

ESTAINIUM

Siemens approach towards sustainability
with an open data ecosystem

Dr. Florian Albrecht –
Siemens SiGREEN, Strategy
IIP-Ecosphere: Industrie-4.0-Verwaltungsschalen am 28.04.2022

© Siemens 2022 | DI FA MF PCF | Dr. Florian Albrecht | 28.04.2022

SIEMENS

Demand for transparency on a product's environmental footprint is increasing
Why sustainability is key for business success



Reliable, comparable and verifiable information plays an important part in enabling buyers to make more sustainable decisions. Companies making “green claims” should substantiate these against a **standard methodology** to assess their impact on the environment.

The European Green Deal
European Commission, Brussels, 2019

SIEMENS

Demand for transparency on product level is increasing

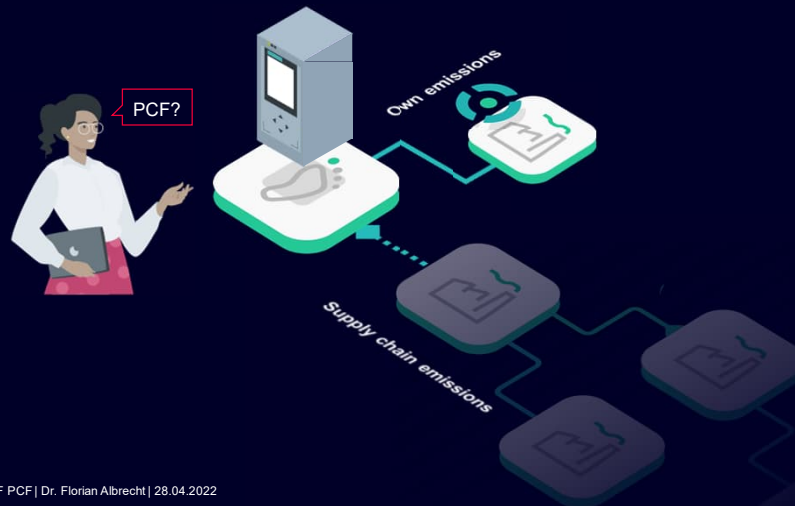
Why companies need to understand emissions related to their products

Responsibility

Public pressure

CO₂ Tax

Comp.
Advantage



Page 3 © Siemens 2022 | DI FA MF PCF | Dr. Florian Albrecht | 28.04.2022

SIEMENS

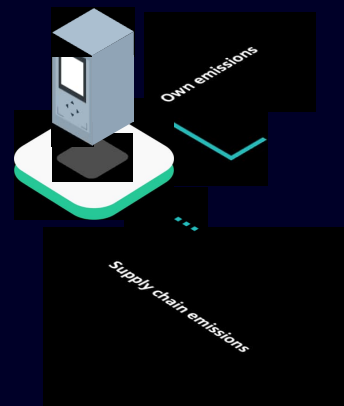
Decarbonization is a cross-company effort

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



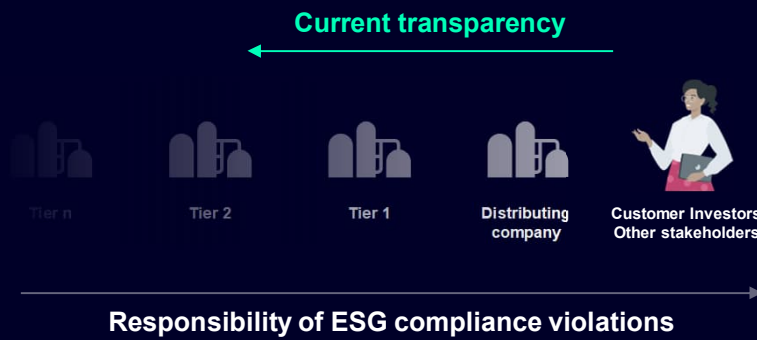
1) Carbon Disclosure Project 2021

Page 4 © Siemens 2022 | DI FA MF PCF | Dr. Florian Albrecht | 28.04.2022

SIEMENS

SIEMENS

Distributing companies are accountable for the ESG¹ compliance of their whole value chain



Contractual safeguarding

ESG compliance with your tier 1 will **not be sufficient** in the near future because

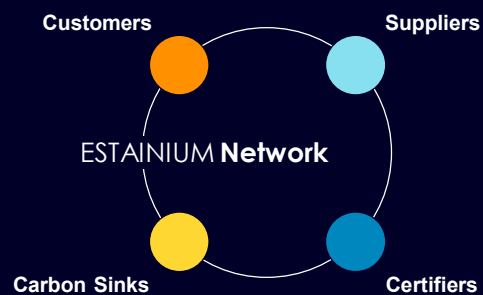
- Of the demand of customers and society
- Of upcoming legislation
- The availability of technology to provide a proof for whole value chains (blockchain)

¹ Environmental, Social, Governance

Page 5 © Siemens 2022 | DI FA MF PCF | Dr. Florian Albrecht | 28.04.2022

SIEMENS

A cross-company challenge requires a cross-company solution
How the ESTAINIUM Network connects supply chains?



independent | open | cross-industry

Page 6 © Siemens 2022 | DI FA MF PCF | Dr. Florian Albrecht | 28.04.2022

SIEMENS

SIEMENS

ESTANIUM builds on the technology of decentralized trust to avoid high cost, maintain data sovereignty and enable a fast scale up

Today: Bilateral Trust



- **Expensive**
Agreements with many partners necessary
- **Inefficient**
Duplication of data and potential disputes; outdated technologies (CSV+FTP, PDF+Mail)
- **Vulnerable**
Own data on partner's infrastructure

Not accepted: Centralized Trust



- **Expensive**
Fees for intermediary services
- **Loss of data control**
3rd party custodian, imbalance of information
- **Single point of failure**
Intermediary subject to failure, or isolation (technical, regulatory)

Solution: Decentralized Trust



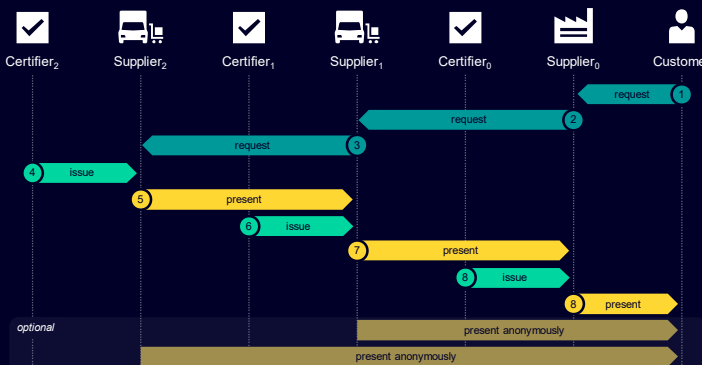
- **Shared, immutable "truth"**
Records of decentralized applications stored on immutable ledger
- **Confidentiality preserving**
Access to data on need-to-know basis

We are going to initiate this!

Decentral Trust with Trustworthy Supply Chain Exchange (TSX) How trusted information is shared along the supply chain with Verifiable Credentials

Trustworthy Supply Chain Exchange (TSX) Technology

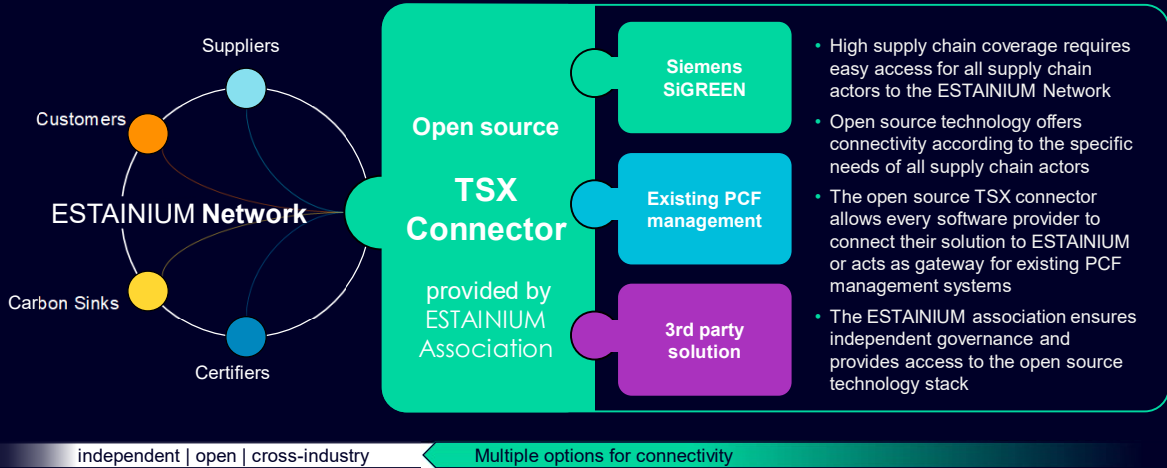
- Emission data is exchanged peer-to-peer between business partners
- Verifiable Credential Mechanism for data trustworthiness and supply chain confidentiality
- No central data storage: Each partner stays in full control of its data, no monetarization of data



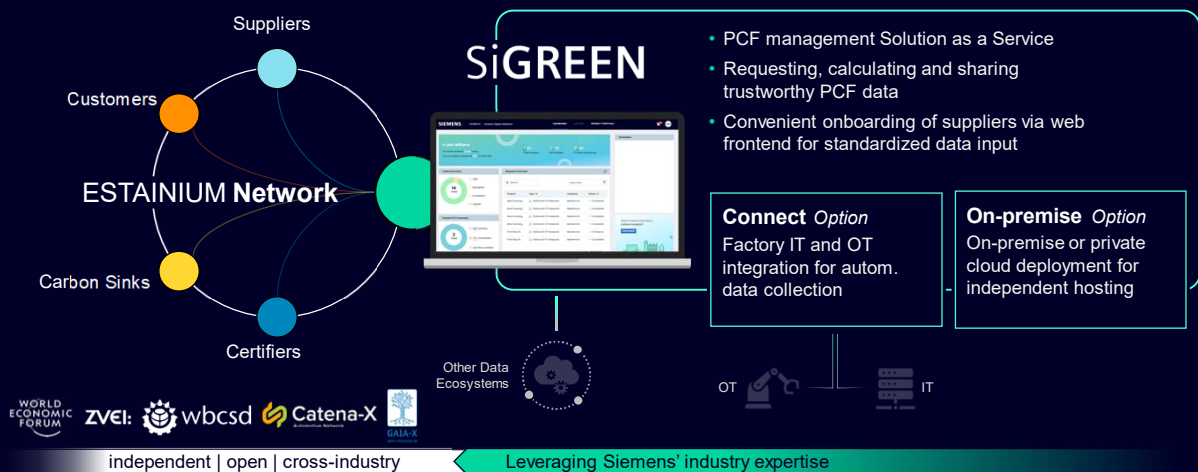
- Product information is represented as verifiable credential
- Verifiable credentials are issued by certifier to manufacturer
- Manufacturer can present cryptographic proof of selected product information
- Verifiable data registry as decentralized infrastructure
- Use of Hyperledger open-source technology

SIEMENS

ESTAINIUM provides open source technology to enable high supply chain coverage How to connect to the ESTAINIUM Network?



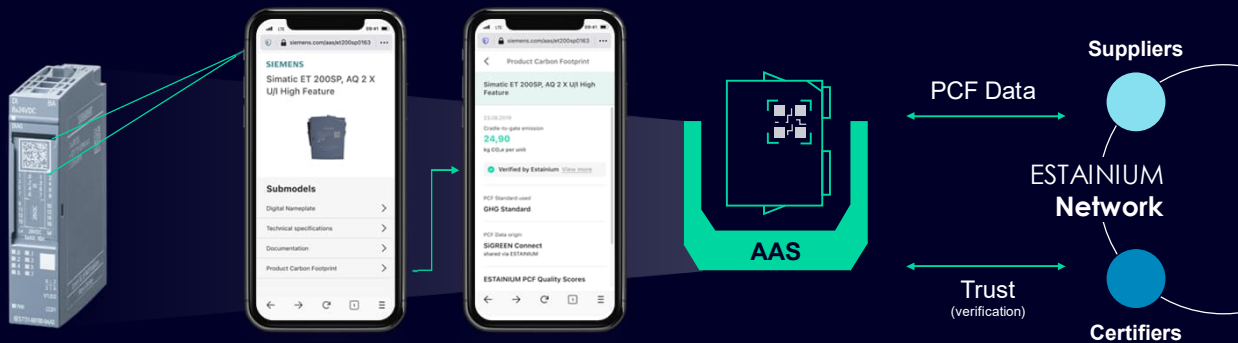
SiGREEN provides a gateway to powerful independent networks How SiGREEN connects to partners as well as IT and OT infrastructure



1 Other companies are invited to develop their own gateways to the ESTAINIUM Network

SIEMENS

Trustworthiness of PCF Information provided by the AAS should be verifiable via the ESTAINIUM Trust Mechanism



Thank you!
I am looking forward to your questions.



Dr. Florian Albrecht

Siemens SiGREEN

Strategy

Mobile: +49 173 142 1592

Mail: albrecht.florian@siemens.com

Disclaimer

© Siemens 2022

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

All product designations may be trademarks or other rights of Siemens AG, its affiliated companies or other companies whose use by third parties for their own purposes could violate the rights of the respective owner.