

SiGREEN

Making Product Carbon Footprints actionable

Demand for transparency on product level is increasing

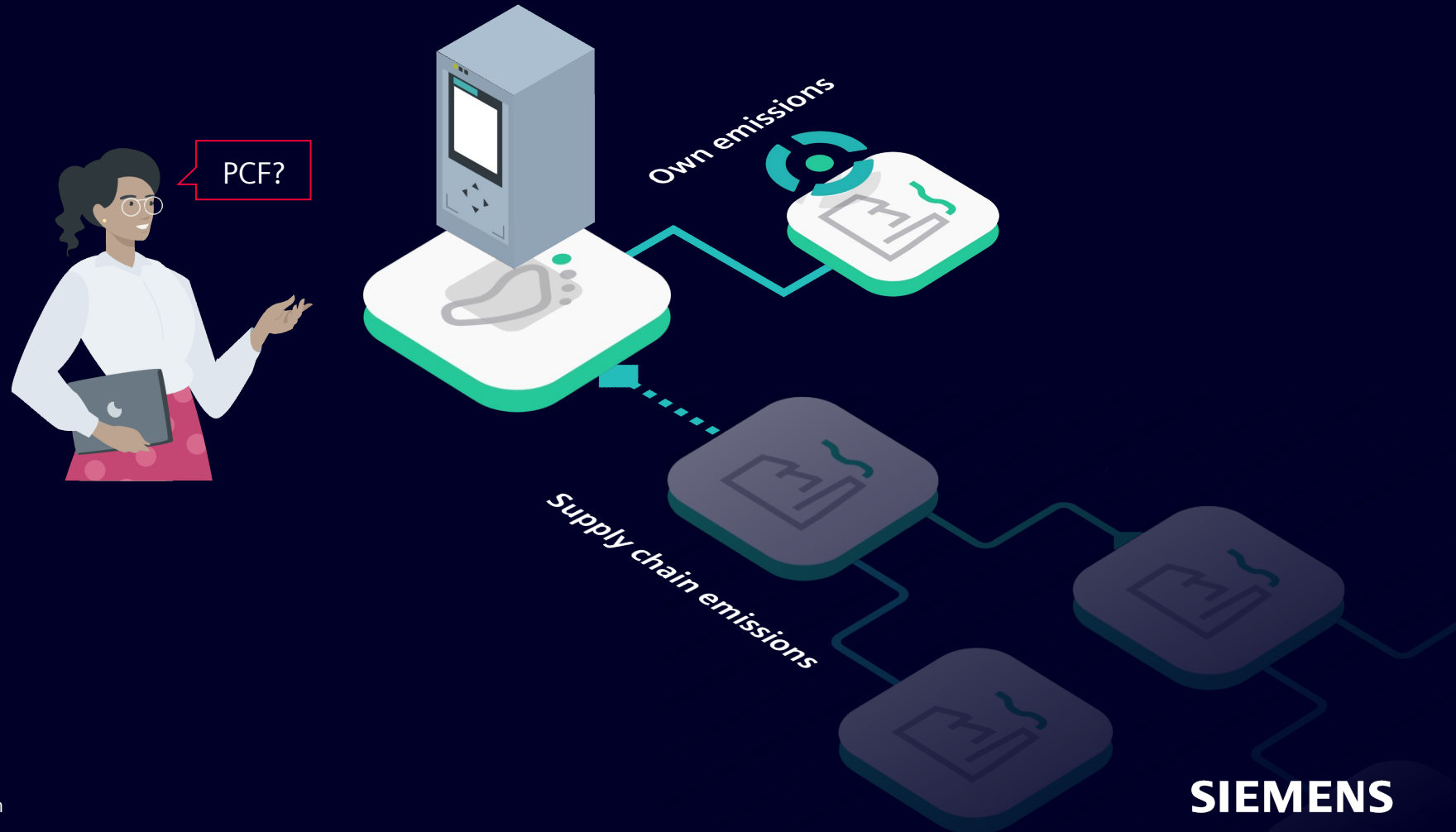
Why companies need to understand emissions related to their products

Responsibility

Public pressure

CO₂ Tax

Comp. Advantage



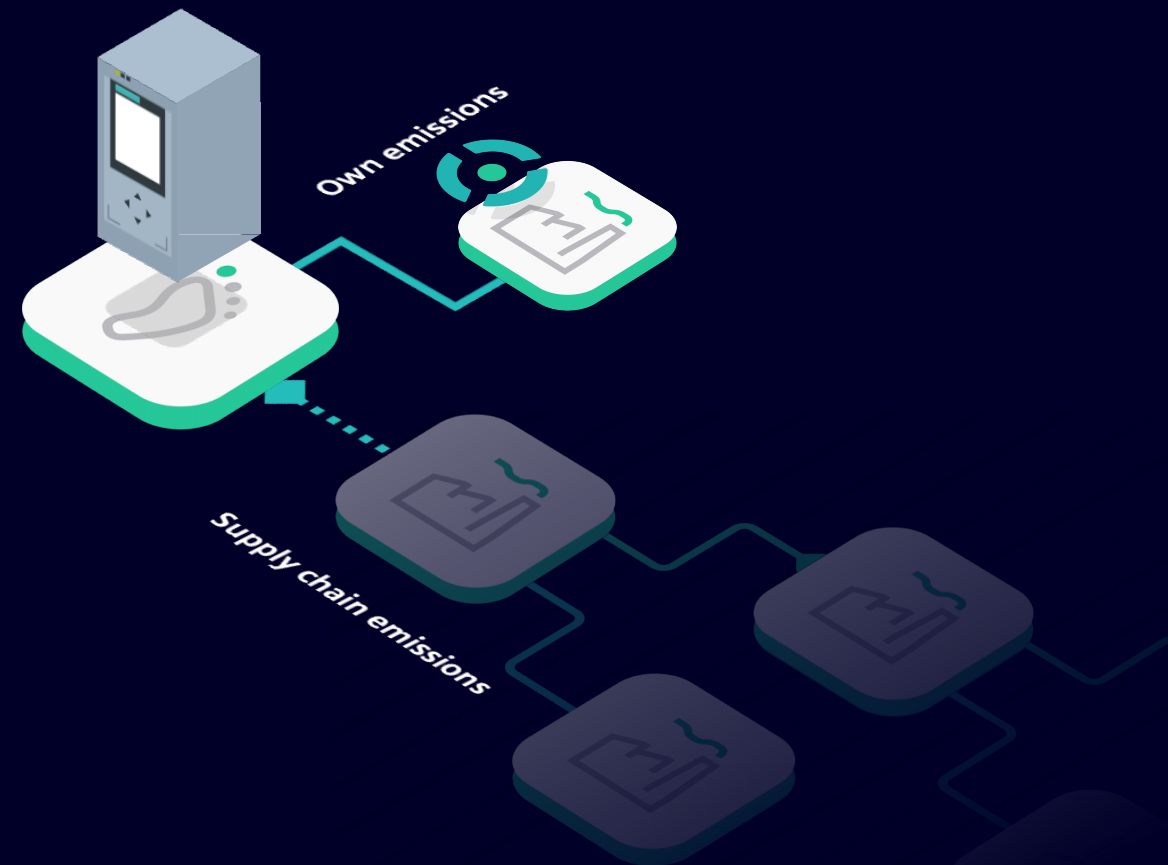
Decarbonization is a cross-company effort

Why your supply chain matters for your decarbonization targets

Over 90% of emissions originate in complex and distributed supply chains.¹

Challenges:

- › **Significant communication effort** with numerous and diverse partners
- › **Limited comparability** of the received information due to different standards and formats
- › **Need for data granularity** on product / component level



1) Carbon Disclosure Project 2021

Moving from carbon footprint reporting to active PCF management

How dynamic PCFs turn carbon footprints into a management tool

From static PCF reporting...

Conventional data base approach



- With up to 90% supply chain emissions, most of the PCF is based on **static database averages**
- (Sub-) supplier **improvements are disconnected** from a manufacturers PCF
- The same (sub-) supplier **material is calculated multiple** times by different manufacturers

...to dynamic PCF management

SiGREEN PCF chaining approach



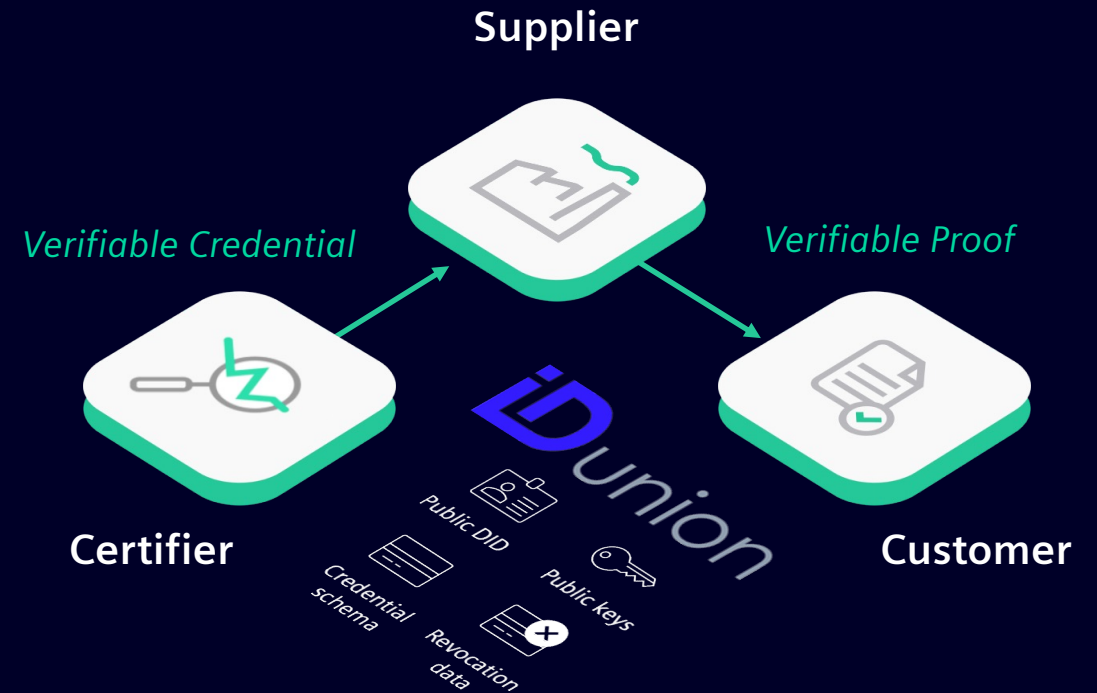
- Efficient communication allows for **frequent and pro-active updates** that create dynamic PCF
- (Sub-) suppliers' improvements quantify in PCFs, making them **a management tool**
- Dynamic PCF enable **precise target setting** and **efficient reduction measures** with **quantifiable impact**

Combining data trustworthiness with supply chain confidentiality

How SIGREEN leverages Distributed Ledger Technology

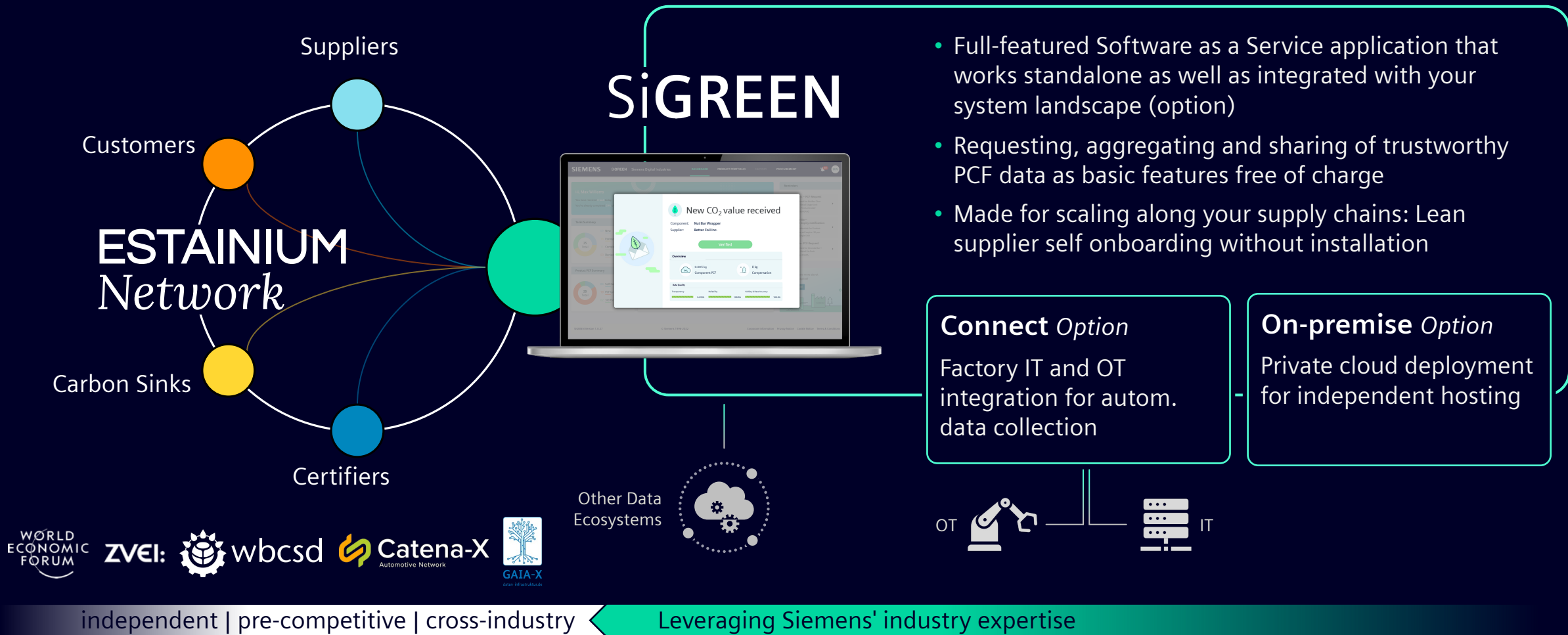
Fulfilling each partner's need for data sovereignty

- › Emission data is exchanged **peer-to-peer** between business partners
- › Verifiable Credential Mechanism for **data trustworthiness** and **supply chain confidentiality**
- › **No central data base**: Each partner stays in full control of its data, no monetarization of data



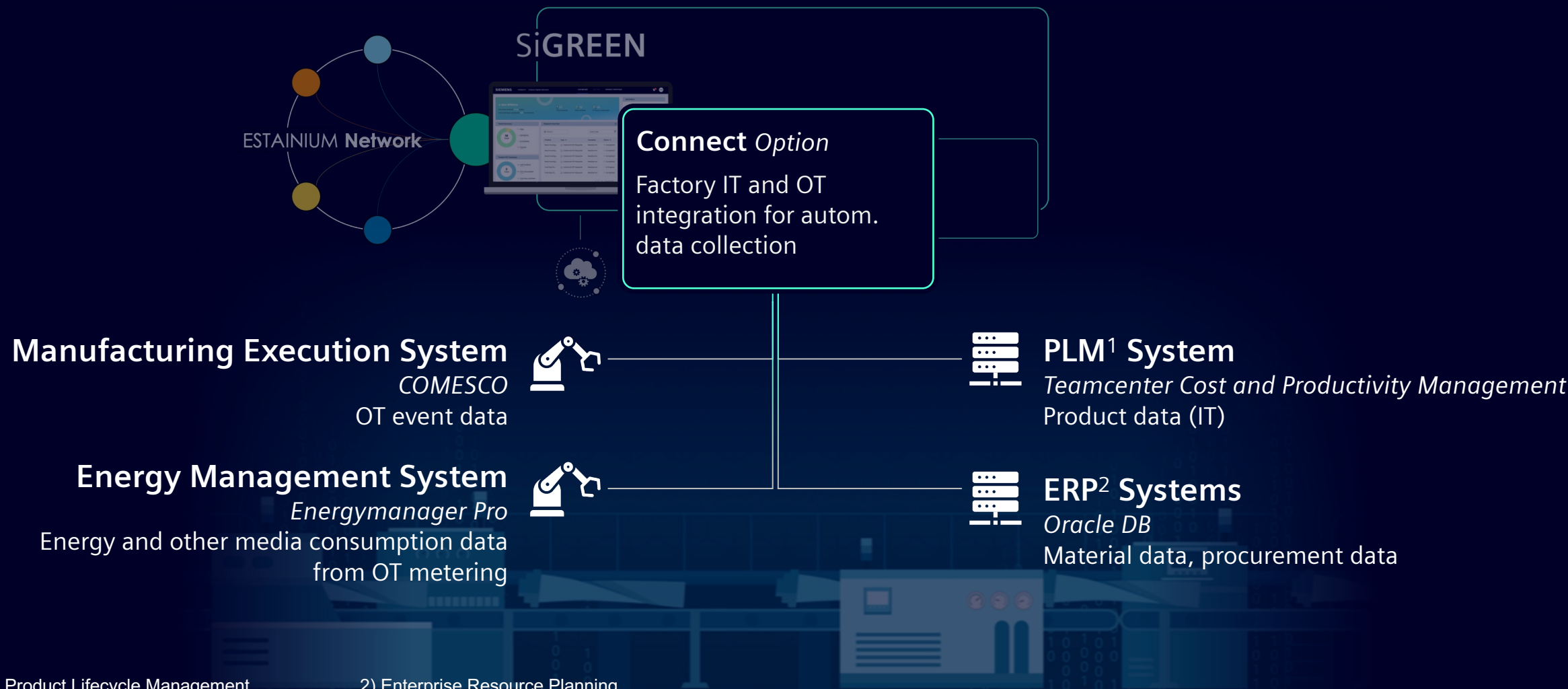
SiGREEN provides a gateway to powerful independent networks

How SiGREEN connects to partners as well as IT and OT infrastructure



SiGREEN Connect automates measurement of own emissions

How SiGREEN integrates with shopfloor IT and OT (Amberg example)

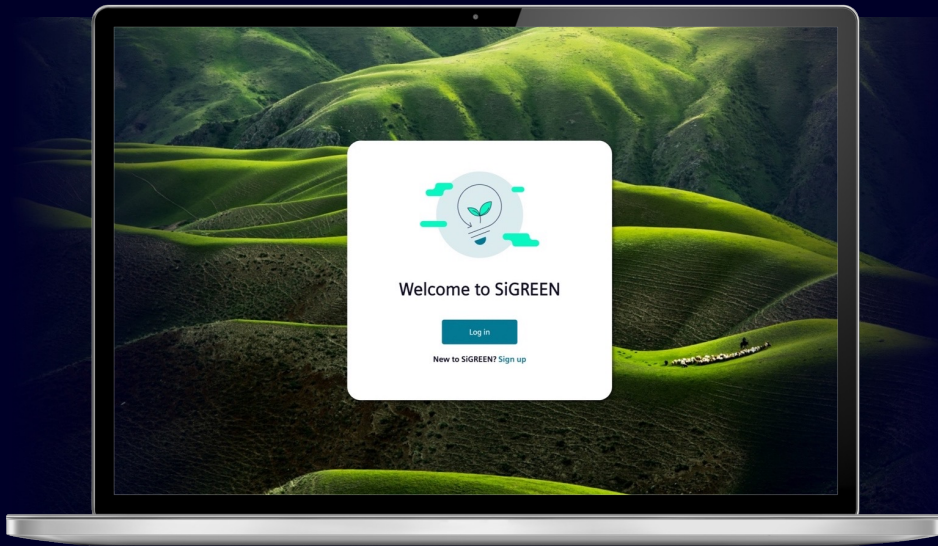


1) Product Lifecycle Management 2) Enterprise Resource Planning

Carbon is just the beginning

How SiGREEN enables a sustainable industry

With SiGREEN we enable the industry to manage
Product Carbon Footprints



Today. For free. For good.

Enable customers to establish **specific, dynamic and trustworthy PCF** as a basis for **data-driven decisions** that accelerate decarbonization in their **own operations** as well as their **supply chains – today**.

Connect industries by ensuring compliance with **all relevant PCF standards**.

Integrated with the siemens portfolio and third-party applications as **an option - not a prerequisite**.

Continuously enhance SiGREEN to a solution to address **further ESG criteria**, supporting **product passports** and a **circular economy**.

Website

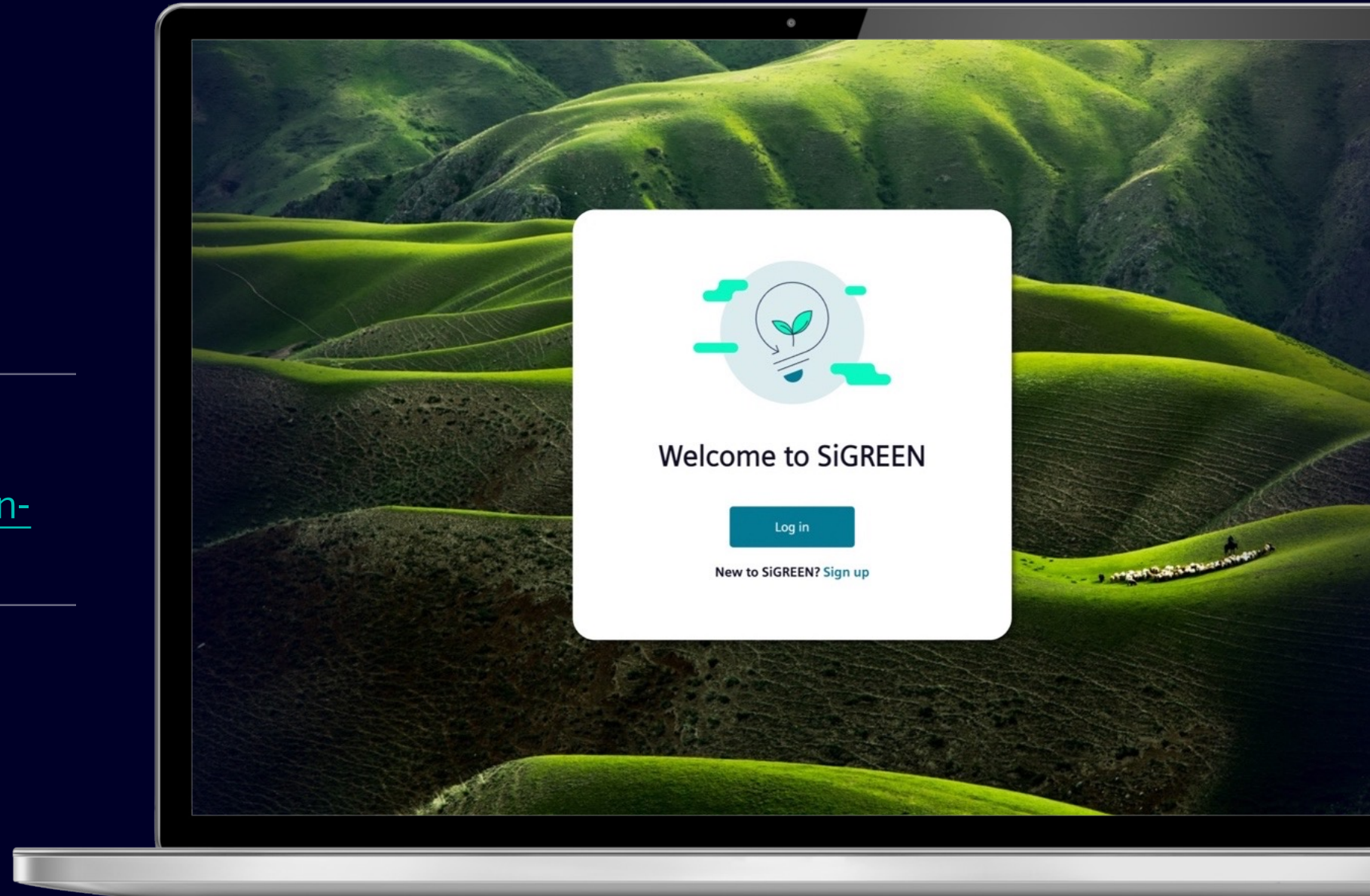
[siemens.com/sigreen](https://www.siemens.com/sigreen)

Demo

<https://app-demo-ext.sigreen-playground.siemens.cloud/>

Get started

app.sigreen.siemens.com



Your SiGREEN contact



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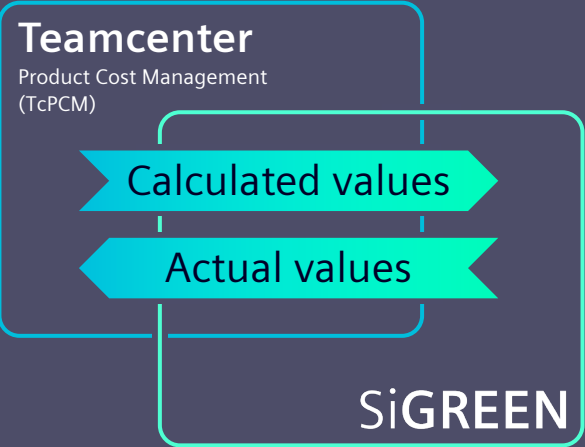
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I Addendum

Product Carbon Footprint Management from Design to Delivery

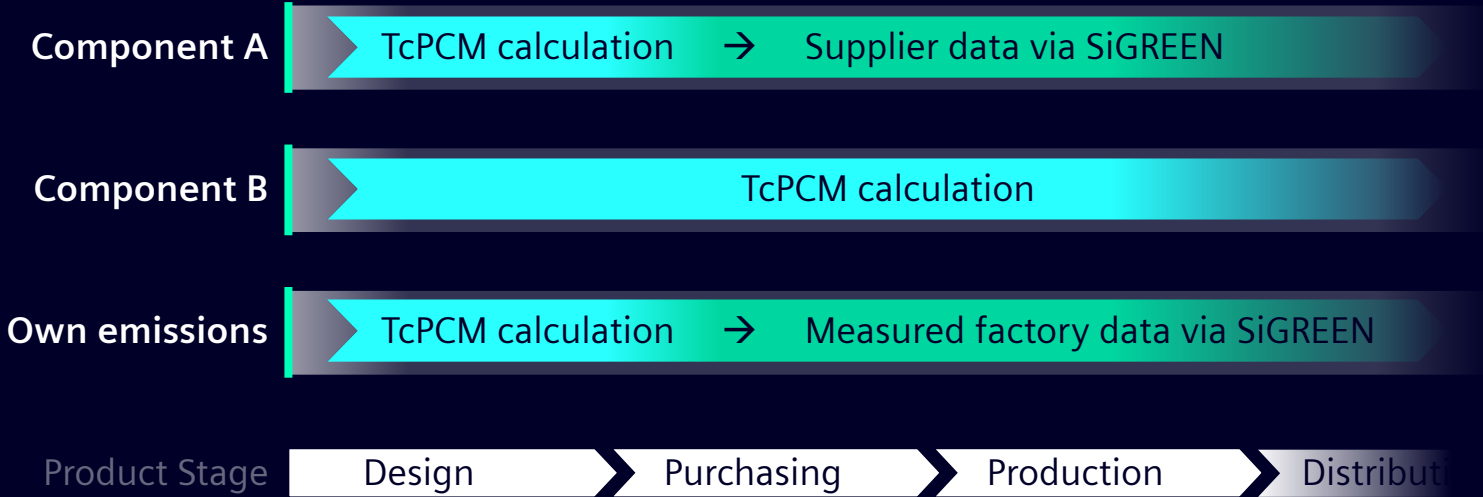
How SiGREEN and Teamcenter Product Cost Management complement each other



Reference values out of TcPCM feed SiGREEN models.

Actual values gathered via SiGREEN are fed back into TcPCM to enhance reference data sets.

With **Teamcenter Product Cost Management** you calculate and simulate the expected Carbon Footprint of your product already in its conceptual and design phase using LCA database values...



...SiGREEN then enables you to actively manage Product Carbon Footprints and replace LCA values with actual data from your suppliers as well as your shopfloor.

Siemens is driving product-related decarbonization on multiple levels

Siemens provides SiGREEN as a gateway to the ESTAINIUM ecosystem

Working in Ecosystems



Providing matching solutions



Driving industrial decarbonization in an ecosystem that includes SME and large corporations alike

- Enabling companies to drive decarbonization today
- Shaping the future of sustainable industry in a source to sink approach
- Keeper of the ESTAINIUM Network as an open and independent infrastructure

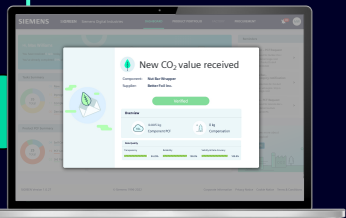
independent | pre-competitive | cross-industry



SiGREEN

Providing the most capable solution for managing PCF via the ESTAINIUM Network

- Leveraging ESTAINIUM's verifiable credential mechanism for data reliability
- Enabling efficient exchange of product related emissions along supply chains
- Integrating with IT/OT for measuring own emissions on product level accurately



Product leveraging Siemens' industry expertise

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