



# The role of **EPDs** in planning and decision making

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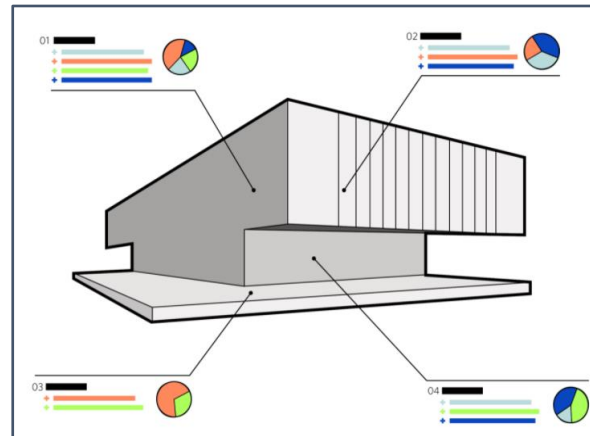
# About Building Transparency

United States 501c(3) nonprofit dedicated to helping people make planet-restoring decisions.

Our mission is to provide the open data and tools needed to inspire actions that positively impact our world...  
*starting with the construction materials*



Revit plugin | **Design-focused**  
Whole-Building **LCA Tool**



**Free to use | Open access**  
Global digitized **EPD database**  
Upfront **Carbon Assessment Tool**

Product Impacts	
Declared Unit: 1 m <sup>3</sup> of 10,000 psi concrete at 28 days	
Amount Per Declared Unit	
Global Warming Potential	445 kgCO <sub>2</sub> eq
Emitted	460 kgCO <sub>2</sub> eq
Sequestered	-15 kgCO <sub>2</sub> eq
Ozone Depletion	0.000 kgCFC11eq
Acidification	2.96 kgSO <sub>2</sub> eq
Eutrophication	0.09 kgNeq
Smog Formation	0.61 kgO <sub>3</sub> eq
Primary Energy Demand	3017 MJ
Non-renewable	3000 MJ
Renewable	17 MJ



# About Building Transparency

## Lead Sponsors



## Pilot Sponsors



## Association Sponsors



## Manufacturer Sponsors



## Technology Partners/Integrators

Autodesk

Azure

Bentley

Climate Earth

Ecomedes

Emidat

Materials 2050

Mindful Materials

Sustainable Minds

WAP Theta... and more





**SKANSKA**

◀ Svenska

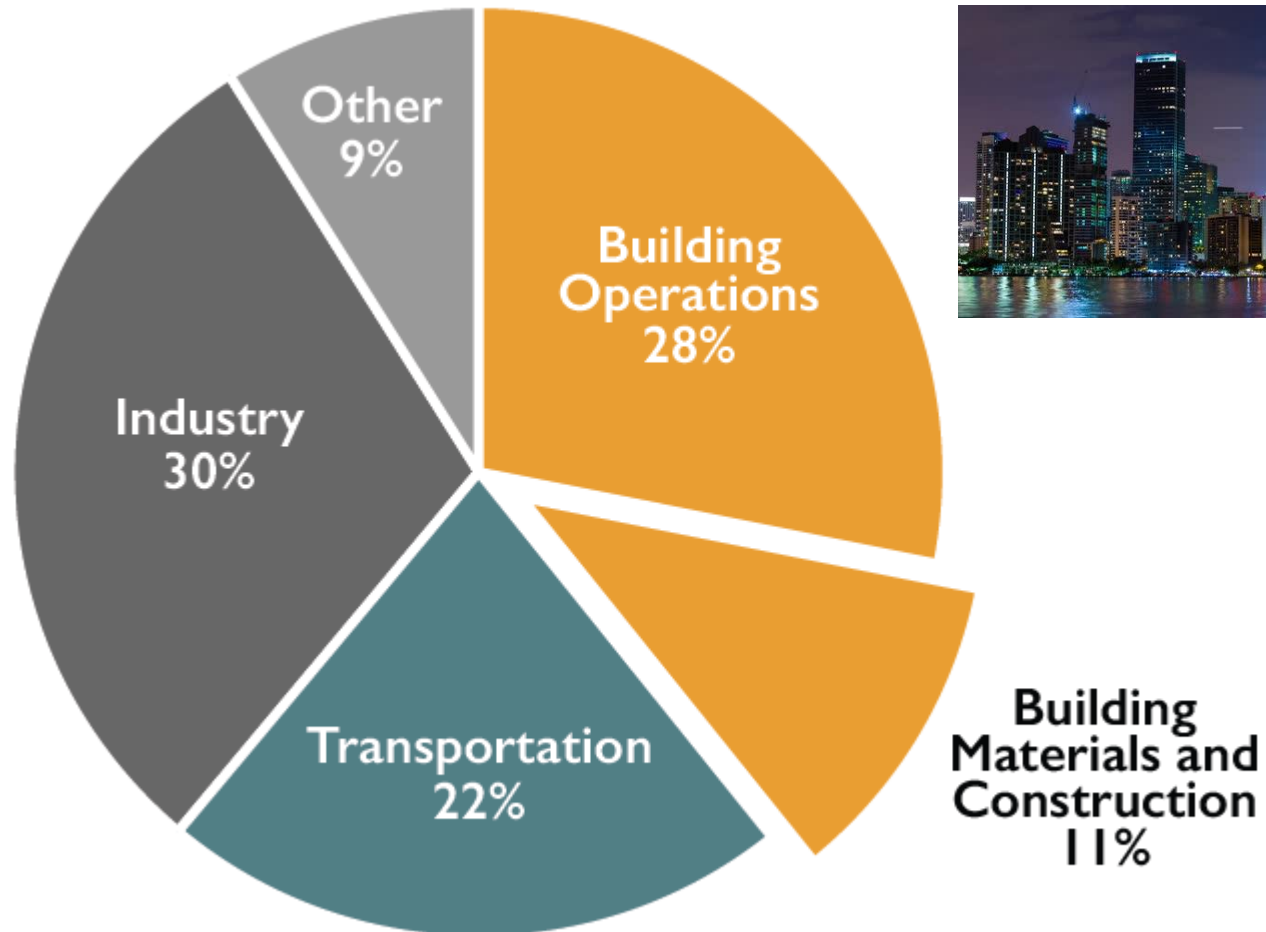
9/12/2022 5:30 PM CET

SKA B: SEK 161.4 **+2.2%** ↗

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## Global CO<sub>2</sub> Emission by Sector

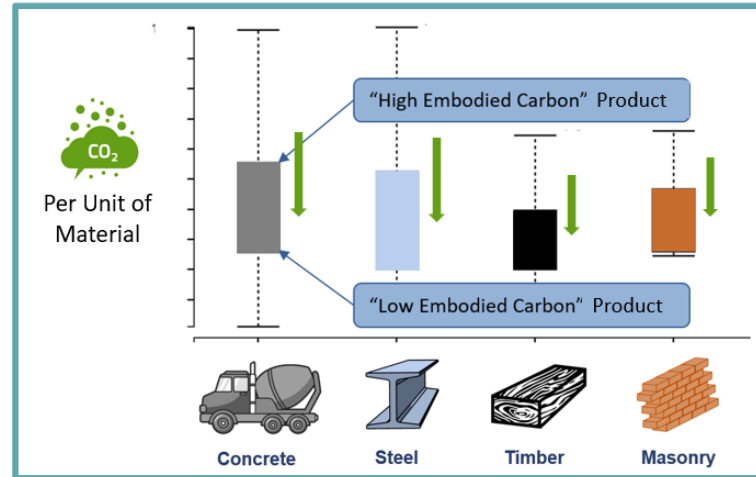


## “Embodied Carbon”

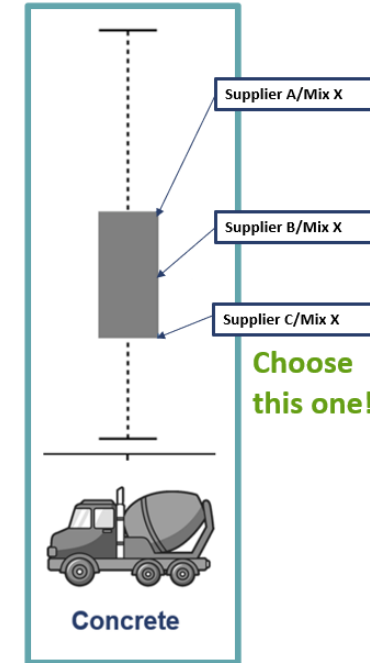




# IMPACT!

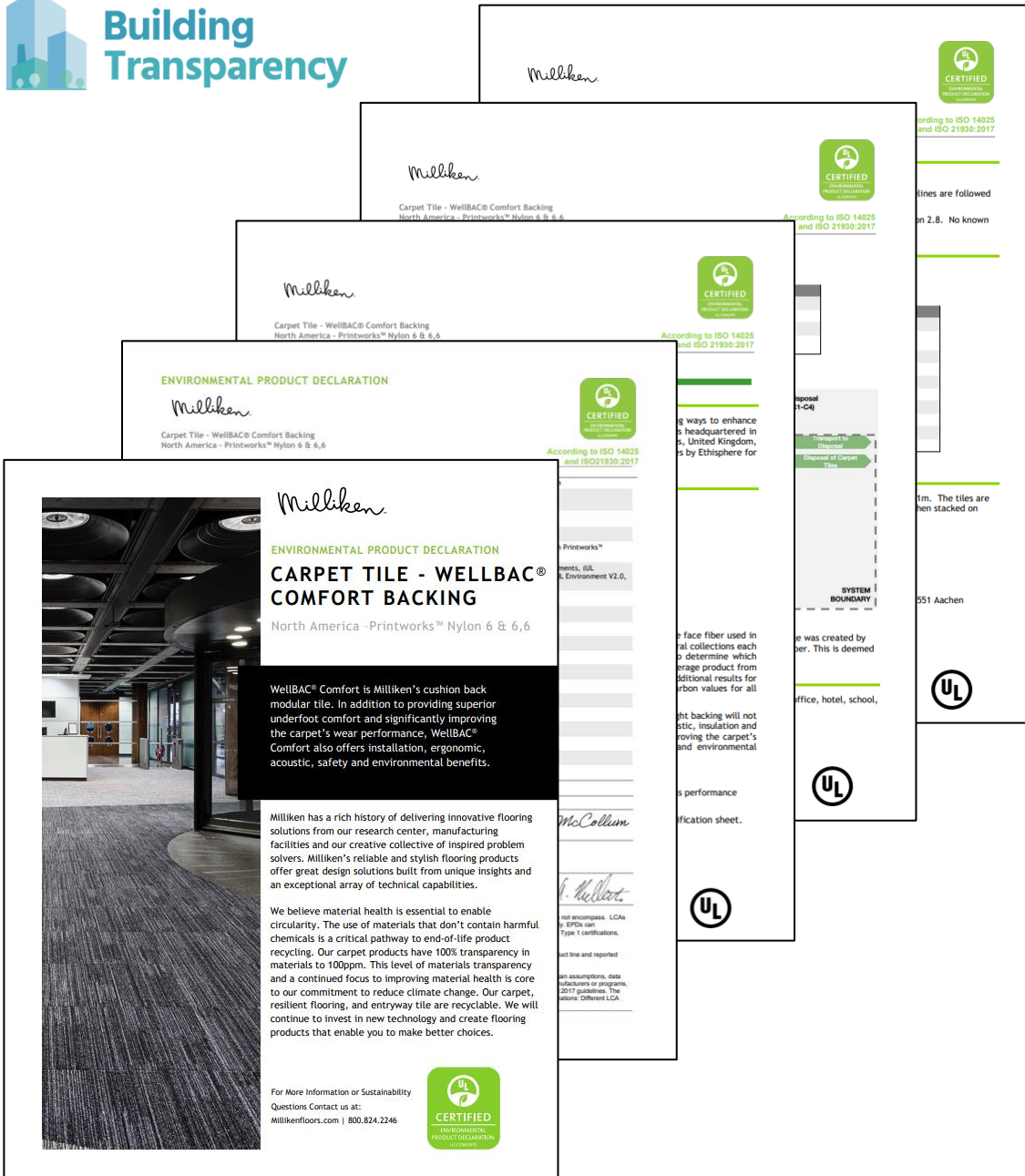


What if we had *carbon intensity*  
(kgCO<sub>2</sub>e) per unit...  
just like *cost* (\$) per unit of material?



“We need to account for carbon the  
same way we do for cost”





**Miliken**  
ENVIRONMENTAL PRODUCT DECLARATION  
**CARPET TILE - WELLBAC® COMFORT BACKING**  
North America - Printworks™ Nylon 6 & 6,6

WellBAC® Comfort is Miliken's cushion back modular tile. In addition to providing superior underfoot comfort and significantly improving the carpet's wear performance, WellBAC® Comfort also offers installation, ergonomic, acoustic, safety and environmental benefits.

Miliken has a rich history of delivering innovative flooring solutions from our research center, manufacturing facilities and our creative collective of inspired problem solvers. Miliken's reliable and stylish flooring products offer great design solutions built from unique insights and an exceptional array of technical capabilities.

We believe material health is essential to enable circularity. The use of materials that don't contain harmful chemicals is a critical pathway to end-of-life product recycling. Our carpet products have 100% transparency in materials to 100ppm. This level of materials transparency and a continued focus to improving material health is core to our commitment to reduce climate change. Our carpet, resilient flooring, and entryway tile are recyclable. We will continue to invest in new technology and create flooring products that enable you to make better choices.

For More Information or Sustainability  
Questions Contact us at:  
Milikenfloors.com | 800.824.2246

**CERTIFIED**  
ENVIRONMENTAL  
PRODUCT DECLARATION  
100% Transparency

# EPDs are confusing... and magical!

## The magical environmental impact table!

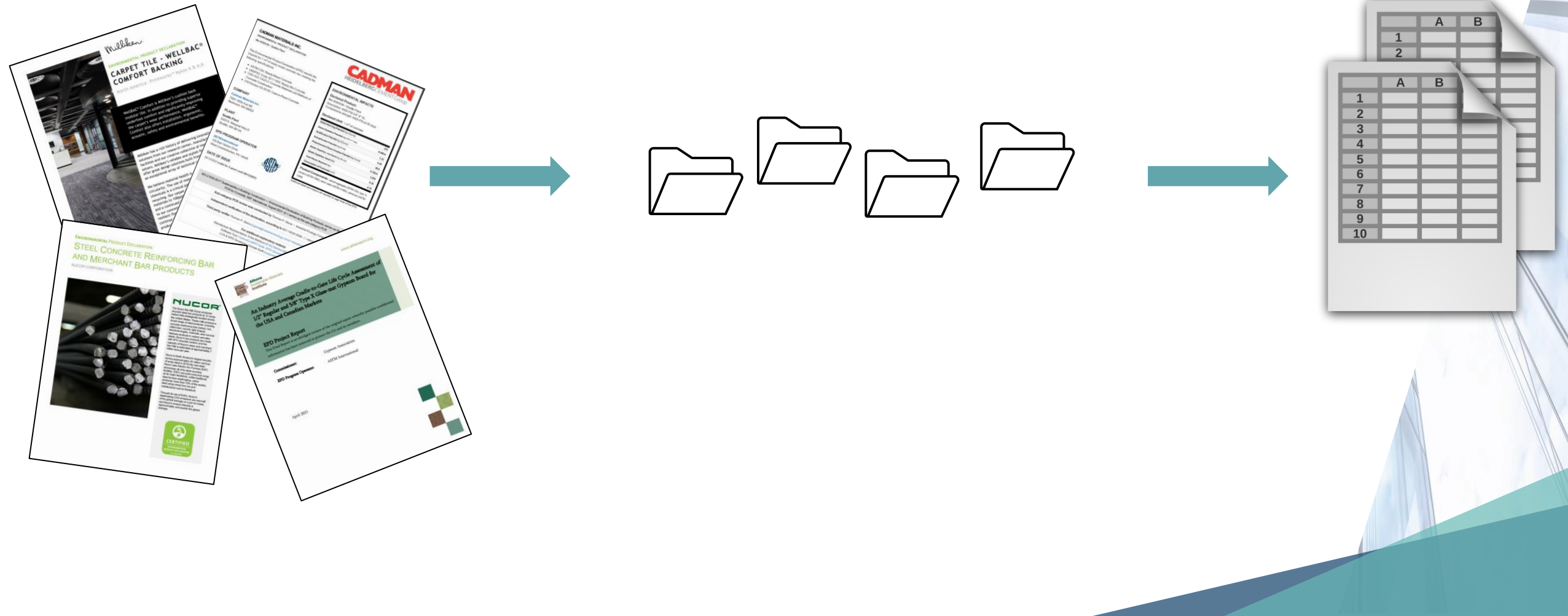
### 4.1. Life Cycle Impact Assessment Results

Table 19: North American Impact Assessment Results\*

	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
IPCC AR5 Impacts														
GWPe 100 [kg CO <sub>2</sub> eq]	1.36E+01	2.11E-01	5.09E-01	0.00E+00	3.74E+01	0.00E+00	5.78E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-02	0.00E+00	7.13E-02
GWPI 100 [kg CO <sub>2</sub> eq]	1.31E+01	2.11E-01	5.35E-01	0.00E+00	3.74E+01	0.00E+00	5.59E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-02	0.00E+00	7.10E-02
TRACI 2.1 Impacts														
ODP [kg CFC-11 eq]	8.48E-07	5.38E-16	1.70E-08	0.00E+00	3.72E-12	0.00E+00	3.46E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-16	0.00E+00	3.40E-15
AP [kg SO <sub>2</sub> eq]	1.78E-02	1.03E-03	1.17E-03	0.00E+00	5.21E-02	0.00E+00	8.20E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-04	0.00E+00	3.67E-04
EP [kg N eq]	4.71E-03	8.98E-05	2.67E-04	0.00E+00	1.08E-02	0.00E+00	2.14E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-05	0.00E+00	2.72E-04
Resources [MJ, LHV]	2.99E+01	3.88E-01	8.84E-01	0.00E+00	4.21E+01	0.00E+00	1.26E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.46E-02	0.00E+00	1.39E-01
POCP [kg O <sub>3</sub> eq]	3.97E-01	2.39E-02	1.33E-02	0.00E+00	7.16E-01	0.00E+00	1.78E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-03	0.00E+00	6.69E-03

...on page 13

# The painstaking process in 2018





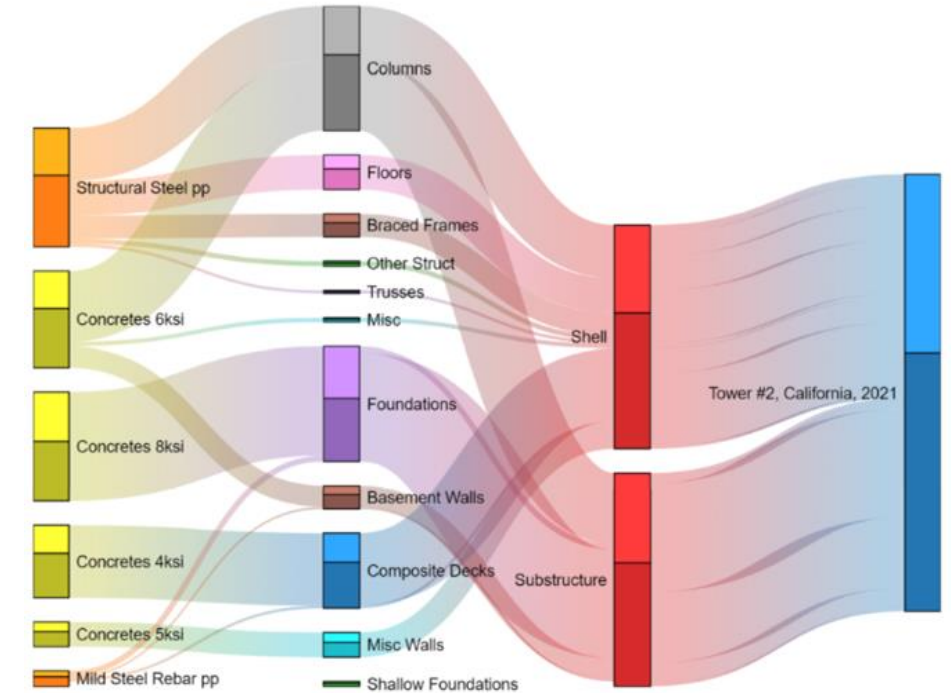
# How do we make EPDs easily accessible and useful?



## Life Cycle Impact Results (per m<sup>3</sup>)

Declared Unit: 1 m<sup>3</sup> of 10,000 psi concrete at 28 days

OPERATIONAL IMPACTS		PerformX™ PECC10K
Plant Operating Energy (MJ)		38.6
On-Site Plant Fuel Consumption (MJ)		11.1
Concrete Batch Water (m <sup>3</sup> )		1.68E-01
Concrete Wash Water (m <sup>3</sup> )		1.91E-02
On-Site Waste Disposal (kg)		0.0
ENVIRONMENTAL IMPACTS		
Total Primary Energy (MJ)		3,017
Climate Change (kg CO <sub>2</sub> eq)		445
Ozone Depletion (kg CFC 11 eq)		1.31E-08
Acidification Air (kg SO <sub>2</sub> eq)		2.96
Eutrophication (kg N eq)		0.09
Photochemical Ozone Creation (kg O <sub>3</sub> eq)		0.61



BILL OF  
MATERIALS



EMBODIED CARBON  
PER MATERIAL  
(EPDs)



BUILDING EMBODIED  
CARBON RESULTS

**COMPARE BY MANUFACTURER**

Jurisdiction: USA (WA) and Valid after: 2020-11-19 and Strength (28d) (5000 psi)

kgCO2e embodied per yd3

Manufacturer	kgCO2e embodied per yd3
Superior ReadyMix	111
CapMetro	451
CapMetro	651
Browning Concrete	442

**SAVE IMAGE**

Manufacturer	Location	Product	Strength	kgCO2e embodied per yd3
Cadman Inc	Woodville	PSC45437	5000 PSI SCDM 3/4" 7" SL	5000 psi
Cadman Inc	Woodville	PECCSK	PERFORM 5000 PSI	5000 psi
Cadman Inc	Woodville	PREPELEX	REPELEX W/ HYCRETE	5000 psi
Cadman Inc	Sky River	SPSC45437	5000 PSI SCDM 3/4" 7" SL	5000 psi

**CHUCK'S LAIR**

GWP SAVINGS OPPORTUNITIES FOR CHUCK'S LAIR (UNIFORMAT2 VIEW)

Tour: SANKEY DIAGRAM

Chuck's Lair

Exterior Enclosure

Interior Finishes

Interior

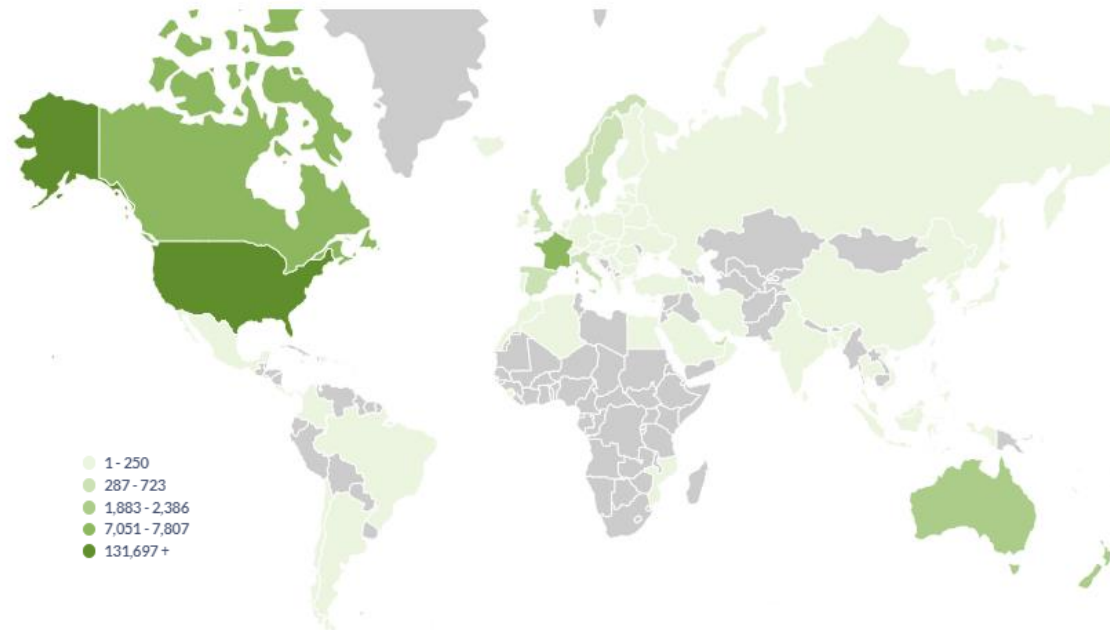
CLF Baseline

Net Zero Embodied Carbon

**SAVE IMAGE**



# Notable increase in EPD generation & digitization



**157,639** valid epds

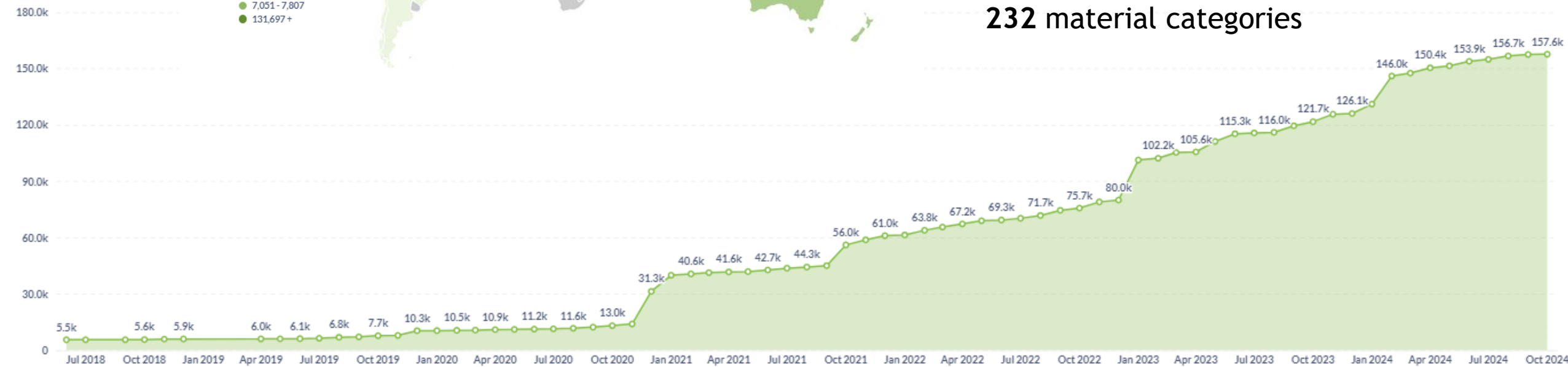
**2,595** companies

**5,472** manufacturing plants

**76** countries

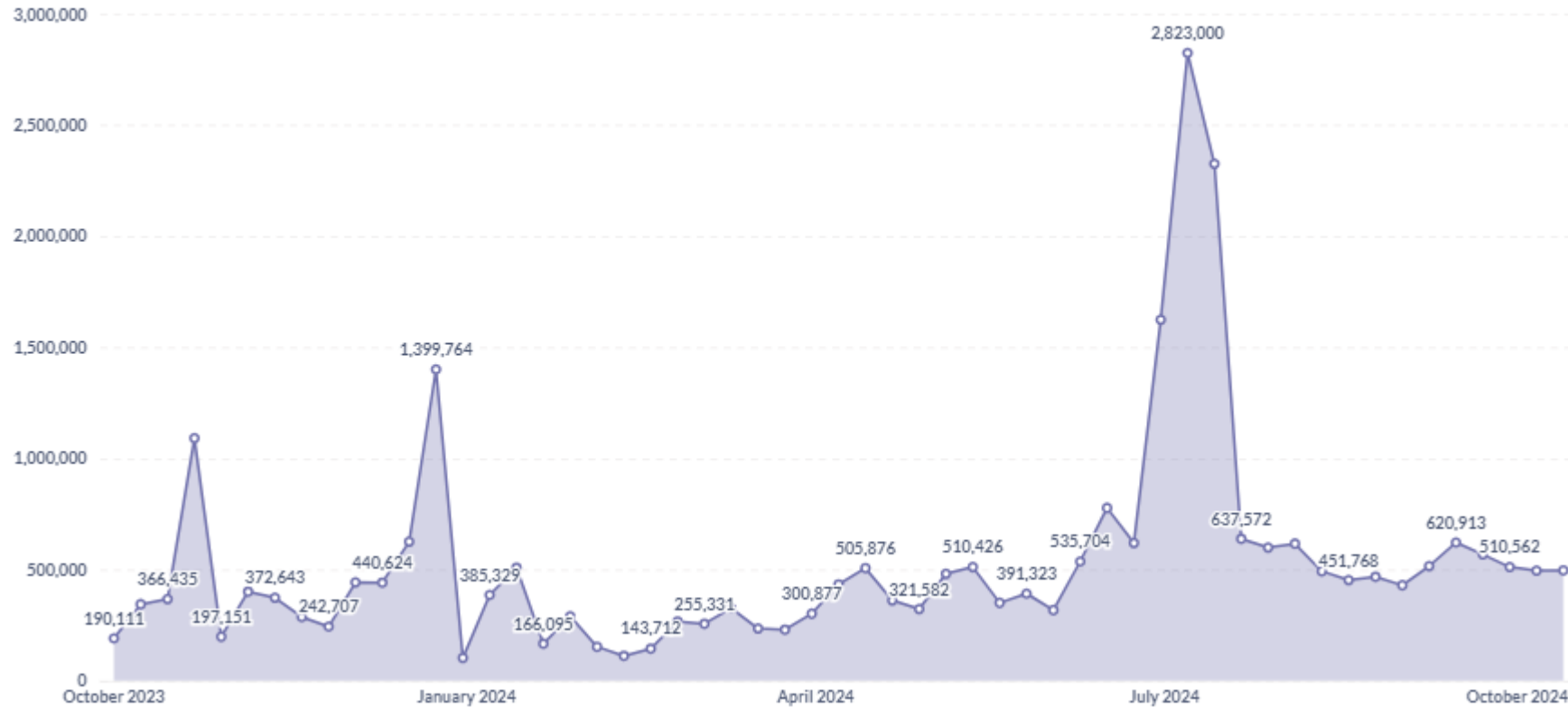
**232** material categories

#Valid Epds over Time



# Heavy use and obvious need for digitized EPD data

#API Requests by Week



**29,432,635** API requests

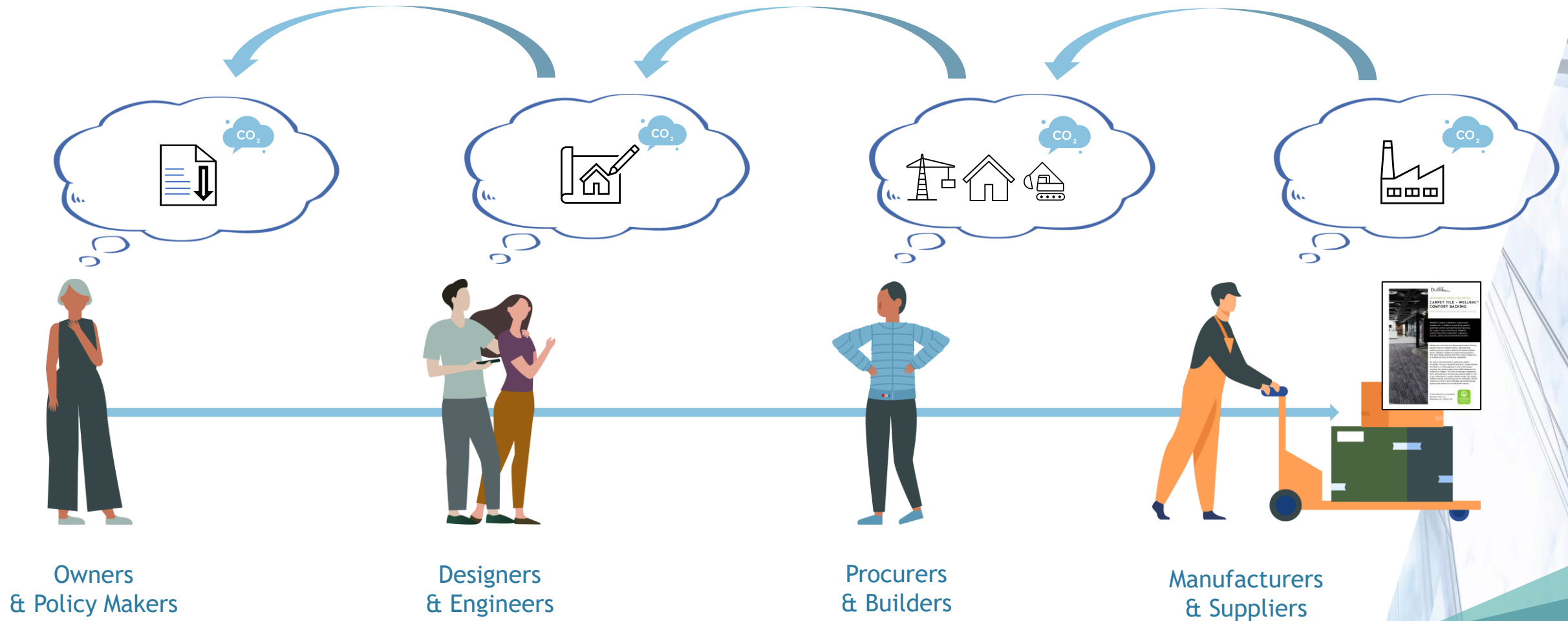
**5,265** companies

**16,382** users

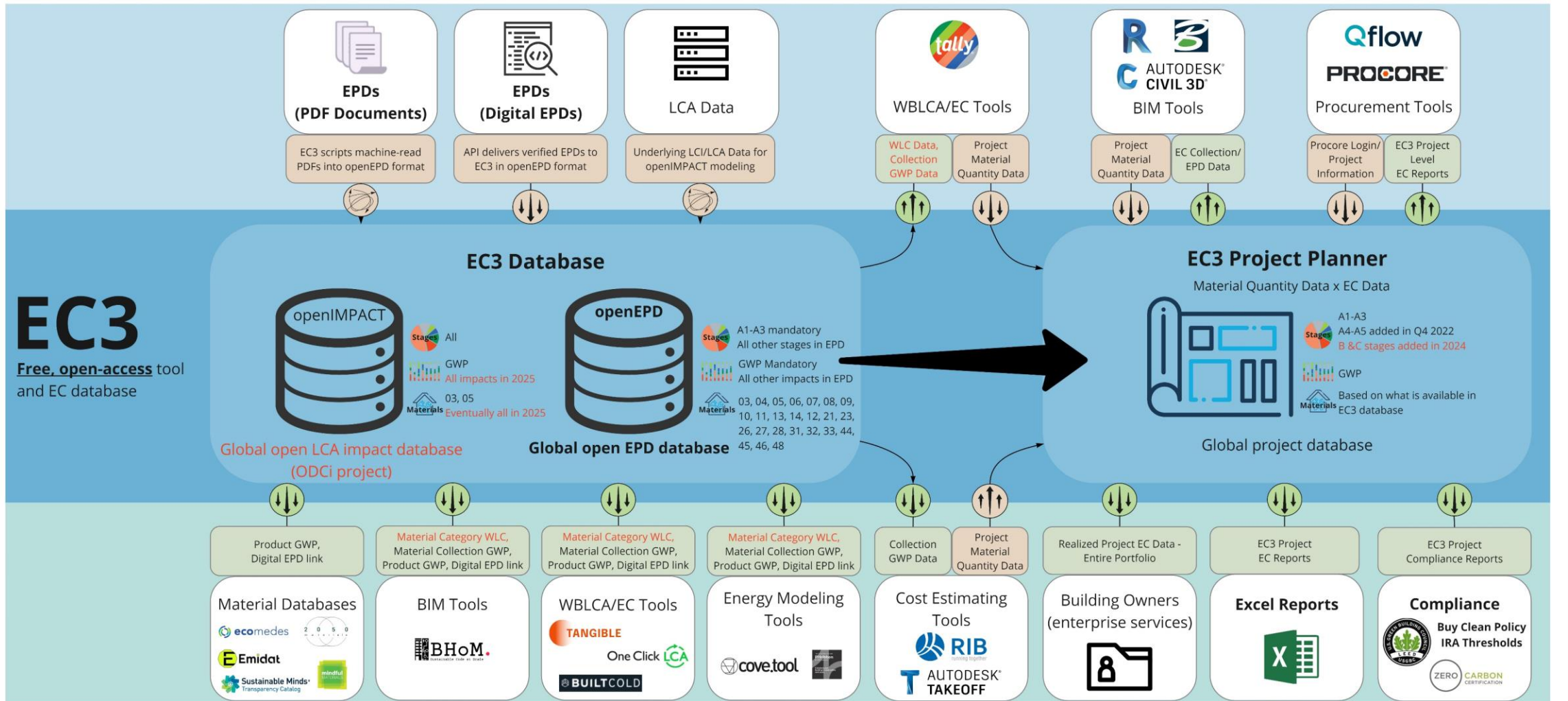
**160** countries



# Everyone needs EPDs

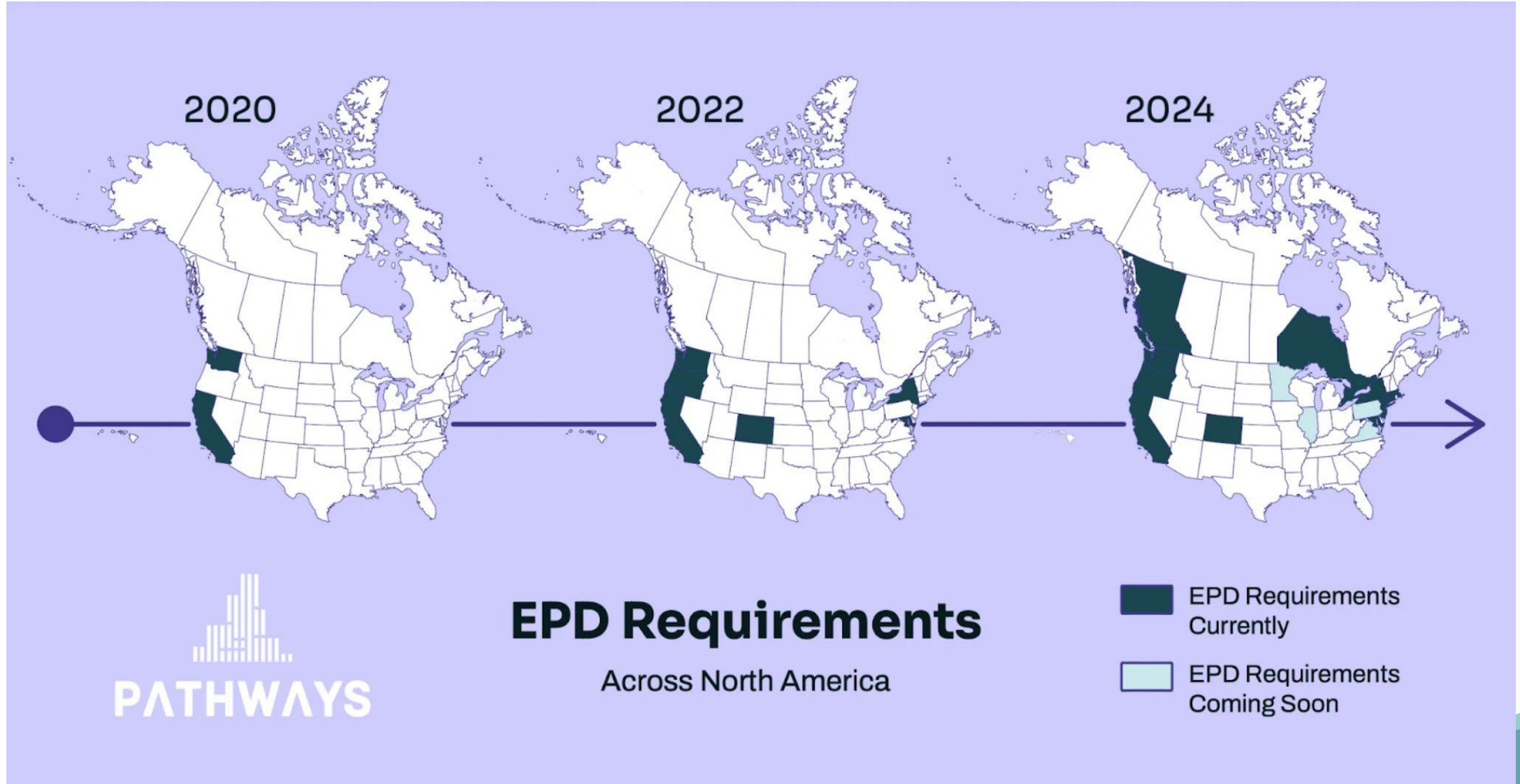


## EC3 Current Integrations Workflow Diagram - 2024

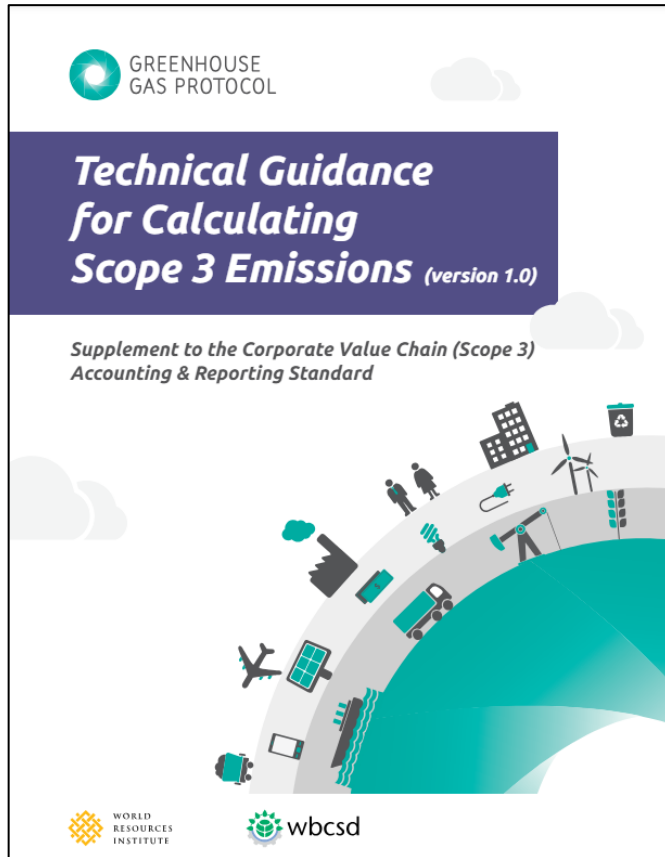




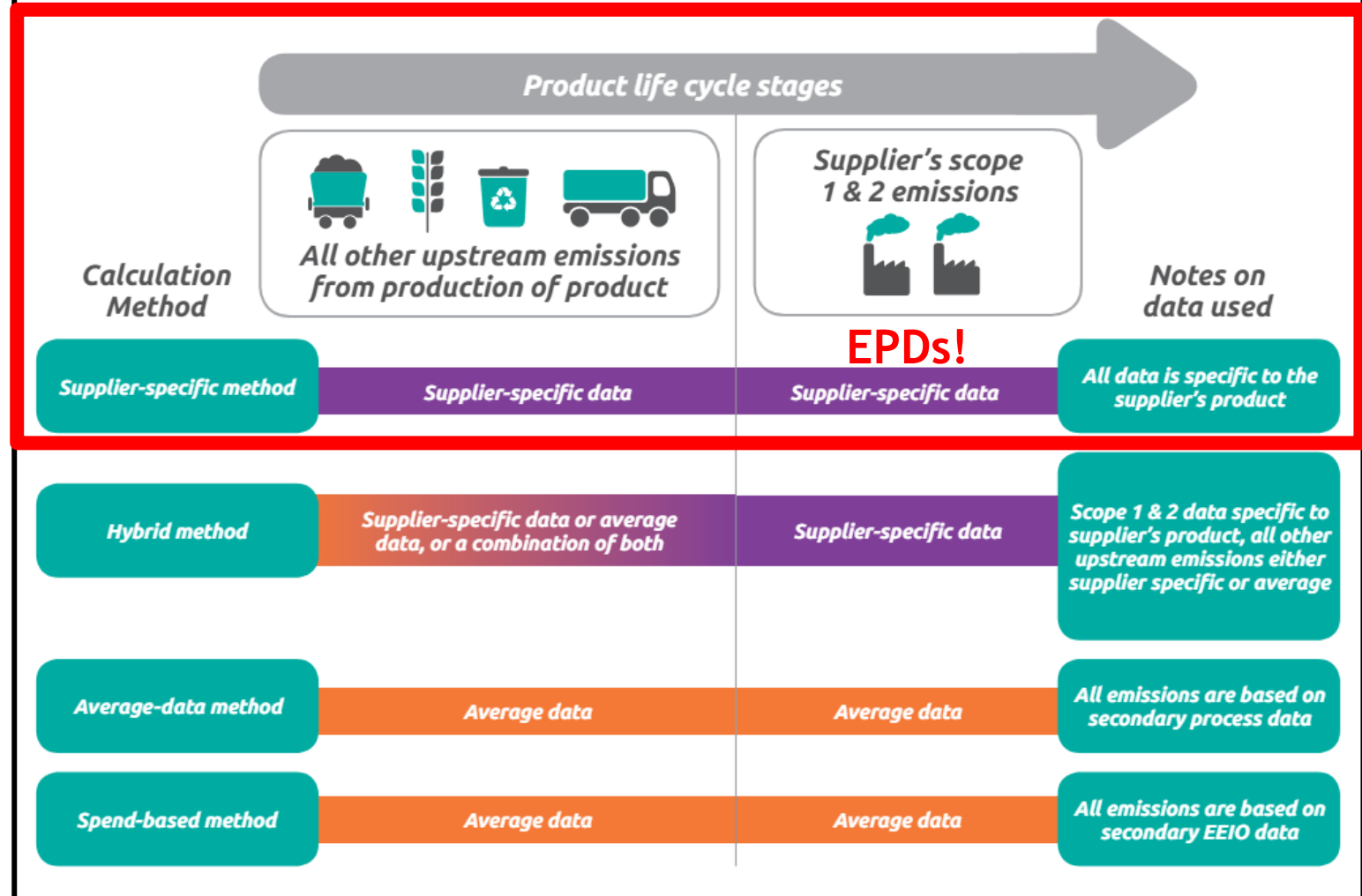
# EPD accessibility leads to policy



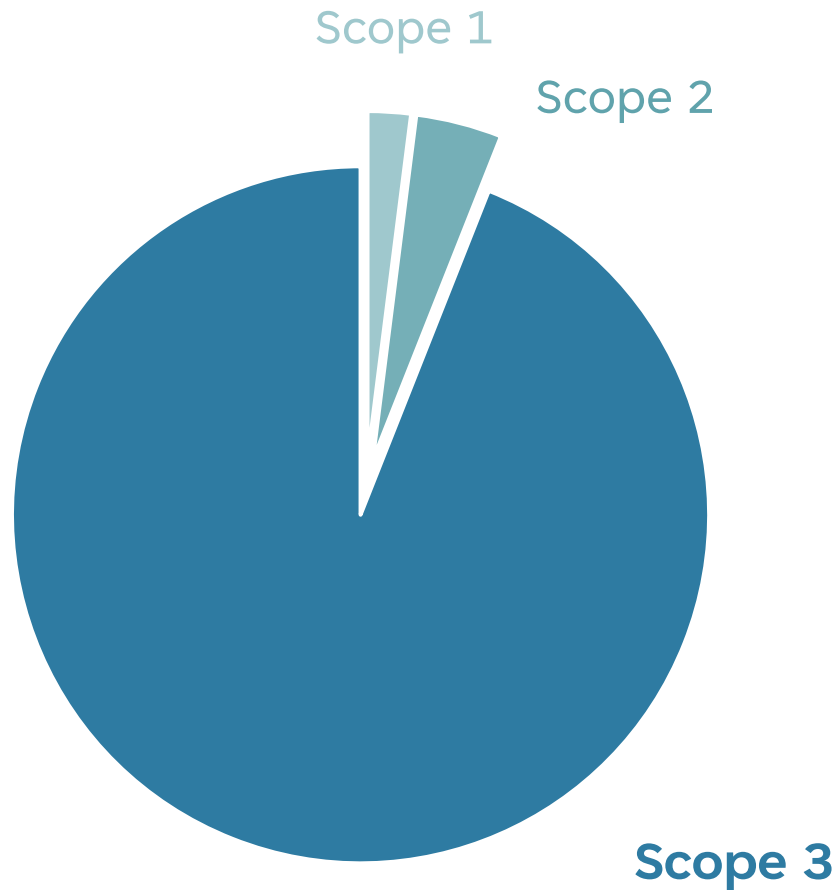
# Standards are moving to realized Scope 3 accounting



**Figure [1.1]** Different data types used for different calculation methods



# Companies have to address Scope 3 emissions



**Skanska: 90 %**

Source: [2022 Annual and Sustainability Report](#)

**Microsoft: 96.7%**

Source: [2022 Environmental Sustainability Report](#)

**REI: 97.8%**

Source: [2022 Greenhouse Gas Inventory Report](#)

**Rivian: 90%**

Source: [2023 Interview with Rivian CEO](#)

**Sysco: 97.8%**

Source: [2021 Corporate Social Responsibility Report](#)



# Scope 3 accounting is primed for EPD use

\$ spent on material x  
average kgCO<sub>2</sub>e

= INACCURATE ACCOUNTING



quantity of material x  
product specific kgCO<sub>2</sub>e

= ACTUAL EMISSIONS

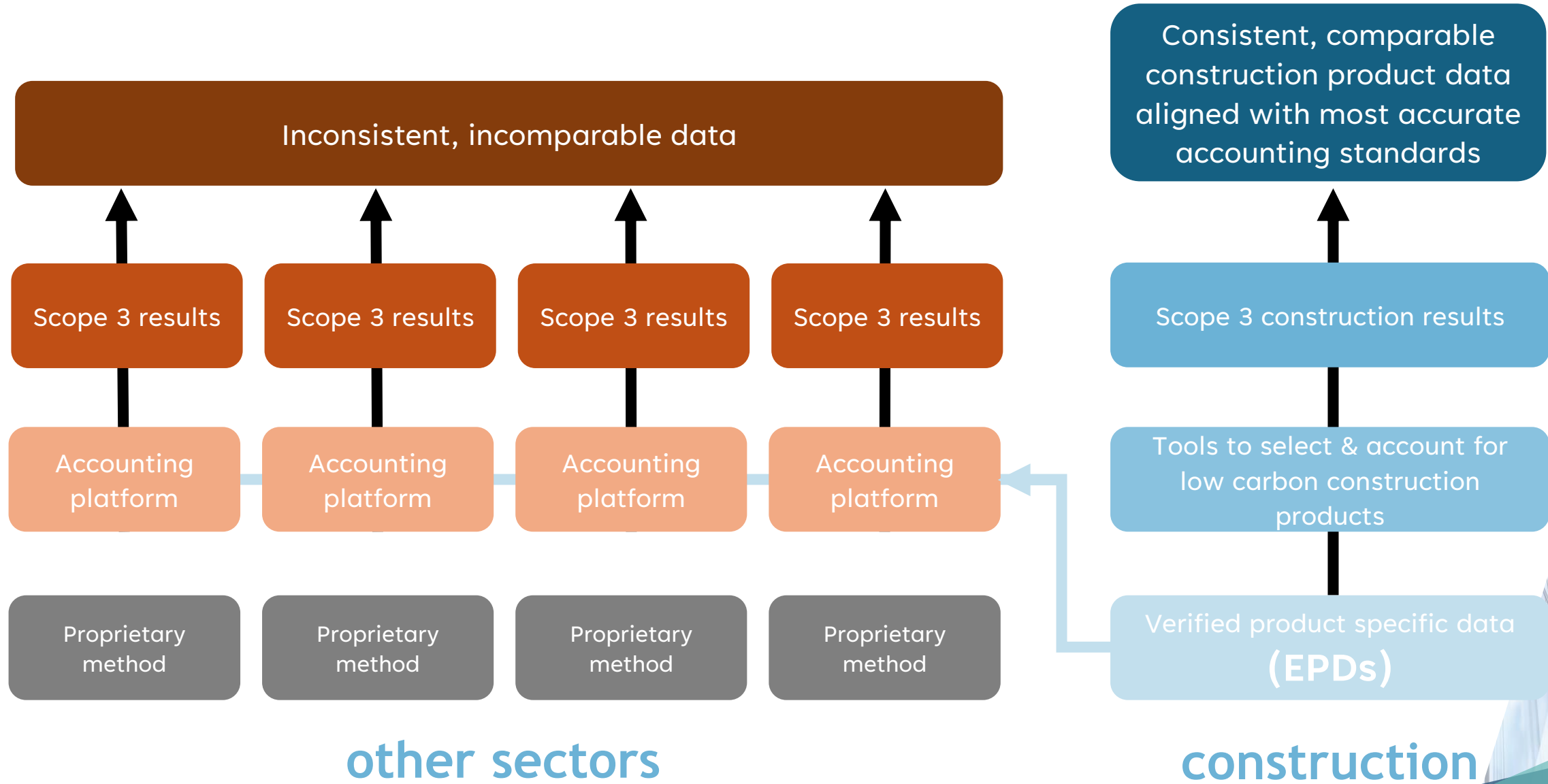
Company X spends more to purchase a lower carbon product.

Using spend based accounting means their reported Scope 3 emissions *go up* even though their actual emissions *went down*.

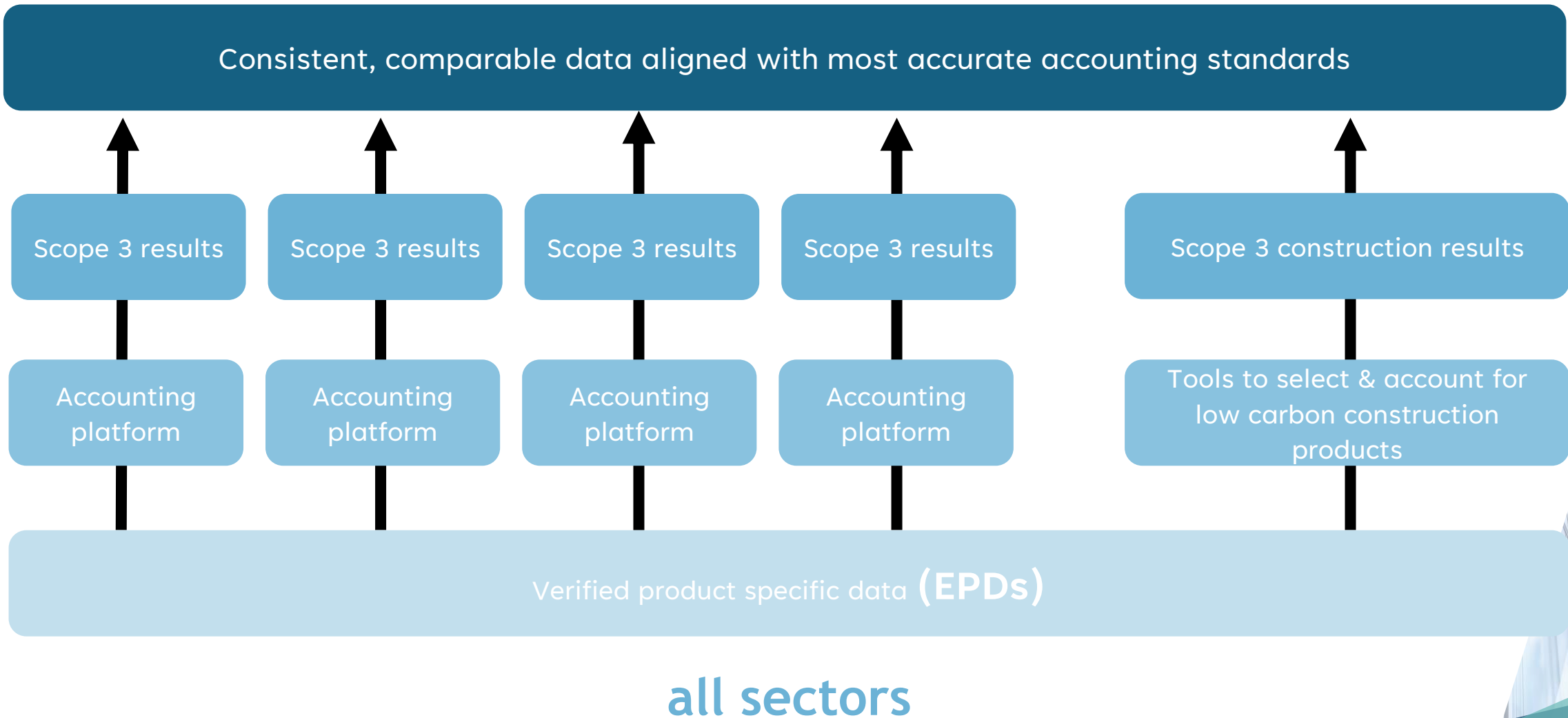
Product specific emissions leads to accurate Scope 3 accounting.

Using verified product emissions factors and quantities of product purchased enables anyone to report *actual emissions* and *real reductions*.

# Scope 3 accounting is primed for EPD use



# Scope 3 accounting is primed for EPD use

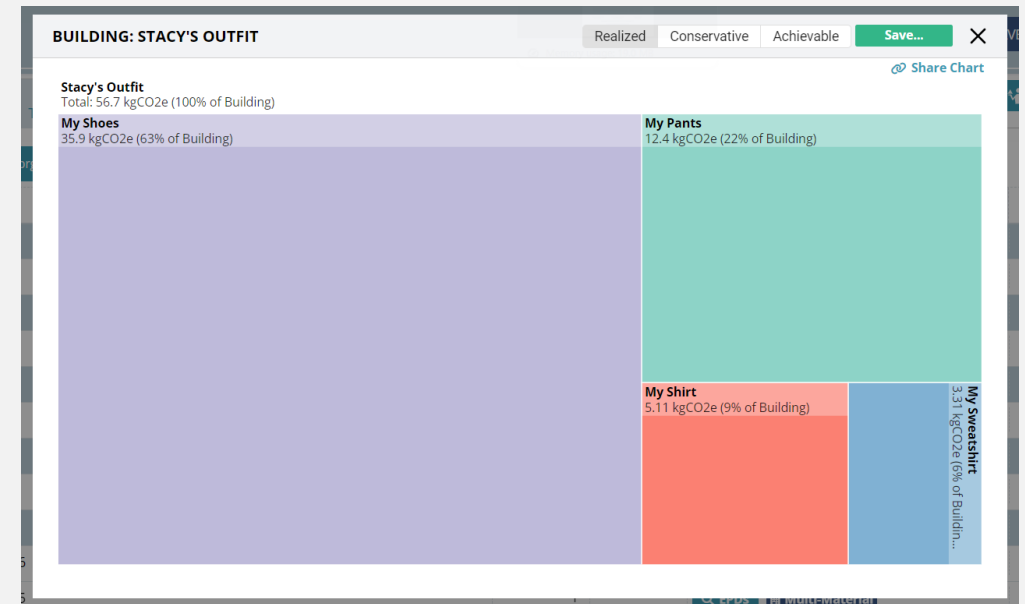




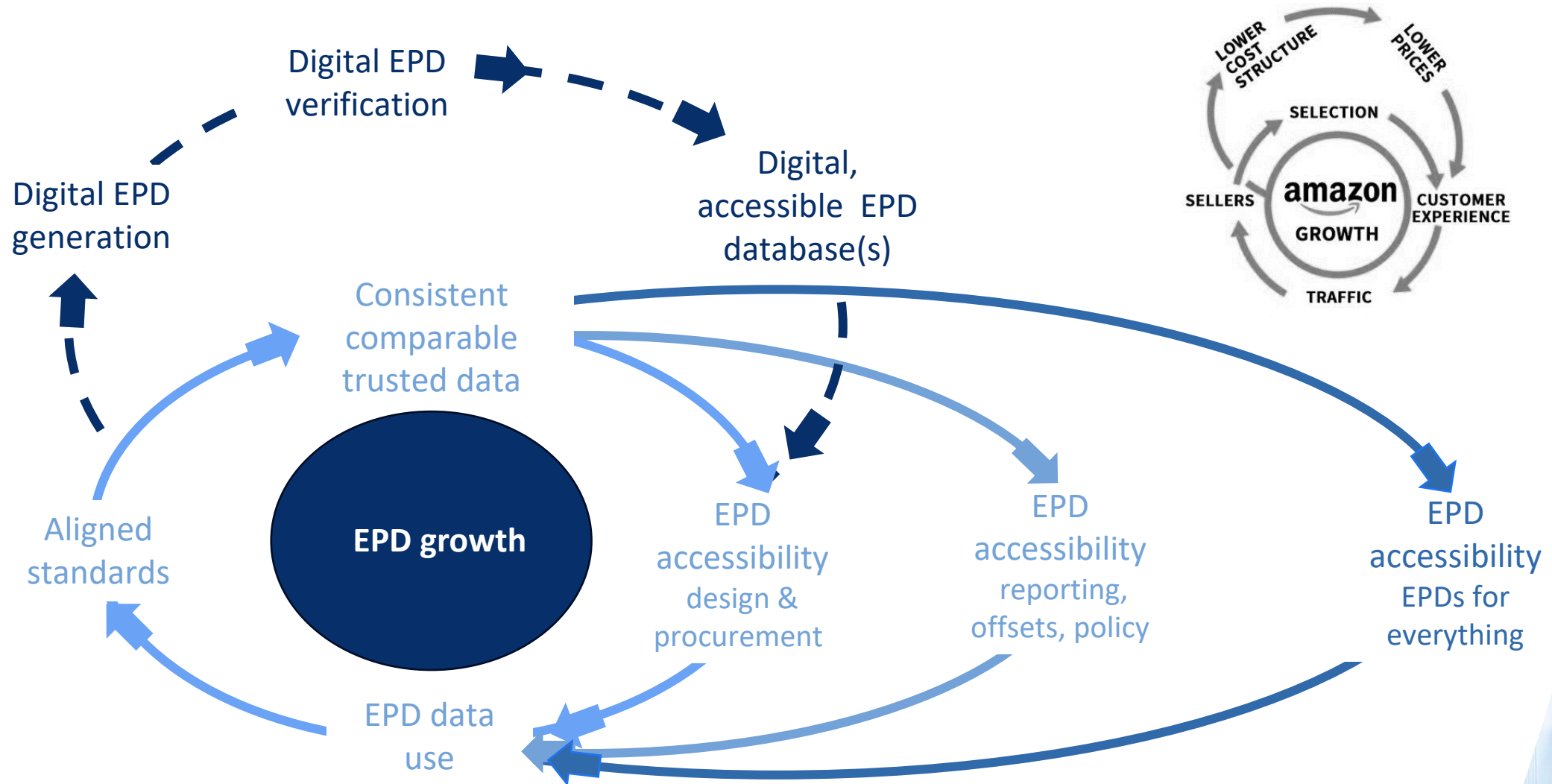
# We need EPDs for everything



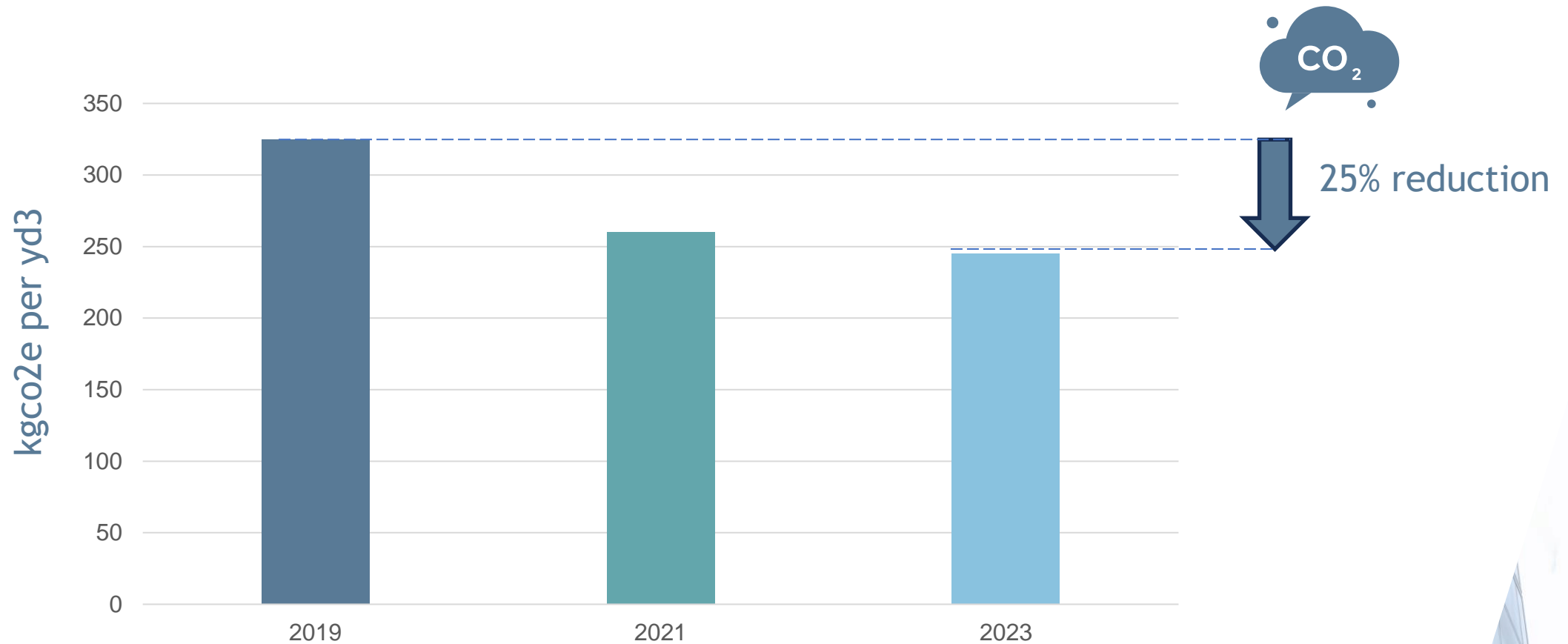
## Impacts of an outfit using apparel EPDs already in EC3



# The EPD growth flywheel



# When you have the data and the policies, decarbonization happens



Carbon emissions for concrete produced in Washington State have decreased, catalyzed by use of EPDs during specification and procurement on construction projects by major owners and contractors





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