A COMBIENT PURE STUDY

Digitala Stambanan

Leveraging technology to manage supply chain emission data

FUNDED BY THE DIGITALA STAMBANAN PROJECT

Combient Pure drives low carbon and circular business transformation through multi-company collaboration

www.combientpure.com

Contents

Study results by Combient Pure

- Background and scope of work
- Carbon accounting
  - Brief overview on carbon accounting
  - How do Combient companies calculate their upstream data?
  - What Scope 3 data issues do Combient companies face?
- Technological solutions
  - Make or buy?
  - Third-party tools
  - What about AI?
- Recommendations

Background and scope of work

Background for the study

In its discussions with the Combient Network, Combient Pure has identified widespread difficulties for Nordic manufacturing companies to measure and manage Scope 3 emissions. Companies want to overcome obstacles related to collecting data, selecting right IT tools and providers, and generating insights from the consolidated data. Inefficiencies in data collection and reporting processes mobilize resources that could be deployed to decarbonisation efforts.

With the support of Vinnova's Digitala Stambanan project, Combient Pure has conducted a study on Combient Network's manufacturing companies' challenges to collect, measure and manage supply chain emission data. The study provides an overview of these challenges, insights into existing solutions as well as recommendations for supply chain emission data management.

For further information, please contact Combient Pure through pure@combient.com.

Follow Combient Pure on LinkedIn and read more about our projects on www.combientpure.com

Study methods

Desktop research

State of Value Chain Decarbonization Survey 2024 on Combient companies, conducted by Combient Pure

Interviews with Combient companies

Interviews with solution providers and analysts

Interviewed companies

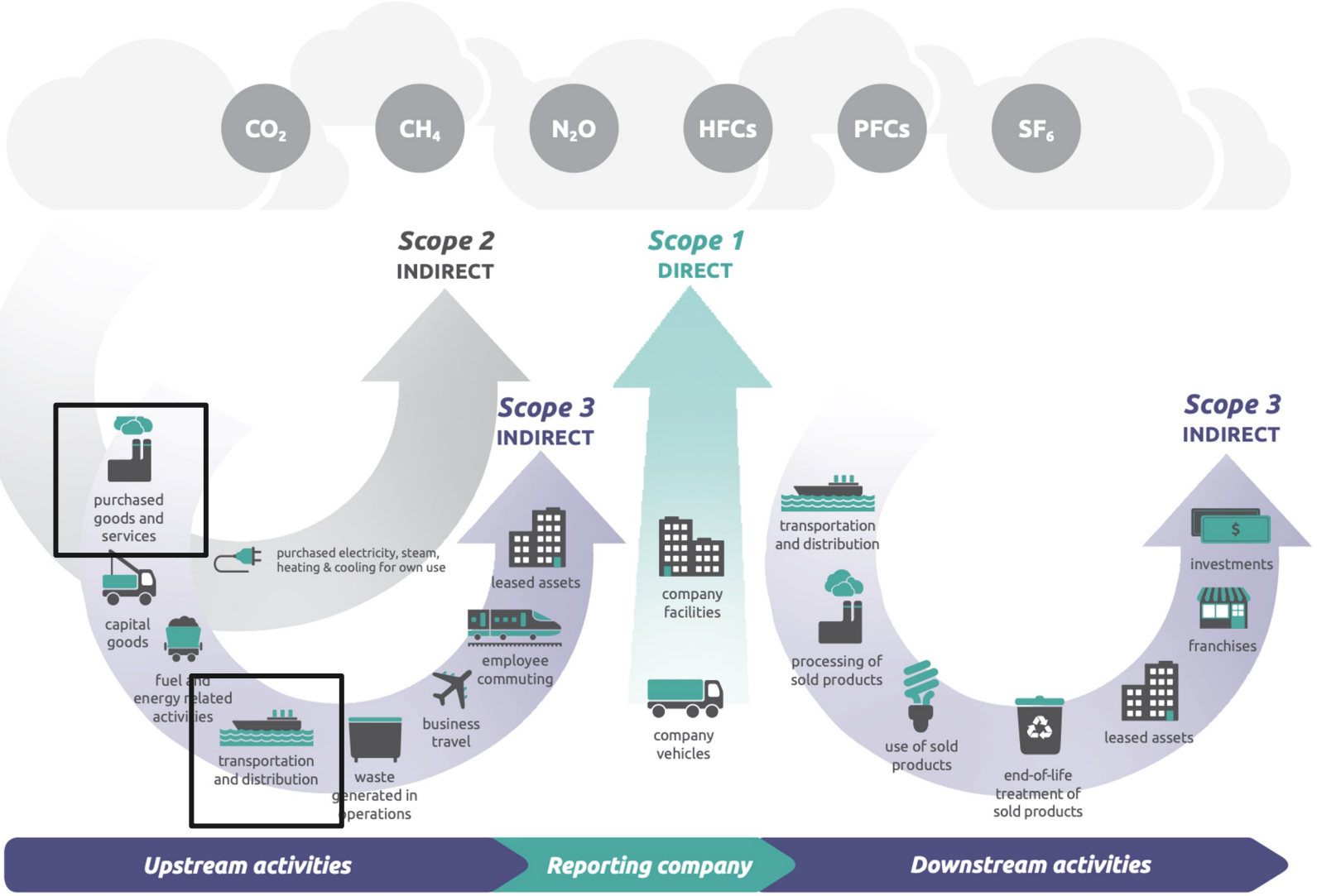
The Combient network

WE INTERVIEWED 21 EXPERTS FROM 15 INDUSTRIAL COMPANIES FROM THE COMBIENT NETWORK

THE INTERVIEWEES PRIMARILY PRESENTED SUSTAINABILITY AND PROCUREMENT FUNCTIONS

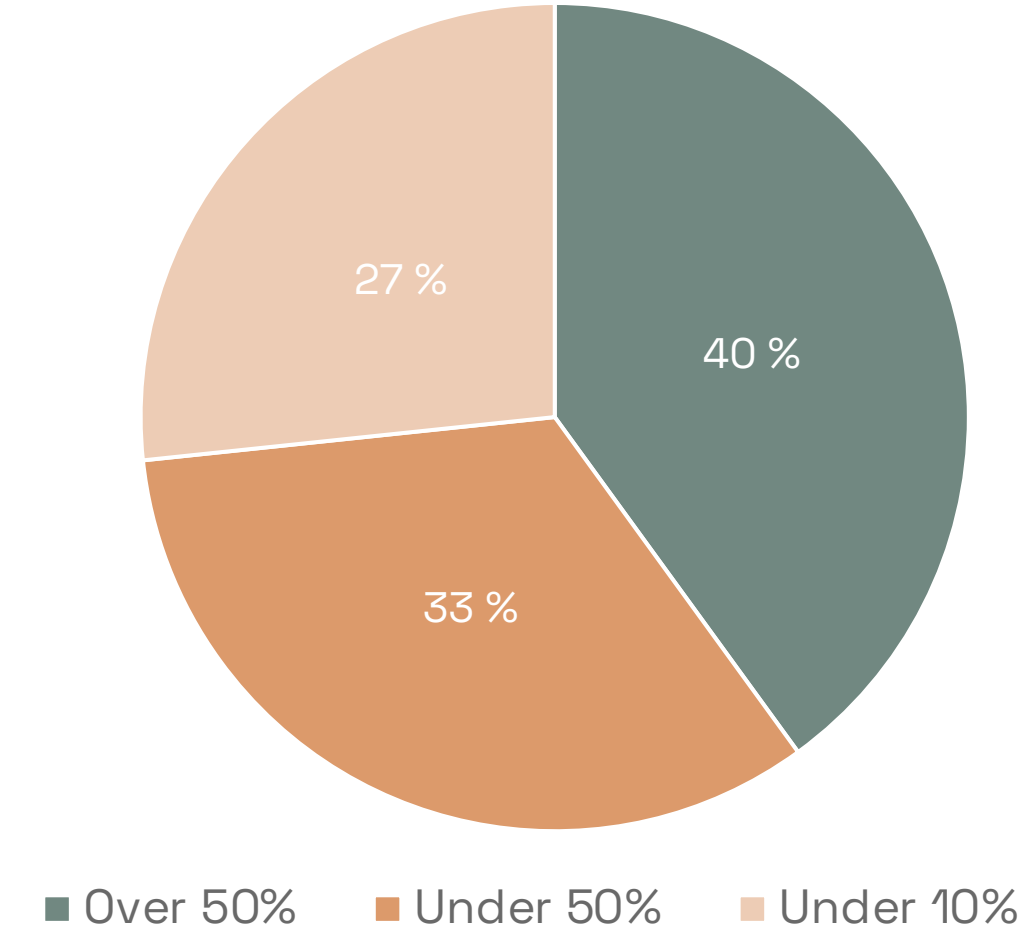
Focus on Scope 3 upstream emission data

For the companies interviewed, Purchased Goods and Services (3.1) and Upstream Transportation and Distribution (3.4) are typically the material categories within upstream Scope 3 emissions.



The significance of upstream emissions varies greatly across the companies interviewed

Share of upstream emissions in companies' reported emissions



Source: Combient Pure interviews and company annual reports

Carbon accounting

Brief overview on carbon accounting

Carbon accounting methods

Carbon accounting requires two sets of data: business data and emission factors.

Business data describes the activities of a company through **financial flows (spend)** or **physical flows (activity).**

Emission factors model the carbon intensity of a given unit of business data.

Spend-based calculation method

The spend-based emission calculation method estimates emissions based on the monetary value of goods and services. Here emissions are calculated by multiplying the organization's spending on a purchasing category or a supplier by an emission factor specific to the category or the supplier.

This method is not very accurate or specific. However, it does not require detailed data and it is relatively unexpensive and straightforward to implement.

Reduce emissions = Buy less

Activity-based calculation method

The activity-based emission calculation method estimates emissions based on physical units of goods, such as kilograms of steel, litres of fuel or numbers of laptops.

This method is more accurate and allows to be more specific. It does require much more detailed data and it is more expensive and complex to implement. Accuracy and specificity are dependent on the right emission factors.

Reduce emissions = Buy better

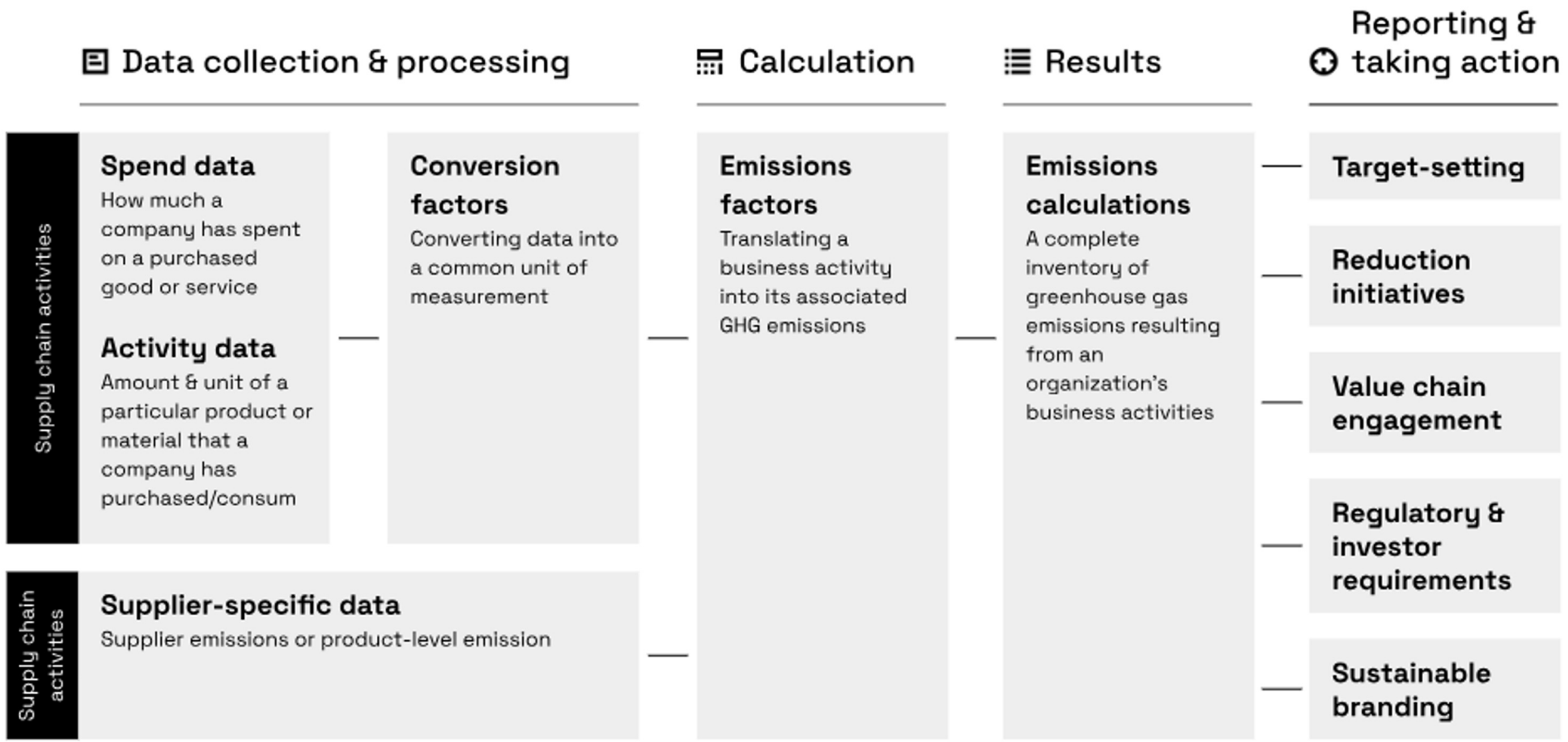
Secondary and Primary data

Primary emission data refers to information specific to a product or an activity. It can be collected from suppliers or monitoring equipment.

Secondary emission data refers to information based on databases and other statistical generalizations. It can be collected from public or proprietary sources.

Primary data is more specific, but its cost of acquisition can be very high. If it is only declaratory, it is not necessarily more accurate.

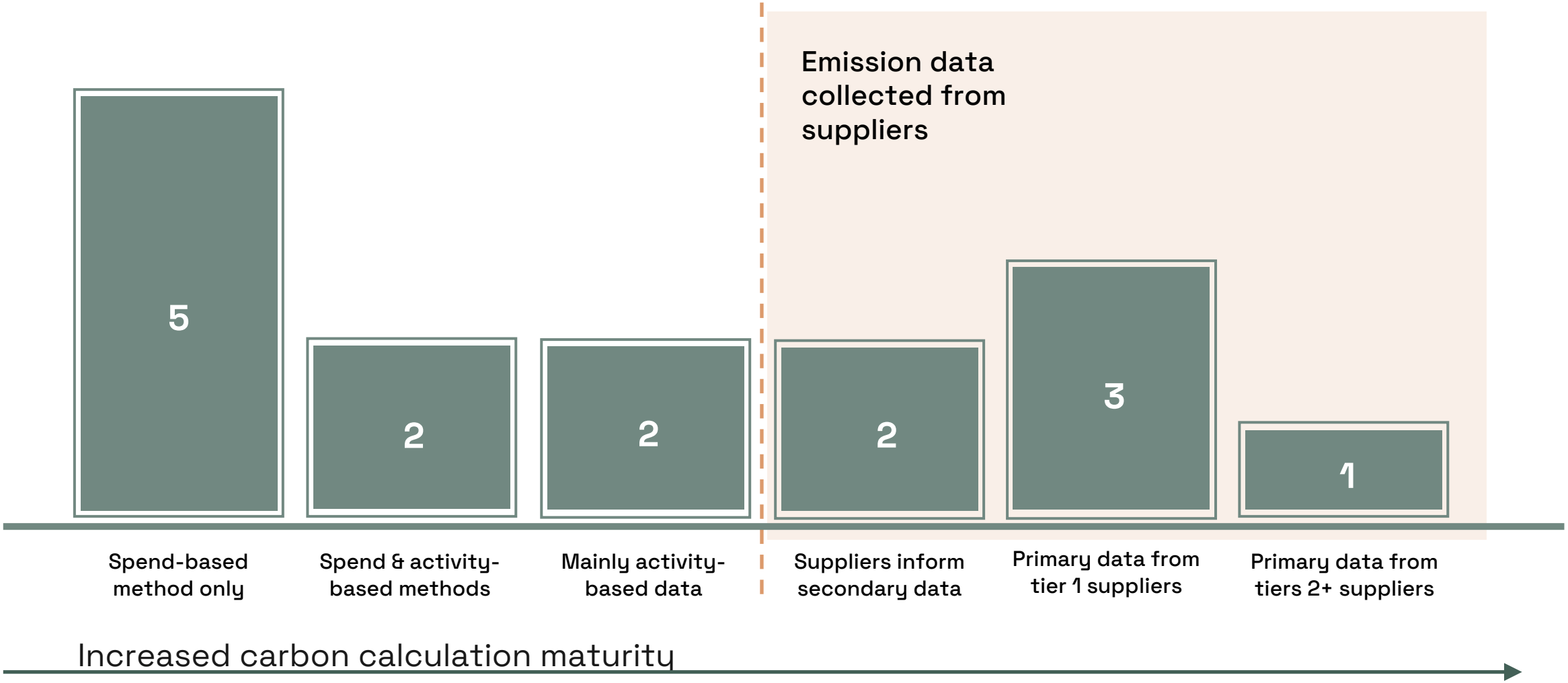
Carbon accounting process



Source: Normative.io https://normative.io/insight/carbon-accounting-explained/

How do Combient companies calculate their upstream data?

Significant variance in how companies interviewed measure their upstream emissions



Source: Combient Pure interviews, Combient Pure analysis

Factors influencing maturity

Share of upstream emissions in total reported Scope 3 :

- Companies where upstream is less than 30% of reported scope 3 emissions are less likely to engage with suppliers

> *We have been focusing solely on product usage since that represents 90% of our emissions. We are only starting to look at materials.*

Position in value chains:

- Part manufacturers purchasing raw materials are more likely to access good quality data than companies further down the value chain

> *The more complex the item you buy, the more difficult it is to pinpoint the related emissions.*

Source: Combient Pure interviews, Combient Pure analysis

Factors influencing maturity

SBTi commitments and regulation:

- SBTi targets, CSRD and CBAM have pushed companies to direct attention to upstream emissions and include them in targets

> *We could say we have reduced x% of our supplier's emissions and mention in fine print that it concerns only scope 1 of suppliers - this will not be possible anymore*

Business goals for upstream calculations:

- When companies are primarily calculating Scope 3 emissions for reporting purposes or for detecting emission hotspots, spend-based methods may be sufficient

> *We have not gone that far to think about the emission reduction practices based on the data*

Source: Combient Pure interviews, Combient Pure analysis

> By talking with our copper suppliers, we realized they use only scrap, so we could switch to a lower emission factor from Ecoinvent

Source: Combient Pure interviews

> We are refraining from anything that could remotely be considered as greenwashing. We probably use much more recycled materials than what we report.

Source: Combient Pure interviews

Why not ask primary data from suppliers?

- Focus has been on downstream data
- Suppliers don’t have LCA data
- Don’t know how to validate data
- Current system doesn’t support supplier data

Source: Combient Pure interviews, Combient Pure analysis

What Scope 3 data issues do Combient companies face?

Common issues in Scope 3 data management

1. Internal data availability

2. Supplier data availability

3. Diversity of standards

4. Organizational friction

5. Resource constraints

6. Tooling issues

Source: Combient Pure interviews, Combient Pure analysis

1. Internal data availability

- Mass information or even categorisation missing from sourcing data
- Complex ERP landscape with data scattered in different systems
- Low quality of product data

”In some our ERP systems there is not even a field for item weight”

“We may buy a 100 kg engine and sourcing data shows only 1 engine of power X”

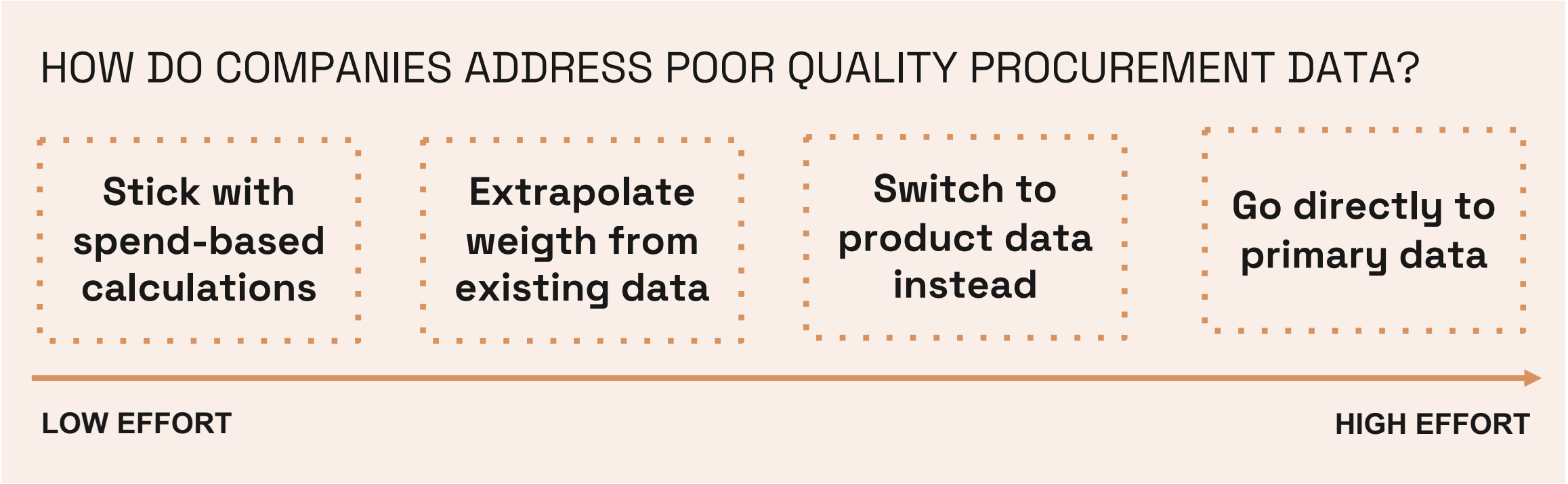
”We need to ask our suppliers what we buy because we have no idea”

“There is not a single day where I don’t wish that we would have one single SAP in use everywhere. Would make many things so much easier.”

“Our bills of material are help empty and procurement data is missing as well”

Source: Combient Pure interviews, Combient Pure analysis

1. Internal data availability



Source: Combient Pure interviews, Combient Pure analysis

2. Supplier data availability

- Suppliers have no data to provide
- Suppliers are reluctant to provide data
- Suppliers provide unclear data
- Suppliers provide wrong data
- No access to upstream transportation data
- Access to emission hotspot

"Small companies don't have the data and resources to calculate so procurement should educate them, otherwise we are forced to work only with conglomerates."

"We are a small buyer so suppliers will get rid of us if we put too much pressure on them."

" Chinese suppliers refuse to share data, so we use industry averages that are probably outdated and we can't capture any progress. "

"I cannot trust what the suppliers say, they would say whatever sounds good."

Source: Combient Pure interviews, Combient Pure analysis

3. Diversity of standards

- Ambiguity and flexibility allowed by the GHG protocol
- Lack of guidance on emission factor selection
- Lack of data-sharing infrastructure

” The lack of standards for supplier data is a big challenge”

“Suppliers have all different ways of calculating emissions, I wish it was more standardized”

“I wish the industry could agree on a few databases that are the main references and decide to use those”

Source: Combient Pure interviews, Combient Pure analysis

4. Organizational friction

- Lack of incentives to improve data quality or processes
- Capability gap in procurement
- Disconnect between PCF (product carbon footprint) and Scope 3 (organizational) calculations
- Decentralization

” Procurement is supposed to fill in transportation data in our system, but they don’t .”

“No one cares about the BOM of a 5-6 year old product, very difficult to incentivize business to fill the BOM at a level of granularity required for carbon calculation.”

“Decentralization is one of our key success factors, but from an emission calculation and decarbonisation point of view it would be very nice if we could centralize more things, so we would work in a more consistent way. The more we grow, the more difficult it gets.”

Source: Combient Pure interviews, Combient Pure analysis

5. Resource constraints

- Not enough hands
- Reliance on external consultants
- Uncertainty on how to validate supplier data
- Limited budgets
- No clear business case

” We have hundreds of people working with financial data, but for sustainability data we are 2 people in this company. We need to close the gap.”

“We need investments into this, but there is no strong business case. Solutions exist, but we don’t have the budget.”

“Most efforts in Scope 3 calculation come from explaining to suppliers why this should be done and how to do it, and then validating data”

Source: Combient Pure interviews, Combient Pure analysis

6. Tooling issues

- Lack of automation for data flows.
- Lack of automation for emission factor gathering
- Lack of suitable third-party tool.
- Decarbonisation not visible from data.

” Our carbon calculations are done in three excels.”

“Connecting the activity data with emission factors is very manual work that takes most of our time”

“It is very difficult to find the right emission factors”

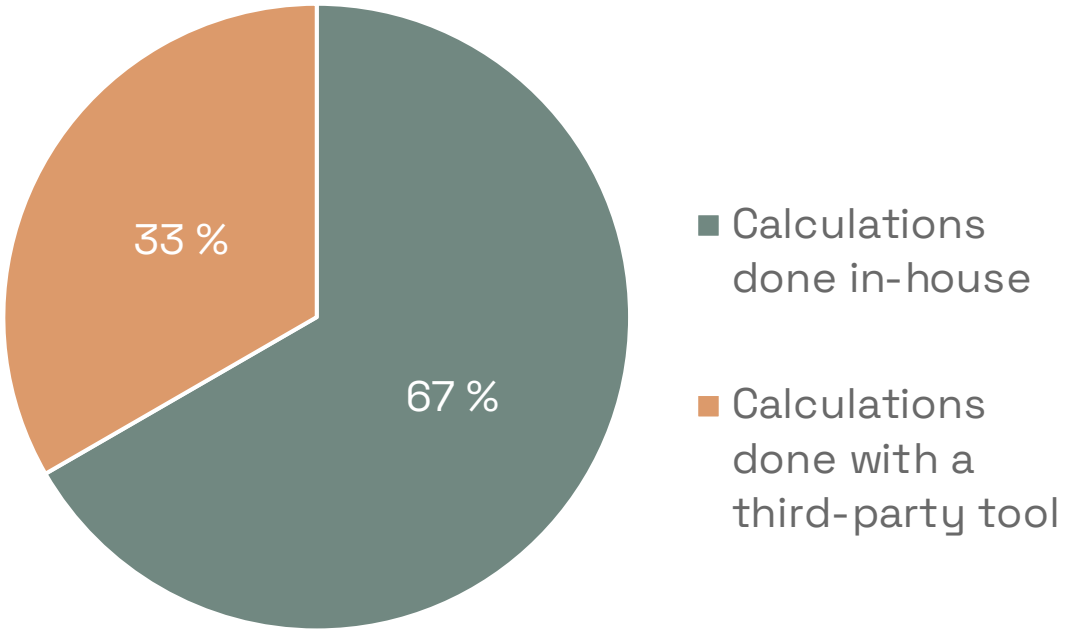
“Hard to see impact of investments in emission reductions because the data is not accurate enough”

Source: Combient Pure interviews, Combient Pure analysis

Technological solutions

Make or buy?

Most industrial Combient companies calculate Scope 3 emissions with tools developed in-house



- In-house developed tools vary from a collection of excels updated manually to automated processes built on databases, connected to data lakes and linked to BI reporting
- Emission factors are typically assigned by external consultants, or sometimes by internal specialists

Source: Combient Pure interviews, Combient Pure analysis

Why not use third-party tools?

"We have seen several tools that were in the development phase but we wanted to have something that was finished."

"I have reviewed lots of systems, none of them built for our industry"

"I like control!"

"Anything linked to sales data is confidential, we will never transfer that into a third-party tool."

"These tools require a level of data granularity and quality that we don't have."

"We can't find a provider that is good enough, no tool can provide the details and format we need. "

"Integrating all our data sources into an external tool would be very complicated and expensive"

Combient Pure

Source: Combient Pure interviews

Factors favoring in-house tools

- Companies with a majority of downstream emissions are much less likely to use a third-party tool
  - *Confidentiality of sales data, calculation model too company-specific*
- Companies with a large number of data sources are less likely to use a third-party tool
  - *High cost of integration*
- Companies with a very decentralized culture are less likely to use a third-party tool
  - *Harder to enforce use across organisation*

Source: Combient Pure interviews, Combient Pure analysis

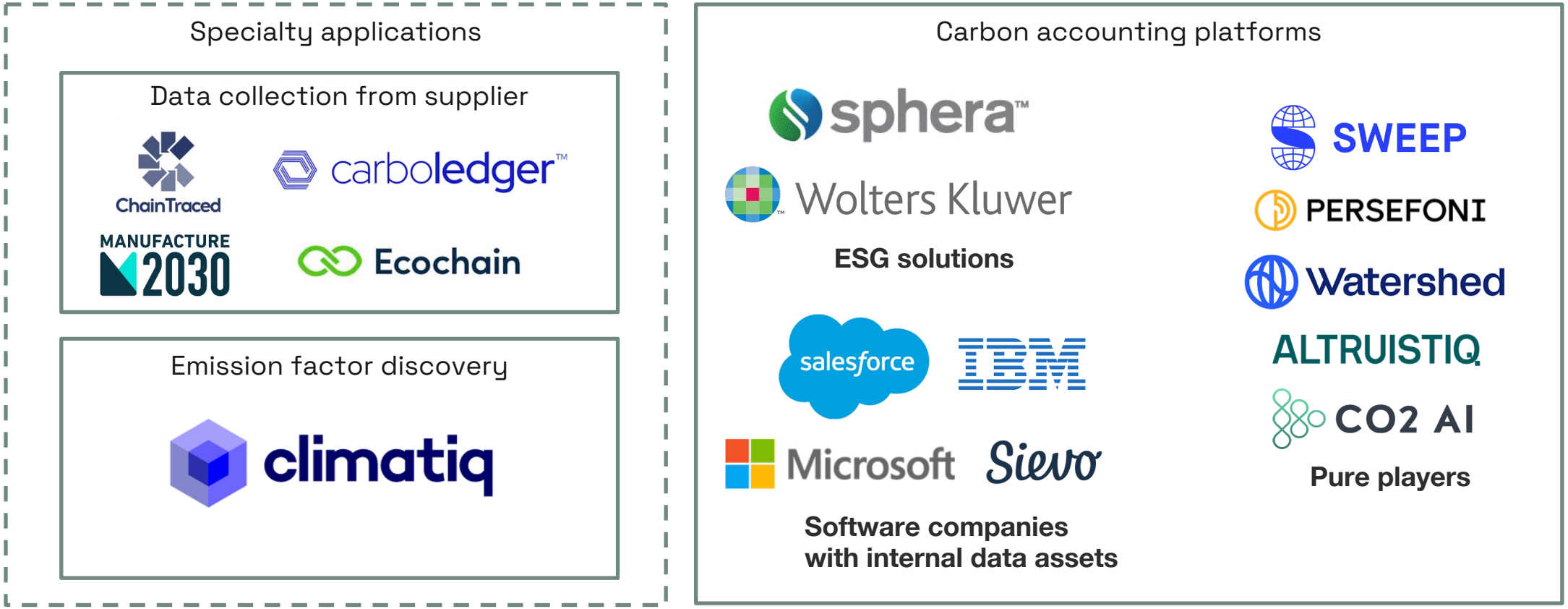
Third-party tools

A crowded market with a broad range of capabilities offered

	Measure	Manage	Reduce	Report
BASIC	Supplier readiness Baselining and hotspot analysis	Basic data analytics Emissions glidepaths	Supplier capability-building	Data exports API Integrations Auditable data sets
ADVANCED	Primary data collection Carbon calculator for suppliers Product Carbon Footprints	Scenario modeling Data quality indicator Internal carbon pricing	Decarbonization levers Project tracking and implementation	Smart workflows for standard disclosures External stakeholder access

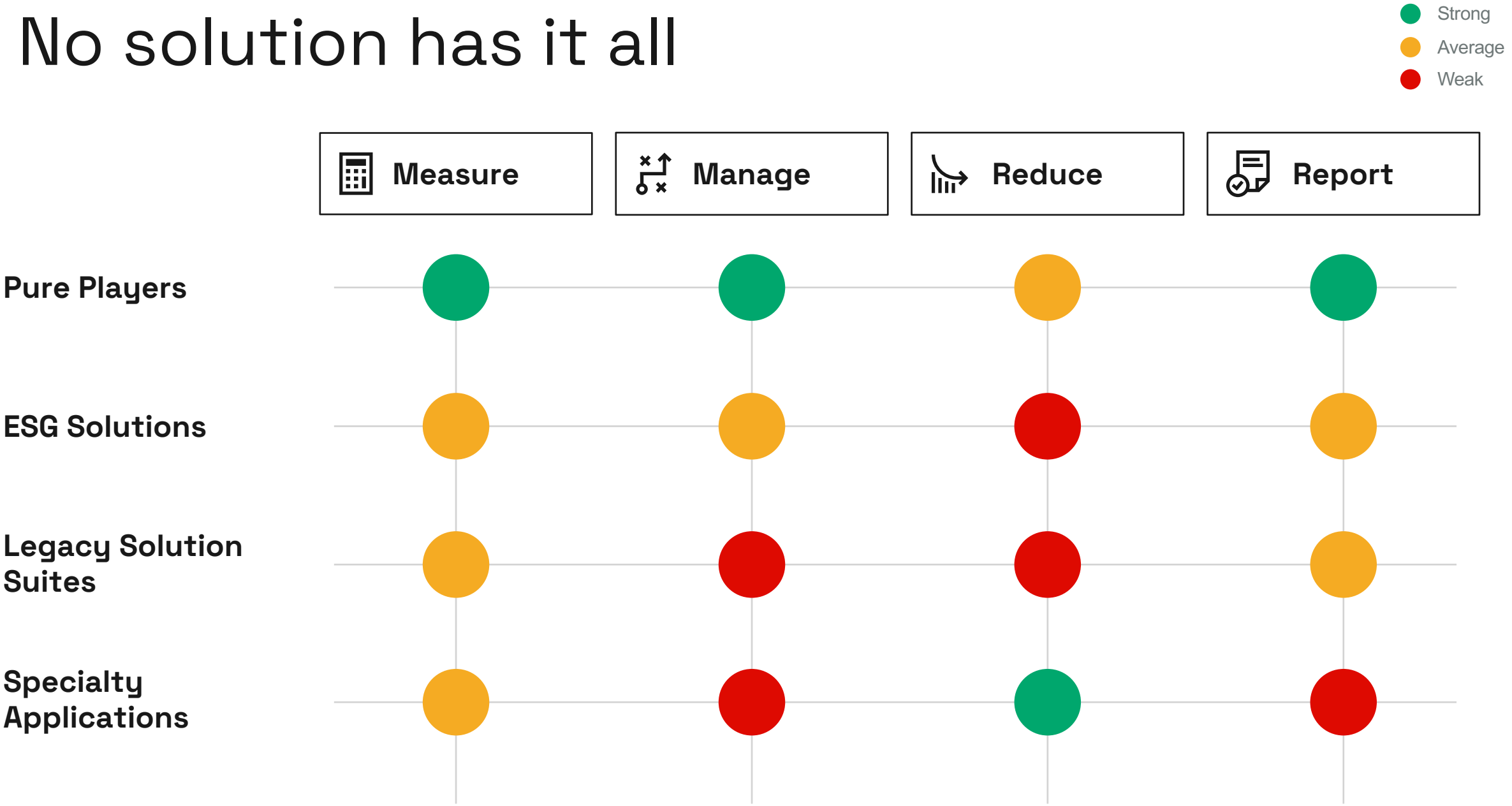
Source: [Navigating the Technology Landscape for Scope 3 Solutions - Gartner]

Examples of third-party tools for carbon accounting



Sources:
Combient Pure interviews, Verdantix Green Quadrant: Enterprise Carbon Management Software 2023, The Forrester Wave™: Sustainability Management Software, Q2 2024

No solution has it all



Source: [Navigating the Technology Landscape for Scope 3 Solutions - Gartner]

Carbon accounting platform selection criteria

Data collection & processing

- Should internal data be uploaded automatically through APIs or manually?
- Do you need advanced data processing capabilities to clean messy data?
- Is the platform compatible with the PACT Pathfinder Framework?
- Does the software offer transparent audit trails?

Emission calculation

- What is your desired level of control?
- Do you prefer automated emission factor matching, consulting support from the provider or self-service?
- How sophisticated is the supplier engagement? Does the platform offer calculation interfaces to your suppliers?
- Has the provider developed proprietary data sets or expertise in your industry?

Results & Reporting

- Do you need robust reporting, with target setting, pathways, forecasting and reduction opportunities, or the possibility to export emissions back into your data lake?
- Does the platform enable carbon disclosure to customers or regulators?

Source: Combient Pure analysis

What about AI?

Potential use cases for AI in upstream emission data management

Enrich internal data
(extrapolation of missing data, unit of measurement conversion)

Automate emission factor matching

Discover more emission factors

Validate supplier provided data

Source: Combient Pure interviews and analysis

Recommendations

Drive a change of mindset

- Emission data, analysis and decisions will get increasingly scrutinized by external sources
- Emission data has to become as accurate, trustworthy, timely and auditable as financial data
- Data architecture should be flexible and robust enough to cater for a multiplicity of regulatory reporting standards

Source: Combient Pure analysis

Turn sustainability into a horizontal business challenge

- Increase collaboration between sustainability and procurement
- Train and incentivize procurement teams
- Set up a supply chain sustainability team
- Integrate emission reporting criteria into procurement

Source: Combient Pure analysis

> We sent an Excel template to fill to 1500 suppliers and it failed completely because we could not figure out if the data was correct or not. We lost 2 years.

Source: Combient Pure interviews

Start engaging the **right** suppliers

1. **State** your **objective:**
   Capture already existing reductions in reporting or drive reductions in your supply chain?

1. **Segment** your suppliers in **cohorts:**

Quantitative attributes
- Emissions Materiality
- Supplier Category
- Spend
- Revenue

Qualitative attributes
- Strategic importance
- Sustainability
- Willingness

Example cohort: Top 10 sustainability-mature steel suppliers

Source: A Guide to Supply Chain Engagement - Altruistiq

Embrace technology

- Quickly developing industry - if you have explored the market a few years ago, look again
- Strive to eliminate manual data entry and data manipulation in spreadsheets
- When full carbon accounting platforms are not an option, third-parties can help with supplier engagement or emission factor matching only
- Experiment with AI for simple, well-defined use cases such as first-level supplier data validation, anomaly detection or data enrichment

Source: Combient Pure analysis

It will get easier in the future

- Most companies have been doing this for a very short time
- CSRD, CBAM and other regulation will make more data available
- Data improvements start at the beginning of value chains and propagate further up
- Digital product passports will generate databases for primary data

Source: Combient Pure analysis

Combient Pure

Combient Pure on LinkedIn
www.combientpure.com