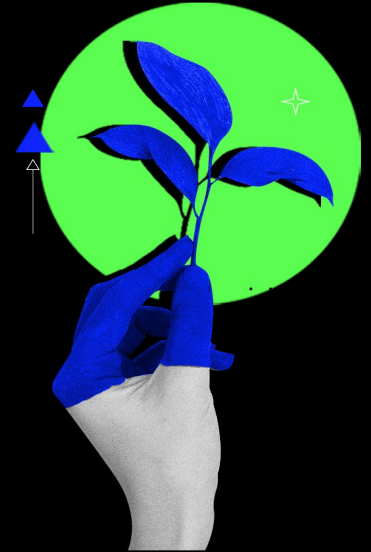




Can processes save the world?



Janina Bauer
Global Head of Sustainability

**When
was the last time
you did something
you have never
done before?**



About me

- Since 2020: **Head of Sustainability @Celonis**
- Since 2018: Academic Alliance @Celonis
- Other Experiences:
Siemens Healthineers, United Nations
- Business Administration & Economics (B.A. + M.Sc)
- Process Mining Research on:
PMxSustainability, PMxRPA, PMxAction, PQL, PM Education (3 case studies + paper)

Kontakt: j.bauer@celonis.com

Celonis Sustainability Strategy

We want to lead by example and be part of the solution



Celonis Corporate Sustainability

Becoming a better company by driving sustainable operations at Celonis



Celonis Service Offering

Providing solutions by enabling Green Process Intelligence

Embark on a **net-zero journey** with a **diverse and inclusive team** focused on doing the right thing

Empower our **customers** to become efficient and sustainability-driven enterprises

Measure **our own sustainability performance**, e.g., our carbon footprint, diversity ...

Decarbonize supply chains in a scalable way with our Execution Management System (EMS) and Process Intelligence

Foster a **sustainability-minded culture** to empower employees to create meaningful impact in their communities

Realize **green line value** in addition to top and bottom-line by operationalizing sustainability and balancing goals



01 | The world we live in

02 | Process-driven sustainability transformation

03 | Green process intelligence in action

04 | Minimizing the footprint for real

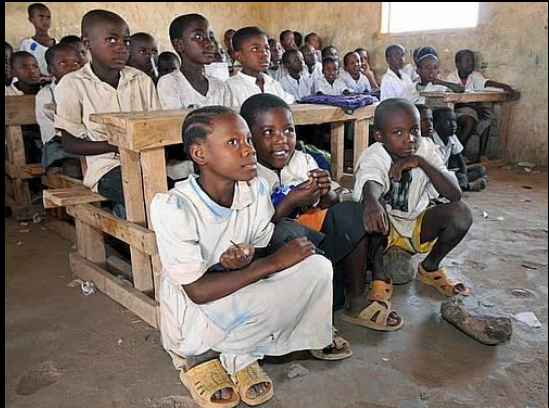
05 | Q&A



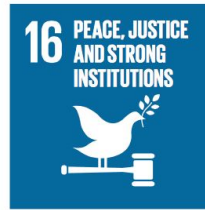
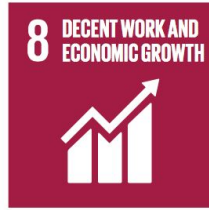
Chapter 1.

The world we live in

We are living in a permacrisis...



... so we set global goals..



... and are cracking down with regulations for companies...

Europe Takes Climate Fight
Global as Carbon Border Tax
Goes Live



POLITICO

At Least 10,000 Foreign
Companies to Be Hit by EU
Sustainability Rules



THE WALL STREET JOURNAL.

California Climate Disclosure
Rule Spurs Supply Chain
Overhaul



Bloomberg Law

... and still fail to operationalize our goals...

Carbon-neutral by 2023,
Net zero by 2030

Source **100%** of materials
sustainably by 2025

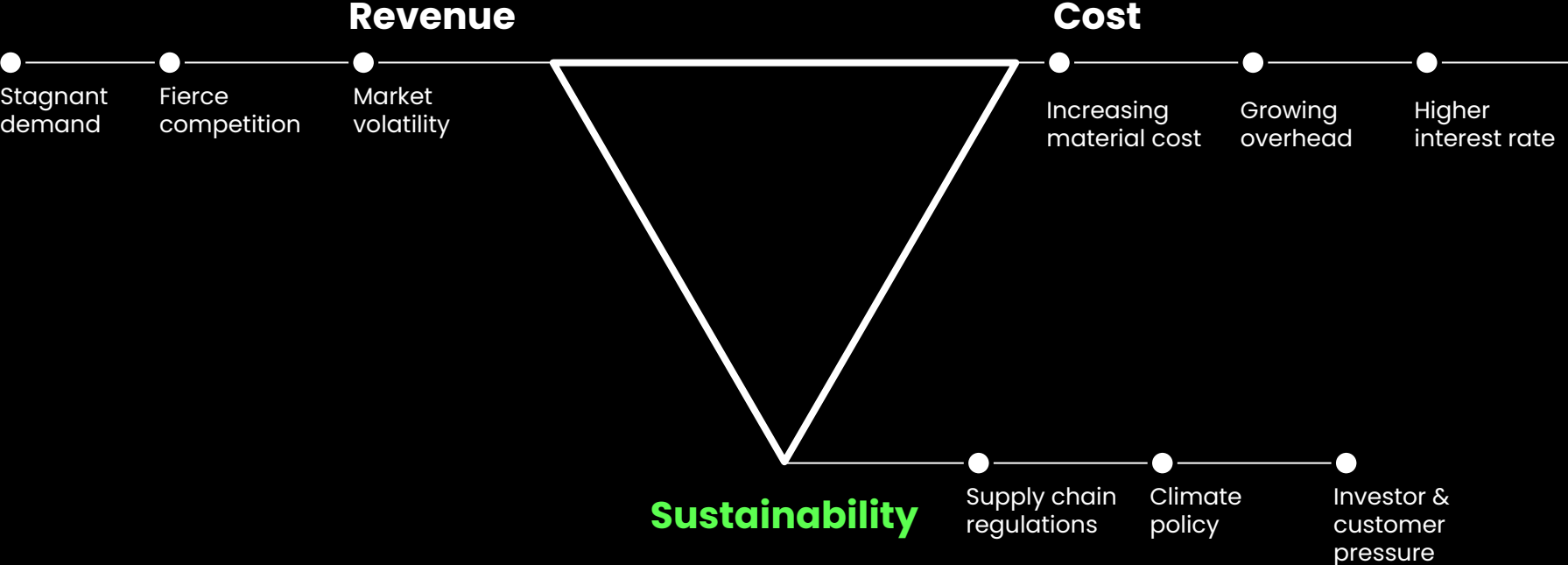
Achieve **gender equality** in
the global workforce by 2030

Only **50%** of companies are effective against **environmental** goals

Only **39%** of companies are effective against **governance** goals

Only **37%** of companies are effective against **social** goals

... because change is hard and requires a different mode of operating, scalable tools and action.



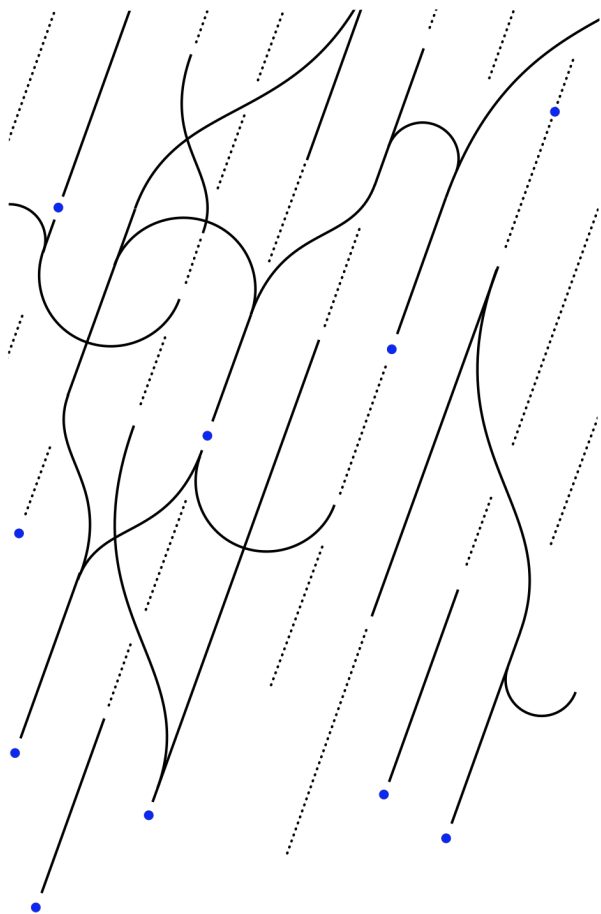
**Can processes
save the world?**

Yes!!



Chapter 2.

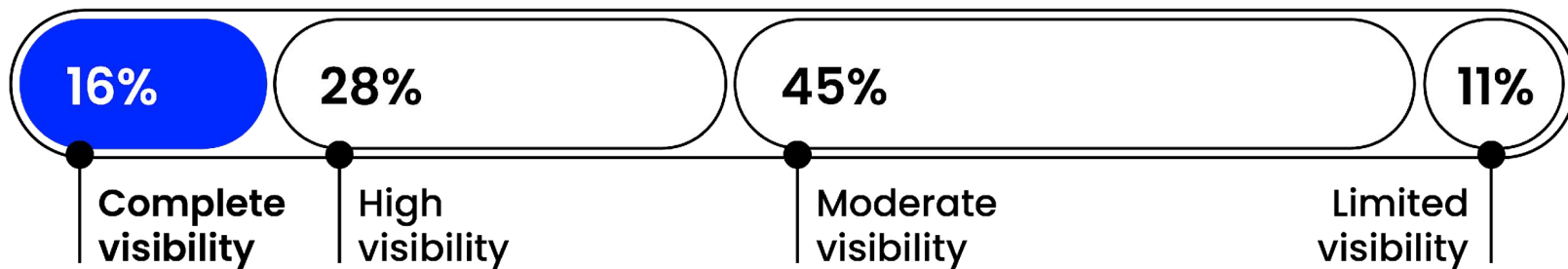
Process-driven sustainability transformation



Process
complexity
is at an
all-time high

71%

of companies
use **10 or more
applications** to
execute a
single business
process.



**Most companies
don't have complete
visibility of their own
processes**

**What level of visibility
do you have into your
processes?**

Only **16%** of leaders say
they have complete
visibility

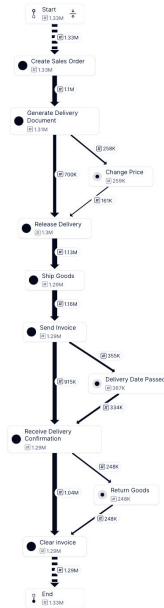
The challenge that every business faces



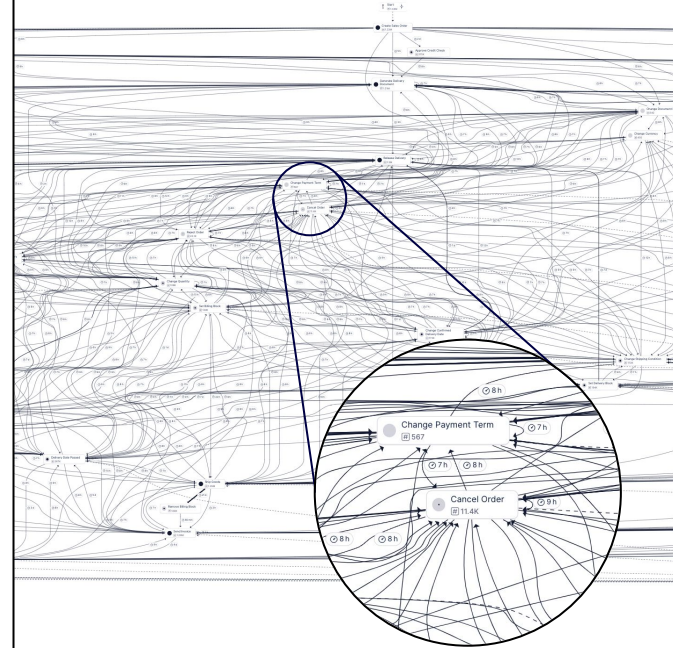
01 How the process was designed



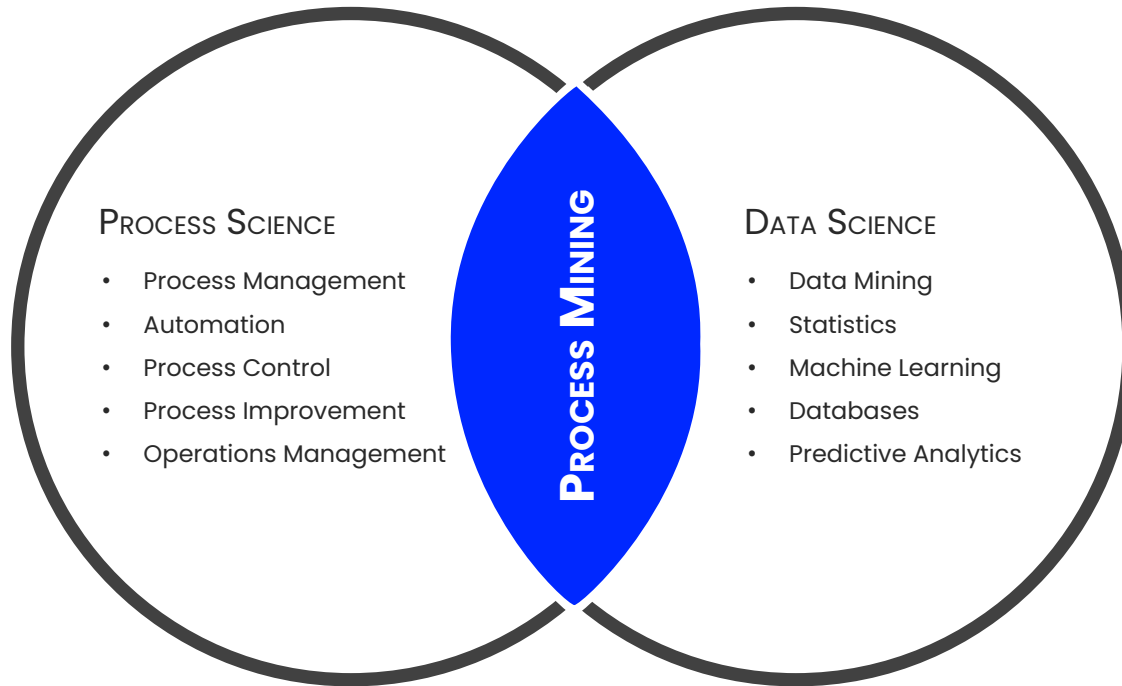
02 How businesses think the process runs



03 How the process actually runs



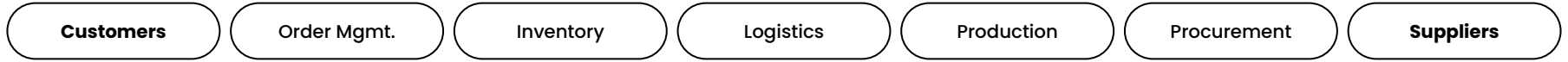
“What is Process Mining?”



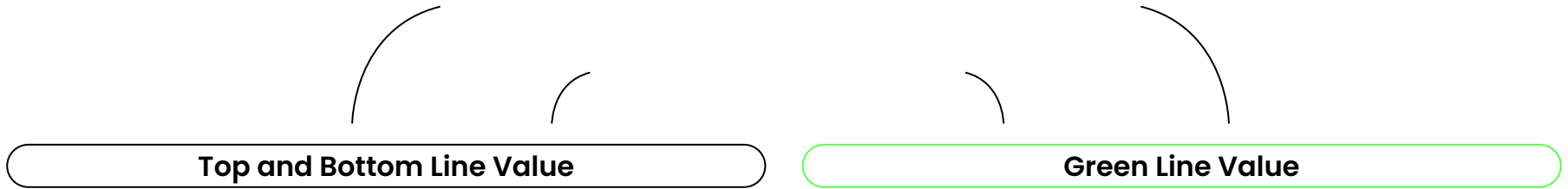
Process optimization yields rapid sustainability benefits



Enterprise Value Chain



System Data



Decarbonizing supply chain processes: the critical lever for sustainability success



Business Execution

Upstream Activities

Purchased electricity, steam, heating, cooling

Scope 02 – Indirect

Reporting Company

Company Facilities

Company Vehicles

Scope 01 – Direct

Downstream Activities

Processing and usage of sold products

Investments

Leased Assets

Franchises

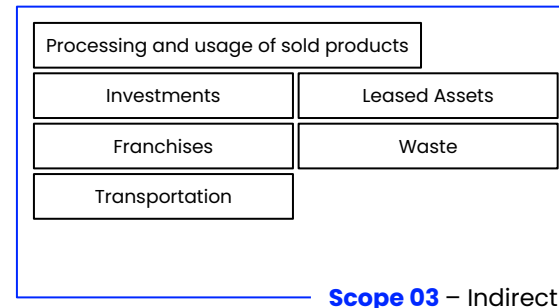
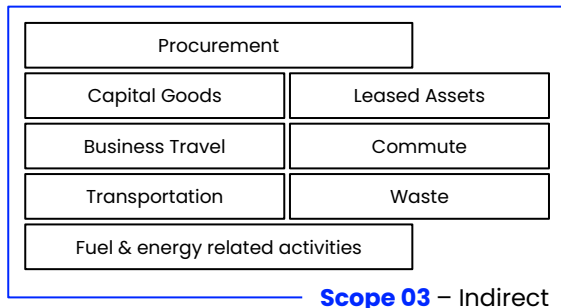
Waste

Transportation

Scope 03 – Indirect

70 – 90%

of business emissions typically occur in Scope 03



Corporate Carbon Emissions are accounted for in three scopes following the GHG protocol

But doing so is impeded by organizational obstacles



People



We **can't align** on what the **top priority** to tackle is and how we should actually go about it.

Data



Our **systems were not built for this**. We have **data scattered everywhere**, which is very **manual** to gather.

Action



It's so hard to know **which action to take when to manage trade-offs** and **achieve our goals**.



Chapter 3.

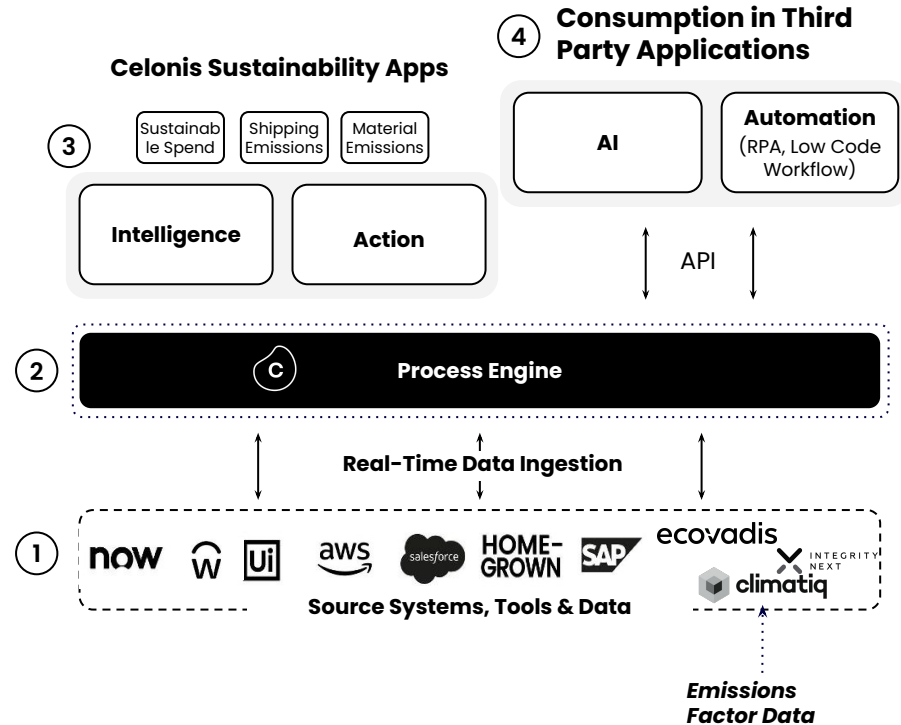
Green process intelligence in action

A scalable platform to drive sustainable performance in processes



Process Intelligence allows customers to understand, observe and optimize their most important business processes

- 1 Integrates data across systems for a real-time view of business processes
- 2 Automatically identifies improvement opportunities and recommends actions
- 3 Intelligently coordinates people and tools to capture sustainability value
- 4 Exposes intelligence to ecosystem partners for domain specific execution



Decarbonizing the supply chain step by step



Enterprise Value Chain

Customers

Order Mgmt.

Inventory

Logistics

Production

Procurement

Suppliers

System Data

**Shipping Emissions
Reduction**



**Sustainable Spend
Management**

ecovadis



**Material Emissions
Management**



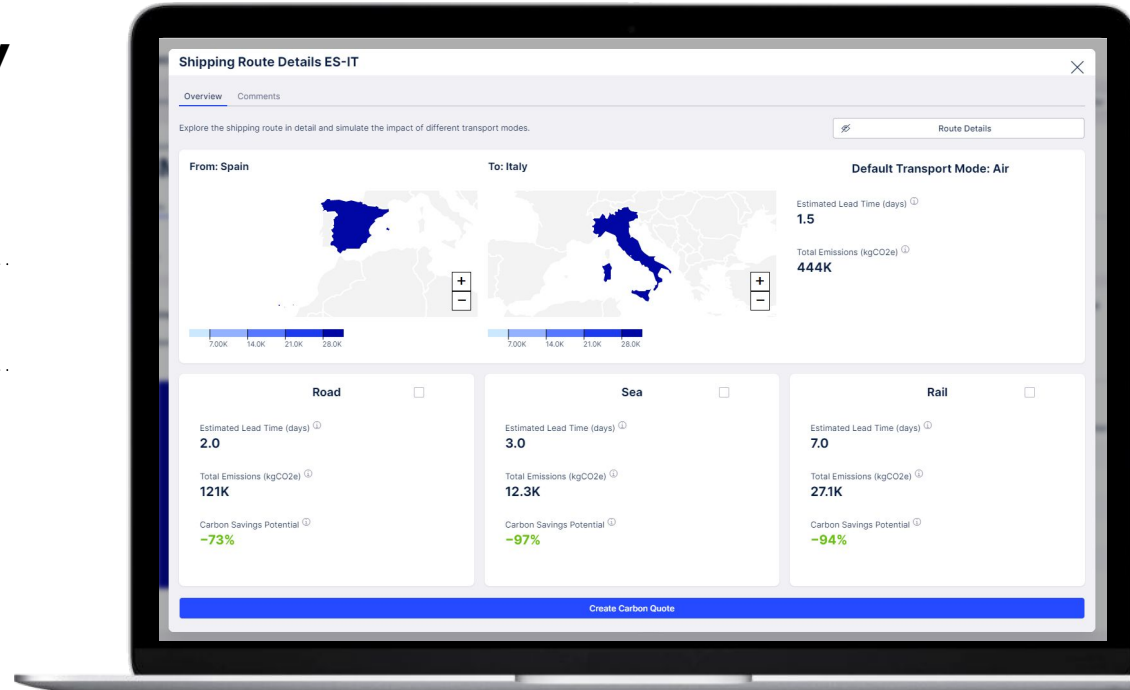
Shipping Emissions Reduction: carbon-conscious decisions in logistics



Embed sustainability in daily logistics operations

- 01** Automatically calculates shipping emissions based on industry standards
- 02** Simulates emissions and lead time impact for different modes of transport
- 03** Recommend actions against carbon-saving opportunities

Drive carbon-conscious decisions in logistics to tangibly reduce shipping emissions.



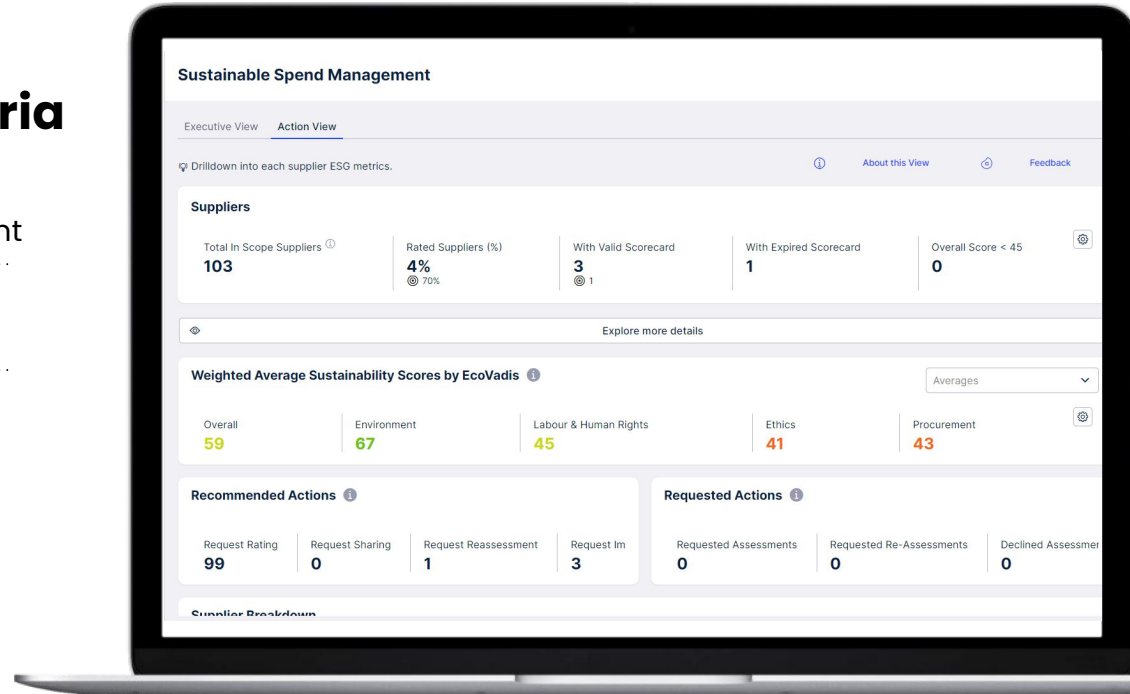
Sustainable Spend Management App: compliance with supply chain due diligence regulations



Allocate spend effectively based on sustainability criteria

- 01** Integrates sustainability ratings & scorecards of suppliers into Procurement
- 02** Prioritizes suppliers based on spend, sustainability performance and risk
- 03** Streamlines actions to request ESG rating and follow-up at scale

Ensures optimal ESG performance of suppliers, spends wisely towards sustainable suppliers, and drastically improve productivity for procurement teams



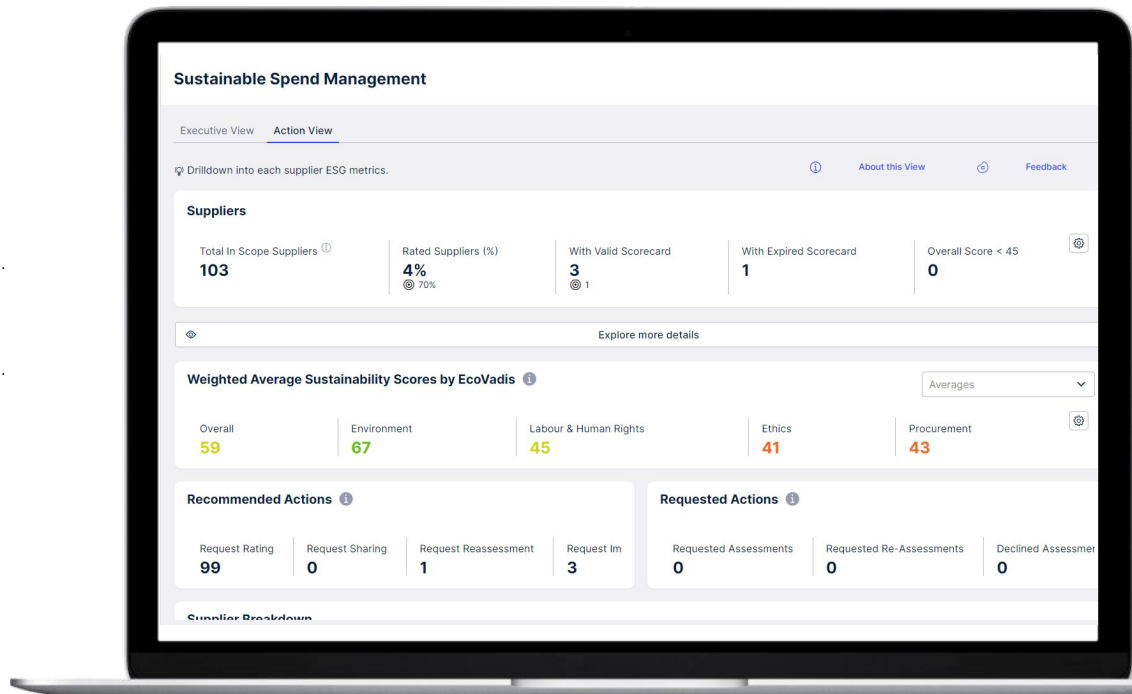
Material Emissions App: Understand emissions of purchased materials



Automatically calculate scope 3.1 emissions

- 01** Intelligently maps materials from purchasing systems to emission factors
- 02** Continuously tracks Scope 3.1 emissions based on materials and volume
- 03** Guides users to impactful reduction opportunities

Enables sustainability and procurement teams to continuously measure, report, and reduce Scope 3 material emissions amidst increasing regulatory pressure



Supply chain decarbonization is a market need



Emissions & Cost Reduction

>4.5M kgCO₂

shipping emissions
reduction potential



17%

reduction in truck
distance travelled



>8%

shipping emissions
reduction identified



Measurement Automation

800k

inbound shipments for
emissions quantification



>150k

shipments with
quantified emissions



17M kgCO₂

scope 3.1 material
emissions measured



Supplier Engagement

900

supplier ratings
targeted by 2025



70%

of key suppliers targeted
with Celonis & EcoVadis



>120k

suppliers to be rated
with smart prioritization



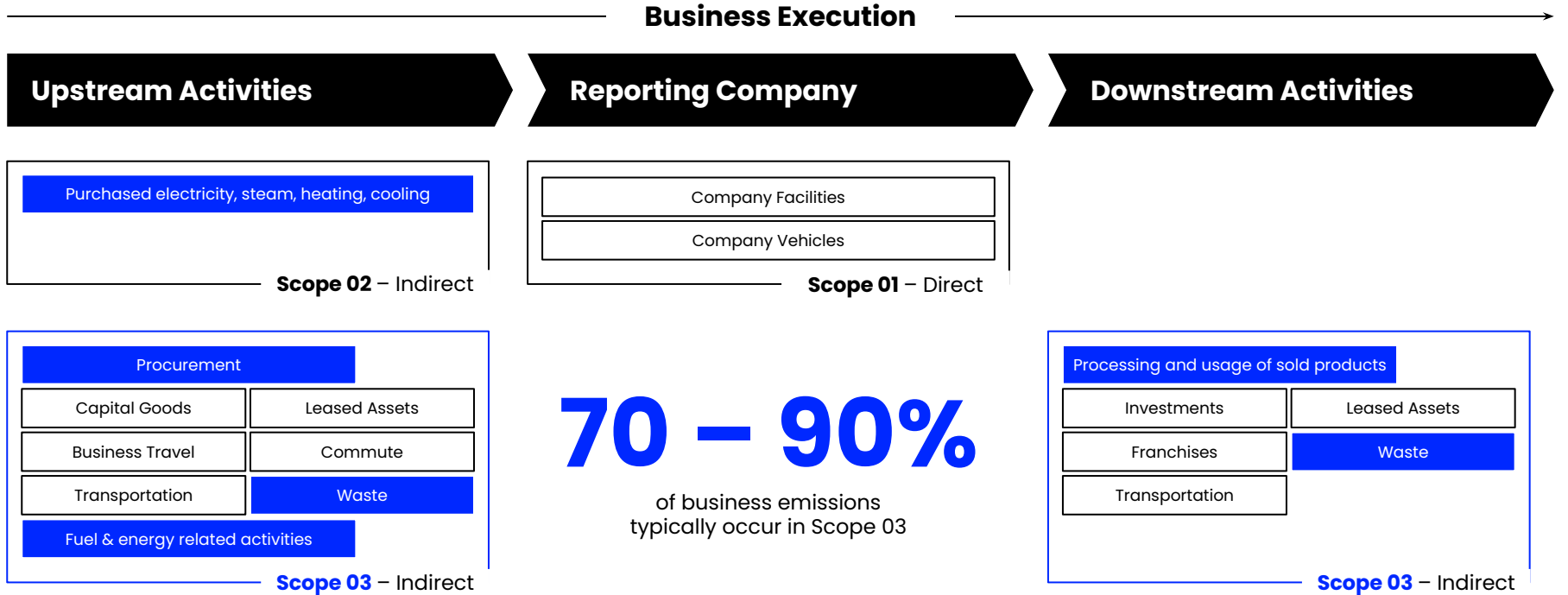
**Sounds nice but are
processes really saving the
world?**



Chapter 4.

Minimizing the footprint for
real

The negative environmental impact of technology



Corporate Carbon Emissions are accounted for in three scopes following the GHG protocol

The negative ethical/societal impact of technology

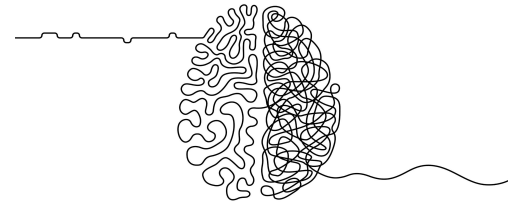
C

*“Unconscious biases are the **underlying attitudes** and **stereotypes** that people **unconsciously** attribute to another person or group of people that **affect** how they **understand and engage** with a person or group.”*

According to scientists, roughly **11 million** bits of information reach our brain every second. To deal with this heavy information processing, our brain creates **shortcuts**:

(1) Unconscious bias occurs because of the **brain's** natural tendency to look for **patterns** and **associations** in the world.

(2) Social cognition, or our ability to store, process, and apply information about **people in social situations**, is dependent on this ability to **form associations** about the world and **organize experiences**. Our brain tries to fill in any blanks with past experiences and makes **assumptions** - to be able to make decisions.



The impact of unconscious bias



While unconscious bias can be functional throughout the day, it also gets in our way, when we need to make conscious and important decisions – **like interpreting Process Mining results.**

In every decision in every step of the process, bias can lead us astray and let us jump to quick conclusions based on our assumptions or schemata.

We don't see the bigger picture and subconsciously exclude impressions.

In addition, bias is subjective and individual, based on your past experiences, and therefore leads to **subjective decisions.**

Bias can prevent Diversity, Fairness and more and can therefore have costly implications for organizations.

Responsible Process Mining – FACTs based



(1) Fairness

Process mining without prejudice and bias

- How to tackle biased questions?
- How to avoid biased conclusions?
- How to be aware of and handle discriminatory data inputs, analyses and conclusions (even if they are true)?

(2) Accuracy

Process mining without guessing or assuming

- How to create and derive accurate results?
- How to talk about the level of accuracy?
- How to handle imprecise or uncertain input and output?

(3) Confidentiality

Process mining without revealing secrets

- How to use as little informations as possible?
- How to not share detailed information when sharing results?
- How to ensure privacy of analysis objects and results, especially sensitive ones?

(4) Transparency

Process mining without nebulising and blackening

- How to provide clear and indisputable results?
- How to explain and justify actions and findings?
- How to be transparent while mitigating FAC?

**So
can processes save the
world?**

Change is possible if...

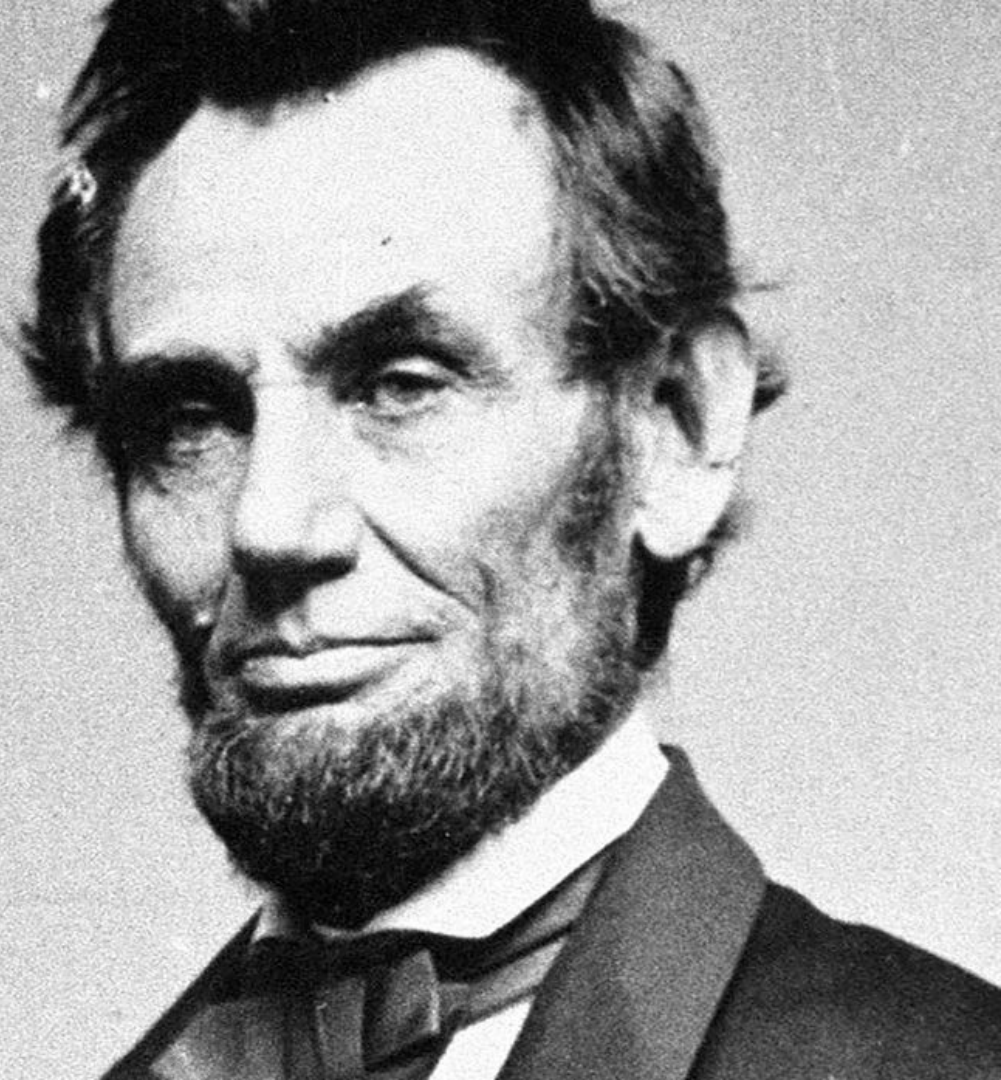
We invest in **scalable innovation** close to market and customer problems

We set up good **governance structures** and committee for awareness and ethical software and technology development

We reduce our carbon footprint by design > we need more research on this!

**“You cannot escape
the responsibility
of tomorrow
by evading it today.”**

Abraham Lincoln





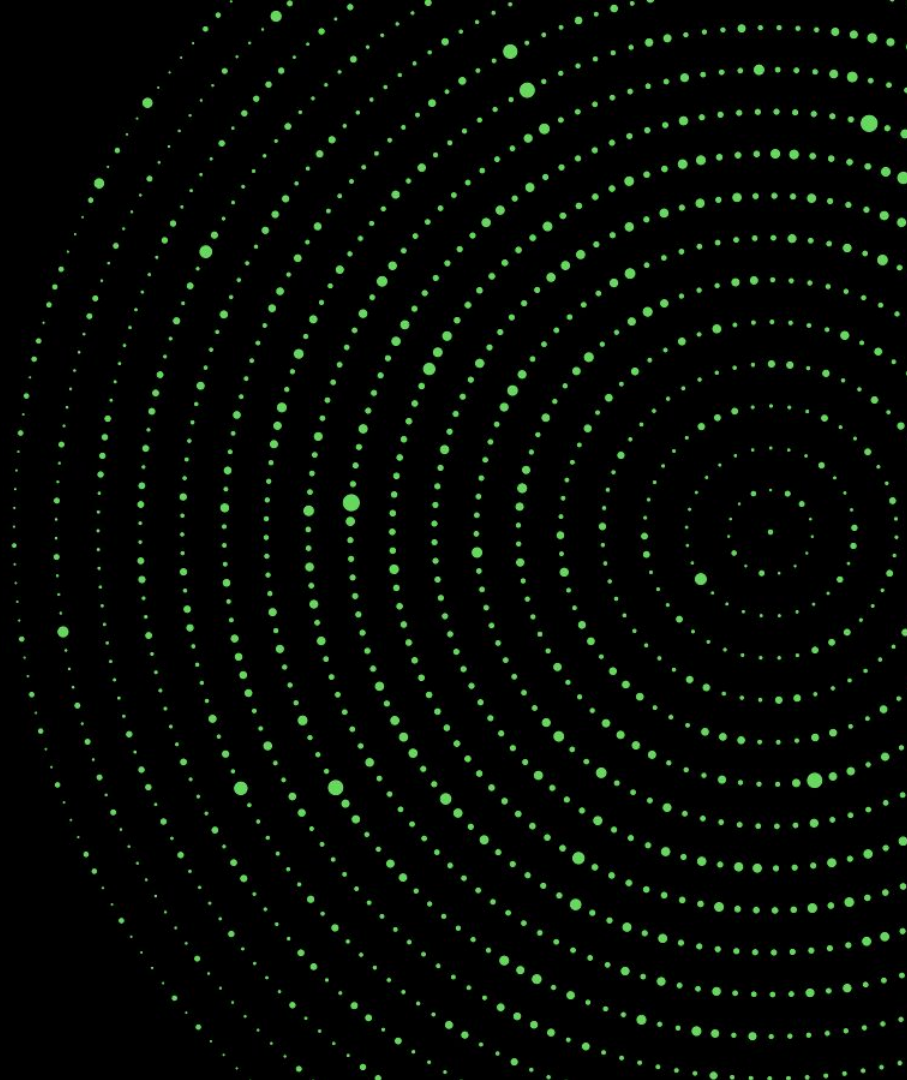
**Make the world's
processes work
for the planet.**



Thank you.

Contact details

j.bauer@celonis.com



References



- Hans Rosling with Anna Rosling Rönnlund, and Ola Rosling. Factfulness: Ten Reasons We're Wrong About the World — and Why Things Are Better Than You Think. Flatiron Books, 2018.
- Daniel Kahnemann. Thinking Fast and Slow. Random House, 2011.
- NeuroLeadership Institute. Your Brain at Work. Website.
- W.M.P. van der Aalst. Responsible Data Science: Using Big Data in a "People Friendly" Manner. In Enterprise Information Systems, 2017.
- W.M.P. van der Aalst. Responsible Data Science in a Dynamic World: The Four Essential Elements of Data Science. In Internet of Things, 2018.
- M.S. Qafari and W.M.P. van der Aalst. Fairness-Aware Process Mining. In CoopIS 2019, 2019.
- Faisal Kamiran, Indre Zliobaite, Toon Calders. Quantifying explainable discrimination and removing illegal discrimination in automated decision making. Knowl. Inf. Syst. 35(3): 613-644 (2013)
- Faisal Kamiran, Toon Calders, Mykola Pechenizkiy: Discrimination Aware Decision Tree Learning. ICDM 2010: 869-874