

26.03.2026

Corporate Sustainability: From Proof of Concept to Reporting Standard

Timo Herwix, Senior Consultant

code of change



Who am I?



Timo Herwix

Senior Consultant



Oracle ACE
Pro

Senior Consultant at Hyand Solutions since 2019

Previously worked as a Data Warehouse Developer

Oracle APEX since 2016

Oracle Databases since 2008

Blog author, conference speaker

Born in 1983, two children and living in Germany



Internationally connected delivery power.



Germany

- Brunswick
- Ratingen
- Hamburg
- Dortmund
- Frankfurt
- Munich
- Berlin

Poland

- Wrocław

Lithuania

- Vilnius
- Kaunas

Romania

- Cluj-Napoca

India

- Pune

25+

Customers with
> 1 billion €
revenue

110+

Million Euros
revenue
(2024)

14

Locations in
5 countries

750+

Employees

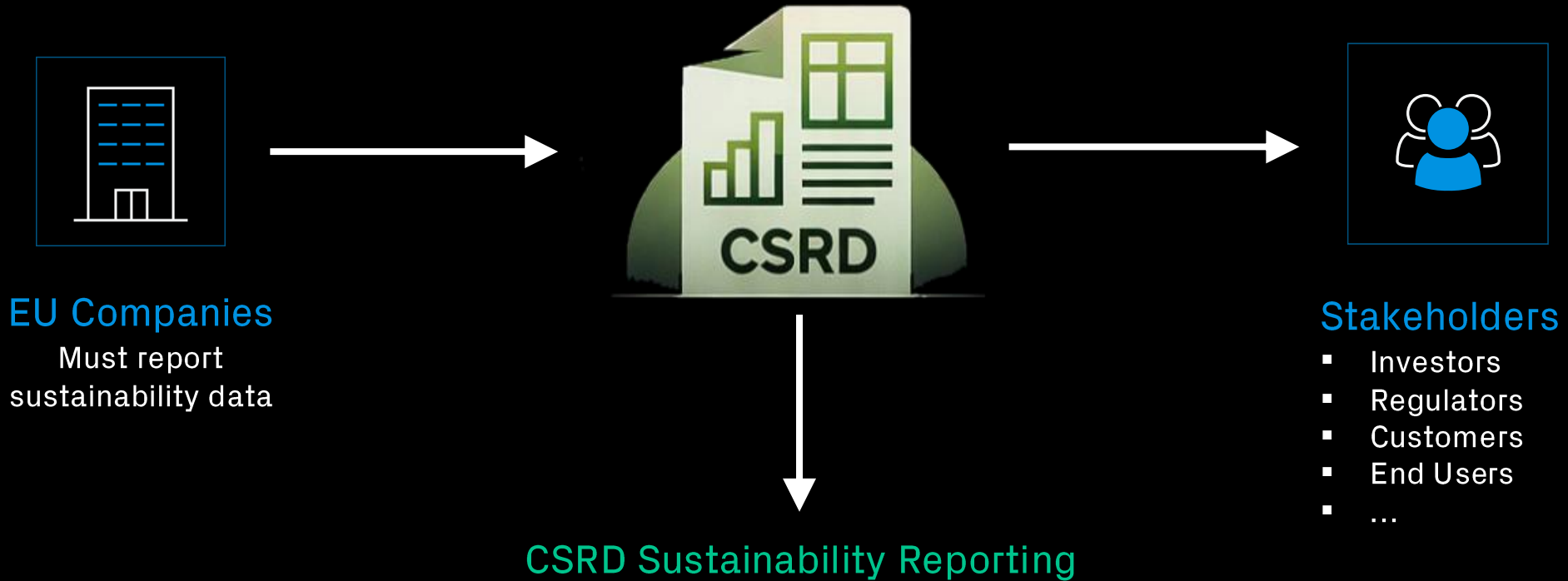
24

Nationalities

Corporate
Sustainability
Reporting
Directive



What is the CSRD?



EU Companies
Must report
sustainability data

Stakeholders

- Investors
- Regulators
- Customers
- End Users
- ...

CSRD Sustainability Reporting

- ✓ Transparency on environmental, social and governance impacts (ESG)
- ✓ Standardized reporting based on ESRS
- ✓ Documentation of targets, actions and progress
- ✓ Mandatory for many EU companies starting in 2024/2025

Why CSRD Matters for Retail?



Transparency
In supply chains



Tracking
sustainability of
raw materials



Reporting
on environmental
impact



Building
consumer trust

Why is CSRD Reporting Difficult in Retail?



Thousands of suppliers
✓ Complex, global supply chains



Manual data collection
✓ Slow and error-prone reporting



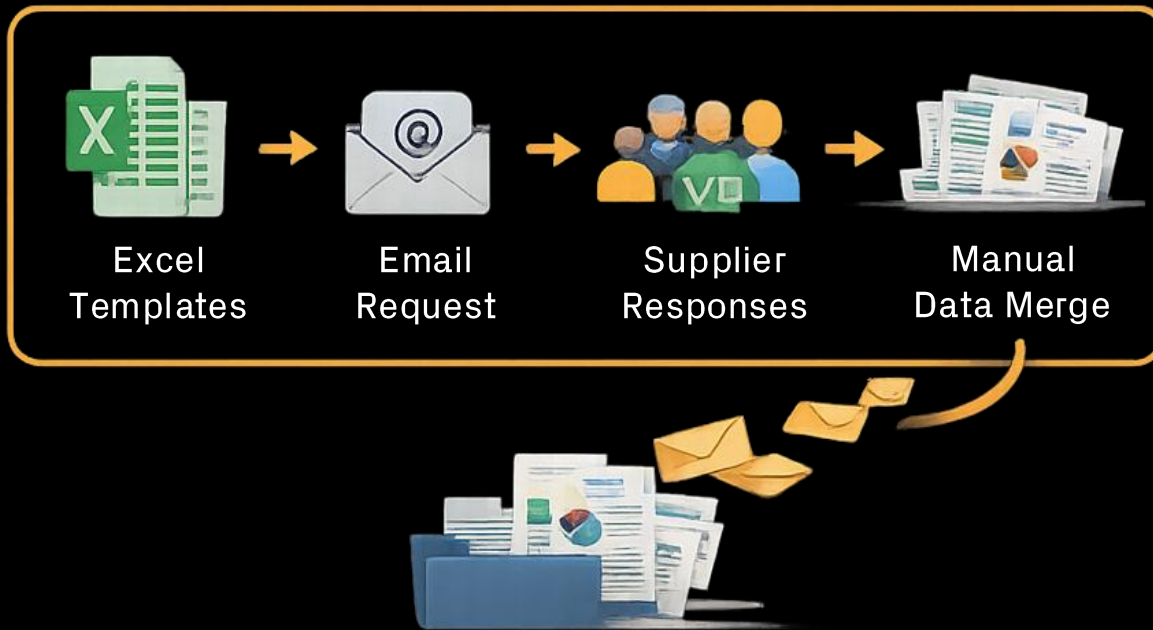
Scope 3 emissions
✓ Emissions across the supply chain



Data availability in supply chains
✓ Lack of visibility and transparency

The Challenge!

Starting Point (2019): Manual Data Collection Process



- Sustainability data requested via Excel templates
- Sent individually to suppliers via email
- Supplier manually filled out Excel files
- Data had to be consolidated manually

⚠ Key Challenges

- Very time-consuming process
- 10,000+ supplier emails
- Data inconsistencies and errors
- Difficult tracking of supplier responses
- Limited transparency and scalability

AND...

Excel is not a database
Excel is not a database
Excel is not a database
Excel is not a database



Idea: A Central Platform for Sustainability Data



✓ Efficient

- Centralized data collection
- Automated reporting

🔍 Transparent

- Real-time monitoring
- Improved data accuracy

📈 Scalable

- Easily scalable for all suppliers
- Comprehensive sustainability insights




Modern Platform for Transparent, Comprehensive Sustainability Data Management

Impact of the Corporate Responsibility Data Platform

Manual Process



10,000+ Emails

-  Excel files sent via Email
-  Manual Supplier Tracking
-  Fragmented and error-prone data

Sustainability Platform



Centralized Platform



- Automated Sustainability Data Collection
- Real-Time Supplier Tracking
- Centralized and Accurate Database

From 10,000+ manual supplier emails to a centralized Sustainability data platform



Reduced Manual Effort



Improved Data Quality



Scalable Supplier Data Collection



Central Data Transparency

Main Topics in our Solution

Regulatory & Sustainability Topics

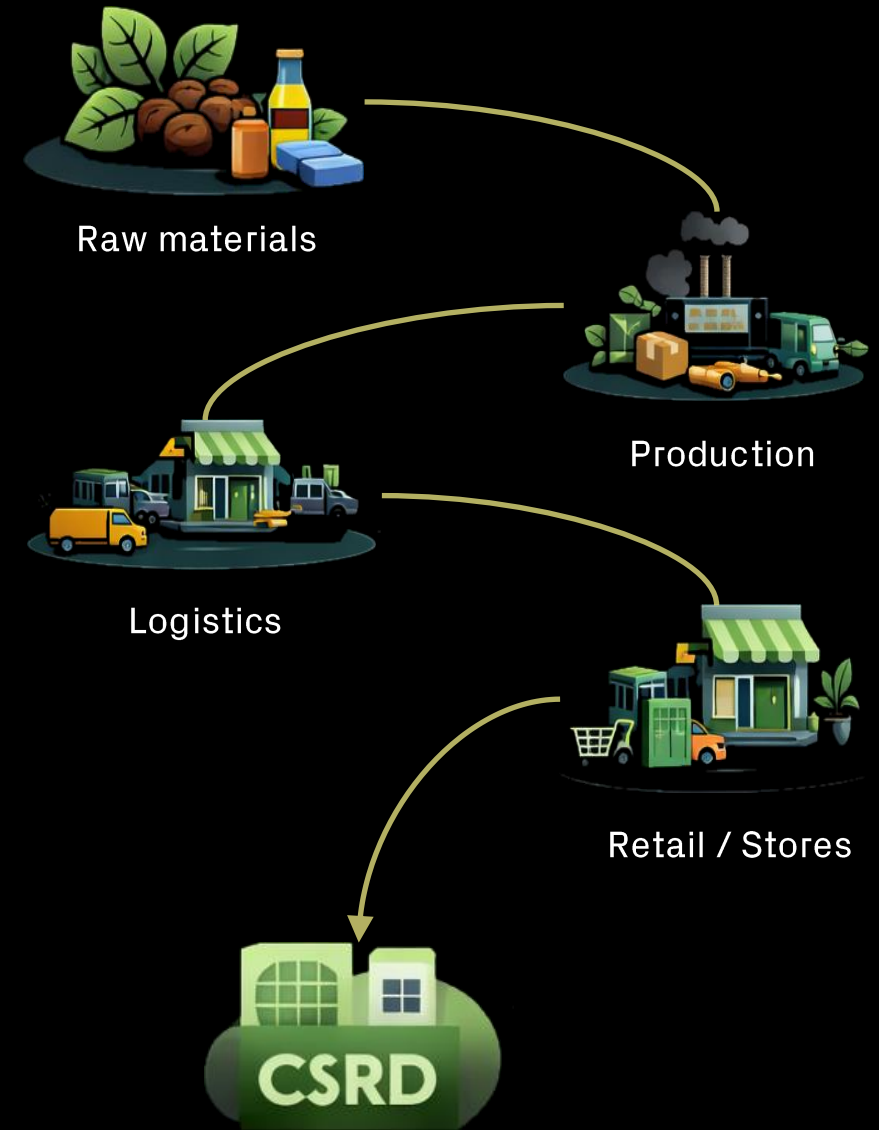
- Packaging and Packaging Waste Regulation (PPWR)
- Circular Economy

Raw Materials in the Supply Chain

- Cocoa, Tea & Coffee: *Deforestation, smallholder livelihoods*
- Palm Oil & Soy: *Deforestation and biodiversity loss*
- Egg: *Animal welfare and farming standards*
- Fish: *Overfishing and marine ecosystem impact*
- Timber: *Illegal logging and forest degradation*

Value Chain Optimization

- Improving supply chain transparency
- Reducing environmental impact
- Ensuring sustainable sourcing



Technology stack!

Technology Stack of the Sustainability Platform



Why Oracle APEX?

Why Oracle APEX?



Speed

Easy to learn &
faster development



Innovation

More time to focus
on making better apps



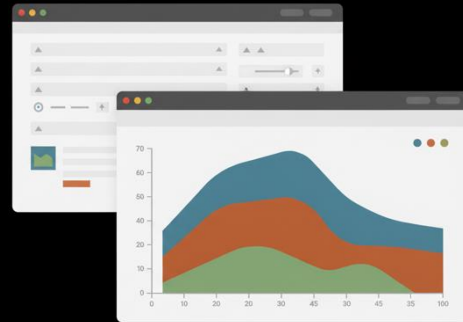
Agility

Respond to user
requests more quickly

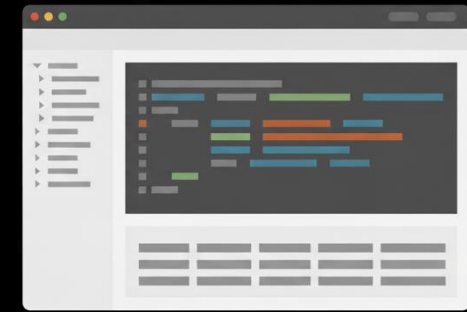
Database-centric web application development framework



Develop desktop and mobile web apps



Visualize and maintain database data

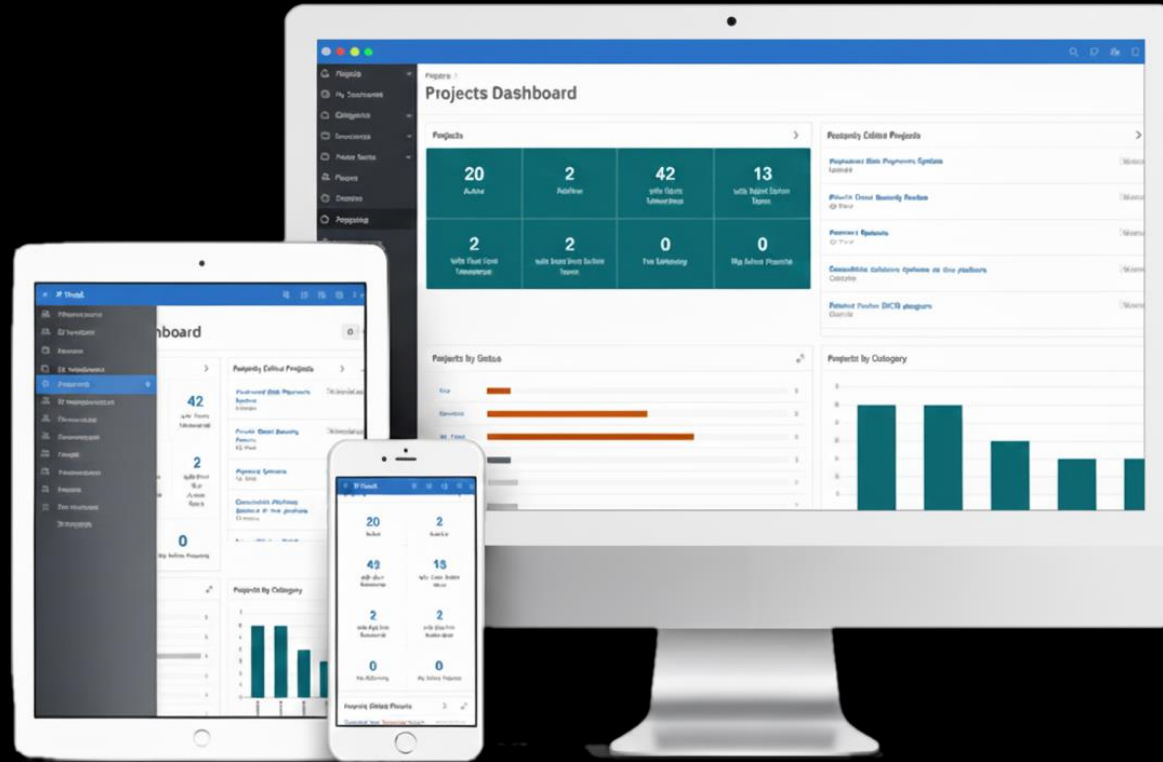


Leverage SQL Skills and database capabilities



No client software needed!

App Development IDE is a web browser



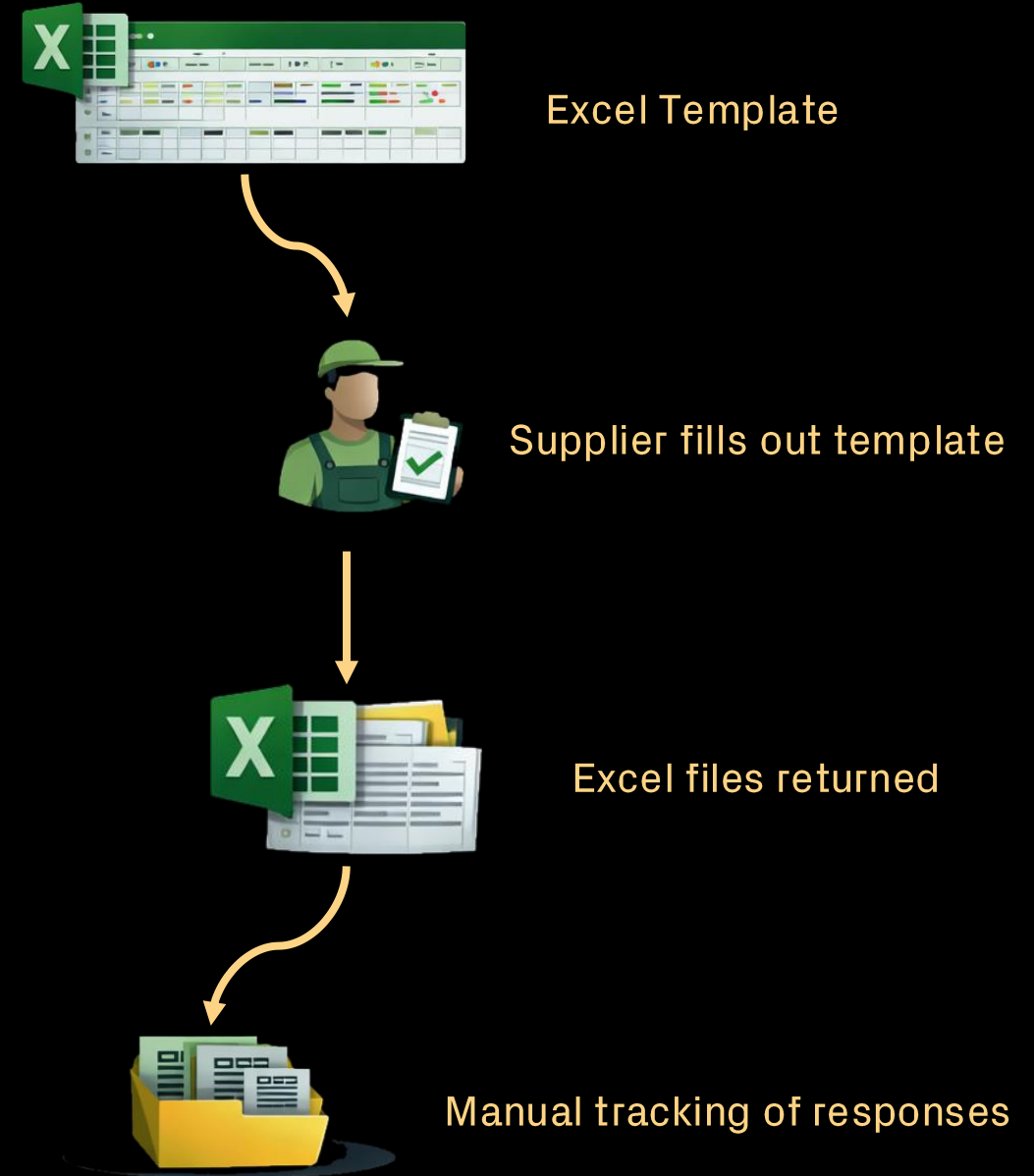
User Interface for Any Device

Modern, intuitive, accessible UI for any device
fully customizable and responsive apps

Where It All Started!

Where it all started in 2019

- Sustainability data had to be collected from suppliers
- The only available format was Excel templates
- Templates contained many sheets and complex structures
- Each supplier had to manually fill in the data
- Tracking the status of submissions was difficult



2020

2020

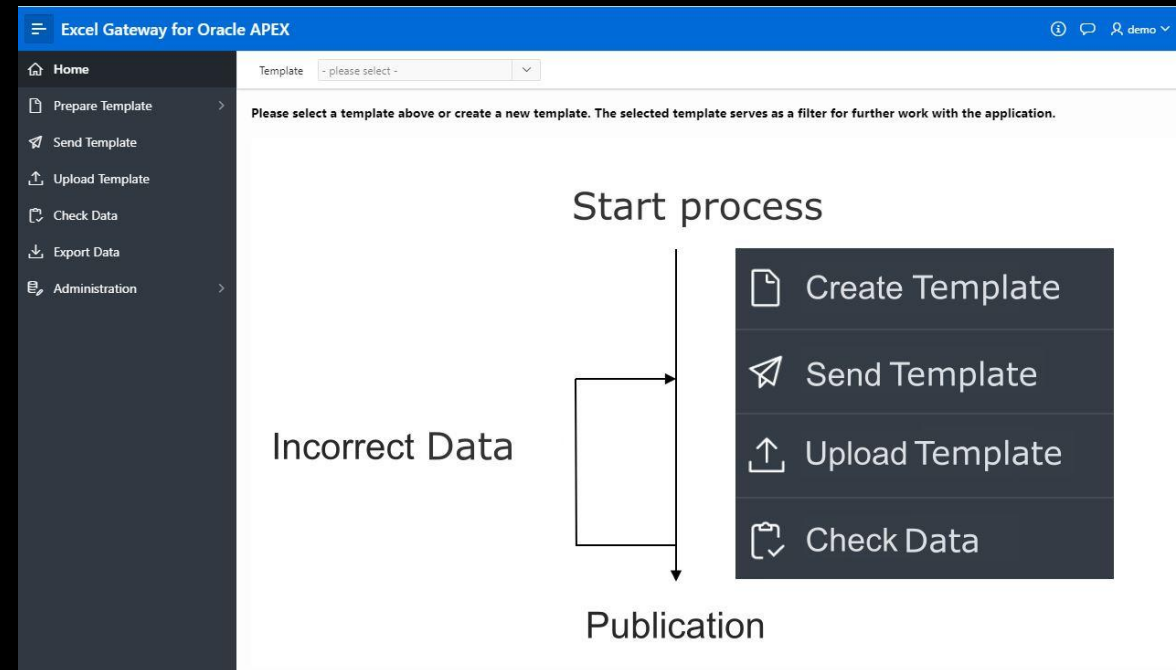
First Solution: Automating the Excel Process

First Solution Approach

- We developed a web application using Oracle APEX
- The application managed complex Excel templates
- Templates were generated and distributed automatically
- Suppliers filled out the Excel files offline
- The application tracked template distribution and supplier responses

Project Constraints

- Suppliers had no access to internal systems
- Only ~3 months to deliver the first solution



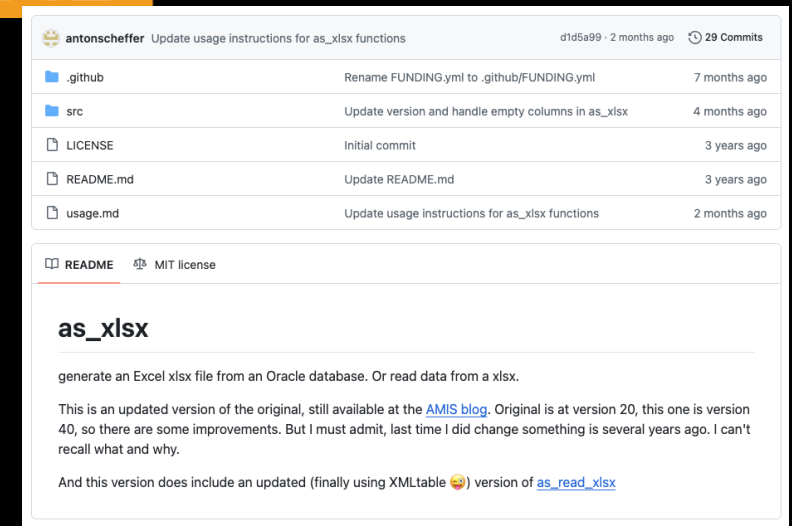
✓ The existing Excel-based process was partially automated

2020

How we generated the Excel templates!

Technical Approach

- Excel templates generated dynamically in the database
 - Based on Office Open XML (.xlsx)
 - Implemented using pure PL/SQL logic
 - Using the open-source PL/SQL package **as_xlsx by Anton Scheffer**
 - Templates generated from database metadata
- ✓ **Pure database solution**
no external libraries or middleware required

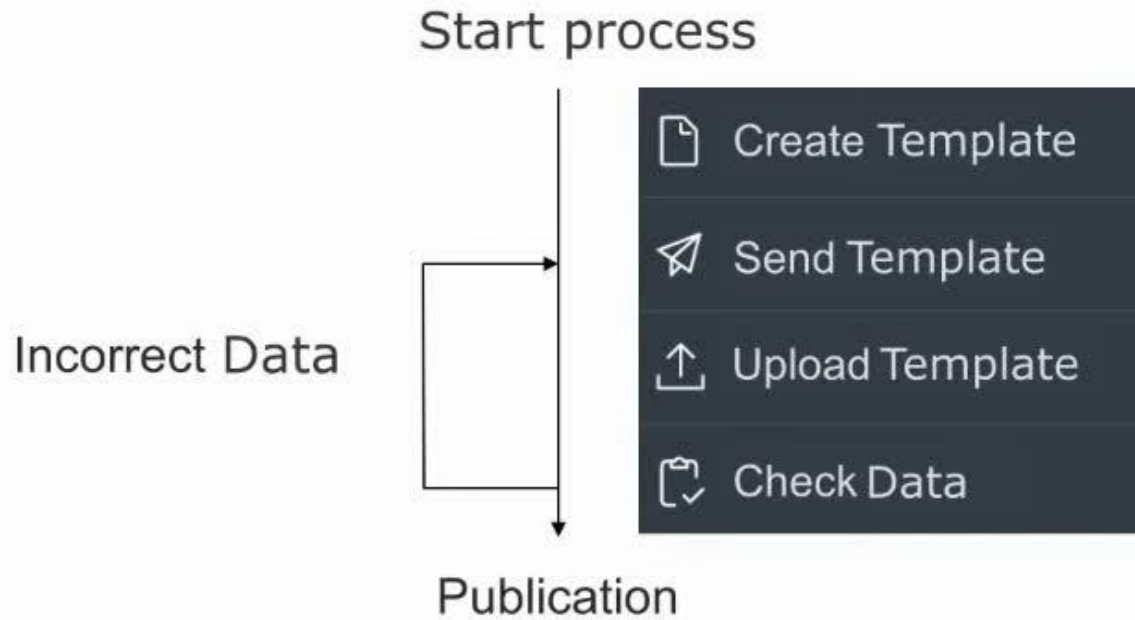


github.com/antonscheffer/as_xlsx

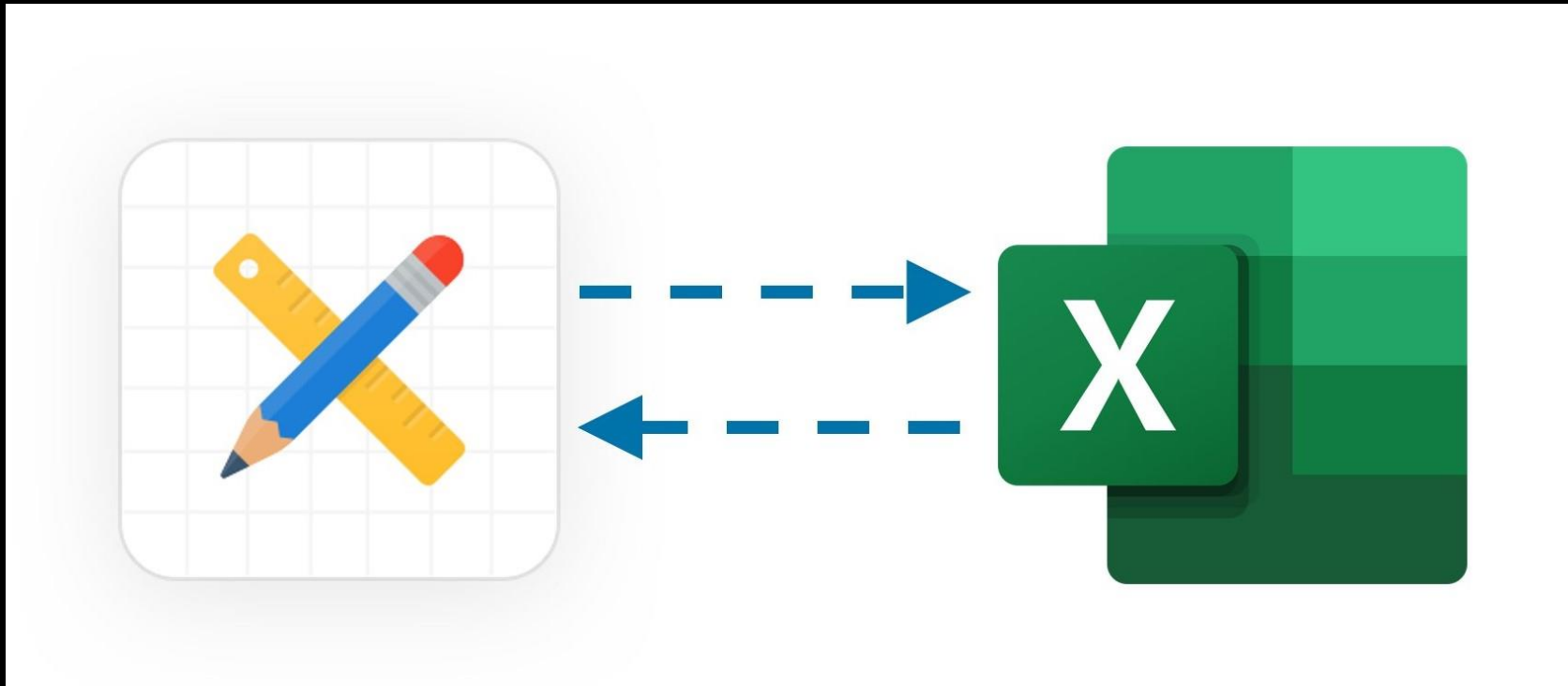
- Home
- Create Template
- Send Template
- Upload Template
- Check Data
- Export Data
- Administration

Template

Please select a template above or create a new template. The selected template serves as a filter for further work with the application.



Excel Gateway for Oracle APEX (Open Source Project)



<https://github.com/mt-ag/apex-excel-gateway>

2021

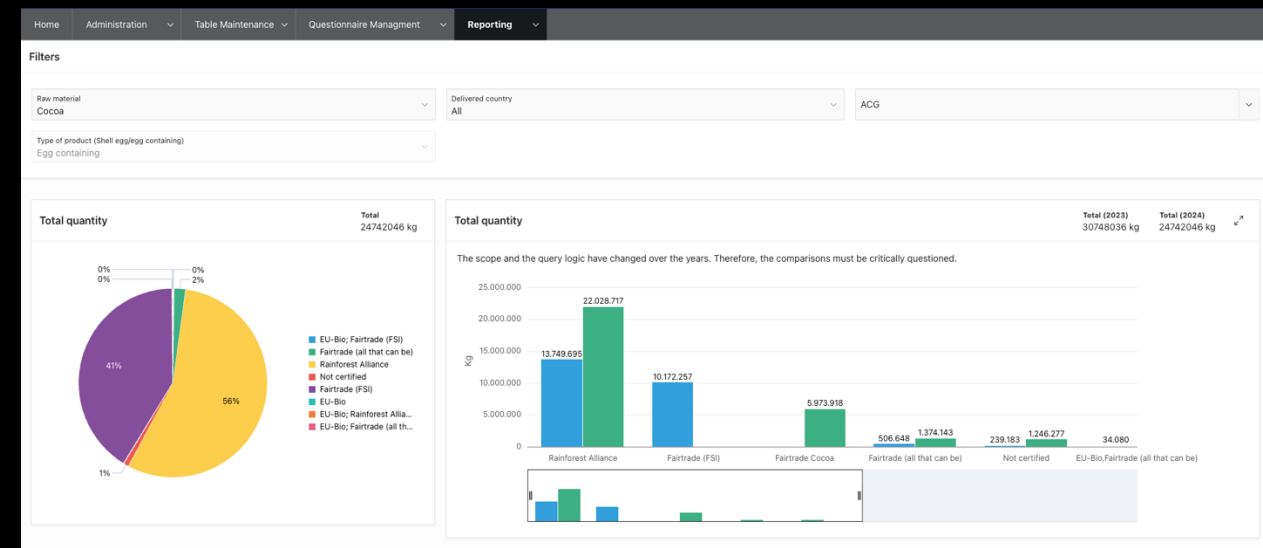
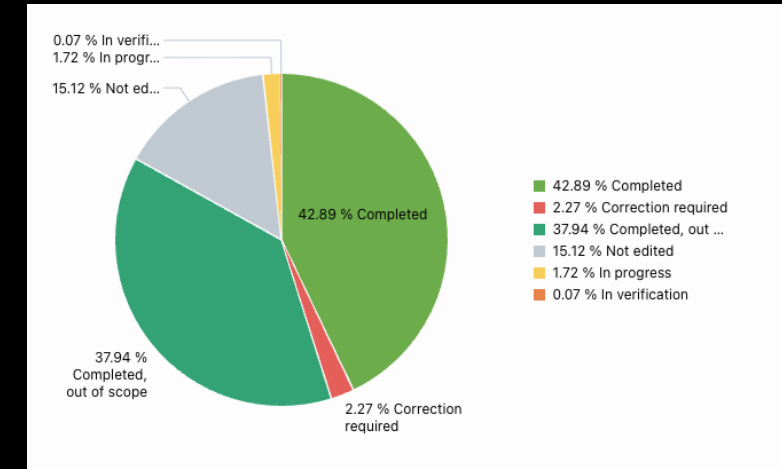
2021

Second Step: Improving the Excel Process

Solution Evolution in 2021

- ✓ Added reporting and dashboards for sustainability data
- ✓ Added Excel templates for additional raw materials
- ✓ Implemented visual validation hints for incorrect data
- ✓ Improved the correction workflow
- Still Excel-based process
- No supplier access to the platform

The process became more efficient but still relied on Excel files



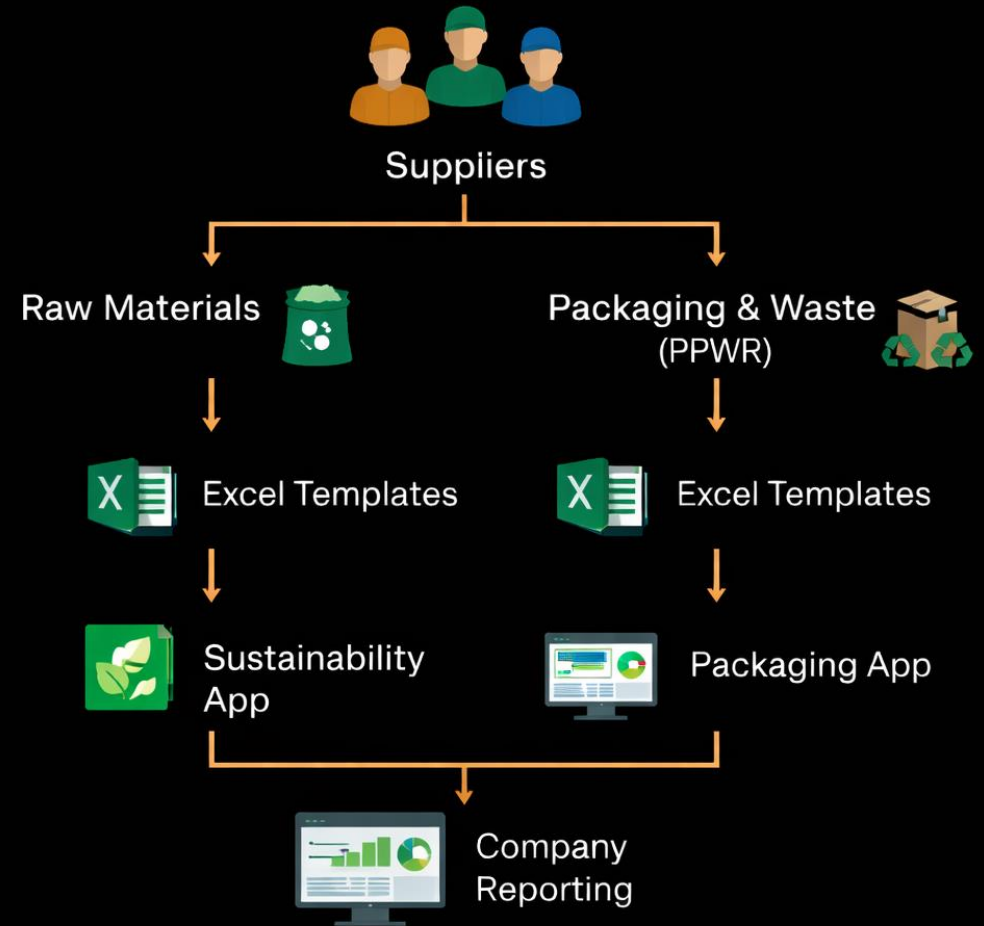
2022

2022

New Challenge: Packaging & Waste Reporting

Solution Evolution in 2022

- New regulatory focus on **Packaging & Packaging Waste (PPWR)**
 - Required detailed reporting on packaging materials and recyclability
 - A separate application was developed for packaging data
-
- ✓ The raw materials process continued unchanged
 - ✓ Suppliers still exchanged data using Excel templates



The solution landscape became more complex while still relying on Excel processes

Why is Packaging Data so complex?

- At the beginning we underestimated the complexity of packaging data
- Even a single product requires detailed packaging information
- Multiple packaging layers must be documented
- Materials, weights, recyclability and circularity must be reported

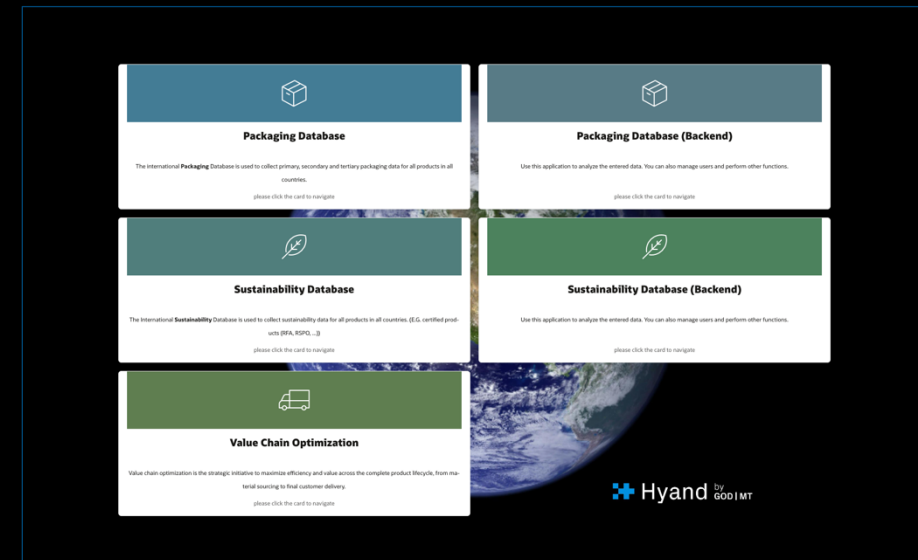
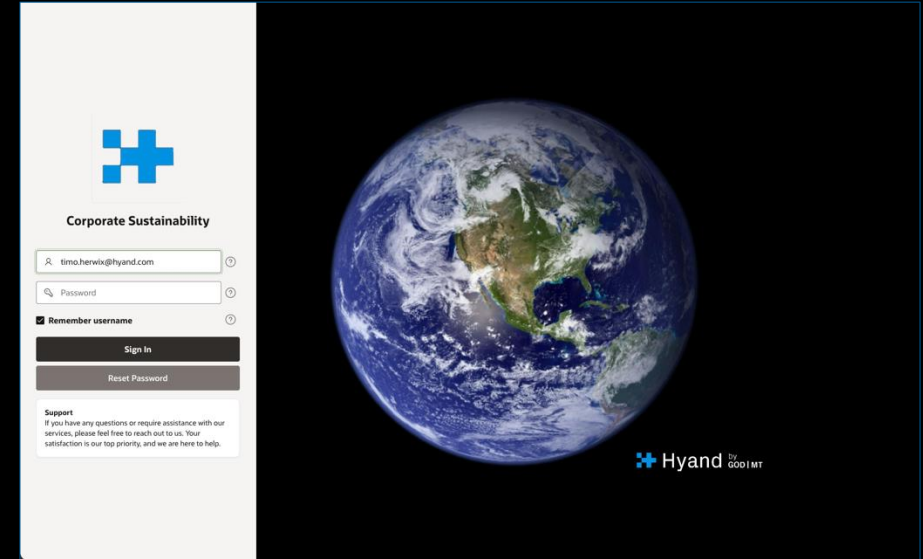


2023

2023

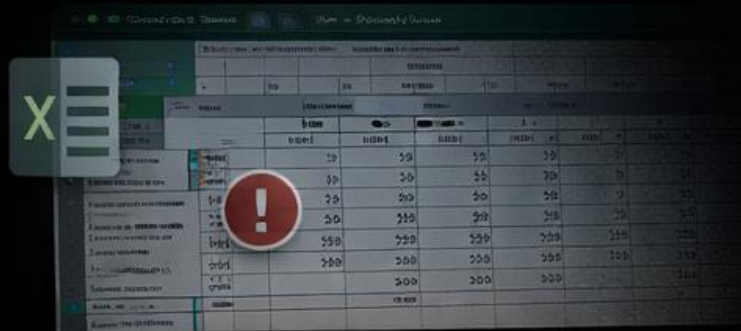
Next Evolution: From Excel to a Digital Sustainability Platform

- ✓ Launch of the Supplier Portal
- 📁 Suppliers now interact directly with the platform
- 🌱 Access to dedicated sustainability apps
- 🔗 Beginning of fully digital supplier collaboration



Transforming Packaging Data Collection

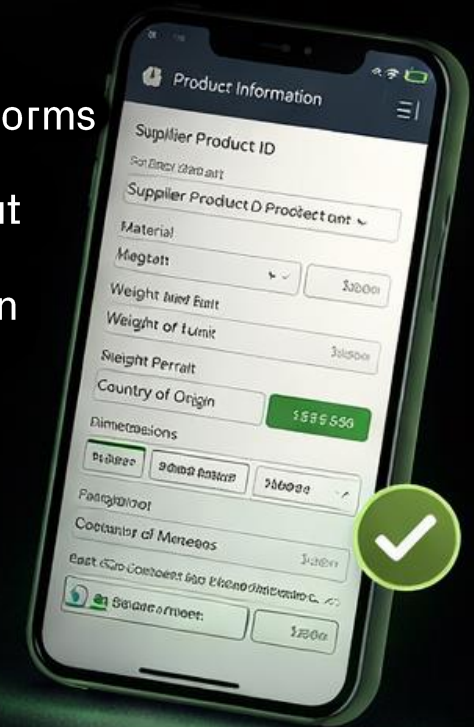
Before



- ✓ Excel-based data collection
- ✓ Limited validation options
- ✓ High error rates
- ✓ Complex supplier communication

After

- ✓ Interactive web forms
- ✓ Guided data input
- ✓ Built-in validation
- ✓ Significantly improved data quality



Transforming Packaging Data Collection

+ Packaging Database Contact us ? FAQ timo.herwix@hyand.com

[Home](#) [Open Contracts](#) [My Contracts](#) [Manuals](#)

Welcome to the International Packaging Database

Dear Business Partner,

due to the international appearance a **responsible handling of valuable raw materials** and the **promotion of the circular economy** is of great importance for us. Based on this responsibility, we have developed sustainability principles that must be observed.

With each new contract, it is mandatory to send appropriate packaging data for own-brand products on **primary** (sales), **secondary** (grouped) and **tertiary** (transport) packaging level.

All own-brand contracts, for which a transmission of packaging specifications is required, are uploaded automatically into the database. The upload only happens after the contract has been concluded.

Your supplier contracts are stored in "Open Contracts" (see top bar). For these contracts, packaging specifications are required and must be **submitted by you as our supplier**. Please note that the survey takes place **on contract level** so that **items can be listed twice**. In this case, you can use the **copy function to transfer packaging specifications** (described in the manual below).

Important note: **Before you start the process**, please look carefully at the help section under the top bar "Tutorials" to be able to process the request accordingly. **This may clarify any questions in advance. You can find an example procedure under the following link**


Link: [Download here](#)

Contact: If you encounter any difficulties while entering your packaging data, please use the "Contact Us" function (see top bar).


Thank you for your support.

International Packaging Team


Supplier Cockpit



■	Contracts submitted	3
■	Contracts not edited	1
■	Contracts in progress	0




75% of the contracts were submitted



Next deadline ends in 9 days from now


Information Cockpit



Towards Circularity

ALDI Nord follows its vision of contributing to a circular economy for packaging. Click below to find a visualization of the ALDI Nord approach to circular packaging.


[Details](#)



Guidance

ALDI Nord develops guidelines and style guides in order to create a common understanding for all stakeholders on a variety of topics. By clicking on Details below, you will find two relevant guides.

[Details](#)



Support Tutorial (Video)

Find here a tutorial which describes an exemplary data entry process.

[Details](#)

Notification Center

[We have updated our International Packaging Database. Click here for more details](#)
















row(s) 1 - 1 of 1

+ Hyand

Transforming Packaging Data Collection

Packaging Types

Let's start defining your packaging for the recyclability self-assessment. First up, choose what type of packaging you want to use here. If your type of packaging is not listed or you can't find it, you can always go ahead and use the "Other component" packaging types.

 Film/Flow-Pack	 Bottle	 Tray/Foodtainer	 Can	 Wrapper
 Blister	 Bucket	 Canister	 Box/Crate	 Cup/Pot/Tub
 Banderole/Header/ Cuff/Slings	 Beverage Carton	 Tube	 (Shrink) Sleeve	 Label

Cancel

Component

Component class
Body

Component type
Bottle

Label size
- please select -

How many of these components are used per sales packaging?
1

Please only enter the weight of the single packaging component in g (without product).
100.00

Please use a **dot** as decimal separator

Material

Main material
Glass

Transforming Packaging Data Collection









Additional information for glass

Glass Type Borosilicate glass	Glass Color Green
Lacquers Protective lacquers/coatings	Adhesives Removabel label

Non ferromagnetic components

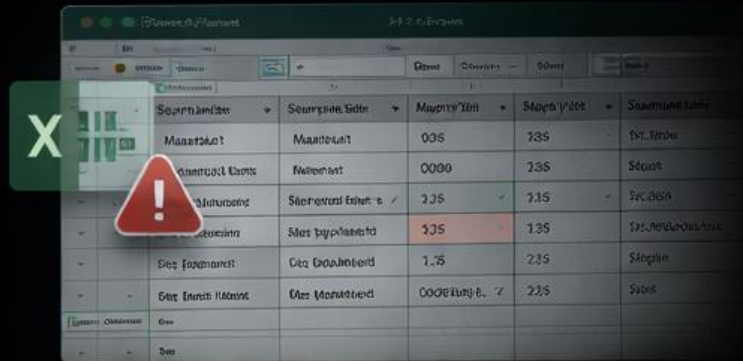
Bottle shapes

Please select the Bottleshape (optional)

Bordeauxflasche 	Burgunderflasche 	Champagnerflasche 	Flûte 	Flûte à Corset 	Hollandaise 	Muscadetflasche 	Other 
---------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------

Transforming Raw Material Data Collection

Before



Supplier	Material	Quantity	Weight	Material Code
Maastaruut	Maastaruut	005	235	1000000
Maastaruut	Maastaruut	0000	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000

- ✓ Excel-based processes
- ✓ Limited validation options
- ✓ Inconsistent data
- ✓ Lack of structured data

After



Supplier ID	Material	Quantity	Weight	Material Code
Maastaruut	Maastaruut	005	235	1000000
Maastaruut	Maastaruut	0000	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000
Maastaruut	Maastaruut	235	235	1000000

- ✓ Interactive grid with Excel-like experience
- ✓ Built-in validation
- ✓ Structured supplier data input

Digitalizing Raw Material Data Collection

Coffee Data								Certification standard/s of the article / raw material resp. grower / cooperative. Please tick the box(es) for the certification standards applicable to this article (variety)		
Col.Nr. 10	Col.Nr. 11	Col.Nr. 12	Col.Nr. 13	Col.Nr. 14	Col.Nr. 15	Col.Nr. 16	Col.Nr. 17	Col.Nr. 18	Col.Nr. 19	Col.Nr. 20
Weight per article [g]	Total quantity delivered in retail units [#]	Total quantity delivered [kg]	Percentage of coffee [%]	Total quantity of coffee delivered [kg]	Country of processing / packing of coffee	Country of origin of the coffee	Region of origin of coffee	Rainforest Alliance	Fairtrade (all that can be)	EU-Bio
500	208800	104400	7	7308		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
500	339120	169560	9	15260.4		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
500	130320	65160	7	4561.2		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
500	180960	90480	7	6333.6		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
500	305040	152520	9	13726.8		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
500	118080	59040	4	2361.6		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100	449316	44931.6	18	8087.69		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
180	906552	163179.36	7	11422.56		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
200	428988	85797.6	16	13727.62		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
200	443568	88713.6	14	12419.9		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
275	135828	37352.7	10	3735.27		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
275	2304	633.6	10	63.36		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
275	85140	23413.5	10	2341.35		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
250	47808	11952	7	836.64		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
250	47808	11952	9	1075.68		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
200	95616	19123.2	14	2677.25		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
250	49920	12480	7.4	923.52		India - IND (356), Brazil - BRA (076)	India - IND (356), Brazil - BRA (076)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2023 – A Game Changer for Our Sustainability Platform

- ✔ Launched of the dedicated Supplier Portal
- ✔ Transformed Packaging Data Collection
- ✔ Digitalized Raw Material Data Collection
- ✔ Transitioned from Excel processes to an automated collaboration platform



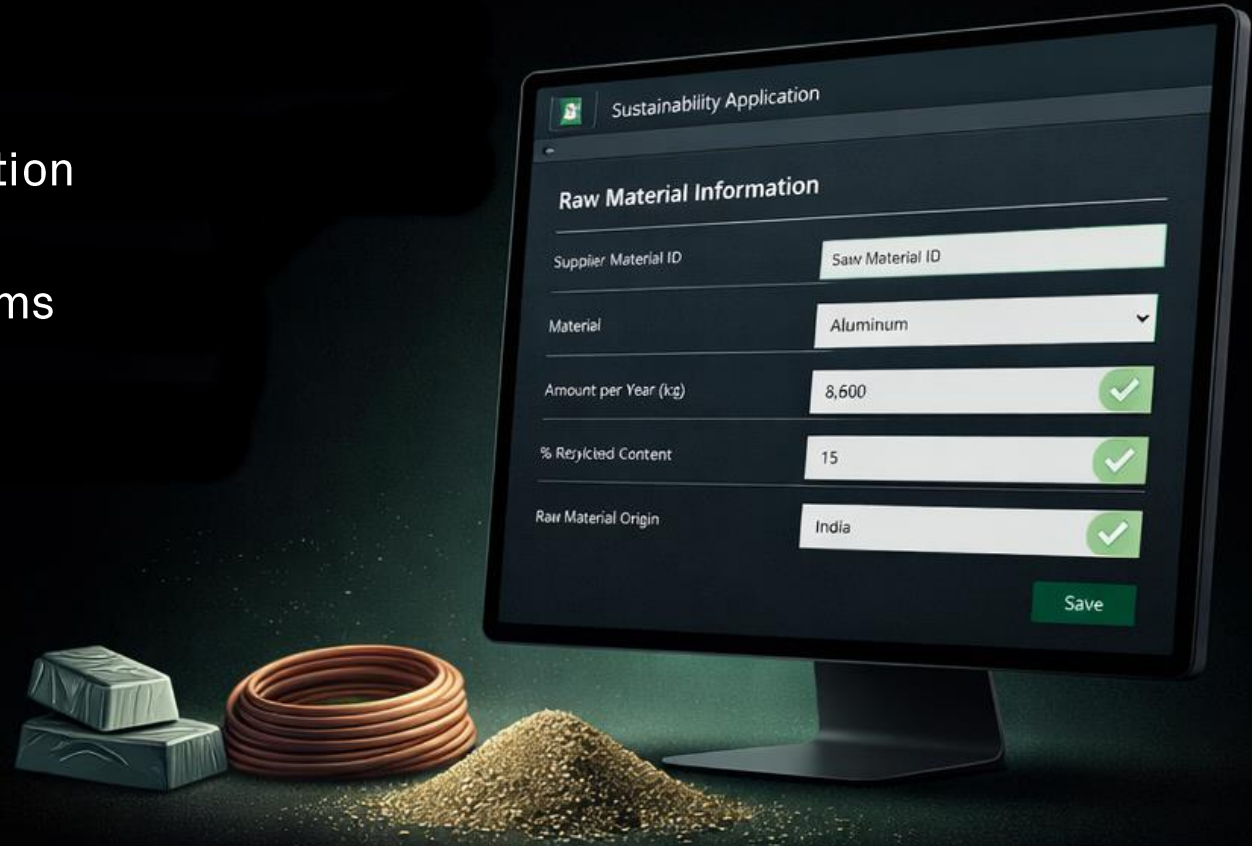
2023 marked the breakthrough of our sustainability platform

2024

2024

Transforming Raw Material Data Collection

- ✓ Developed a new Sustainability Application
- ✓ Raw material data collected via web forms
- ✓ Built-in validation and guidance
- ✓ Improved user experience and data quality



Enhancing Data Quality in Packaging



Anomaly Detection
to identify inconsistent entries



Data Validation Algorithms
for improved accuracy



Higher data quality
through automated controls



Reduced errors & rework
in supplier submissions

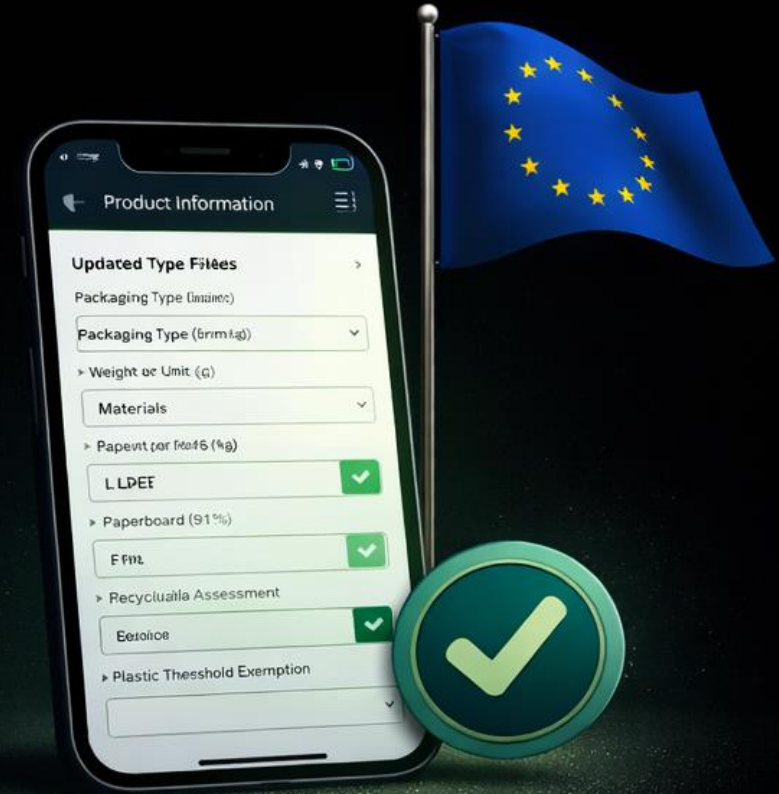


2025

2025

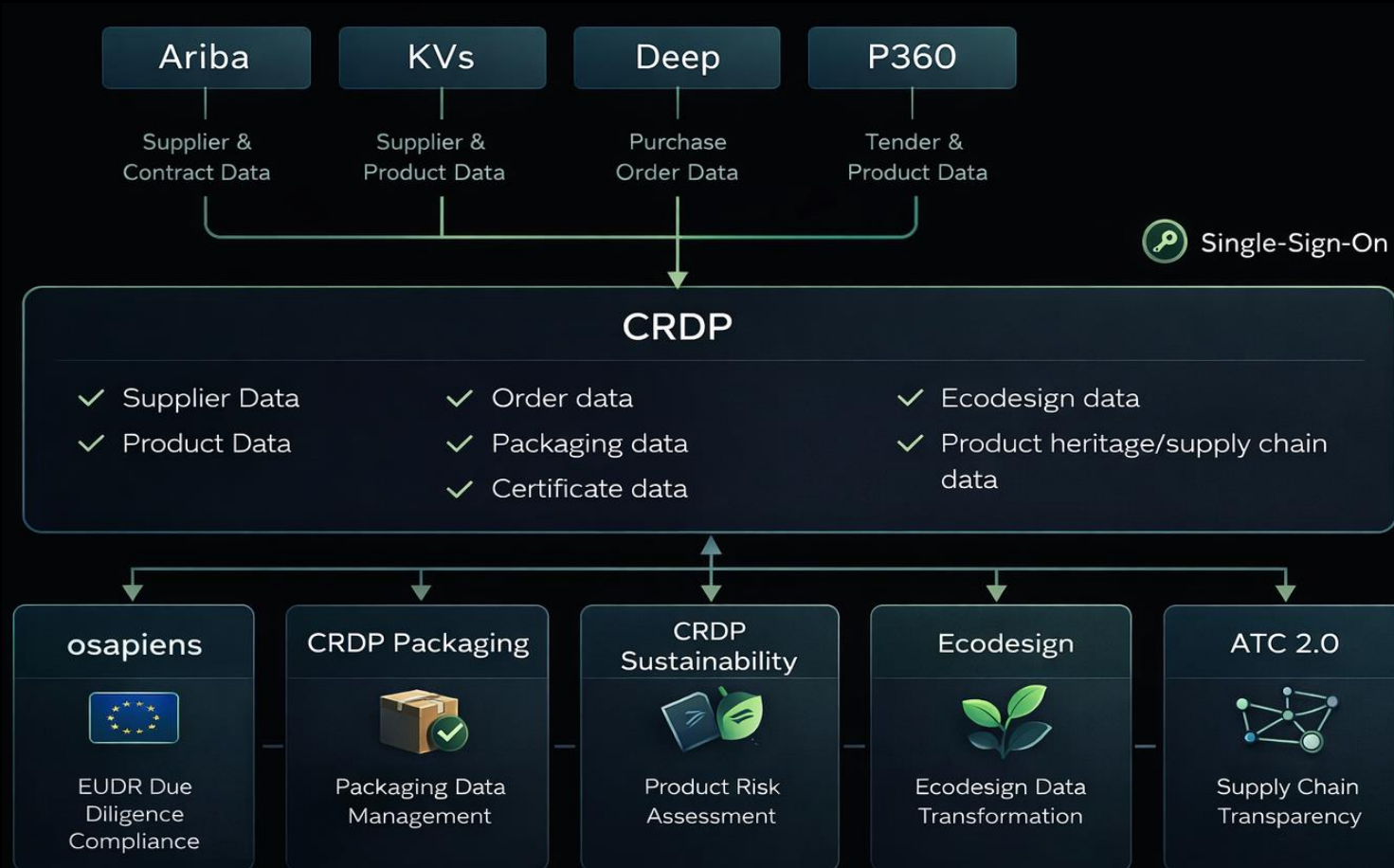
Next Step: Packaging becomes PPWR-Ready

- ✓ Implementation of PPWR requirements
- ✓ Additional data attributes introduced
- ✓ Application aligned with PPWR standards
- ✓ Prepared for the 2026 regulation start



2026

The Core Platform for Supplier Sustainability Data



CRDP – From a Simple Application to Strategic Sustainability Middleware

By the way...

Built by a team of just two developers



Rapid development with Oracle APEX



Direct collaboration with sustainability teams



Fast releases and continuous improvements



Success Stories!

Sustainability Reporting

Certified Raw Materials 2023



82%

MSC™-ASC™
Fish & Seafood

82%



90%

Sustainable
Cotton

90%



92%

FSC®-PEFC™
Wood Products

92%



24%

EU Organic
Raw Materials

24%



High share of certified raw materials used for sustainability

Packaging Achievements

2020–2023



80,000+ tons
packaging material
reduced in our supply chain



75%
of our packaging was
recyclable in 2023



15%
average recycled
content in plastic



Key achievements in our
journey to sustainable packaging

Sustainability Impact

What We Saved in 2024



Data transparency enables measurable sustainability impact

Sustainable Packaging at a Glance!

Sustainable Packaging Innovation: Toothbrush



Plastic Reduction

17 tons of plastic saved per year

By replacing traditional plastic blister packaging



Recyclable Design

100% paper-based packaging

Easy to recycle
No plastic separation required



Circular Impact

Supports EU packaging targets and reduces virgin plastic usage

NEW PACKAGING



Switching from plastic blister packs to paper packaging reduces plastic waste while keeping packaging simple and recyclable.

Sustainable Packaging: Paper Wrap for Cheese Snacks



Paper Packaging

100% certified paper by 2027

Replacing previous plastic / cellophane wrap



Plastic Reduction

Lower plastic usage and improved recyclability

Supports circular packaging goals



Industrial Transformation

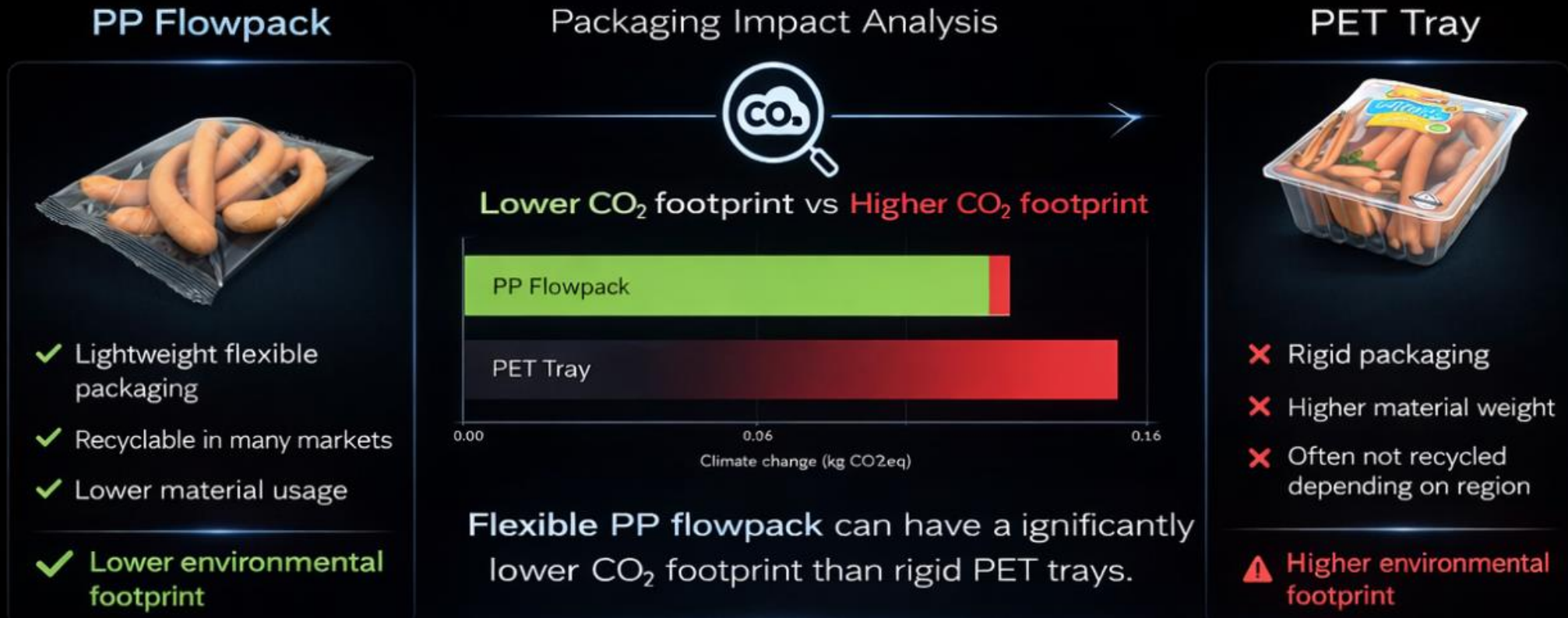
Production lines adapted to run paper packaging

Maintains food safety and product protection



Switching from plastic wrap to paper packaging enables recyclable solutions while preserving product protection and consumer experience.

Packaging Comparison: PP Flowpack vs. PET Tray



Data-driven packaging comparison improves decision making

→ better footprint analysis

→ reduced complexity

→ clearer communication with procurement

Packaging Comparison: Cold Meats



Results show that PP flowpack and PE thermoforming packages have a lower CO₂ footprint compared to PET trays.

Lessons Learned...

Lessons Learned

- ✔ Sustainability reporting starts in the supply chain
Reliable ESG reporting requires structured data directly from suppliers
- ✔ Packaging data is far more complex than expected
Even a single product can require dozens of data points across multiple layers
- ✔ Excel works for the beginning - but not at scale
Manual processes quickly become inefficient when thousands of suppliers are involved
- ✔ Data transparency enables real sustainability impact.
Centralized and validated data allows companies to measure & reduce environmental impact
- ✔ Technology alone is not enough
Successful sustainability platforms require collaboration between IT, experts and suppliers.

→ Building a sustainability data platform is not only a technical challenge

Final thoughts!

Small actions create big change



Recycle packaging properly



Use renewable energy



Choose sustainable transport



Buy food consciously



Travel responsibly





Are you interested?



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Senior Consultant

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Mobil: +49 176 20185455

Mail: timo.herwix@hyand.com



Timo Herwix



@Therwix



tm-apex.hashnode.dev



**Please fill in your
evaluations**