



SUS04T

Transform your data with the ESG Data Estate

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Agenda

- Introduction to ESG Data Estate
- Data ingestion in ESG Data Estate
- Understanding the ESG Data Estate schema
- Computing sustainability metrics
- Q&A

Introduction



Sustainability data solutions in Microsoft Fabric (preview)

Highly integrated, easy-to-use suite of services



ESG data estate
(preview)



Microsoft Azure
emissions insights
(preview)



Social and
governance
metrics and
reports (preview)



Environmental
metrics and
analytics (preview)

ESG data estate (preview)

Ingest

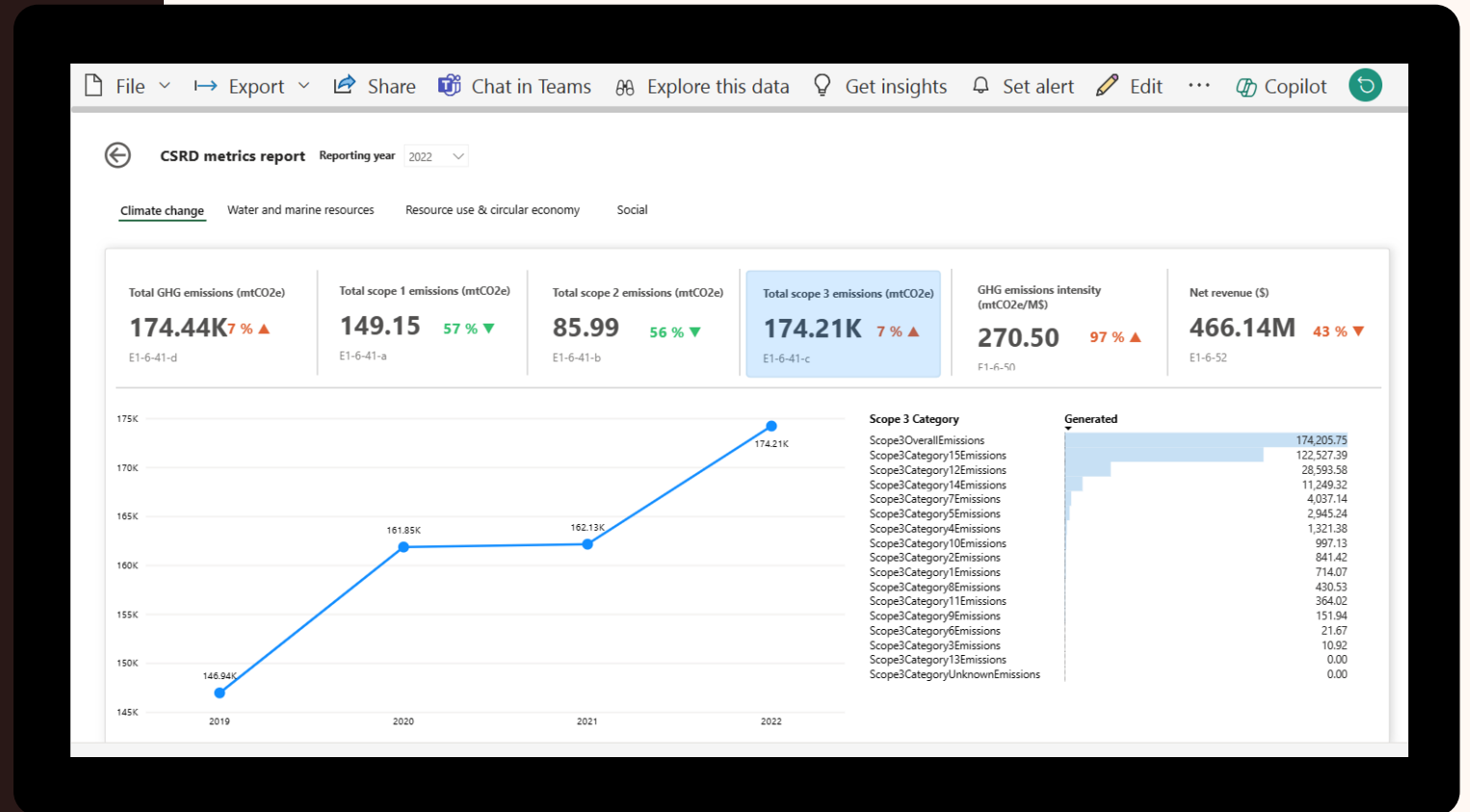
Ingest and standardize data from multiple source systems with the ESG data schema and lakehouses

Compute

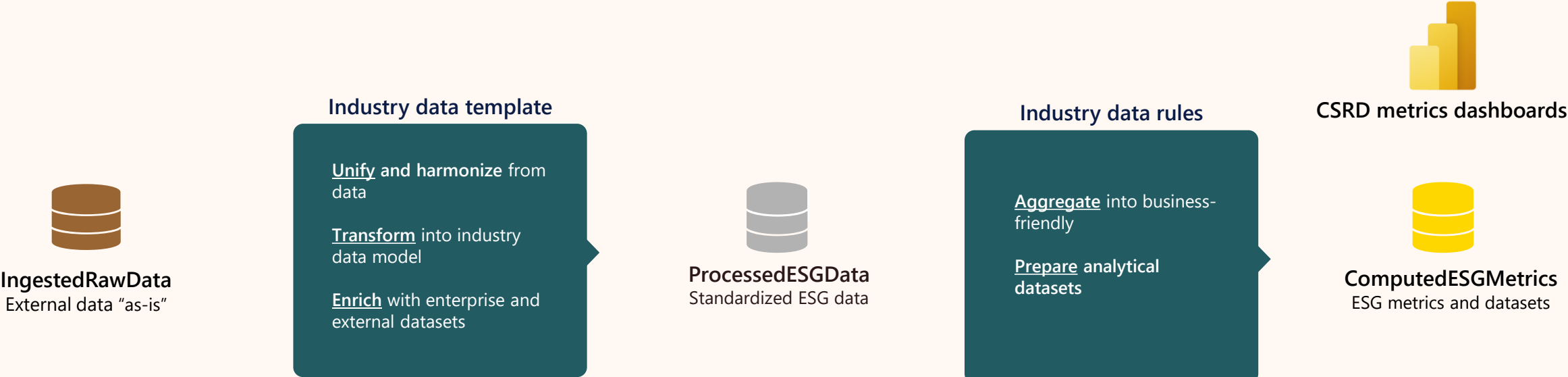
Use pre-built or build custom data processing artifacts for consumption scenarios

Visualize

Visualize data analytics and insights with built-in and custom dashboards



ESG Data Estate (preview) overview



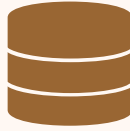
Raw ESG data	Standardized sustainability data		Computed sustainability metrics	
Stores disparate data "as-is" from various data sources	Transforms raw data to a standardized ESG schema	Stores the standardized raw data in SQL tables based on the ESG schema	Aggregates standardized ESG data into analytical datasets Computes defined quant. ESG metrics	Stores aggregated datasets and computed metrics in SQL tables

Dashboards
Dashboards to explore ESG data

Data ingestion



Data sources and targets in ESG Data Estate



IngestedRawData
External data "as-is"

Extract raw ESG data

- Surface ESG data from external sources in the IngestRawData Lakehouse in Fabric
 - An "as-is" representation of raw data
-

Methods

- Ingest data using Fabric Pipelines
 - Connect data using Fabric Shortcuts
-

Considerations

- SDSF supports full loads
-

Demo – Connecting raw ESG data

The screenshot shows the Microsoft OneLake Explorer interface. The top navigation bar includes 'Home', 'Lakehouse', and 'Share'. Below the navigation bar, there are action buttons: 'Get data', 'New semantic model', and 'Open notebook'. A notification banner states: 'A SQL analytics endpoint for SQL querying and a default Power BI semantic model for faster reporting were created and will be updated with any tables added to the lakehouse.' The left sidebar shows a tree view under 'Sustainability_ESGDE_ESGLDemo1_IngestedRawData' with sub-items 'Tables', 'Files', and 'msmdata'. The main pane displays the contents of the 'msmdata' folder as a table.

Name	Date modified	Type	Size
Microsoft.Athena.TrickleFeedService	10/30/2023 9:3...	Folder	413 items
OptionsetMetadata	10/30/2023 9:3...	Folder	5 items
model.json	12/27/2023 9:3...	JSON	1 MB
msdyn_accommodationtype	10/30/2023 9:3...	Folder	2 items
msdyn_aicontactsuggestion	10/30/2023 9:3...	Folder	0 items
msdyn_allocationmethod	10/30/2023 9:3...	Folder	0 items
msdyn_allocationmethoddetail	10/30/2023 9:3...	Folder	0 items
msdyn_allocationprofile	10/30/2023 9:3...	Folder	0 items
msdyn_allocationprofile_msdyn_datadefinition	10/30/2023 9:3...	Folder	0 items

Demo – Ingesting raw ESG data

The screenshot displays the Microsoft Power BI interface for configuring a data pipeline. At the top, a navigation bar includes 'Home', 'Activities', 'Run', and 'View'. Below this is a toolbar with icons for saving, editing, settings, undo, and actions like 'Validate', 'Run', 'Schedule', 'View run history', 'Copy data', 'Dataflow', 'Notebook', 'Lookup', 'Invoke pipeline', and 'Copilot'. The main workspace area shows a pipeline configuration for 'getWaterdata' with a 'Invoke pipeline (Preview)' button. The bottom section, titled 'Settings', is divided into 'General' and 'Settings' tabs. It includes fields for 'Workspace' (set to 'ESGEDE_demodata_recording'), 'Dataflow' (set to 'getSocialandGovernanceData'), and 'Notification Option' (set to 'No notification').

Home Activities Run View

Validate Run Schedule View run history Copy data Dataflow Notebook Lookup Invoke pipeline Copilot

Invoke pipeline (Preview)

getWaterdata
getWaterdata

General **Settings**

Workspace * ESGEDE_demodata_recording Refresh

Dataflow * getSocialandGovernanceData Refresh Open + New

Notification Option * ① No notification Mail on completion Mail on failure

Exploring the SDSF schema

Using Azure Synapse Studio

- Go to Synapse Workspace > Open Synapse Studio > Data > Gallery Database templates > Sustainability
- Search for the appropriate ESG table in the Sustainability data model
- Look at the description, fields and dependencies of the table

The screenshot displays the Microsoft Azure Synapse Studio interface. The top navigation bar shows 'Microsoft Azure | Synapse Analytics | pesgldemo'. The left sidebar is titled 'Sustainability' and shows a tree view of tables. The 'EnvironmentalFootprintType' table is selected and highlighted. The main preview area shows the table's structure, including columns and relationships. The description of the table is also visible.

Environmental FootprintType

123	EnvironmentalFootprintTyp...	PK
123	EnvironmentalFootprintCat...	FK
123	EnvironmentalFootprintTyp...	
123	EnvironmentalFootprintTyp...	

[See less](#)

General Columns Relationships

Name	EnvironmentalFootprintType
Description	An environmental footprint type describes a distinct footprint that may be tracked and reported within a specific category. Ex: Greenhouse Gas Emissions - Direct Land Use Change (dLUC) emissions - Indirect Land Use Change (ILUC) emissions - Fossil GHG emissions - Land management GHG emissions or removals - Other biogenic emissions - Biogenic carbon withdrawal - Other biogenic GHG emissions - Aircraft GHG emissions - Packaging GHG emissions

Exploring the SDSF schema

Using SDSF data dictionary

- Go to Fabric workspace (with SDSF) > SDS_ESGDE_XXX_ConfigAndDemoData_LH > Files > Config > ESGSchema.json
- Search the appropriate ESG table in the Sustainability data model
- Look at the description, fields and dependencies of the table

The screenshot shows the Microsoft Fabric workspace interface. The top navigation bar includes the Microsoft logo, the workspace name 'SDS_ESGDE_ESG_Data_Estate1_ConfigAndDemoData_LH', and a search bar. The left sidebar contains navigation icons for Home, Create, Explorer, OneLake data hub, Apps, Metrics, Monitoring hub, Workspaces, ESGDataEstate, and Power BI. The main area displays the 'Explorer' view with a tree structure showing 'SDS_ESGDE_ESG_Data_Estate1_ConfigAndDemoData_LH' > 'Files' > 'Config' > 'ESGSchema.json (preview)'. The right pane shows the JSON content of the file, which defines a table named 'PartyWaterUtilization' with various properties and relationships.

```
58502     },
58503   ],
58504 },
58505 "name": "PartyWaterUtilization",
58506 "entityType": "TABLE",
58507 "properties": {
58508   "businessArea": "Sustainability",
58509   "path": "PartyWaterUtilization.cdm.json/PartyWaterUtilization",
58510   "description": "The water utilization by a party during an associated period.",
58511   "displayName": "PartyWaterUtilization",
58512   "isDay0Entity": "False",
58513   "fromBusinessAreas": "Water_Sustainability",
58514   "primaryKeys": "PartyId,WaterUtilizationTypeId,WaterSourceTypeId,WaterTypeId,MetricPurposeId,PeriodStartDate,PeriodEndDate",
58515   "industries": "",
58516   "relationships": "[{\\"joinPairs\\":[{\\"fromAttribute\\":\\"CalculationAlgorithmId\\",\\"toAttribute\\":\\"CalculationAlgo"}]}]"
58517 },
58518 },
58519 {
58520   "namespace": {
58521     "databaseName": "Sustainability"
58522   },
58523   "tableType": "EXTERNAL",
58524   "storageDescriptor": {
58525     "columns": [
58526     {
58527       "name": "PartyId",
58528       "originDataTypeName": {
58529         "typeName": "long",
58530         "isNullable": false,
58531         "properties": {
```

Data sources and targets in ESG Data Estate



ProcessedESGData
Standardized ESG data

Transform data to SDSF schema

- Explore the SDSF schema and select the right target tables to send data to
 - Standardized sustainability data per SDSF schema
-

Methods

- Fabric Notebooks
 - Fabric Dataflows Gen 2
-

Considerations

- Built-in notebook to transform MSM data
-

Demo – Transform and load data into SDSF

The screenshot displays the Microsoft Fabric user interface. At the top, there is a navigation bar with tabs for 'Home', 'Activities', 'Run', and 'View'. Below this is a toolbar containing various icons and labels: 'Validate', 'Run', 'Schedule', 'View run history', 'Copy data', 'Dataflow', 'Notebook', 'Lookup', 'Invoke pipeline', and 'Copilot'. On the left side, a vertical sidebar lists several options: 'Home', 'Create', 'Browse', 'OneLake data hub', 'Workspaces', 'ESGDE_de modata_re...', 'getESGdata', 'Sustainability_ESGDE_E...', and 'Power BI'. The main workspace area contains three activity cards stacked vertically, each with a green checkmark in the top right corner. The first card is titled 'Notebook' and contains the activity 'getCarbonandWastedata'. The second card is titled 'Dataflow' and contains the activity 'getSocialandGovernancedata'. The third card is titled 'Invoke pipeline (Preview)' and contains the activity 'getWaterdata'. At the bottom of the interface, there is a 'Parameters' section with tabs for 'Parameters', 'Variables', 'Settings', and 'Output'. The 'Parameters' tab is active and shows a '+ New' button.

Extending the ESG schema

Understanding the SDSF schema

Environmental tables - Common

- Party: Metadata for any entity in the organization such as facility, business unit, supplier etc.

Environmental tables - Emissions

- Measurement tables named as "xxxGREENHOUSEGAS"
- Store Carbon and GHG emission quantity at process, party, asset level
- Metadata tables named as "GREENHOUSEGASxxx"
- Store Greenhouse gas type, emission source, emission factor information etc.

Environmental tables - Water

- Measurement tables named as "xxxWaterUtilization"
- Store water withdrawal, discharge and consumption volumes at process, party, asset level
- Measurement tables named as "xxxWaterQuality"
- Store effluent discharge quantities at process, party, asset level water samples

Understanding the SDSF schema

Environmental tables - Waste

- Measurement tables named as "xxxWaste"
- Store waste generated, recovered and disposed volumes at process, party, asset level
- Measurement tables named as "xxxWasteQuality"
- Store hazardous waste effluent quantities at process, party, asset level water samples

Social - EHS

- Measurement tables named as "xxxHealthSafetyxxxMetric"
- Store EHS data – training, safety incidents, service disruptions etc.

Social - Employee

- Store employee composition data – board of directors, pay & gender diversity,

Other tables

- Tables related to biodiversity, corporate governance

Demo – Decorate water data with water risk scores

Microsoft | ESG_Data_Estate1 | Confidential\Microsoft Extended | Search: waterrisk | Trial: 54 days left | 55 notifications


Sustainability solutions

Improve the efficiency and value of your sustainability data

Select the capabilities you need to build unique sustainability data solutions that unify disparate data on Fabric. Each capability contains a unique set of tools to help you prepare the data for ingestion, then transform and harmonize it for use in advanced analytics and AI modeling. Get started on your sustainability data transformation goals by creating solutions specific to your needs and deploying them to your workspace.

- [Learn about sustainability solutions](#)
- [Terms & Conditions](#)

Manage deployed capabilities

Name	Created at	Last refreshed	Status	Owner
 ESG data estate (preview)	15:00, 4/17/2024	15:02, 4/17/2024	Deployed	Sourav Chakraborty

Solution capabilities

Select each capability to learn about it and build your data transformation solution.

Computing sustainability metrics



ESG Data Estate

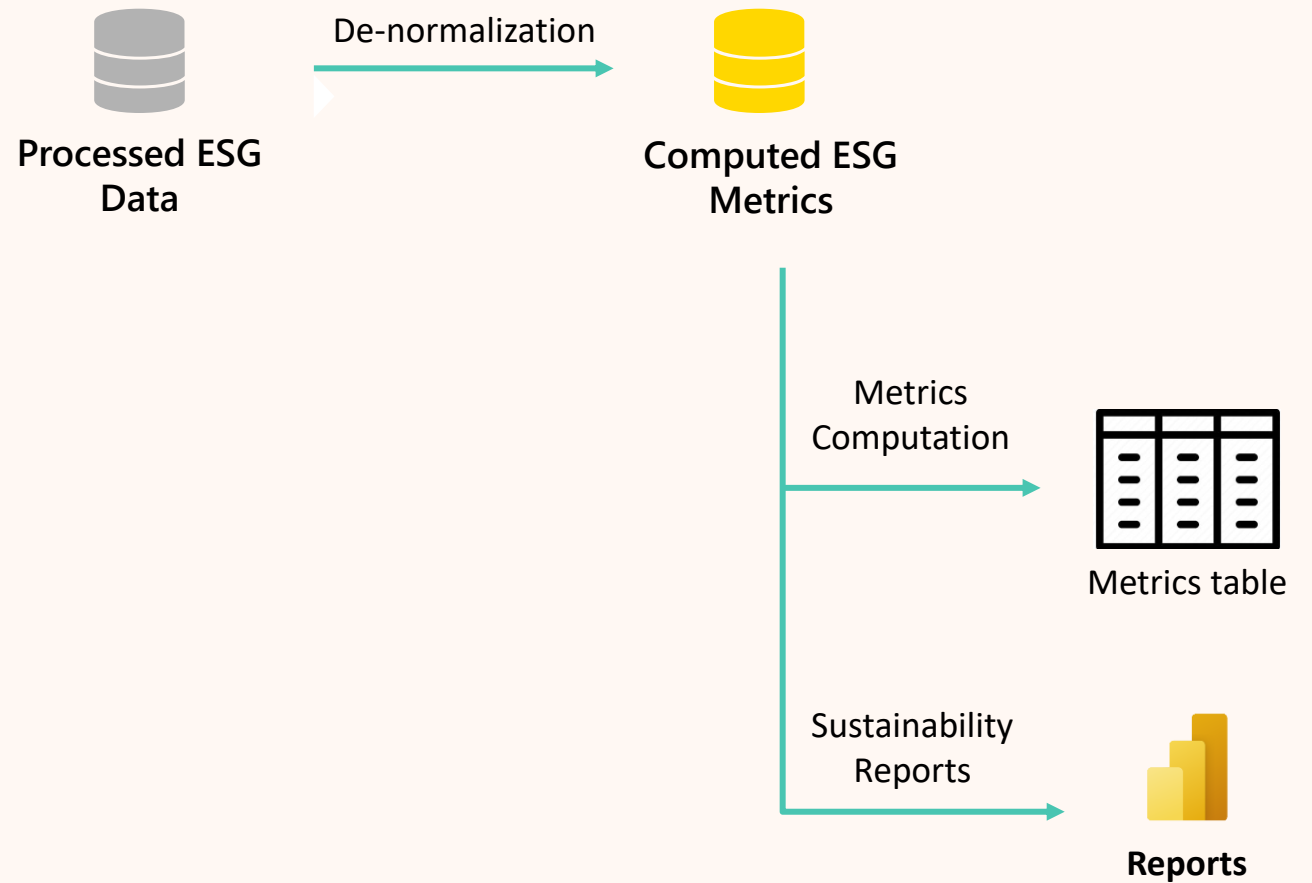
Computing metrics

De-normalization

Configurable to generate fact tables to support ESG metrics and analytical dataset

Metrics and reports

Customizable, extensible, and supports mandatory CSRD related metrics



- Home
- Create
- Browse
- Workspaces
- ESGDataEstateDemo
- SDS_ESGDE_ESGData...
- ESGDataEstate1
- Power BI

Home

Get data | New semantic model | Open notebook

Explorer

- SDS_ESGDE_ESGDataEstate1_ProcessedESGData_LH
 - Tables
 - Asset
 - AssetType
 - BusinessMetric
 - CalculationAlgorithm
 - CalculationAlgorithmBasis
 - Country
 - Currency
 - EmissionsRawDataImport
 - Employee
 - EmployeeLocation
 - EmployeeRelatedParty

Asset

Loading preview...

(0 sec 0 ms)

ESG Data Estate

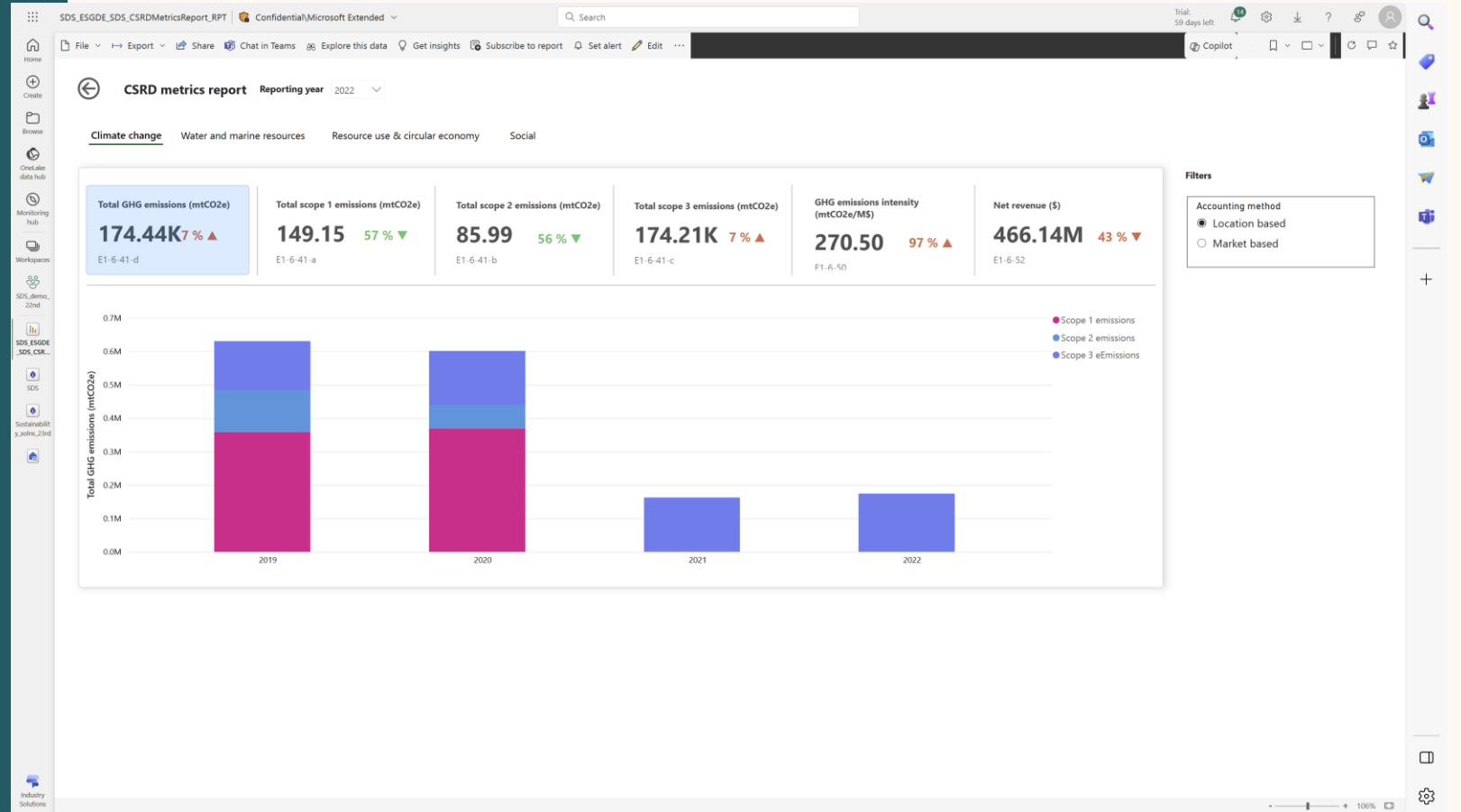
Visualizing data

Pre-built dashboards

Pre-built dashboards to visualize and explore metrics data

Power BI

Use Power BI with a semantic data model





Home



Create



Workspaces



ESGDataEstateDemo



SDS_ESGDE_ESGDataEstate...



SDS_ESGDE_ESGDataEstate...



ESGDataEstate



Data Engineering

	SDS_ESGDE_ESGDataEstate1_CreateWaterMetricsForSpecificReportingYear_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:29 GMT
	SDS_ESGDE_ESGDataEstate1_CreateWasteMetricsForSpecificReportingYear_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:32 GMT
	SDS_ESGDE_ESGDataEstate1_CreateEmissionsMetricsForSpecificReportingYear_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:35 GMT
	SDS_ESGDE_ESGDataEstate1_CreateSocialGovernanceMetricsForSpecificReportingYear_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:39 GMT
	SDS_ESGDE_ESGDataEstate1_GenerateWaterMetricTables_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:42 GMT
	SDS_ESGDE_ESGDataEstate1_GenerateWasteMetricTables_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:47 GMT
	SDS_ESGDE_ESGDataEstate1_GenerateEmissionsMetricTables_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:50 GMT
	SDS_ESGDE_ESGDataEstate1_GenerateSocialGovernanceMetricTables_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:55 GMT
	SDS_ESGDE_ESGDataEstate1_LoadDemoDataInProcessedESGDataTables_INTB	Notebook	Online	Fri, 15 Mar 2024 11:57:58 GMT
	SDS_ESGDE_ESGDataEstate1_GenerateESGTables_INTB	Notebook	Online	Fri, 15 Mar 2024 11:58:01 GMT
	SDS_ESGDE_ESGDataEstate1_CSRDMetricsReportDataset_DTST	Dataset	Online	—
	SDS_ESGDE_ESGDataEstate1_CSRDMetricsReport_RPT	Report	Online	—

Related sessions

Focus on Sustainability Data Solutions

Session	Title	Abstract	Speakers	Date
SUS04M	Introduction to Sustainability Data Solutions in Fabric (SDSF)	This introductory session will guide you through the foundational features of Sustainability Data Solutions in Fabric (SDSF). We will also uncover deployment best practices to maximize your Environmental, Social, and Governance (ESG) impact and investments.	Ravindran Gangadharan, Sourav Chakraborty	Monday, May 6
SUS05M	Audit compliance for Sustainability regulations	Discover how to adeptly navigate disclosure reporting requirements and utilize Microsoft Cloud for Sustainability to enhance the audit process, ensuring precision and compliance every step of the way. This session will provide an overview of the audit requirements for disclosure reporting and the capabilities provided by Microsoft for streamlining the audit process.	Neha Gupta, Chintan Rajvir	Monday, May 6
SUS05T	Microsoft Azure Emission Insights + Azure Carbon Optimization	Learn how to obtain, visualize, analyze, and optimize emissions data for Azure workloads. Discover the capabilities of Azure Carbon Optimization and Microsoft Emissions Insights offerings, and how they can empower you to make data-driven decisions for a more sustainable cloud environment.	Sourav Chakraborty, Kiran Motwani	Tuesday, May 7
SUS04W	SDSF + Azure OpenAI service + Azure AI Studio = An open platform for Copilot	In this session we will show you examples of leveraging an integration between the ESG data in Fabric and Azure AI services to meet sustainability analytic use-cases.	Sourav Chakraborty, Chintan Rajvir	Wednesday, May 8
SUS04R	Integrating Azure AI's Document Intelligence models with Sustainability Data Solutions in Fabric	Learn how to extract and transform unstructured data from sources like images, documents and forms, into structured data stored within delta lakes. We'll guide you through the process of creating an Azure AI instance, integrating with Azure Key Vault, and using SDSF notebooks to convert images or documents into usable data which can be further used for analysis within Fabric.	Abhinav Premsekhar, Deep Baldha	Thursday, May 9



Thank you!



→ How was the Summit? Share your feedback!

aka.ms/MCfSTSFeedback

→ ESG Data Estate documentation

[ESG data estate \(preview\) - Microsoft Cloud for Sustainability](#)

→ Join the Sustainability Community!

aka.ms/MCfSCommunity

→ Learning Resources

aka.ms/CloudforSustainabilityLearnCollection



Q&A

Please type your questions **in the chat** and we will answer them during the Q&A session.

