Digital 4 Sustainability
Skills for Europe's Twin Transition

BCS Koolitus

HOW DATA CAN DRIVE SUSTAINABILITY IN ORGANIZATIONS

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About me

AIPOWERMENT

- Over a decade of experience in the financial sector
- Data analytics and management, data governance
- AI strategy and its practical implementation

AIPowerment Community -

Estonia's first AI education and virtual community

AIPowerment Podcast

A podcast dedicated entirely to AI topics.

Spotify APPLE PODCASTS YouTube

What is sustainability?

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Topics

01 Introduction: terminology

02 Data Analytics in Action

03 First Steps to Implementation

04 Challenges

05 Conclusion

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Introduction:

Data and Sustainability

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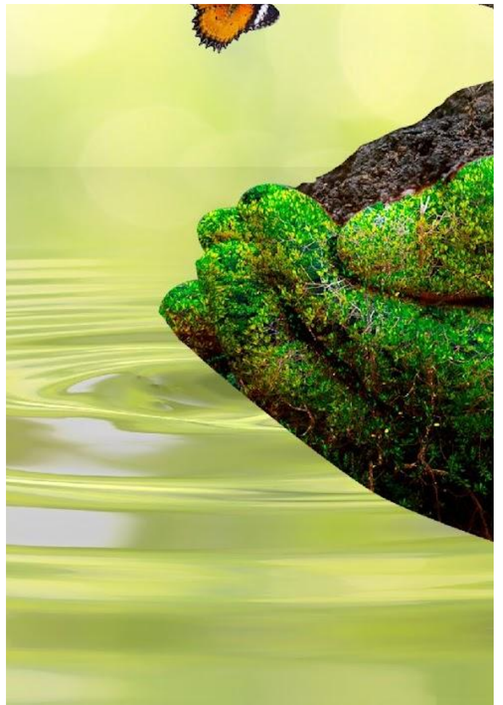
What Does Digital Sustainability Mean for Organizations?

- **Sustainability**: Meeting present needs without compromising future generations.
- **Digital Sustainability:** Using digital tools and data to support environmental, economic, and social sustainability.
- **The role of data professionals**: Collect, analyze, and drive decisions that align with sustainability goals.



Why Data is Critical to Sustainability Efforts?

The Power of Data -

enabler of informed decision-making.

- Resource Optimization
- Process Optimization
- Waste Reduction

Have you seen data used to support sustainability in your organization or elsewhere?

If yes, how?

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Data Analytics in Action: Supporting Sustainability

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Real world applications

IoT (Internet of Things)

for Real-Time Monitoring

AI (Artificial Intelligence)

for Predictive Analytics

IoT

IoT devices—such as sensors, smart meters, and connected machinery—collect real-time data.

Manufacturing: sensors on production lines.

Smart Buildings: smart thermostats

Barriers:

Implementation Complexity

AI

AI can take massive, diverse datasets and uncover patterns beyond human capability.

Production: predictive maintenance.

Transport & Logistics: AI-driven route and loading optimization

Barriers:

- Data Security & Privacy

Case Study: Google

Case Study: Siemens

Case Study: FedEx

First Steps to Implement Sustainability with Data

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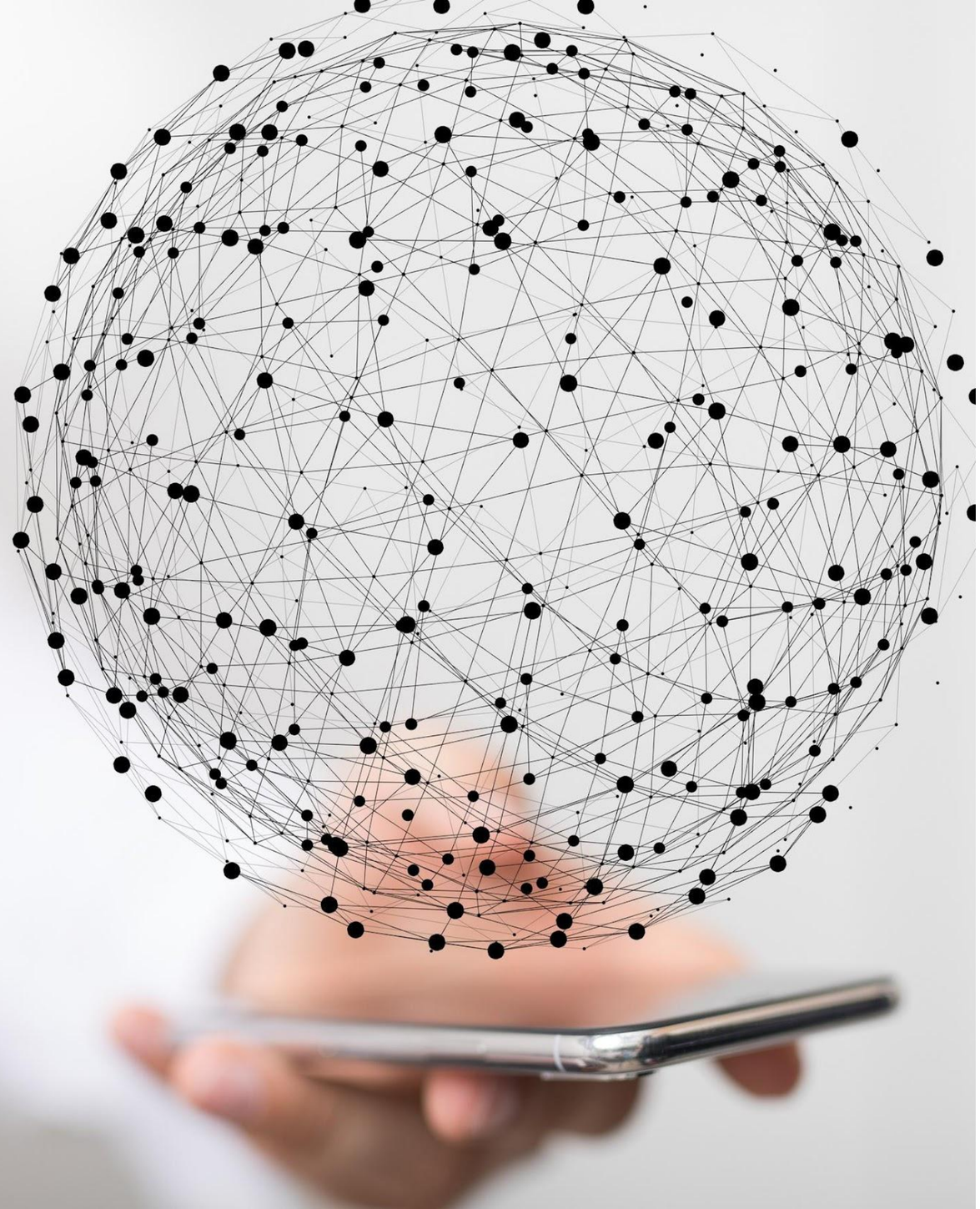
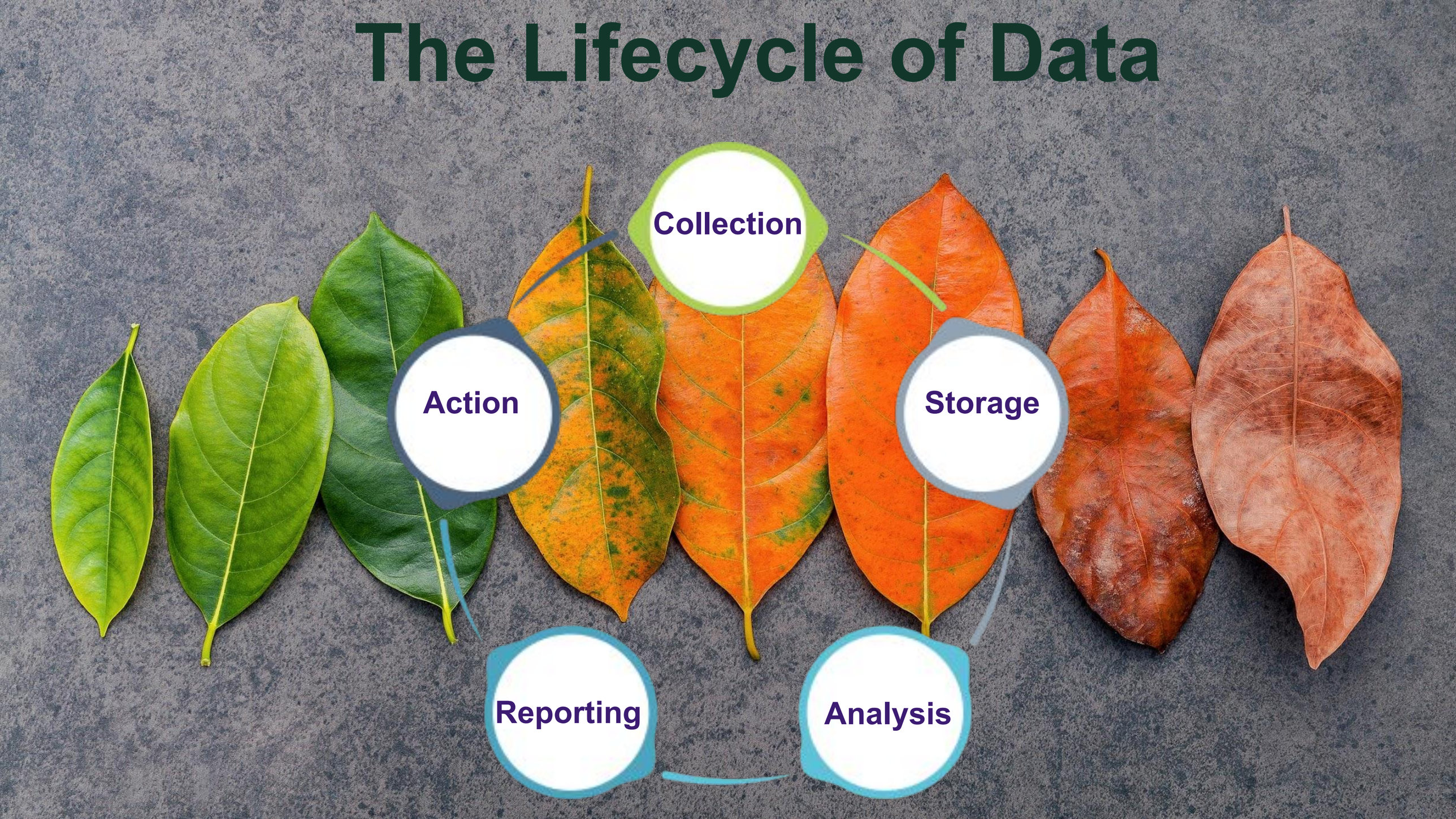


Laying the Foundation

- Identify Key Data Sources
- Ensure Data Quality & Reliability
- Collaboration Among Departments

Actionable Data VS “Noise”

The Lifecycle of Data



Sustainability Metrics and Visualizations

Key KPIs	Visualization Best Practices	Tools
carbon footprint, energy usage, waste	clear uncluttered visual cues	Power BI, Tableau Excel

Example KPIs

Energy & Emissions

- GHG Emissions Intensity
- Renewable Energy Percentage
- Energy Intensity

Waste & Materials

- Waste Diversion Rate
- Single-Use Plastics Volume
- Materials Circularity

Water & Resource Manage-ment

- Water Efficiency Ratio
- Water Reuse/Recycle Percentage

Transport & Logistics

- Fleet Fuel Efficiency
- Freight Emissions per Ton-Kilometer

How to Use KPIs

- Align with Goals
- Track Over Time
- Set Targets
- Visualize and Report

Visualization Best Practices

- Determine the audience
- Choose the Right Visuals
- Use structured layouts
- Leverage Color Hues
- Focus on Key Areas
- Keep it Simple
- Offer Interactivity
- Add clarity

Sustainability KPI Dashboard

2021 ACTUAL IMPACT
314,519 MTCO2e

2021 OFFSETS
219,482 MTCO2e

2021 NET IMPACT
95,037 MTCO2e

2021 Full Year | All countries | All regions

Energy Consumption

203,194 MTCO2e
93% REPORTING

257K
TARGET

Transportation

85,853 MTCO2e
100% REPORTING

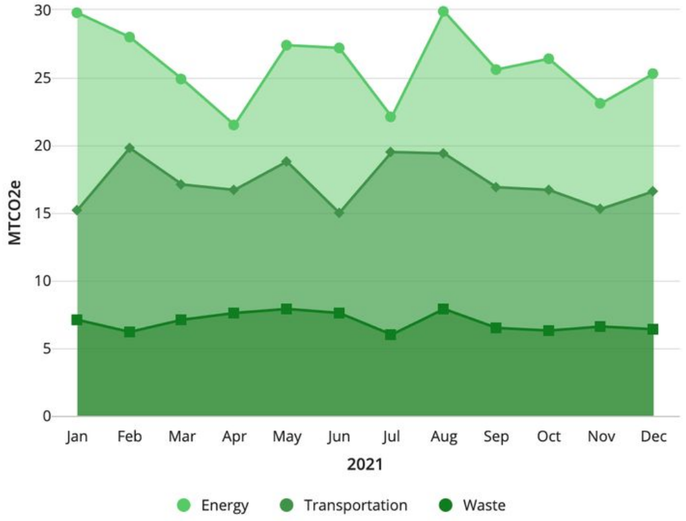
78K
TARGET

Waste

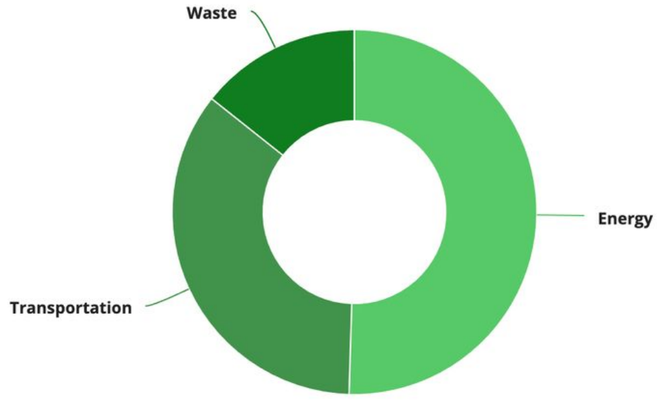
25,472 MTCO2e
100% REPORTING

34K
TARGET

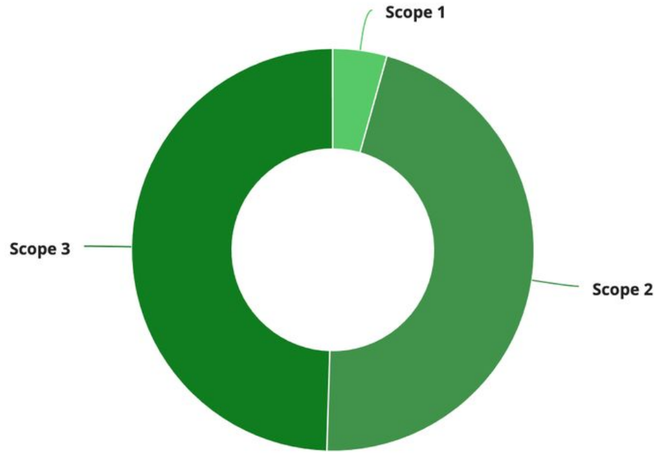
Emissions over Time



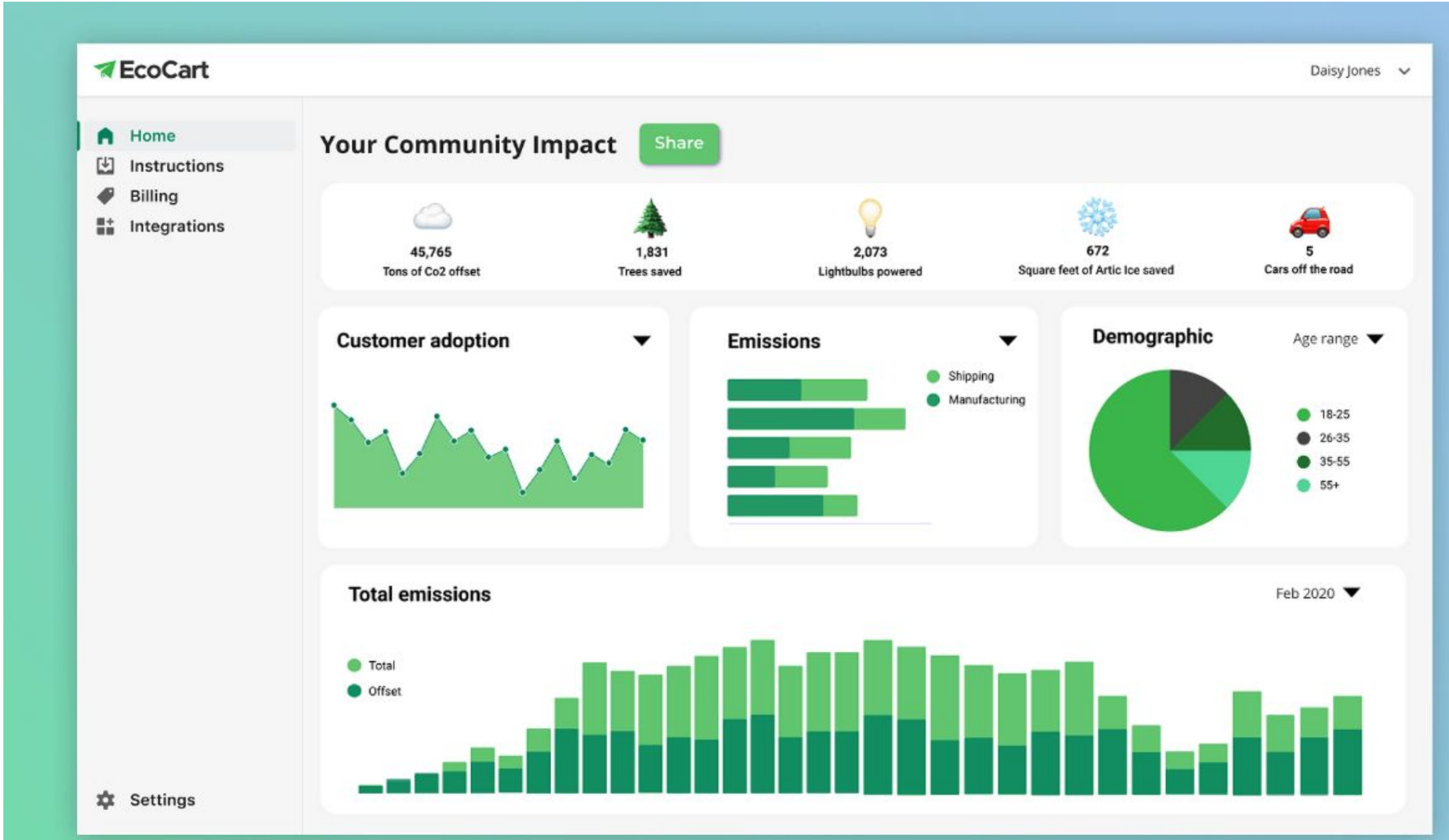
Emissions by Category



Emissions by Scope



https://www.inetsoft.com/info/sustainability-software-kpi-dashboards/



https://ecocart.io/esg-reporting-software/

https://www.researchgate.net/figure/Template-for-Key-Dashboard-Indicators-Sustainability-Dashboard-Tools-2012_fig1_274312357

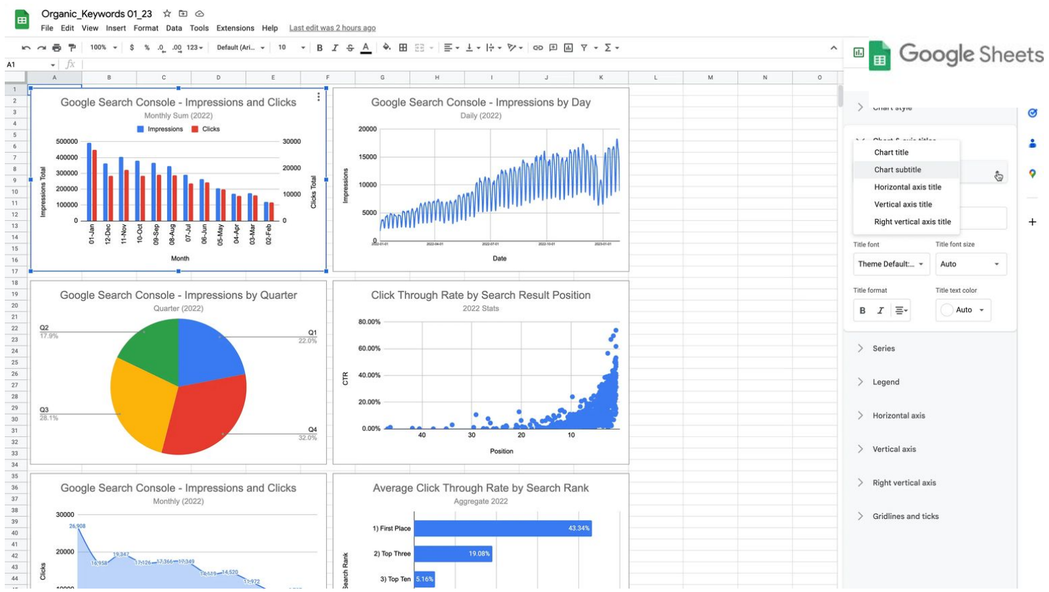
Pulp Sourcing

Clean Manufacturing

https://www.aprayon.com/en/media-english/news-releases/apr-sustainability-dashboard-goes-live/

Tools


Excel
Sustainability Toolkit – Saved to my Mac
Waste Solid (kg)
Waste Wet (m3)
Recycling (kg)
Water (m³)
Carbon (kgCO2-e)


Google Sheets
Organic_Keywords 01_23
Google Search Console - Impressions and Clicks
Monthly Sum (2022)
Google Search Console - Impressions by Day
Daily (2022)
Google Search Console - Impressions by Quarter
Quarter (2022)
Click Through Rate by Search Result Position
2022 Stats
Google Search Console - Impressions and Clicks
Monthly (2022)
Average Click Through Rate by Search Rank
Aggregate 2022
Chart title
Chart subtitle
Horizontal axis title
Vertical axis title
Right vertical axis title
Series
Legend
Horizontal axis
Vertical axis
Right vertical axis
Gridlines and ticks

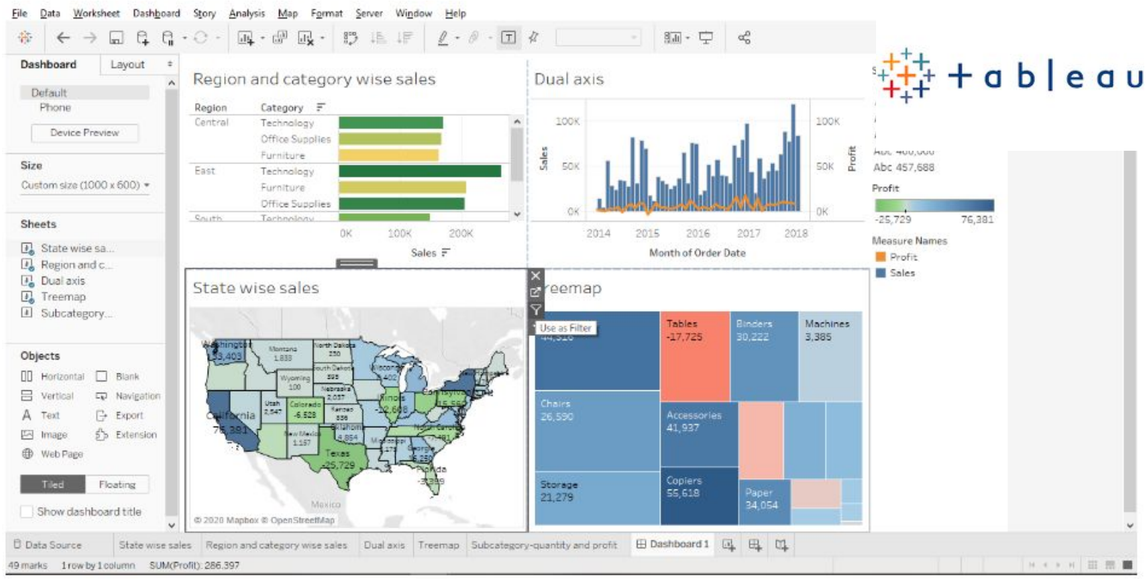
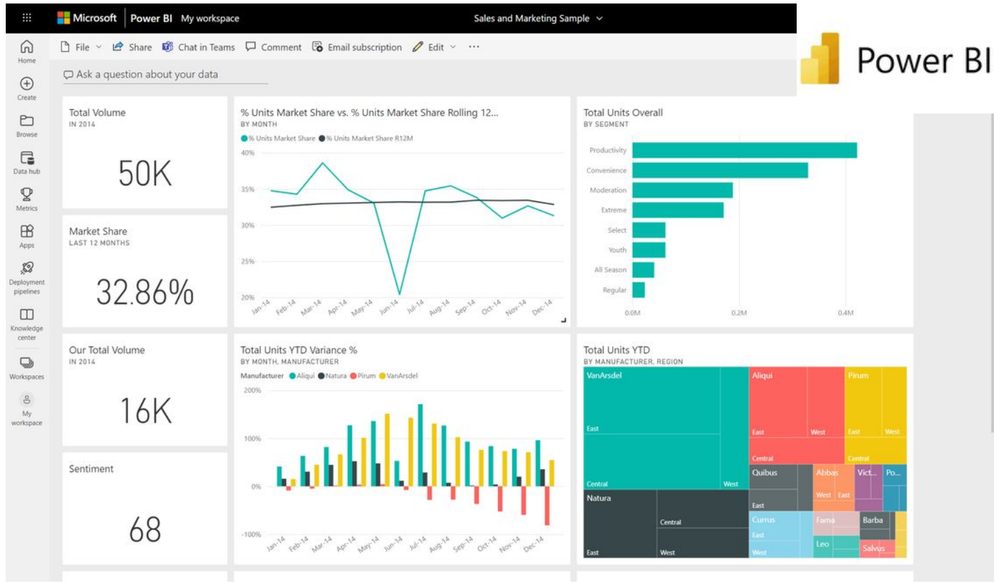
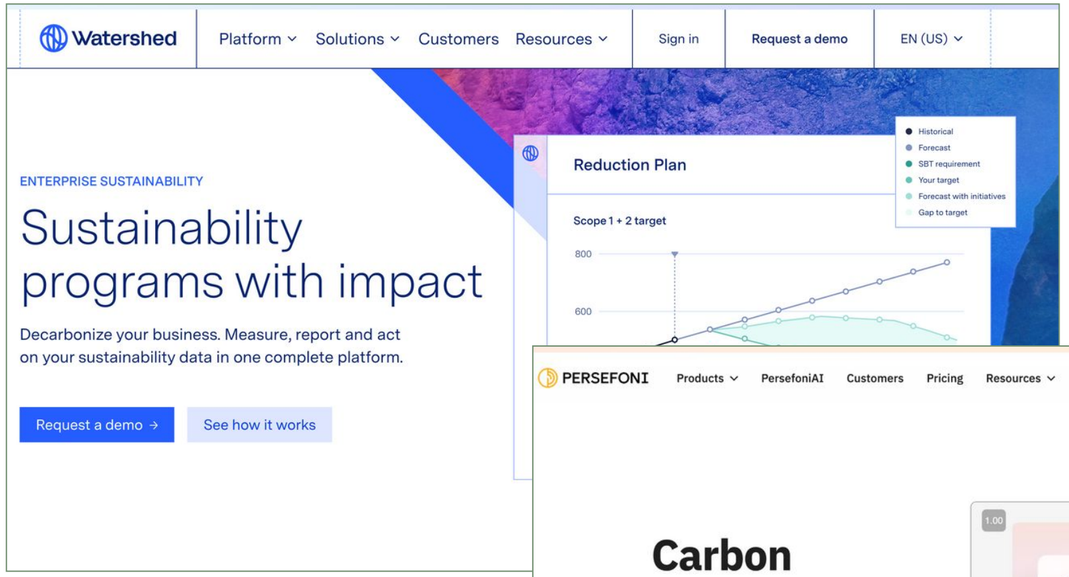
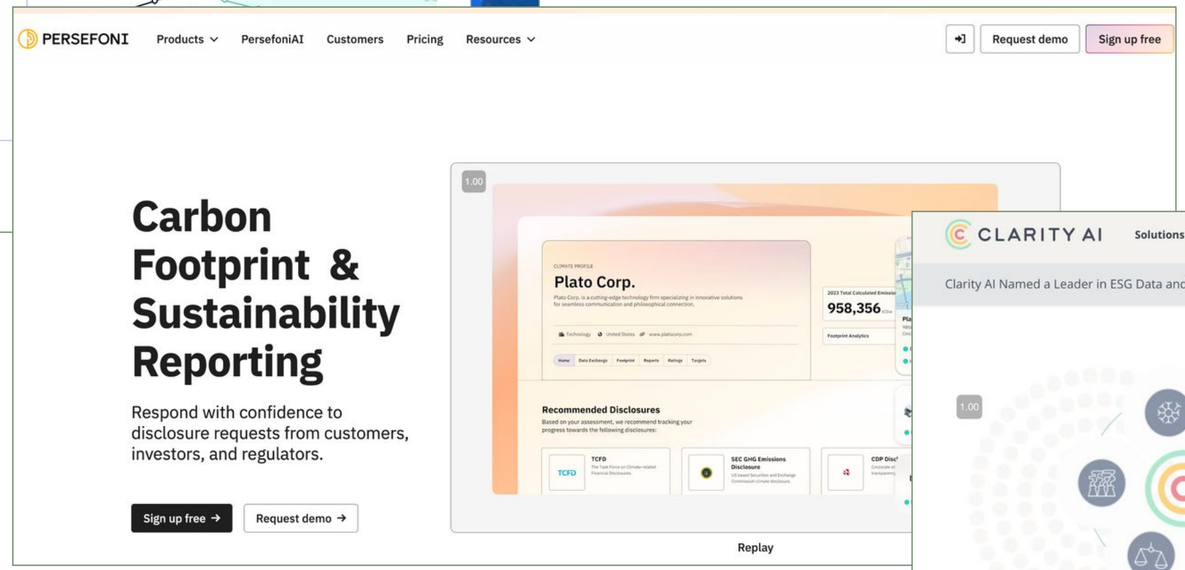


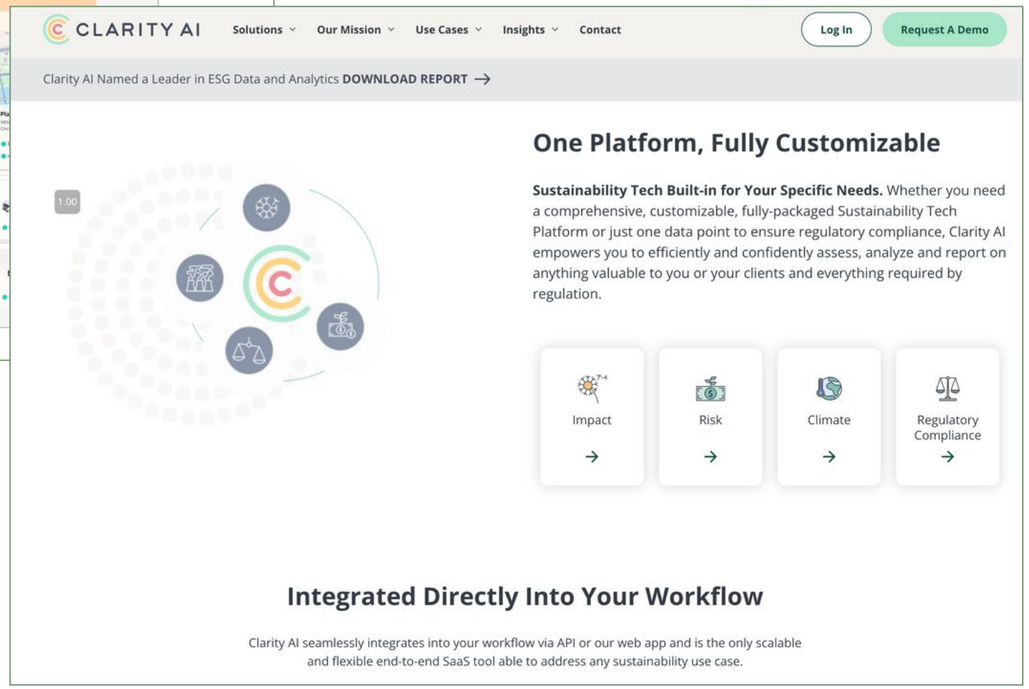
tableau
Region and category wise sales
Dual axis
State wise sales
Treemap
Dashboard
Layout
Sheets
Objects
Dashboard 1


Power BI
Microsoft Power BI My workspace
Sales and Marketing Sample
Total Volume
50K
Market Share
32.86%
Our Total Volume
16K
Sentiment
68
% Units Market Share vs. % Units Market Share Rolling 12...
Total Units YTD Variance %
Total Units Overall
Total Units YTD

AI Tools


Watershed
Platform
Solutions
Customers
Resources
Sign in
Request a demo
EN (US)
ENTERPRISE SUSTAINABILITY
Sustainability programs with impact
Decarbonize your business. Measure, report and act on your sustainability data in one complete platform.
Request a demo →
See how it works
Reduction Plan
Historical
Forecast
SBT requirement
Your target
Forecast with initiatives
Gap to target
Scope 1 + 2 target
800
600


PERSEFONI
Products
PersefoniAI
Customers
Pricing
Resources
Request demo
Sign up free
Carbon Footprint & Sustainability Reporting
Respond with confidence to disclosure requests from customers, investors, and regulators.
Sign up free →
Request demo →
Plato Corp.
958,356
Recommended Disclosures
Replay


CLARITY AI
Solutions
Our Mission
Use Cases
Insights
Contact
Log In
Request A Demo
Clarity AI Named a Leader in ESG Data and Analytics DOWNLOAD REPORT →
One Platform, Fully Customizable
Sustainability Tech Built-in for Your Specific Needs. Whether you need a comprehensive, customizable, fully-packaged Sustainability Tech Platform or just one data point to ensure regulatory compliance, Clarity AI empowers you to efficiently and confidently assess, analyze and report on anything valuable to you or your clients and everything required by regulation.
Impact
Risk
Climate
Regulatory Compliance
Integrated Directly Into Your Workflow
Clarity AI seamlessly integrates into your workflow via API or our web app and is the only scalable and flexible end-to-end SaaS tool able to address any sustainability use case.

Considerations When Selecting Tools

cost

user-friendliness

integration

scalability

data privacy

security

customer service

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Addressing Challenges: Risks and Trade-Offs

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What potential risks or challenges do you think might arise when building a sustainability dashboard?

Data Quality and Privacy

Incomplete or Inaccurate Data

Ownership & Accountability

Consistent Standards & Validation

Garbage in, garbage out

Sensitive Information

GDPR / Other Regulations

Balancing Transparency & Compliance

Key Sustainability Regulations & Frameworks

ESG (Environmental, Social, Governance)

What: Framework for evaluating sustainability across environmental, social, and governance dimensions.

Why: Central to investor decisions and stakeholder trust.

CSRD (Corporate Sustainability Reporting Directive)

What: EU directive requiring sustainability reporting.

Why: Broadens reporting scope to more companies, integrating sustainability into business strategy.

Other:

ISO 14001: Environmental Management Systems.

GHG Protocol: Measuring carbon emissions - scope 1-3


"WIND BEATS COAL BY ANY ENVIRONMENTAL MEASURE, BUT THAT DOESN'T MEAN THAT ITS IMPACTS ARE NEGLIGIBLE."
David Keith, *Professor of Applied Physics at the Harvard John A Paulson School of Engineering and Applied Sciences*

The Sustainability-Energy Paradox

Data Centers' High Energy Use

IoT & Sensor Networks

Short Hardware Lifecycles

100% Renewable energy

Optimizing Storage

Efficient hardware

Flexible workloads

Cultural & Organizational Barriers

- Siloed Teams
- Lack of Leadership Buy-In
- Resistance to Change

- Accountability
- Shared wins

Summary

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Takeaways

DATA-DRIVEN DECISIONS	Using real-time metrics, predictive analytics, and transparent reporting leads to more informed decisions.
DATA PROFESSIONALS ARE THE KEY	Data professional’s expertise is critical to turning raw data into clear guidance for sustainability initiatives.
COLLABORATION AND CULTURE	Effective data-driven sustainability is a team sport
RISKS	Data quality (garbage in-garbage out) and privacy are key topics in future organizations.
CONTINUOUS IMPROVEMENT	Sustainability isn’t a static goal. It’s an ongoing process of measuring, analyzing, and refining strategies.

Next steps

1. Identify a Pilot Project
2. Gather & Validate Data
3. Engage Stakeholders
4. Track Progress & Iterate

TIPS:

Keep it concrete

Assign project lead

Use resources

More resources

World Resources Institute (WRI) - Research, data tools, and policy analysis on climate, forests, water, and more.

CDP (Carbon Disclosure Project) - Global disclosure system for companies, cities, and governments to manage environmental impacts.

GHG Protocol - Widely used frameworks for measuring and managing greenhouse gas emissions (Scopes 1, 2, and 3).

Global Reporting Initiative (GRI) - International standards for sustainability reporting, including data-driven indicators.

“How to Measure Anything” by Douglas Hubbard - Book that teaches practical techniques to quantify intangibles and make data-driven decisions.

IPCC (Intergovernmental Panel on Climate Change) - Comprehensive scientific reports on climate change, its impacts, and mitigation strategies, using large-scale data models.

ESG Today - ESG investing news, analysis, research and information.

Watershed - Carbon accounting and management platform that uses data analytics to help businesses track and reduce emissions.

Persefoni - Enterprise carbon management software that leverages AI to measure, monitor, and reduce carbon footprints.

Climate Neutral Data Centre Pact - Industry initiative aiming to make data centers in Europe climate-neutral by 2030 through energy efficiency and data transparency.

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Any thoughts?

Questions?

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Please give us feedback

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Thank you

Let's connect on LinkedIn?

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