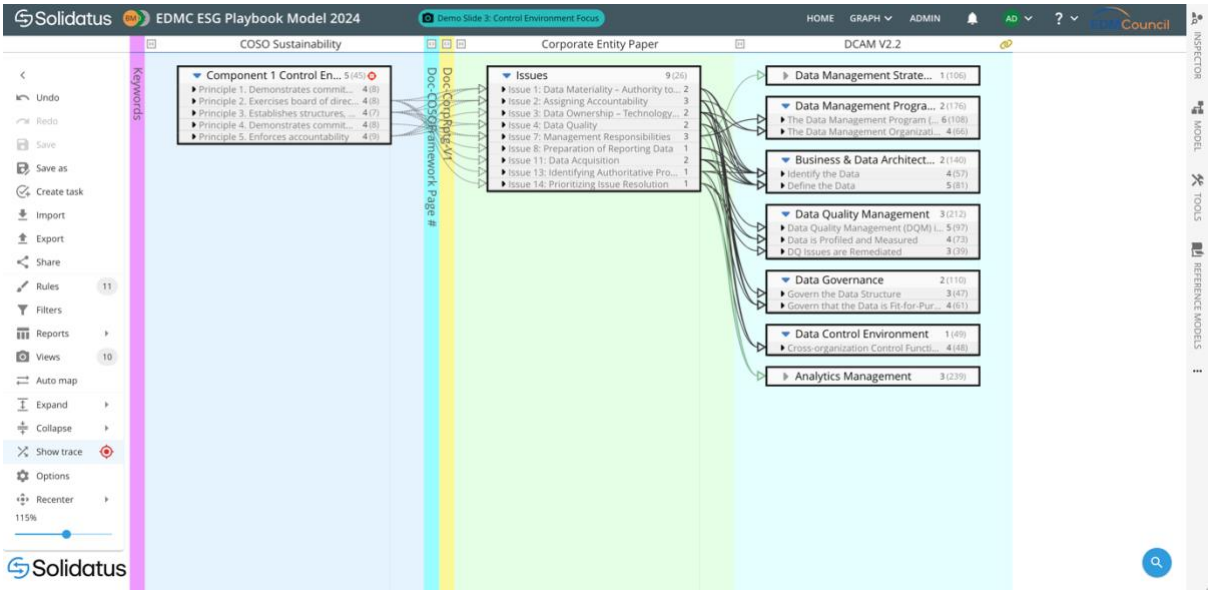
In this example, the user focuses on the primary transition of Principle 3 - *Establish Structures, Authorities and Responsibilities* of the COSO ICSR framework and shows that this principle is mapped to *Issue 1: Data Materiality* and *Issue 2: Assigning Accountability* of the *Corporate Reporting Entities* paper. The view then shows that Data Materiality is ultimately mapped to the DCAM components *Business & Data Architecture* and within that the Capabilities *Identifying the Data* and *Define the Dat*a.




*View 2: COSO ICSR Principle 3 Focus*

## VIEW 3: COSO ISCR Component 1 - Control Environment Focus

In this example, the user takes a high-level view of what issues in the *Corporate Reporting Entities* paper and what DCAM capabilities are mapped to the COSO ISCR's *Component 1 – Control Environment*.




*View 3: COSO ISCR Component 1 – Control Environment Focus*

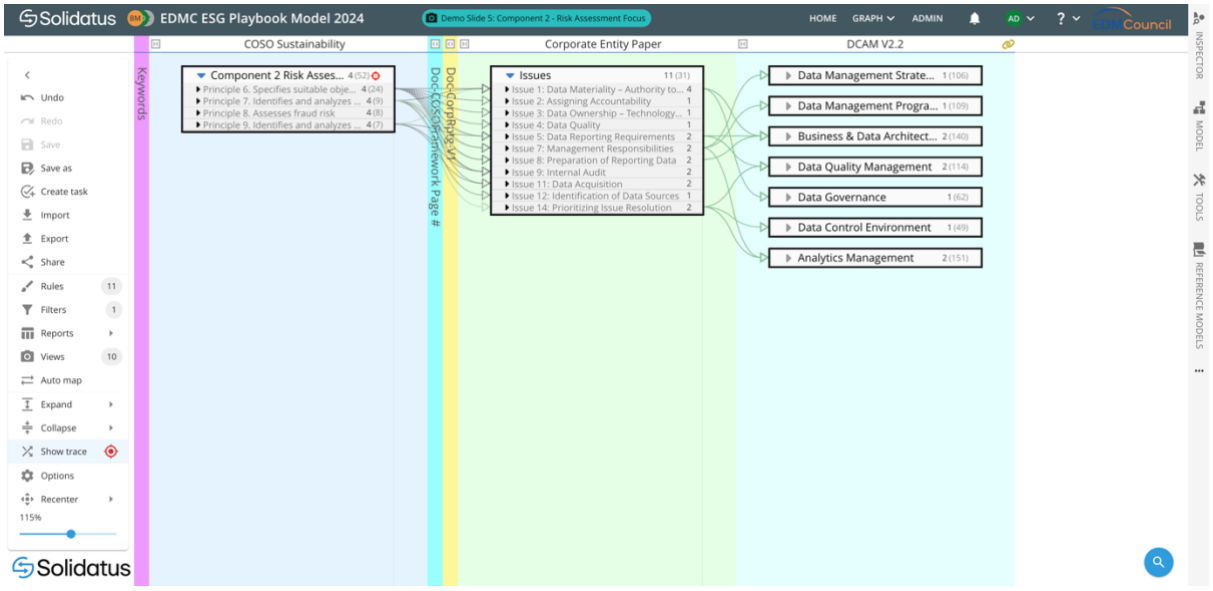
## VIEW 4: Unmapped Principles

In this example, the user has a high-level view of COSO ISCR principles and *Corporate Reporting Entities*' issues, with tags showing which principles have not been mapped to an Issue.


*View 4: Unmapped Principles*

## VIEW 5: COSO ISCR Component 2 - Risk Assessment Focus

In this example, the COSO ICSR *Component 2 - Risk Assessment* Focus shows trace and connectivity to the issues in the *Corporate Reporting Entities* paper and then to the DCAM capabilities at a high level.




*View 5: COSO ICSR Component 2 – Risk Assessment Focus*

## Integrating the Models into a Solidatus Data Blueprint

For EDM Council members that are using Solidatus and have created a data blueprint or data maturity roadmap, all EDM Council models are easily transferable and imported into your instance, whether on-premises or in the cloud.

Solidatus was designed with flexibility, connectivity, and reusability. All models can easily be integrated, interrogated, and expanded based on an organization's data goals. Solidatus also provides a range of connectors, including Amazon, Microsoft, Google and many others, engineered to seamlessly integrate with a wide range of sources, spanning traditional databases to cutting-edge ETL tools.

To learn more about Solidatus visit www.solidatus.com.