

# Net Zero Supplier Engagement: Scope 3 GHG Accounting Training

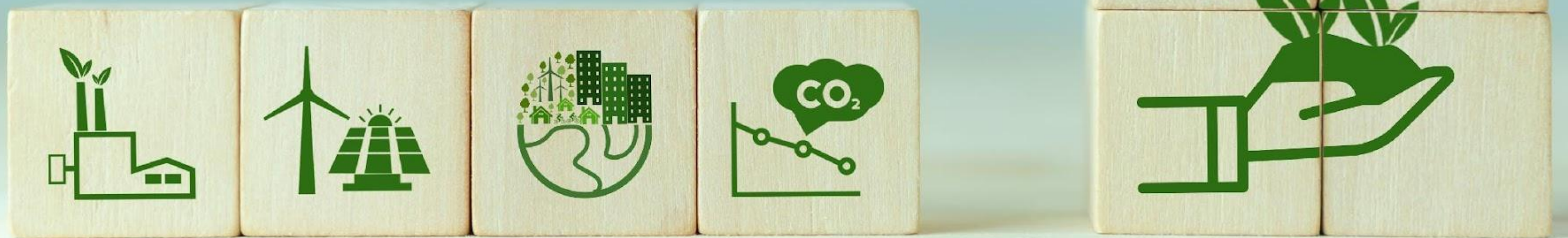
# Agenda

Scope 3 training

01. Introduction
02. Technical Understanding of GHG Protocol Requirements
03. Addressing Scope 3
04. Upstream Scope 3 Categories 1–8
05. Downstream Scope 3 Categories 9–15
06. Calculation Methods

## OBJECTIVE

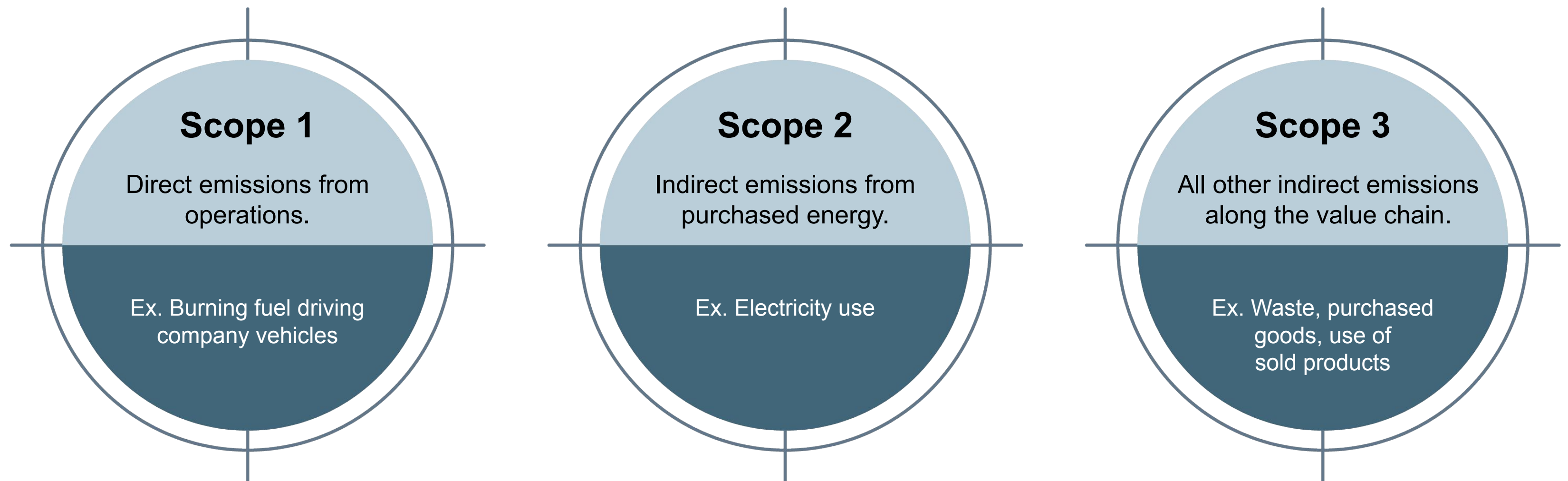
To enhance technical understanding  
of GHG Accounting aligned with  
Greenhouse Gases (GHG) Protocol



# 01 Introduction

# What are Scope 1, 2, and 3 emissions?

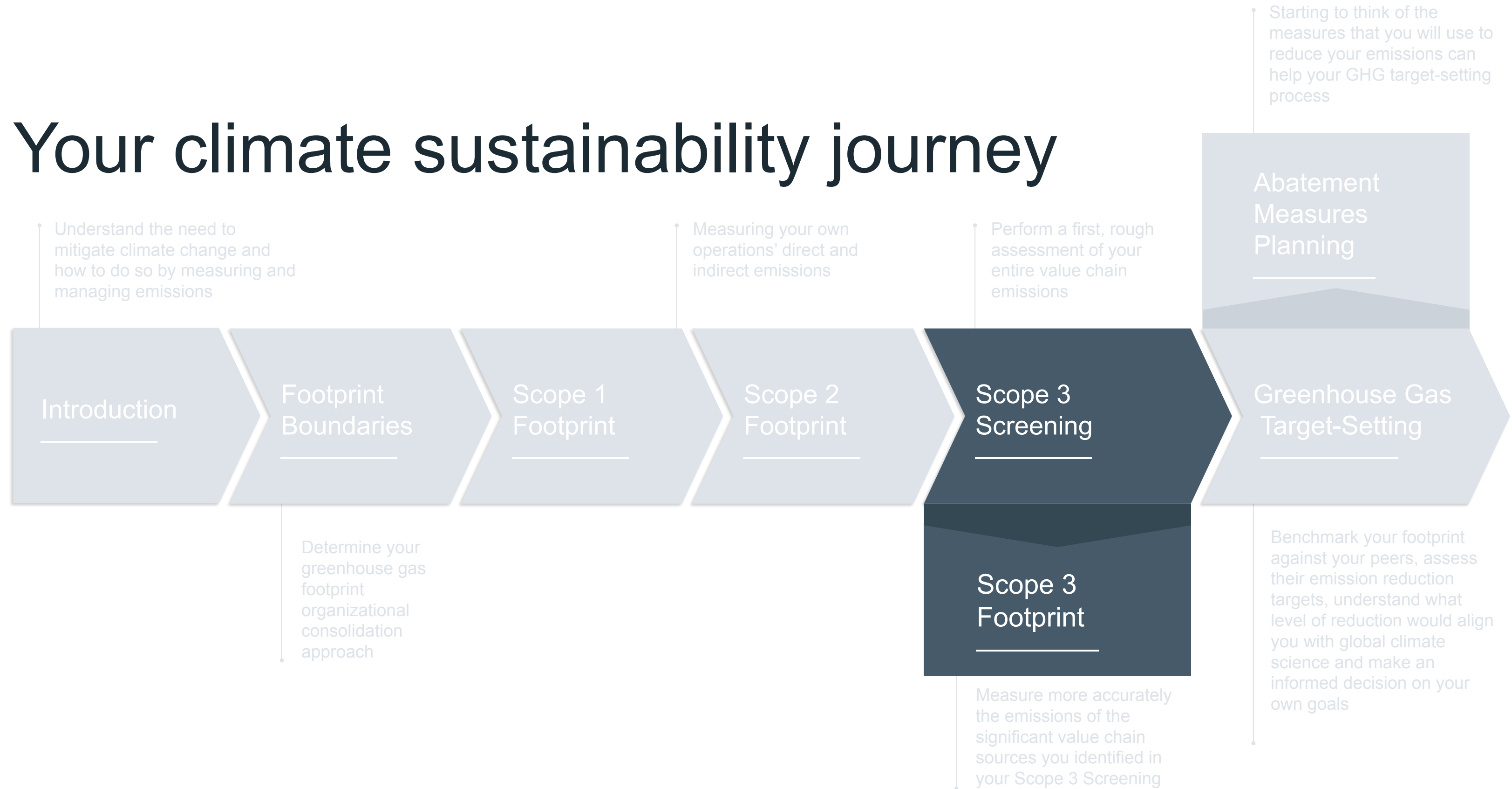
A complete GHG footprint is comprised of the three scopes of emissions



# Your climate sustainability journey



# Your climate sustainability journey

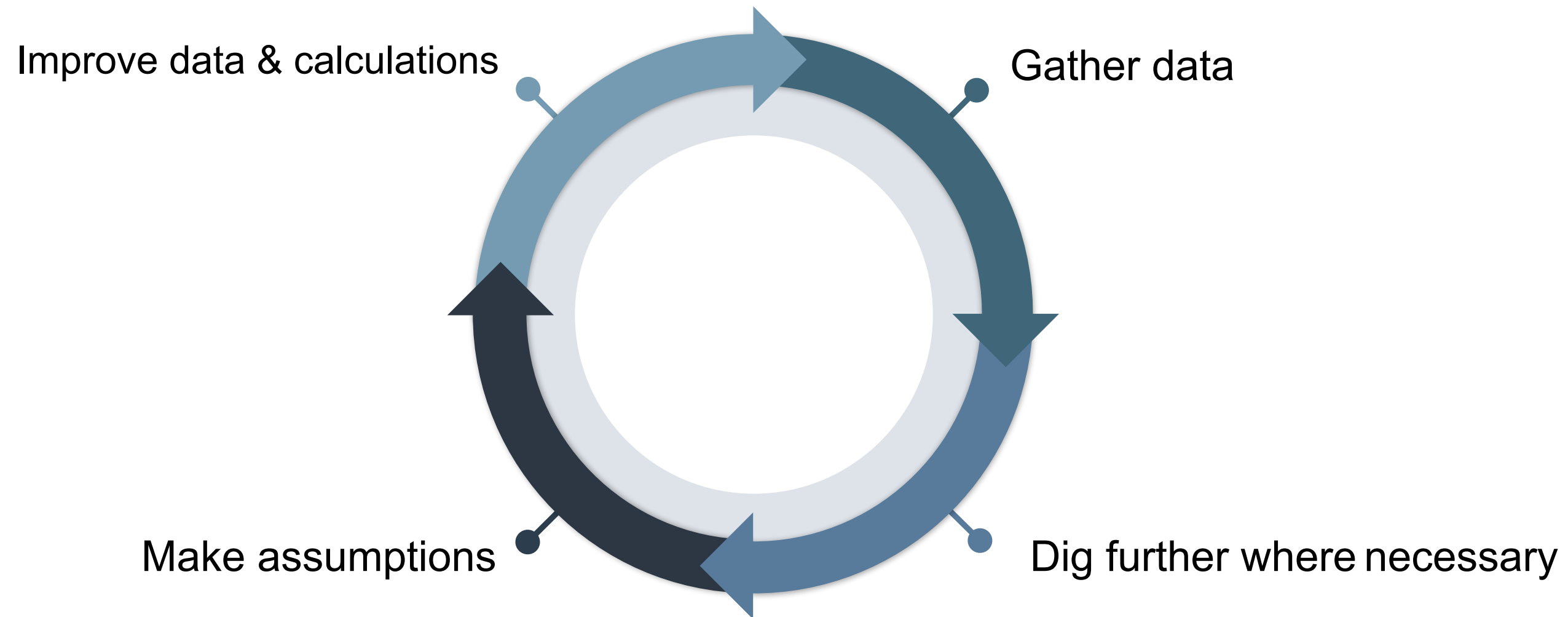


# Pros and cons companies face in calculating GHG emissions

PROS (+)	CONS (-)
Benchmarking against competitors	Potential roadblocks in internal alignment
Better understanding of your business activities	Data gathering
Enhances credibility and reporting	Time and effort
Reputational benefits	
Meeting stakeholder requests	
Managing risks	
Opportunity to participate in voluntary GHG programs/markets	



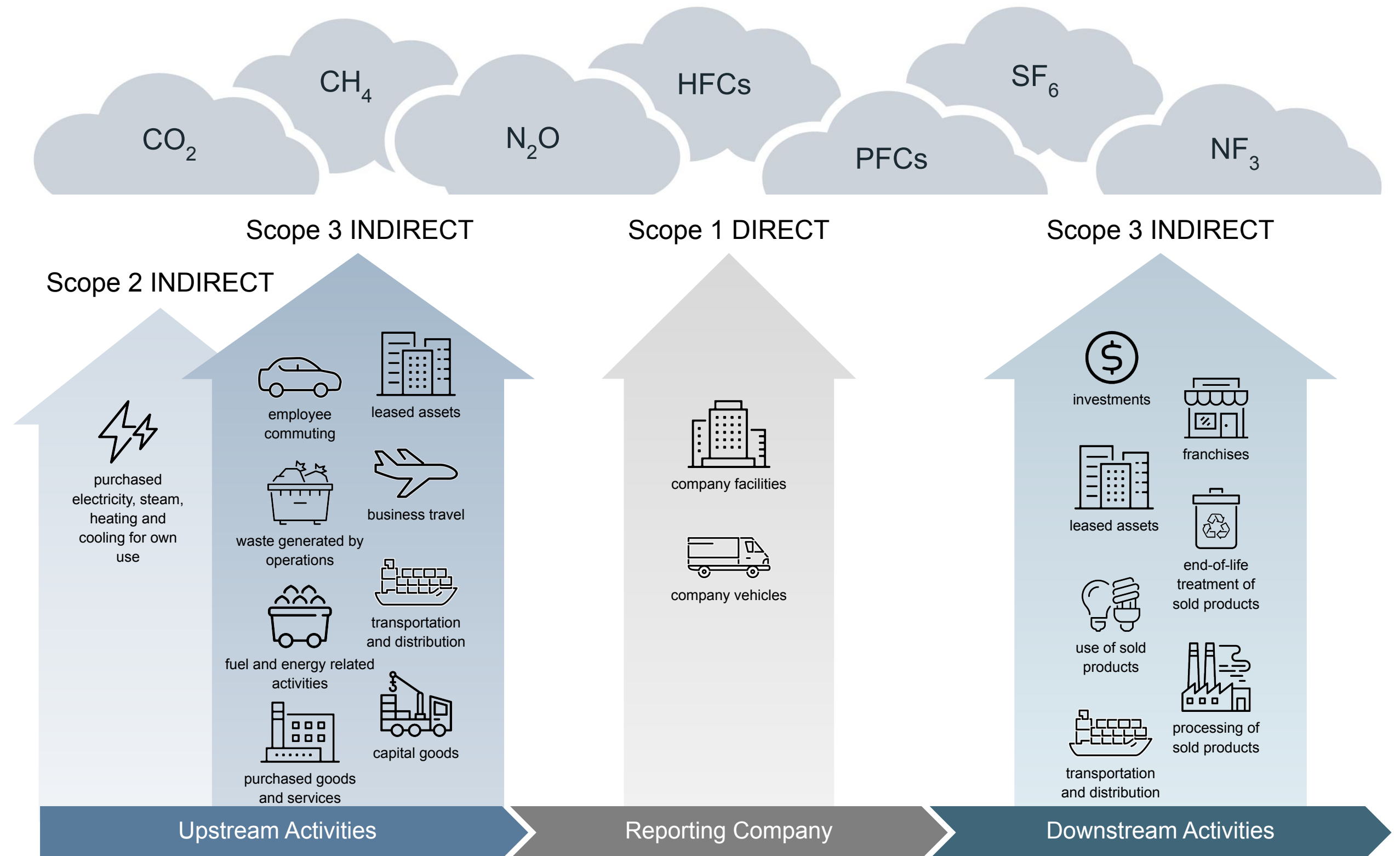
# How to address the challenges of calculating GHG emissions: Especially Scope 3?



Do not let perfection become the enemy of the good.

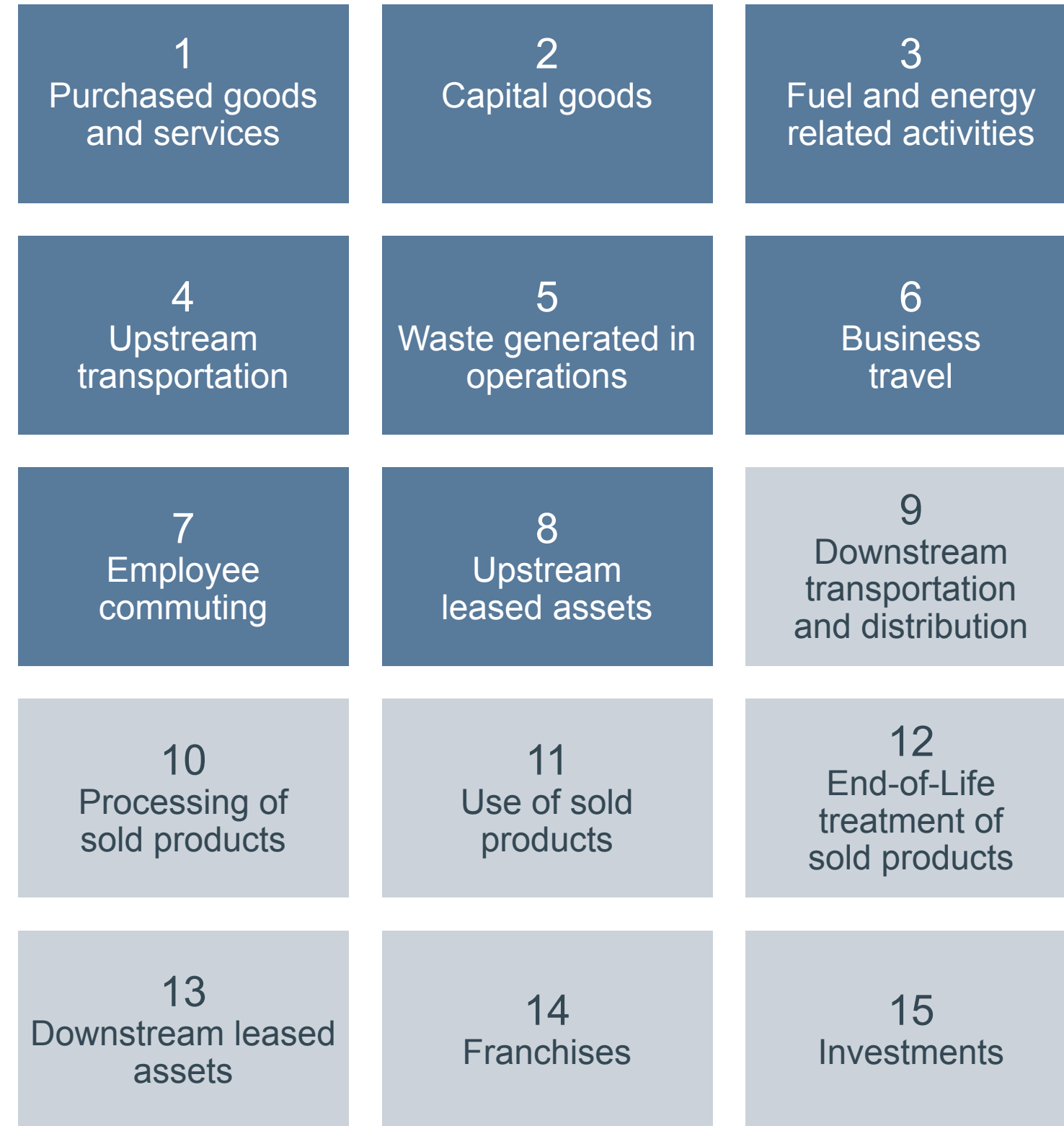
# 02 Technical Understanding of GHG Protocol Requirements

# Emission boundaries: The Scopes



# Scope 3 emission categories

Scope 3 emissions are all indirect emissions (not included in Scope 1 and 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.



Upstream categories
  Downstream categories

# Consolidation approach

Organizational Boundaries (Choose One)		
Equity Share	Control	
	Financial Control	Operational Control

Organizational Boundary	Definition
Equity Share	Companies account for emissions according to their share of equity in the operation
Financial Control	Companies account for emissions from operations in which they can direct financial and operating policies
Operational Control (most common)	Companies account for emissions from operations where they have the authority to introduce and implement their operating policies

# Consolidation approach examples

The parent company has the authority to introduce financial and operating policies within their organization. They also have a subsidiary where they hold 50% of the economic interest but do not have operational or financial control.

How would you account for this organization under each boundary?

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Equity Share	Company: 100%
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	Subsidiary: 50%
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Financial Control	Company: 100%
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	Subsidiary: 0%
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Operational Control	Company: 100%
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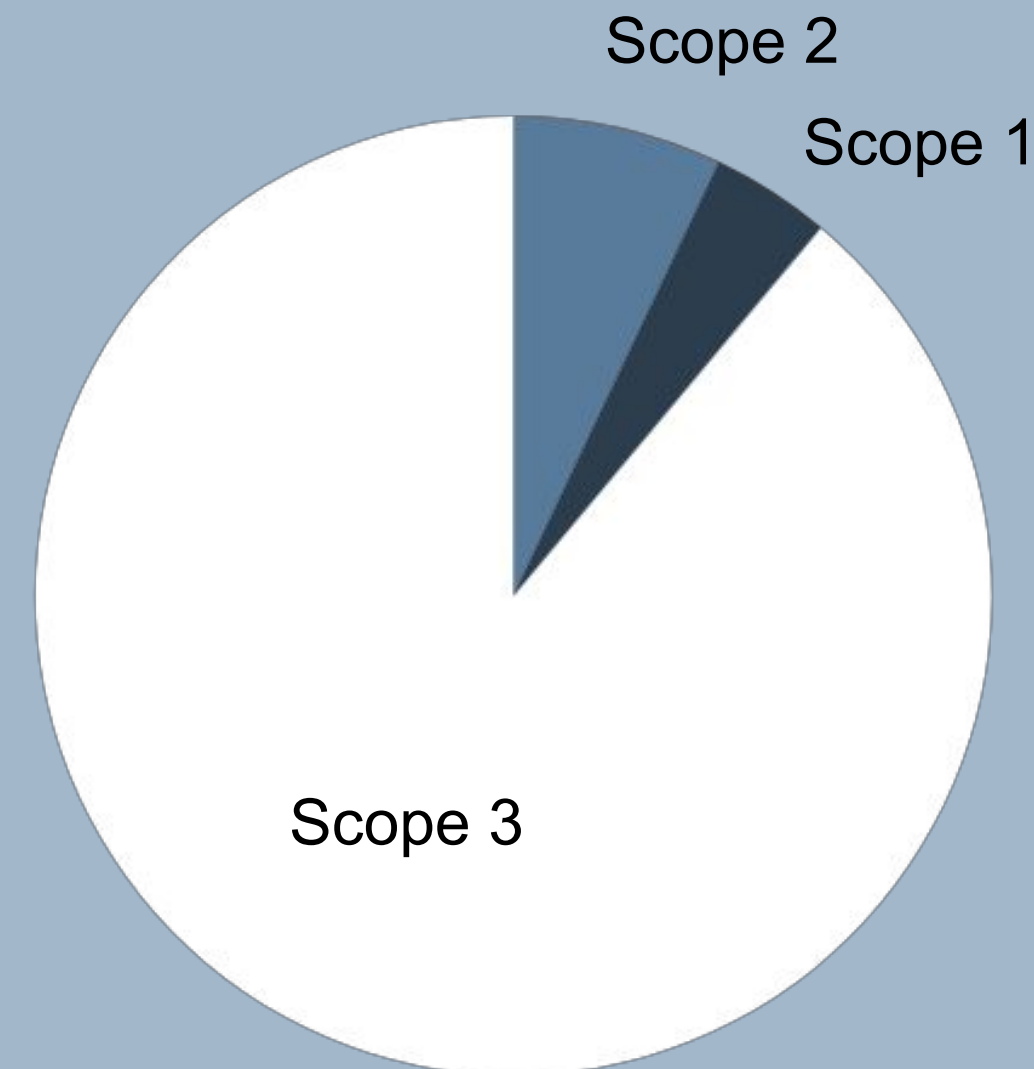
	Subsidiary: 0%
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# Scale of emissions

- The breakdown of your scope 3 emissions by category varies by company type
- For example, an electronics manufacturer will likely have scope 3 emissions dominated by Category 11: Use of Sold Products while the scope 3 footprint for a professional service company might be mainly Category 1: Purchased Goods & Services and Category 6: Business Travel

Scope 3 will likely be the largest portion of your GHG emissions footprint.

Example Company GHG Footprint



# Activity

Identify which scope of emissions each source falls under for a hypothetical home appliance manufacturer

Emission Source	Scope
Headquarters' electricity use	
On site fuel cells powered by natural gas	
Employee commuting	
Propane powered forklifts in company distribution centers	
Recycling of sold refrigerators	
Electricity use in the manufacturing of purchased parts	
Shipping products in company fleet vehicles	
Energy consumption by customers using the refrigerators	
Air travel for a business conference	
Energy consumption at company manufacturing facilities	



# Activity answers

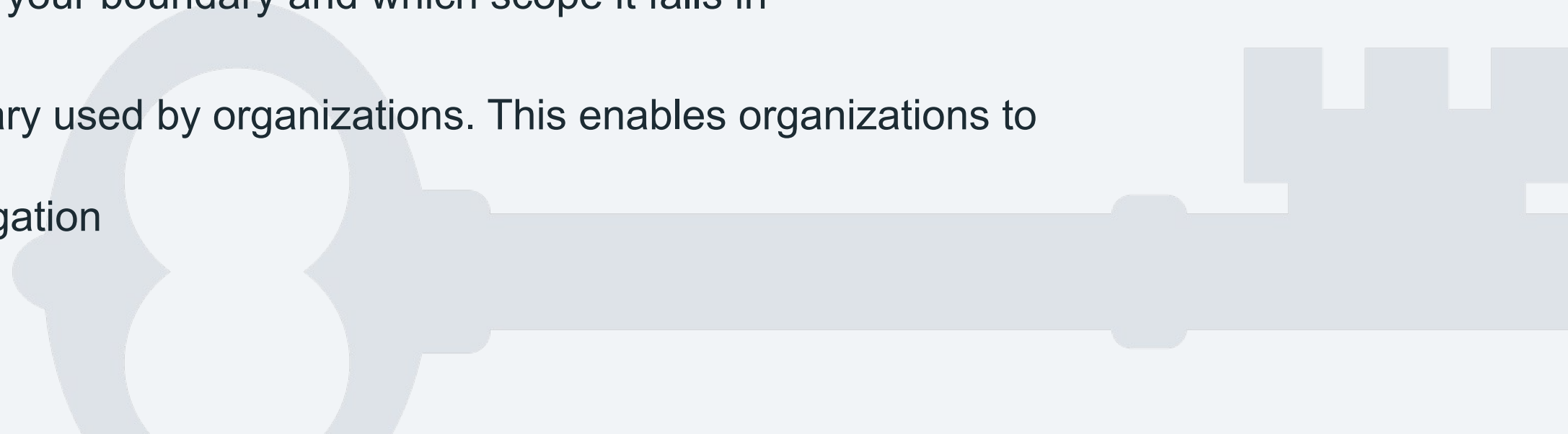
Identify which scope of emissions each source falls under for a hypothetical home appliance manufacturer

Emission Source	Scope
Headquarters' electricity use	2
On site fuel cells powered by natural gas	1
Employee commuting	3
Propane powered forklifts in company distribution centers	1
Recycling of sold refrigerators	3
Electricity use in the manufacturing of purchased parts	3
Shipping products in company fleet vehicles	1 (or 2 if vehicles are electric)
Energy consumption by customers using the refrigerators	3
Air travel for a business conference	3
Energy consumption at company manufacturing facilities	1 or 2

# Key takeaways

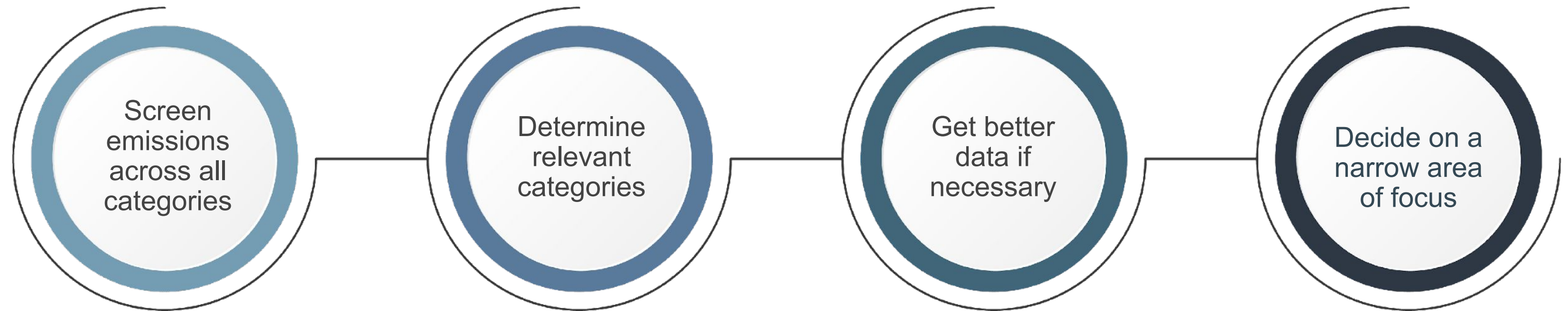
## GHG Protocol Overview

- There are **three** scopes of GHG emissions
- Scopes 1 and 2 are within your **operations**
- Scope 3 is likely the **largest part of your inventory** and is more complex
- The consolidation approach determines what is in your boundary and which scope it falls in
- **Operational Control** is the most common boundary used by organizations. This enables organizations to systematically influence its control for climate mitigation



# 03 Addressing Scope 3

# Key steps to address Scope 3



# Scope 3 screening

- Begin with large and generic datasets
- Scope 3 has many parts and can quickly become complex. It is important to **not spend too much time digging** into calculations that **may not be material**.

## Benchmark S3 breakdown in your industry

- SBTi publishes the average breakdown of Scope 3 emissions by category for various sectors ([Figure 2 in this report](#)).
- Look at published emission profiles through CDP and Sustainability Reports.

## GHG Protocol Scope 3 Evaluator Tool

- **Free** online tool.
- Provides rough estimate of Scope 3 emissions.
- Great first step for organizations that have never evaluated their Scope 3.
- Can **help determine key emission categories**.

**GREENHOUSE GAS PROTOCOL** Quantis Home FAQ login password Sign in  
Not registered yet? Forgot password?

General Facilities Purchases Logistics Travel Customer Downstream leased assets and investments Results

**Welcome**  
Welcome to the Scope 3 Evaluator!  
You will be asked a series of (relatively) simple questions to quickly calculate a comprehensive first screening of your company's scope 3 (value chain) carbon footprint, in alignment with the WRI/WBCSD GHG Protocol.

**Why use the Scope 3 Evaluator?**  
For many companies, more than 80% of their GHG impacts occur outside of their own operations\*. However, quantification and reporting of value chain emissions can be a time intensive task and many companies just don't know where to start. As the developers of the Scope 3 Accounting and Reporting Standard, GHG Protocol seeks to reduce barriers to uptake of the standard and encourage the use of the standard to improve management of companies' value chain GHG emissions.  
\* State of Green Business 2013, GreenBiz

**Web-based access:**  
Use it anywhere, anytime, with an internet connection  
The tool is compatible with these browsers: Firefox 81 and up, Chrome recent versions, Safari 14 and up and Internet Explorer 11 and Microsoft Edge.

**Scope 1 DIRECT**  
Scope 2 INDIRECT  
Scope 3 INDIRECT

CO<sub>2</sub> CH<sub>4</sub> N<sub>2</sub>O HFCs PFCs SF<sub>6</sub>

capital goods fuel and purchased goods and services purchased electricity, steam, heating & cooling for own use leased assets employee commuting company facilities transportation and distribution processing of sold products investments franchises

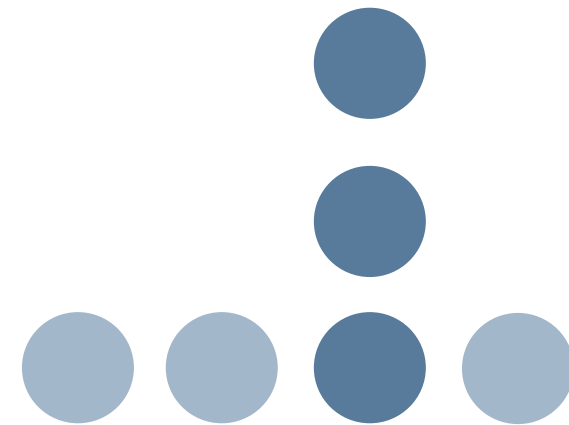
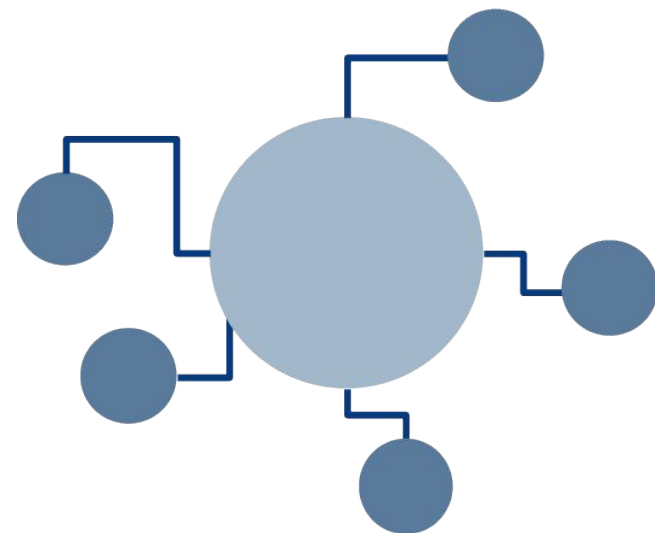
# What makes a scope 3 category “relevant”?

- **There is no standardized threshold to determine relevance**
- Ex: a company with small business travel emissions may still consider the category relevant because of stakeholder pressure and the ability to influence emissions
- What are some categories that would likely be relevant for this type of organization? An electronics manufacturer

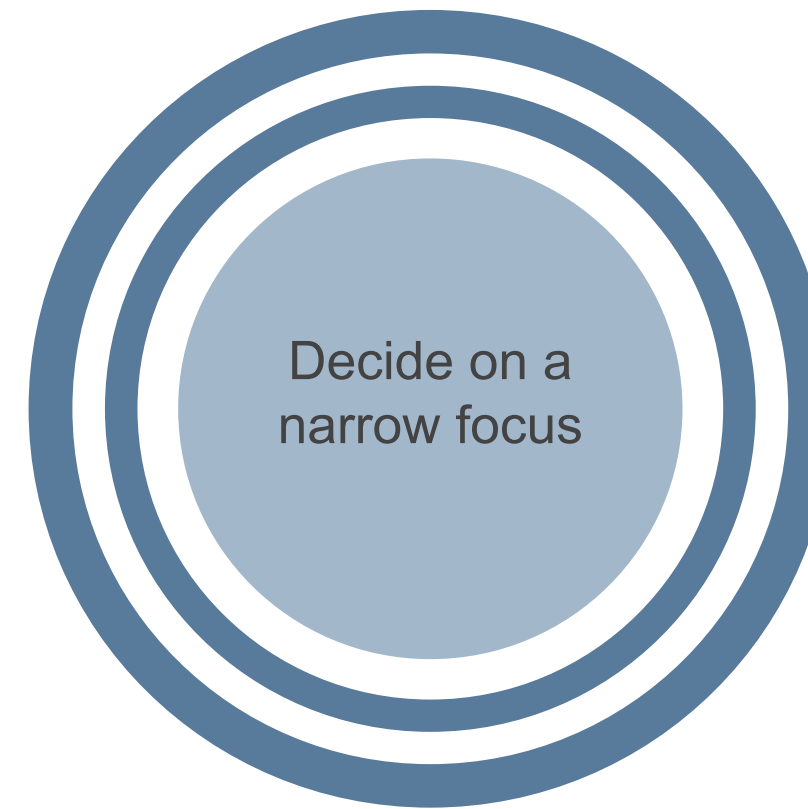
Criteria	Description of Activities
Size	Contributes significantly to the company’s total anticipated scope 3 emissions.
Influence	Potential emissions reductions that could be undertaken or influenced by the company.
Risk	Contributes to the company’s risk exposure (e.g., climate change related risks such as financial, regulatory, supply chain, product and technology, compliance/litigation, and reputational risks).
Stakeholders	Deemed critical by key stakeholders (e.g., customers, suppliers, investors, or civil society).
Outsourcing	Outsourced activities previously performed in-house, or activities outsourced by the reporting company that are typically performed in-house by other companies in the reporting company’s sector.
Sector guidance	Identified as significant by sector-specific guidance.
Spending or revenue analysis	Areas that require a high level of spending or generate a high level of revenue (and are sometimes correlated with high GHG emissions).
Other	Meets any additional criteria developed by the company or industry sector.

# Data collection and narrowing focus

Collect better data  
if necessary



In relevant categories  
where data is available



Avoid spending too  
much time chasing data  
for a small category

# Data quality

- When first starting the sustainability journey, data quality is often low, do your best and make conservative estimates when needed
- Data quality improvement is a continuous process even for companies that have mature footprints
- Examples of data types:
  - Spend data
    - How much was spent on various goods/services?
  - Product data
    - How many products did you sell? What data do you have on these items?
  - Employee data
    - How many employees do you have? Where do they work?

There is no perfect Scope 3 Activity Data.

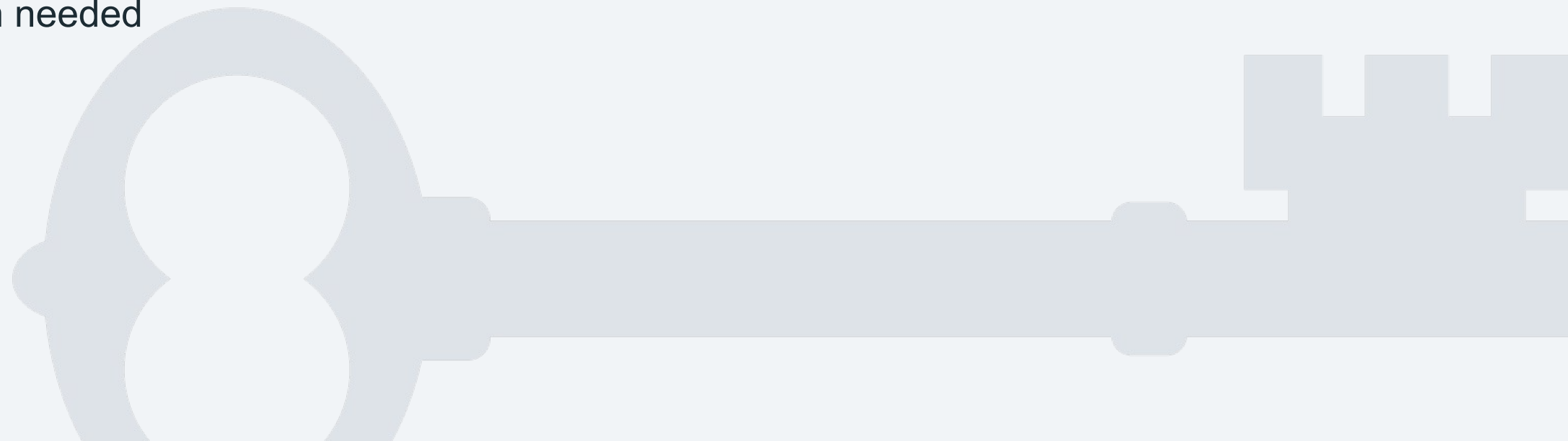




# Key takeaways

## Addressing Scope 3

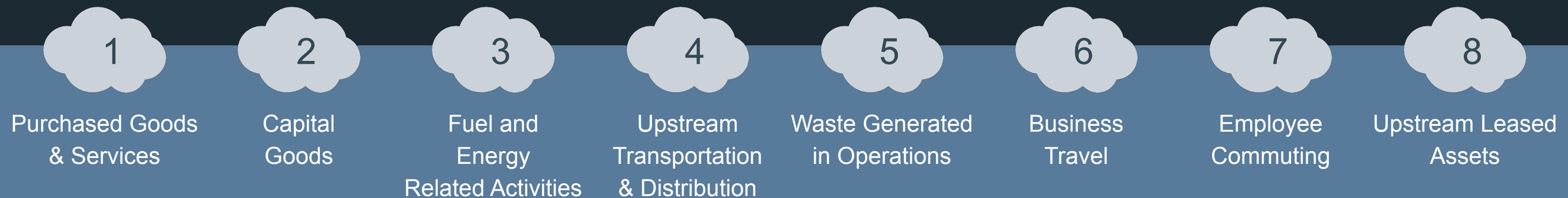
- **Screen** your organization's GHG emissions and determine the most **relevant categories**
- **Gather data** and remain focused on the most relevant categories
- Data quality improvement is a **continuous process**
- Use conservative **estimates and extrapolations** when needed



## 04 Scope 3 Upstream Categories: 1–8

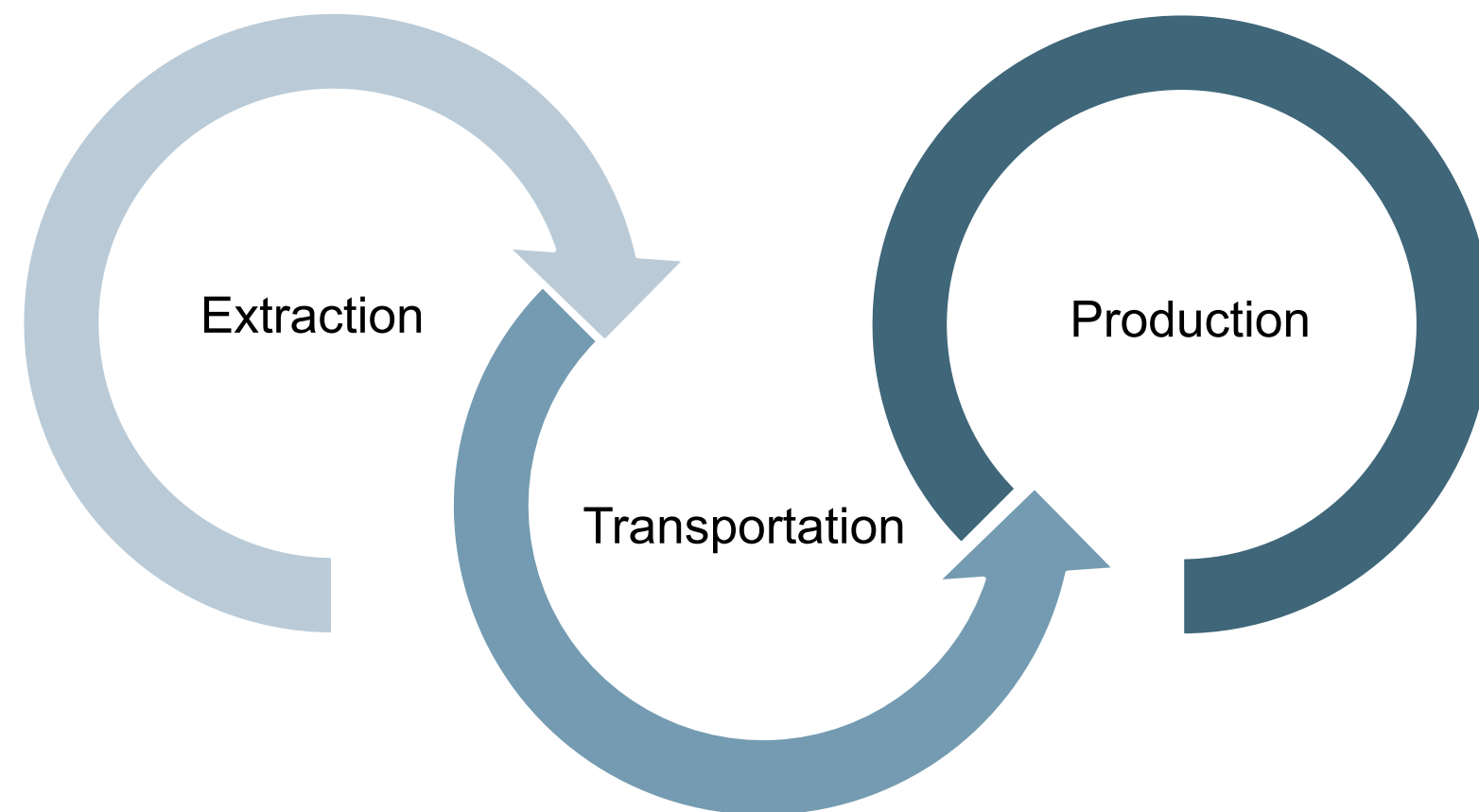
# What are upstream emissions?

- Upstream and downstream relates to where sources falls along the corporate value chain: **upstream (before)** and **downstream (after)** the reporting company
- In GHG accounting, it also ties into who pays for the source/ creates the demand



# Category 1: Purchased goods & services

Embodied emissions (a.k.a. upstream or cradle-to-gate) of purchased goods and services



## Examples

### Services

- Advertising
- Accounting
- Legal services
- Maintenance

### Goods

- Steel
- Glue
- Wood
- Finished products

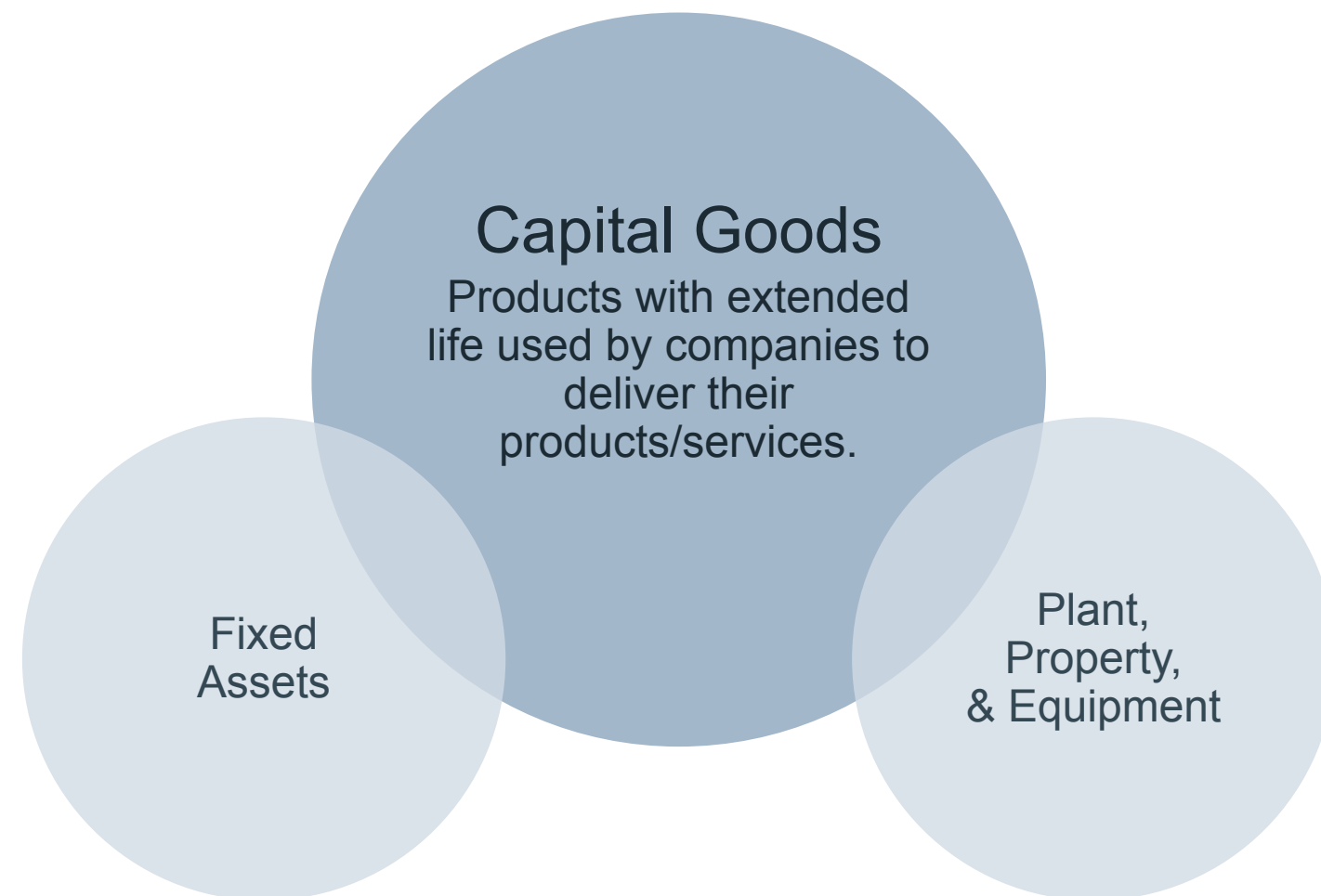
Other operational good/services

### Data Source Examples

- Internal data systems
- Bill of materials
- Purchasing records

# Category 2: Capital goods

Embodied emissions (a.k.a. upstream or cradle-to-gate) of capital goods



## Examples

Machinery/Equipment

Buildings/Facilities

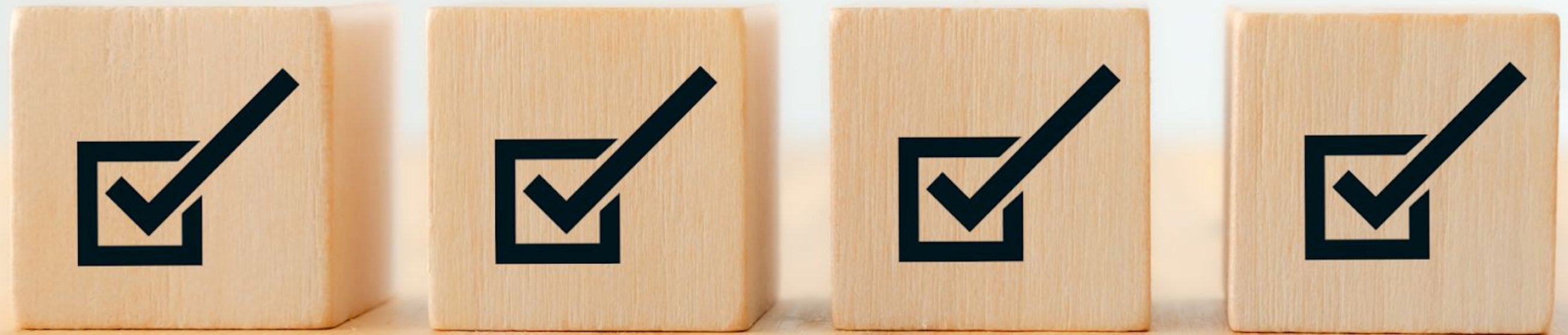
Vehicles

## Data Source Examples

- Internal data systems
- Bill of materials
- Purchasing records

# Which category do the following items belong in, purchased goods & services or capital goods?

- Forklift
- Software
- Paper
- New building



# Category 3: Fuel & energy related activities

Extraction, production, and transportation of fuel and electricity used by the reporting company

- 1 Upstream emissions of fuel
- 2 Upstream emissions of electricity
- 3 Emissions from transmission and distribution (T&D) losses
- 4 Generation of purchased fuel sold to end users

## Examples

Refining of natural gas consumed for heating

Company X used 100 kWh of electricity. 10 kWh were lost during T&D. Company X should account for upstream emissions of 100 kWh as well as the upstream emissions and combustion for the 10 kWh that were lost in T&D

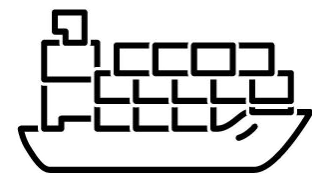
## Data Source Examples

- Reference to Scope 1 and 2 GHG inventory, including quantity, source, and type of fuel
- Collecting data from fuel procurement departments

# Category 4: Upstream transportation & distribution

Purchased outbound logistics services are categorized as upstream because they are a purchased service.

This category includes:



Inbound transportation and distribution of purchased products



Purchased transportation and distribution services

- Inbound
- Outbound
- Between own facilities

## Examples

Inbound ocean transport

Transportation of sold products paid for by the reporting company

## Data Source Examples

- Internal transport management systems
- Purchase orders
- Specific carrier or mode operator

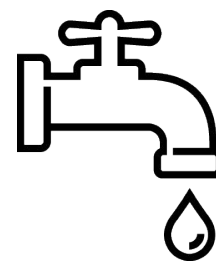


# Category 5: Waste generated in operation

Disposal and treatment of waste generated in operations



Solid waste



Wastewater

Optional: transportation of waste



## Examples

Company X landfilled 65% of mixed waste

Wastewater produced from chemical manufacturing

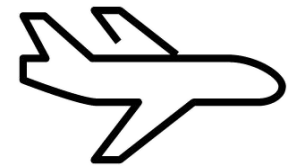
Company X recycled 80% of paper waste

## Data Source Examples

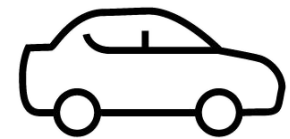
- Internal IT systems
- Utility bills

# Category 6: Business travel

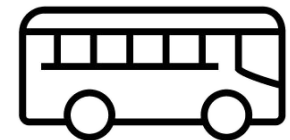
Transportation of employees for business-related activities in third party vehicles



Air travel



Rental car and mileage reimbursement



Train/bus/taxi/etc.



Hotel stays (optional)

This category does NOT include emissions from:

Transportation in owned or controlled vehicles

- Scope 1 or 2

Transportation of employees to and from work

- Scope 3, Category 7 (employee commuting)

Transportation in leased vehicles not included in Scope 1 or 2

- Scope 3, Category 8 (upstream leased assets)

## Data Source Examples

- Travel agency/provider reports
- Internal expense/reimbursement systems

# Category 7: Employee commuting

Transportation of employees between their homes and their worksites in vehicles not owned/controlled by the reporting company



Automobile, bus, rail, bicycle, etc.



Optional: Remote work emissions

## Examples

An employee commutes 4 miles each way by passenger vehicle 5 days per week

An employee always uses public transportation to get to work and travels 7 miles each way

Not employee commute: an employee uses a company owned car to get to work

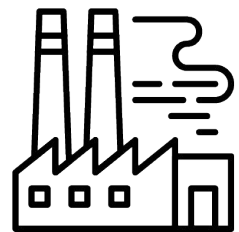
- What scope category does this fall under?

## Data Source Examples

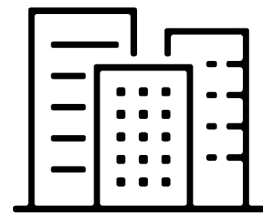
- Average national data
- Internal commuting survey
- Employee location data

# Category 8: Upstream leased assets

Inclusion in Scope 1 and 2 vs Scope 3 Category 8 depends on the **organizational boundary**



Emissions from the operation of assets that are leased and not already included in Scope 1 or 2



Applies to companies that operate leased assets (i.e., lessees)

- Companies that own and lease assets to others (i.e., lessors), see Category 13 (Downstream leased assets)

## Examples

Fuel from leased corporate jet not already in Scope 1

Electricity from leased offices not already in Scope 2

Not upstream leased assets: Fuel use for a leased vehicle when the company uses an operational control boundary

- Scope 1

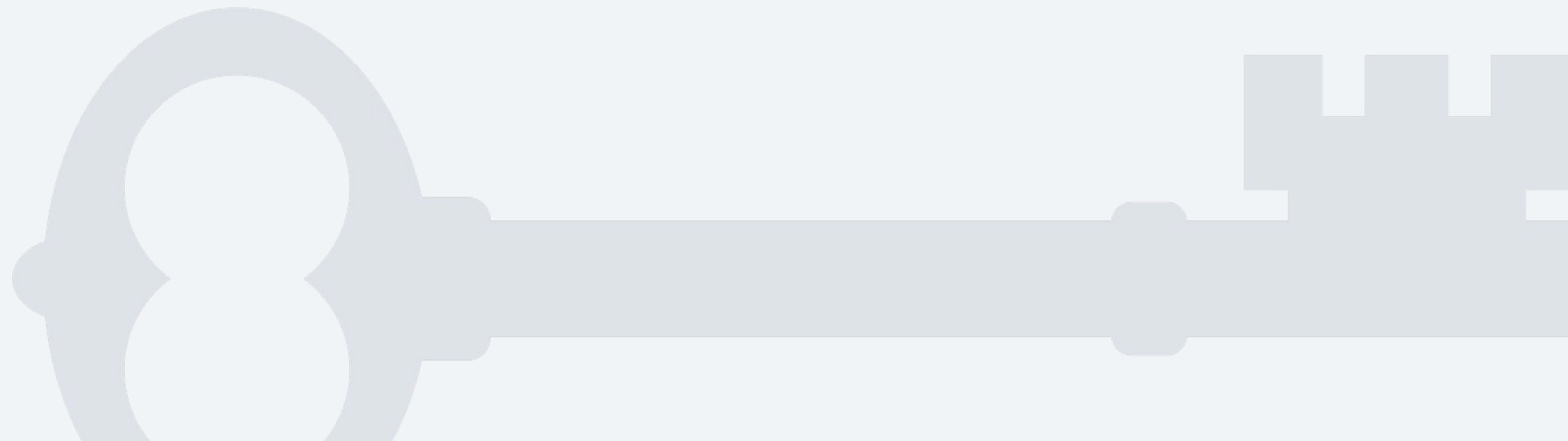
## Data Source Examples

- Utility bills
- Purchase records
- Meter readings
- Internal IT systems

# Key takeaways

## Upstream Scope 3 emissions

- Upstream categories occur **before** the reporting company or are **paid for** by the company
- Data types and sources **vary**
- The scale of each category is **dependent on the industry**



# 05 Scope 3 Downstream Categories: 9–15

# What are downstream emissions?

- Downstream emissions happens **after** the product/service leaves your organization's walls
- This may include the transportation from warehouse to the customers, use of your organization's products/services by your clients/customers, etc.

Downstream  
Transportation  
& Distribution

9

Processing of  
Sold Products

10

Use of Sold  
Products

11

End-of-Life  
Treatment of  
Sold Products

12

Downstream  
Leased Assets

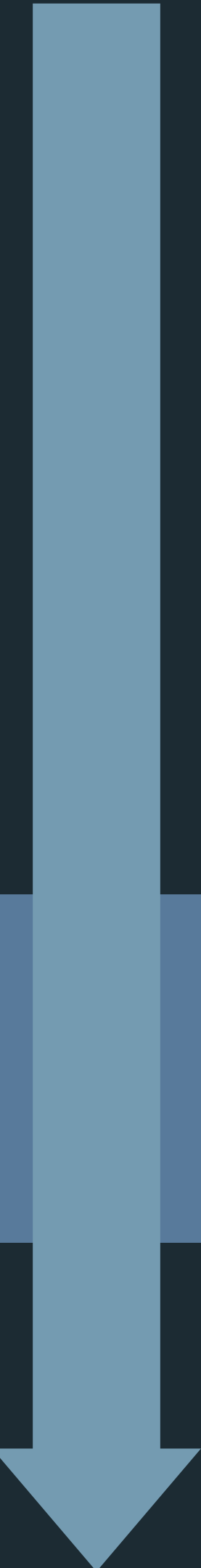
13

Franchises

14

Investments

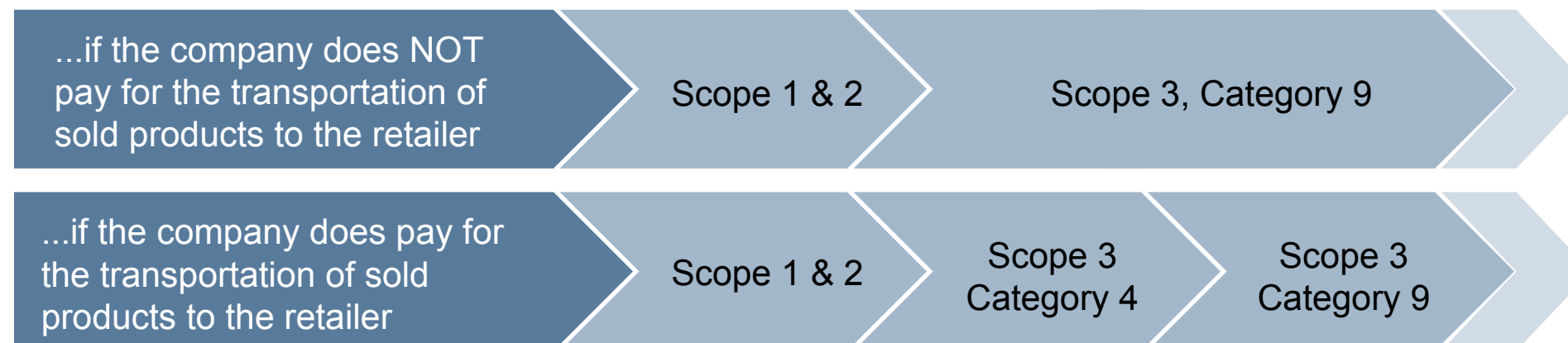
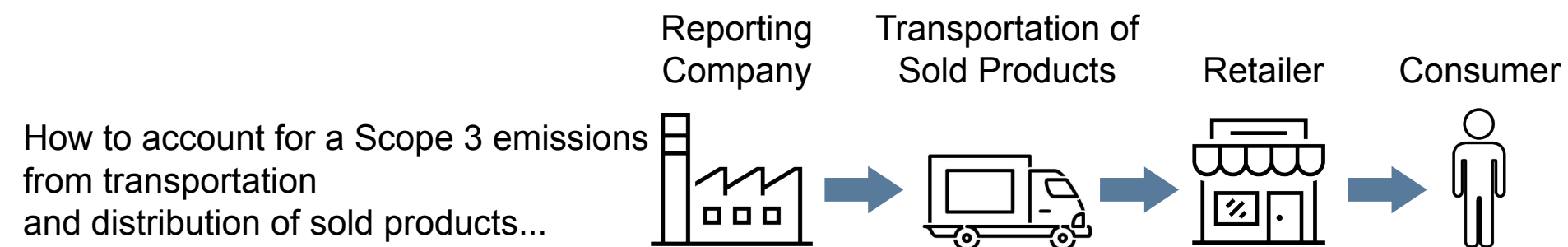
15



# Category 9: Downstream transportation & distribution

Outbound transportation and distribution of sold products

- In non-owned/controlled vehicles and facilities
- **NOT** paid for by the reporting company



Many assumptions will likely need be made for this category as data quality tends to be poor

## Examples

Outbound truck transportation paid by customer

Sold goods stored in customer distribution centers

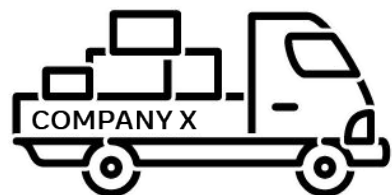
Sold goods shelved in a retailer's store



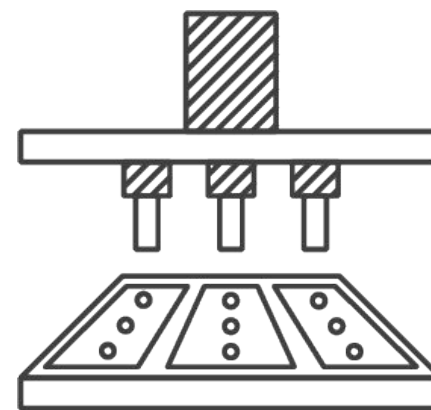
# Category 10: Processing of sold products

- Processing of an intermediate product into finished good
- Only applicable to companies who sell intermediate products
- Intermediate products require further work, transformation, or inclusion in another product before use
- Emissions should be allocated to the intermediate product

## Example



Company X (reporting company) sells sugar to a candy manufacturer. The emissions associated with the process to produce the candy falls within Category 10.



## Examples of intermediate products:

### Steel

- This could be processed into fabricated metal product

### Yarn

- This could be processed into clothing

### Wires

- This may be a part of an electronic device

## Data Source Examples

- Purchasing records/internal data systems
- Industry-average data from associations/databases

# Category 11: Use of sold products

Emissions from the use phase of sold products

- Over the product's entire expected lifetime
- Emissions may be direct or indirect

## Direct

- Energy consumed directly by the sold product

## Indirect

- Energy consumed during the use of the sold product but not by the product itself
- Optional, but recommended where emissions are expected to be significant

This category should account for the emissions over the product's entire expected lifetime during the year the product was sold.

## Examples

Electricity use from a refrigerator sold in the reporting year over its lifetime (direct)

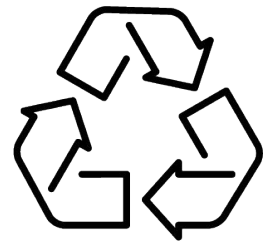
Electricity consumed by running software package sold by the reporting company (indirect–optional)

## Data Source Examples

- Internal data systems
- Sales records
- Industry associations
- Surveys

# Category 12: End-of-life treatment of sold products

Emissions from the disposal and treatment of products sold in the reporting year at the end of their life



Requires assumptions about the end-of-life treatment methods used by consumers.



Emissions will vary by waste material and disposal method (e.g., landfill, recycled, combusted).

## Examples

Company X sells socks. 90% of their consumers throw the socks out at the end of their useful life

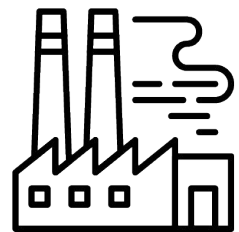
Dunder Mifflin sells paper. 85% of their consumers recycle the paper after use

## Data Source Examples

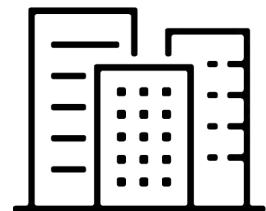
- Mass of products/packaging sold in the reporting year
- Consumer surveys
- National averages of disposal patterns
- Government directives on waste treatment

# Category 13: Downstream leased assets

Inclusion in Scope 1 and 2 vs Scope 3 Category 13 depends on the **organizational boundary**



Emissions from the operation of assets that are owned, leased to another entity, and have not already included in Scope 1 or 2



Applies to companies that own and lease assets to others (i.e., lessors)

- Companies that operate and leased assets (i.e., lessees), should refer to Category 8 (Upstream leased assets)

## Examples

Company X sublease an office which is not included in their Scope 1 or 2

- Emissions from this office's electricity fuel and refrigerant usage fall in this category

Company Y lease a forklift that is not in their Scope 1 or 2

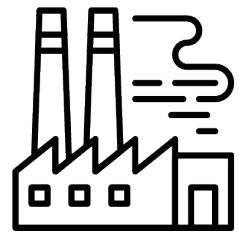
- Emissions from the fuel used to operate that forklift are within this category

## Data Source Examples

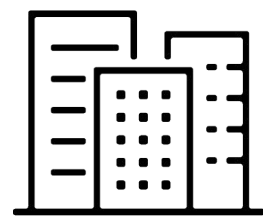
- Utility bills
- Purchase records
- Internal IT systems

# Category 14: Franchises

- Optional: The life cycle emissions associated with manufacturing or constructing franchises
- There may be less data granularity at this level which may require assumptions



Emissions from the operation of franchises that have not already been included in Scope 1 or 2



Applies to franchisors

- Companies that grant licenses to other entities to sell/distribute its goods/services in return for payments (e.g., royalties for the use of trademarks and other services)

## Examples

Company X owns a franchise which is not included in their Scopes 1 and 2

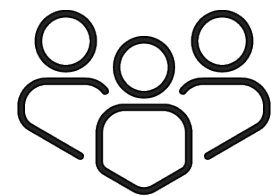
- Emissions from the electricity, fuel, and refrigerants use from this franchise fall in this category

## Data Source Examples

- Public GHG inventory reports
- Utility bills
- Purchased records
- Internal IT systems

# Category 15: Investments

- Emissions associated with the reporting company's investments
- **Considered a downstream category because providing capital or financing is a service provided by the reporting company**



- Applies to investors
  - Companies that make an investment with the objective of making a profit
  - Companies that provide financial services.
- Also applies to investors that are not profit driven



Ex: multilateral development banks

Designed primarily for private financial institutions

Also relevant to:

- Public financial institutions
- Other entities with investments not included in Scopes 1 and 2

## Examples

Company X has 2 joint ventures

- Scope 1 and 2 emissions associated with the investments fall in this category

## Data Source Examples

- Financial records
  - From reporting company
  - From investee company

# What are some categories that would likely be relevant for this type of organization?

- An electronics manufacturer



# Scope 3 Categories Survey

Test your knowledge!





# Survey 1: Choose which Scope 3 category this emission source belongs to?

Company A procured new machinery and equipment for their manufacturing process.

- A. Category 1: Purchased Goods and Services
- B. Category 11: Use of Sold Products
- C. Category 4: Upstream Transportation and Distribution
- D. Category 2: Capital Goods



# Survey 1: Choose which Scope 3 category this emission source belongs to?

Company A procured new machinery and equipment for their manufacturing process.

- A. Category 1: Purchased Goods and Services
- B. Category 11: Use of Sold Products
- C. Category 4: Upstream Transportation and Distribution
- D. Category 2: Capital Goods



# Survey 2: Can you guess which Scope 3 category this emission source belongs to?

Company A hires UPS to ship their finished goods from their facilities to their customers.

- A. Category 6: Business Travel
- B. Category 4: Upstream Transportation and Distribution
- C. Category 9: Downstream Transportation and Distribution
- D. Category 11: Use of Sold Products



# Survey 2: Can you guess which Scope 3 category this emission source belongs to?

Company A hires UPS to ship their finished goods from their facilities to their customers.

- A. Category 6: Business Travel
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- C. Category 9: Downstream Transportation and Distribution
- D. Category 11: Use of Sold Products



# Survey 3: Can you guess which Scope 3 category this emission source belongs to?

An employee for Company A traveled to a business conference in a company owned car.

- A. Category 9: Downstream Transportation and Distribution
- B. Category 6: Business Travel
- C. Category 7: Employee Commuting
- D. None of the above



# Survey 3: Can you guess which Scope 3 category this emission source belongs to?

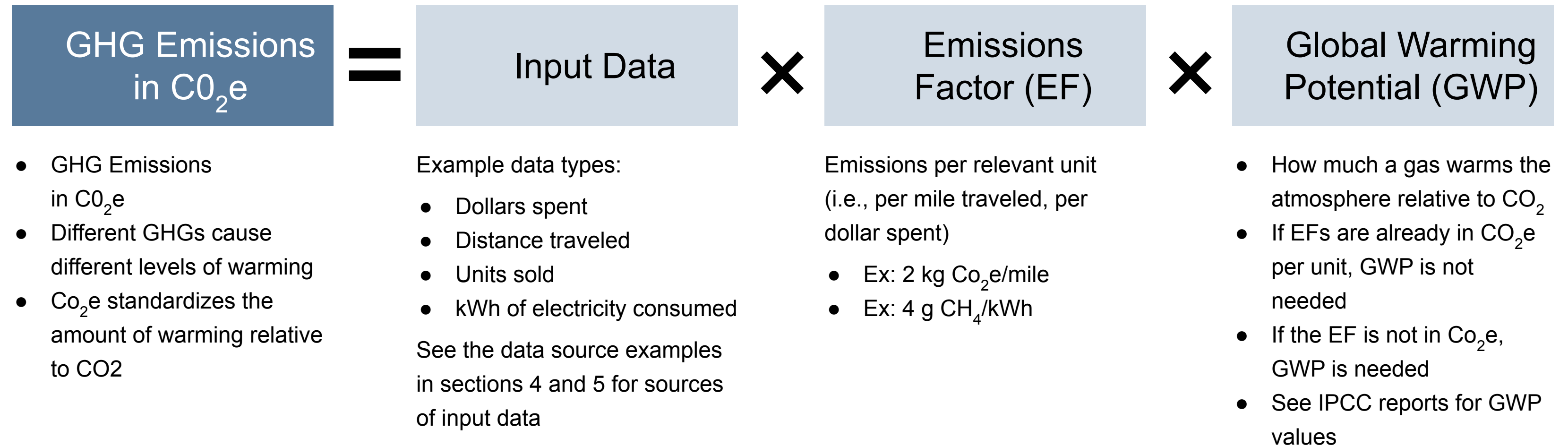
An employee for Company A traveled to a business conference in a company owned car.

- A. Category 9: Downstream Transportation and Distribution
- B. Category 6: Business Travel
- C. Category 7: Employee Commuting
- D. None of the above



# 06 Calculation Methods

# Emission calculation formula





# Different types of calculation methods— overview

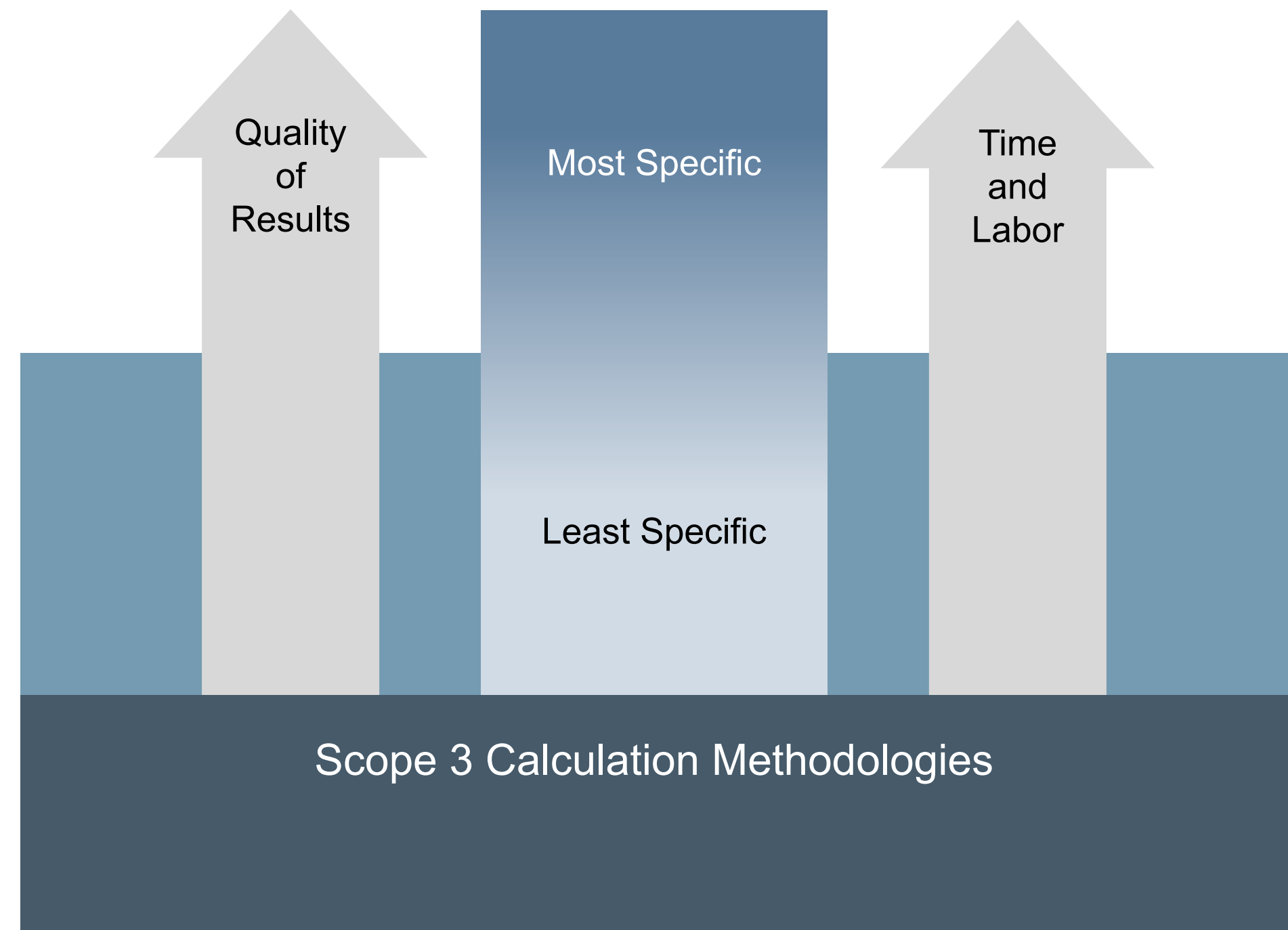
- There are multiple methodologies available for each category
  - Provides flexibility in calculations based on data availability and relevance
- See [GHG Protocol Scope 3 Calculation Guidance](#) for detailed guidance on methodologies

Example Methodology Types	
Supplier Specific	Relies on relevant emissions data from suppliers
Hybrid	Combination of supplier specific data and other methods
Average data	Uses averages to determine the activity data
Spend-based	Utilizes dollars spent on a good or service to estimate emissions
Distance-based	Relies on distance traveled to calculate emissions
Fuel-based	Emissions calculated using fuel consumed

# Selecting an appropriate methodology

## Criteria for methodology selection:

- The relative size of the emissions from the scope 3 activity
- The company's business goals
- Data availability
- Data quality
- The cost and effort required to apply each method
- Other criteria identified by the company



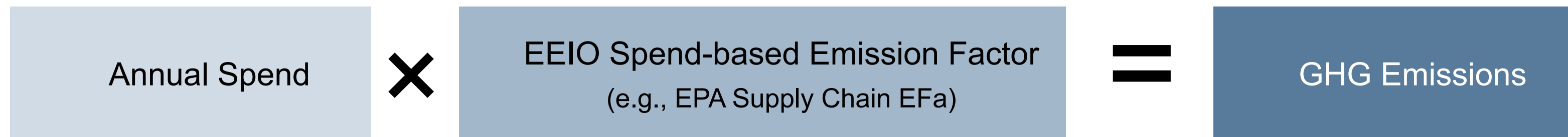
Note: [GHG Protocol Scope 3 Calculation Guidance](#) provides decision trees to help determine the appropriate methodology to use.

# Spend-based methodology

Environmentally-extended input output (EEIO)- models estimate energy use and/or GHG emissions resulting from the production and upstream supply chain activities of different sectors and products within an economy. The resulting EEIO emissions factors can be used to estimate GHG emissions for a given industry or product category. EEIO data are particularly useful in screening emission sources when prioritizing data collection efforts.

EEIO models- are derived by allocating national GHG emissions to groups of finished products based on economic flows between industry sectors. EEIO models vary in the number of sectors and products included and how often they are updated. EEIO data are often comprehensive, but the level of granularity is relatively low compared to other sources of data.

Spend needs to be broken down by categories to determine appropriate emission factors.



## 06 CALCULATION METHODS

Scope 3 Category	Is the Spend-based Method Applicable?
Category 1: Purchased Goods and Services	✓
Category 2: Capital Goods	✓
Category 3: Fuel and Energy Related Activities	n/a
Category 4: Upstream Transportation & Distribution	✓
Category 5: Waste Generated in Operations	✓
Category 6: Business Travel	✓
Category 7: Employee Commute	n/a
Category 8: Upstream Leased Assets	✓
Category 9: Downstream Transportation & Distribution	n/a
Category 10: Processing of Sold Products	n/a
Category 11: Use of Sold Products	n/a
Category 12: End-of-life treatment of Sold Products	n/a
Category 13: Downstream Leased Assets	n/a
Category 14: Franchises	n/a
Category 15: Investments	✓

# Average data method

- Involves estimating activity data based on industry/national/etc. averages
- For Purchased Goods & Services and Capital Goods this includes using:
  - Purchased good/service data and life cycle analysis (LCA) emission factors

## Example: Category 7 Employee Commuting

Company A has 1,000 employees all based in the US. Since Company A does not have detailed information on employee commute, it refers to a national survey on commuter habits. Employees at Company A work an average of 240 days per year.

Commute Group	Percent of total commuters	Average one-way distance (mi)	Emission factor (kgCO <sub>2</sub> e/vehicle or passenger mi)
Car	90%	10	0.2
Bus	10%	5	0.1

Note: the activity data and emission factors are illustrative only and do not refer to actual data

### Car Commuter Emissions

# of employees \* % of employees per commute mode \* round trip distance \* days worked per year \* emission factor  
 $1,000 * 0.9 * (10 * 2) * 240 * 0.2 = 864,000 \text{ kg CO}_2\text{e}$

### Bus Commuters

# of employees \* % of employees per commute mode \* round trip distance \* days worked per year \* emission factor  
 $1,000 * 0.1 * (5 * 2) * 240 * 0.1 = 2,400 \text{ kg CO}_2\text{e}$

### Total Employee Commute Emissions

Car Emissions + Bus Emissions  
 $864,000 + 2,400 = 866,400 \text{ kg CO}_2\text{e} = 866.4 \text{ tCO}_2\text{e}$

# Where to find emission factors

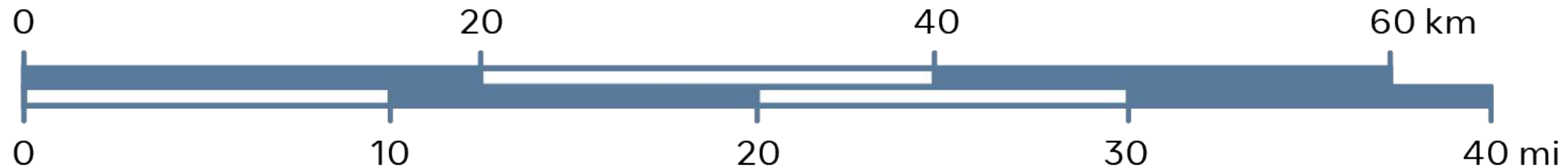
- Emission factors should come from reputable data sources such as national datasets
- Use the most recent version of the datasets available, and always document the emission factors used in your inventory management plan
- The GHG Protocol Scope 3 Calculation Guidance gives examples of emission factor sources under each category

## Examples of common emission factor sources:

- IEA
- Published LCA studies
- LCA databases
  - EcoInvent
  - GaBi
- EPA GHG Emission Factor Hub
- UK DEFRA
- EEIO
  - EPA Supply Chain Emission Factors
  - USEEIO
  - Carnegie Mellon EIO-LCA
  - E3IOT

# Note: Be sure to check the units!

Appropriately between your activity data and emission factors. For example, if your activity data is in miles but your emission factor is kg CO<sub>2</sub>e/km, this will cause an error.



# Inventory management plan

## Features of a verifiable and reliable Inventory Management Plan:

- Consolidation approach
- Base year
- Significance threshold for re-calculating base year
- Inclusions/exclusions and how they are determined
- GWP used
- Miscellaneous notes
- Activity data used and data owners
- Calculation approach for each category
- Reference to emission factor used (with version year)
- Assumptions

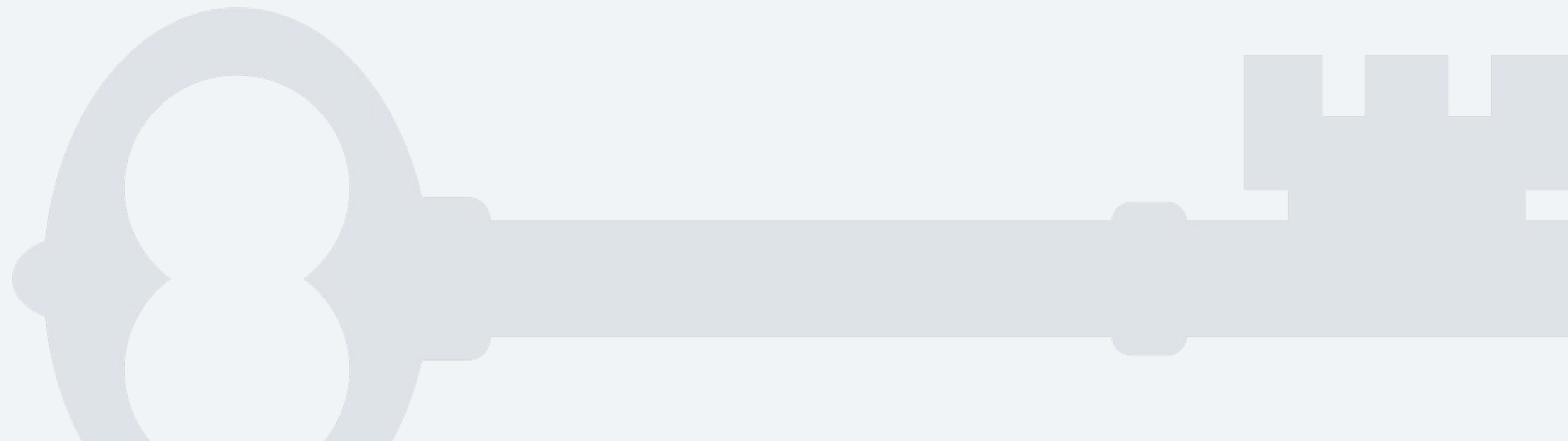




# Key takeaways

## Calculation methods

- There are many ways to calculate Scope 3
- More specific methodologies have greater precision but require more time and effort
- Prioritize calculations in the most relevant categories



# Activity

Grab a calculator and calculate the emissions for Company A's Purchased Goods & Services using the Average Data Method. Answer in metric tons of CO<sub>2</sub>e.

## Company A purchased

- 800 steel plates
  - Each has a mass of 3 kg
- 900 plastic casings
  - Each has a mass of 1 kg

## Emission factors

- Steel LCA emission factor
  - 0.5 kg CO<sub>2</sub>e/kg of steel
- Plastic LCA emission factor
  - 0.2 kg CO<sub>2</sub>e/kg of plastic



Note: The activity data and emission factors are illustrative only and do not refer to actual data.

# Calculations

Company A purchased goods & services

**Steel Emissions**

$$\begin{aligned} & \text{Quantity Purchased} * \text{Mass of Product} * \text{Mass Based LCA Emission Factor} \\ & 800 * 3 * 0.5 = 1,200 \text{ kg CO}_2\text{e} \end{aligned}$$

**Plastic Emissions**

$$\begin{aligned} & \text{Quantity Purchased} * \text{Mass of Product} * \text{Mass Based LCA Emission Factor} \\ & 900 * 1 * 0.2 = 180 \text{ kg CO}_2\text{e} \end{aligned}$$

**Total PG&S Emissions**

$$\begin{aligned} & \text{Steel Emissions} + \text{Plastic Emissions} \\ & 1,200 + 180 = 1,380 \text{ kg CO}_2\text{e} = 1.38 \text{ tCO}_2\text{e} \end{aligned}$$

# Case study



# Case study example

Company X produces computers that they sell to Meta. They are completing their Scope 3 inventory for the first time. Follow their journey:



## Relevant Categories

- They determined their largest categories are:
  - Use of Sold Products
  - Purchased Goods & Services
  - Upstream Transportation & Distribution
  - They decided to dig into calculations for these categories and use spend and high-level estimates for the remaining categories



## Data Quality & Estimations

- When calculating Upstream Transportation, their team did not have data on the mass of products
- Research shows computers weigh between 4-5 kg, to be conservative, they assumed 5 kg per computer
- Data quality is a continuous journey. This assumption can be refined as data improves



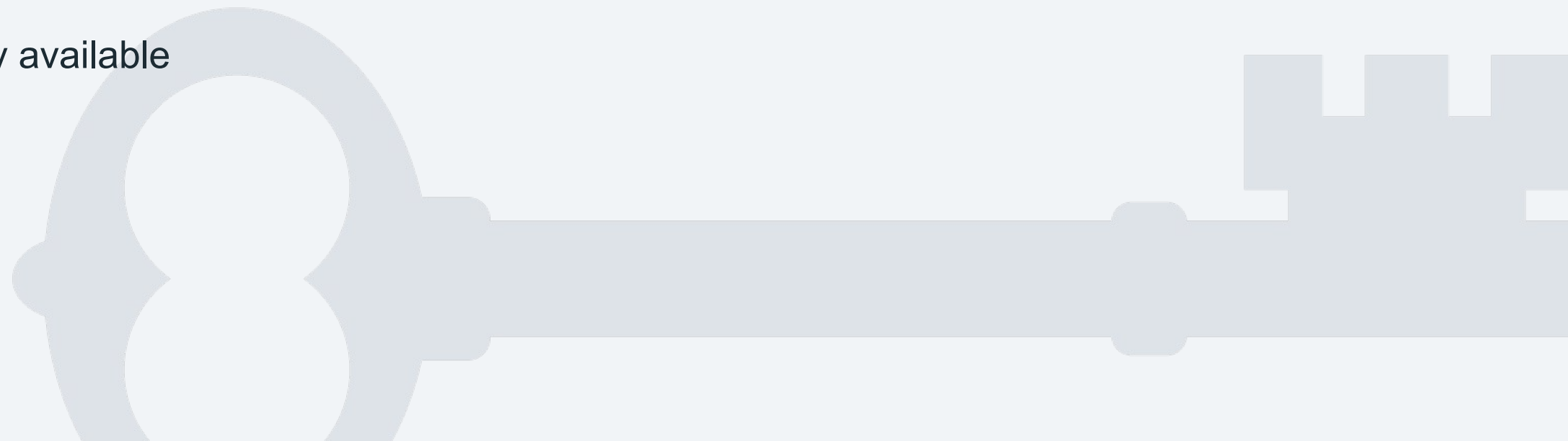
## Calculations

- Company X still felt lost when starting to calculate emissions
- They were unsure of
  - What methodology to use
  - How to calculate the emissions
  - Where to find emission factors
- For any uncertainties like this, they looked to the GHG Protocol Technical Guidance

# Closing remarks

## Key takeaways

- Scope 3 is comprehensive, however, with the right strategy and approach, it's doable
- A complete, in-depth calculation of every Scope 3 category is not necessary
- Working with your largest categories will be most important and using the same or similar methodologies to calculate their emissions is possible
- Above all, work with what you have and what is publicly available





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