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Driving Carbon Transparency in Automotive Supply Chains:

BASF and CircularTree's PACIFIC app

Executive Summary /Abstract

As pressure mounts on the automotive industry to decarbonise and prepare for increasing regulation on emissions and sustainability disclosures, original equipment manufacturers (OEMs) and suppliers must gain deeper visibility into the carbon footprint of their products across the entire supply chain. One of the most significant challenges in doing so has been a lack of standardisation, inconsistent data formats, and complex, often manual processes for exchanging and verifying carbon footprint information.
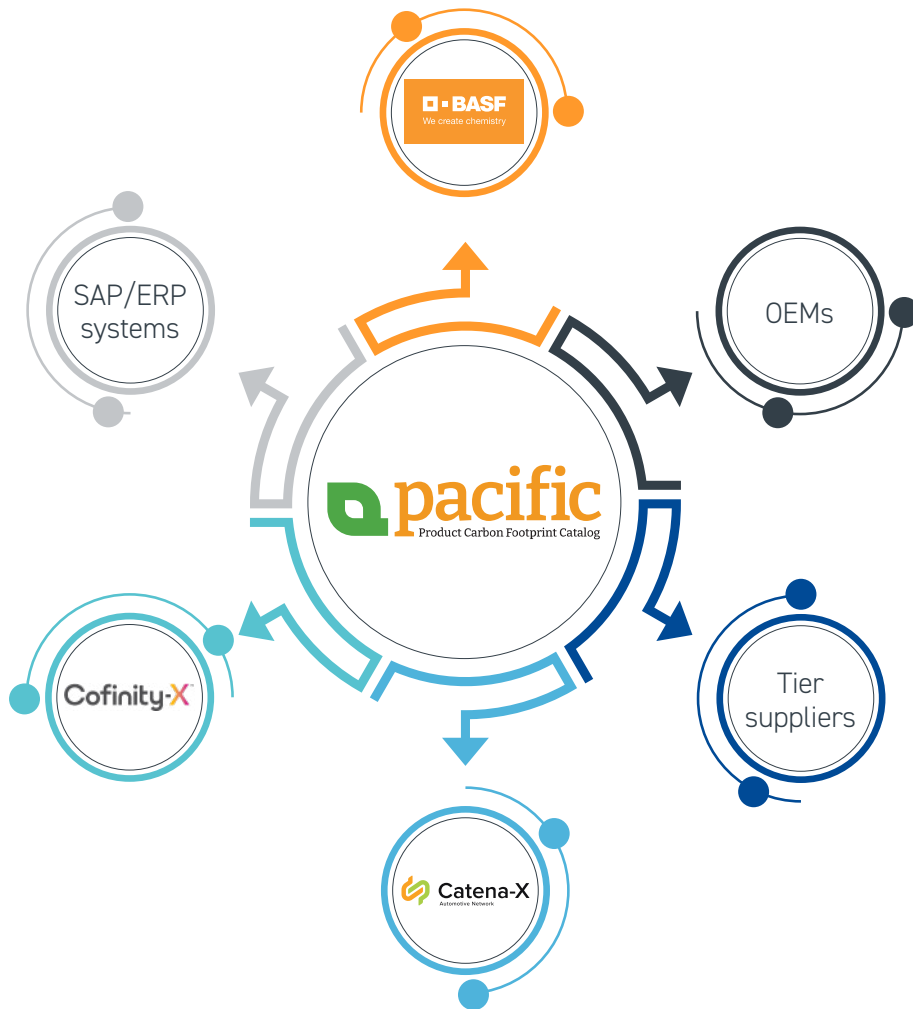
BASF, in collaboration with technology partner CircularTree, has addressed this challenge through the development of the PACIFIC app. This certified application enables BASF customers to request and manage Product Carbon Footprints (PCFs) in a streamlined, automated, and standardised way. Integrated in the Catena-X ecosystem and deployed via Cofinity-X, the ecosystem's first operating company, PACIFIC provides an example of how digital tools can enhance traceability, reduce manual effort and promote industry-wide carbon transparency.

This whitepaper outlines the development, technical architecture, and industry impact of the PACIFIC app. It draws on insights from Thomas Kiciak, Head of Supply Chain Business Solutions & Processes at BASF, Gunther Walden, Co-Founder and CEO of CircularTree, the development partner behind the application, as well as René Holschuh, Senior Manager Digitalisation and Product Owner of the app at BASF.

This whitepaper will demonstrate how the PACIFIC solution and the digital collaboration it provides is ensuring automakers and vehicle tier-suppliers are able to meet sustainability objectives and build resilient, transparent automotive supply chains.

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How the PACIFIC App Operates in the Catena-X Ecosystem

Catena-X was established to address precisely these issues. As an open, collaborative data ecosystem for the automotive industry, Catena-X sets technical and procedural standards for data exchange. It facilitates interoperability between applications and ensures data sovereignty for all participants. Cofinity-X serves as the operational arm of Catena-X, providing infrastructure such as a certified application marketplace and compliance assurance.

It is within this framework that the PACIFIC app has been developed and deployed. The app is positioned as a key enabler of carbon transparency for the automotive sector, reflecting a shared commitment between BASF and CircularTree to advance digital sustainability solutions that are practical, interoperable, and accessible.

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Gunther Walden,
Co-Founder & CEO, CircularTree

PACIFIC Architecture and Features

The PACIFIC app has been developed in alignment with Catena-X technical requirements. It is a certified application listed on the Cofinity-X Marketplace and operates within the secure data exchange environment defined by Catena-X. The application uses the Eclipse Dataspace Connector (EDC) as its application programming interface (API) for data exchange, ensuring seamless interoperability with other certified applications.

Walden explains, "from a technical standpoint, we're leveraging the following aspects. First, integration with the Catena-X data-ecosystem. Second, we have a standardised data model. And third, we maintain embedded connectivity to the Catena-X network, enabling users to easily request PCFs from all other network members through the PACIFIC app."

The PACIFIC app features a user-friendly dashboard with functionalities tailored to a wide range of users. Customers can log in to request PCF data, access information for previously purchased materials, or respond to incoming data requests. Real-time notifications, automated

updates, and bulk request capabilities streamline and optimise the entire user experience. Kiciak highlights, "because the topic of sustainability and data exchange is so complex itself, we aimed to create one of the most user-friendly apps on the market."

The PCF data is available in both human-readable PDF formats and machine-readable JSON files, supporting both regulatory reporting and system integration. Through this dual accessibility, PACIFIC facilitates operational transparency and integration into digital product passports and other regulatory requirements.

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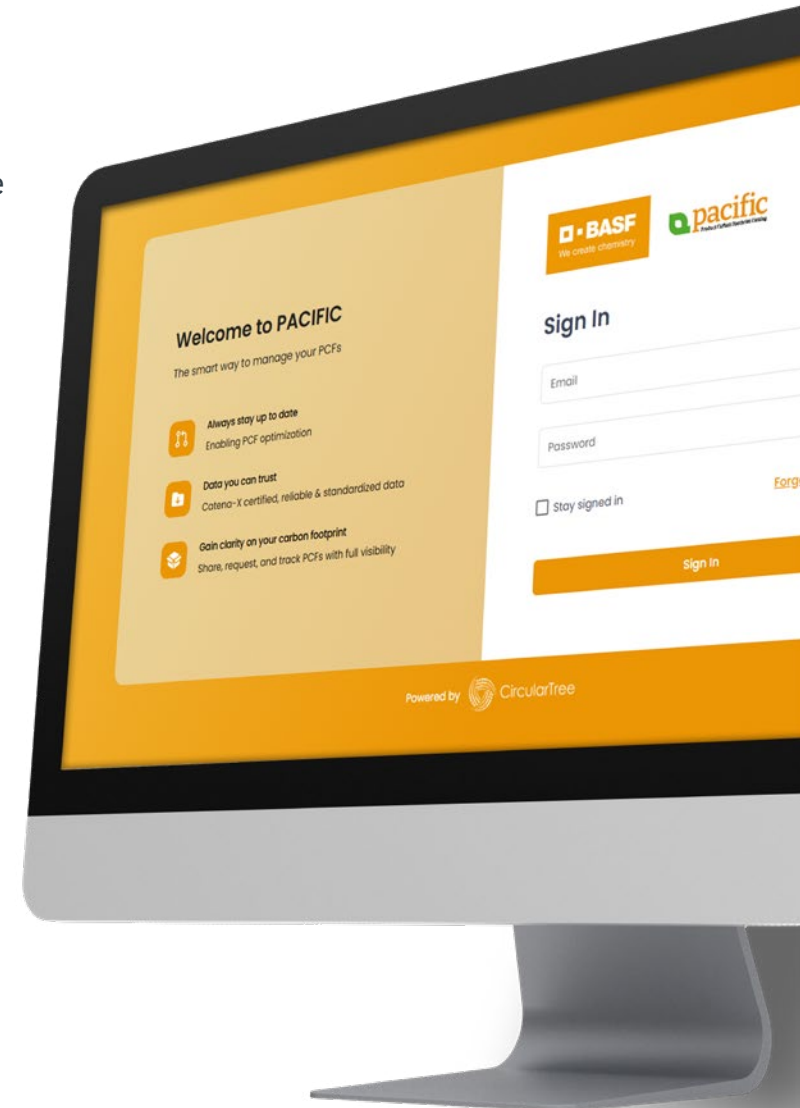
Reducing Administrative Burden and Increasing Accuracy

Prior to implementing PACIFIC, PCF exchanges in the industry were manual and time-consuming, resulting in a counterproductive process which unfortunately continues to persist for many automotive manufacturers and tier-suppliers across the automotive supply chain. As a result of the value-adds produced by the new PACIFIC system, BASF's internal administrative effort has already been reduced by approximately 50%. Kiciak further emphasises the accuracy advantage of BASF's data: "We use an internal tool called SCOTT (the Strategic CO_2 Transparency Tool) to calculate these PCF values... When we compare our primary data with secondary databases, we find that our PCF data is indeed more accurate and noticeably lower."

This increased accuracy is particularly valuable for customers looking to model PCFs for their own components, offering a strong alternative to generic lifecycle databases. BASF's approach to using primary data aligns with the principles of the CSRD and other upcoming EU regulations, which increasingly prioritise traceability and auditability.

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Supporting SMEs and Enabling Broad Participation

One of the strategic goals of the PACIFIC app is to make PCF data more accessible to smaller companies that may lack dedicated sustainability teams or software infrastructure. As Walden explains, "because the PACIFIC app offers very easy PCF management, automated PCF updates and guided PCF calculations (coming soon)... this further reduces manual work associated with PCF calculations and PCF data exchange." Additionally, the app provides automatic updates to ensure data remains current without requiring manual follow-ups. For SMEs, this can be a crucial factor in staying compliant with upcoming regulations and meeting customer requirements.
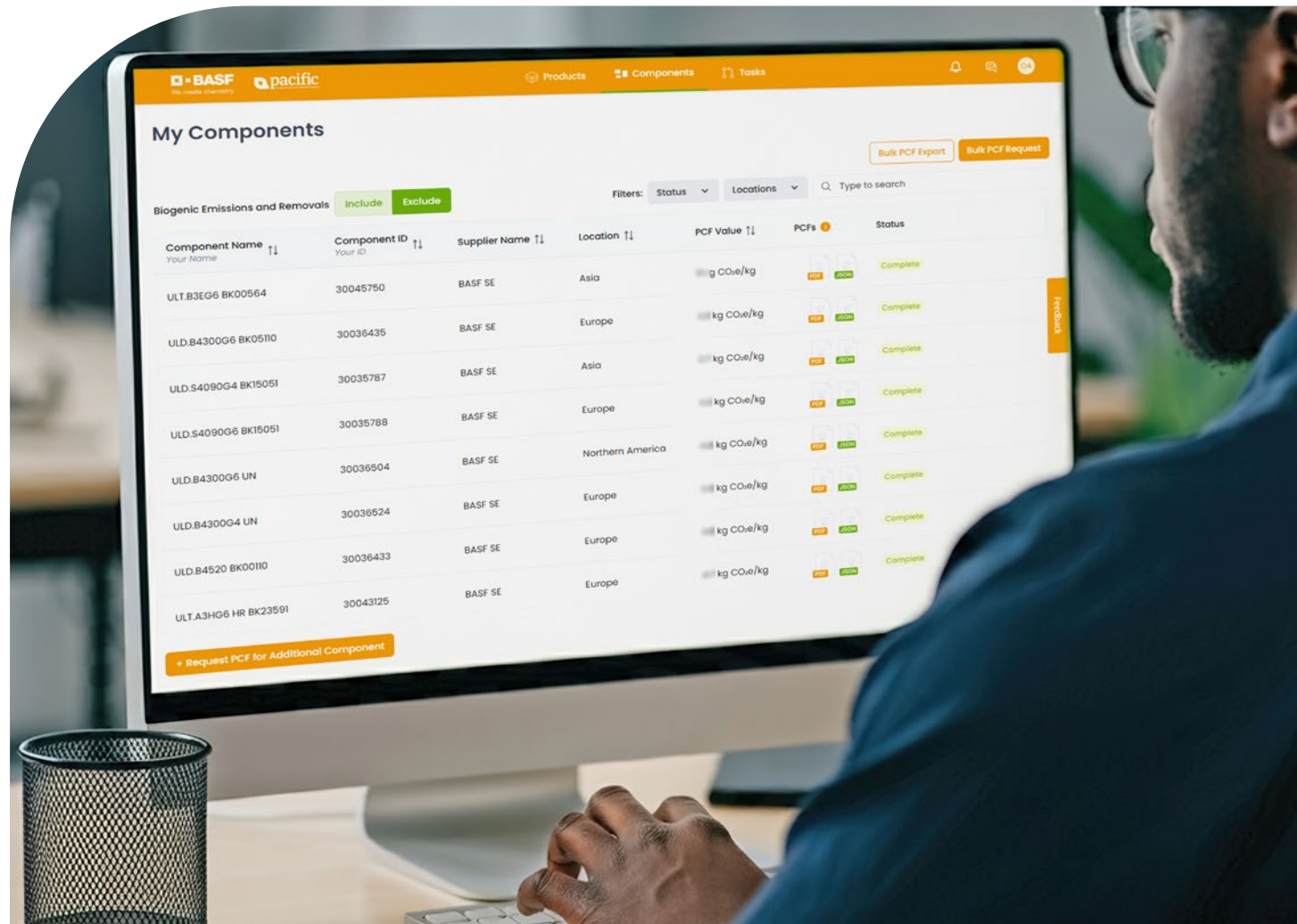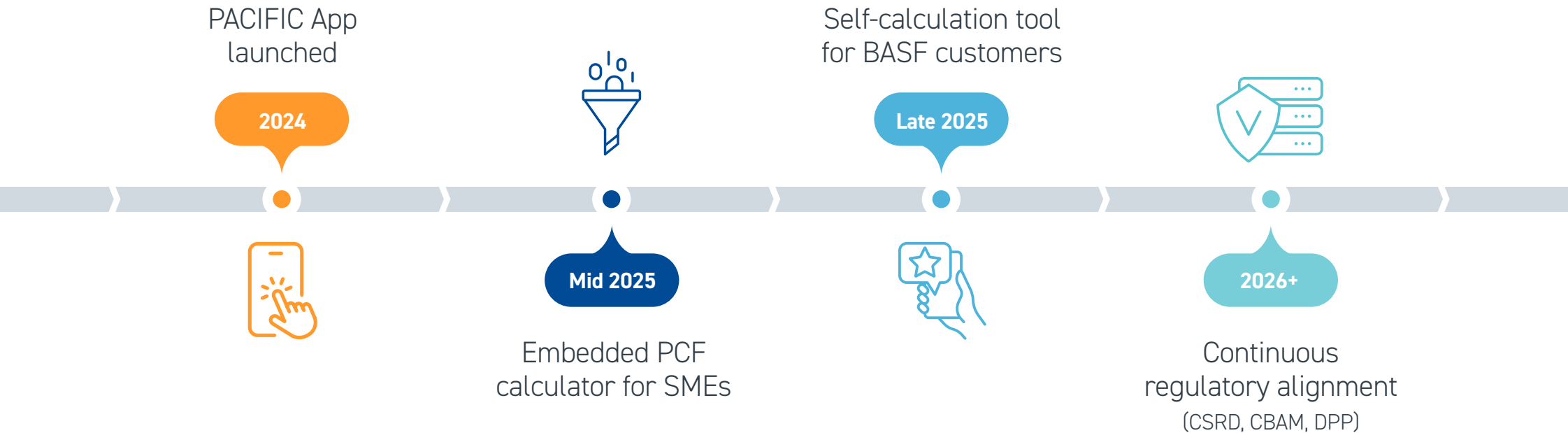
Real-World Adoption and Impact

Since its release, the PACIFIC app has already been adopted by more than 100 automotive companies across the globe. According to René Holschuh, "the number of exchanged PCFs is continuously growing, which proves to us that companies are using our solution and deriving value out of it. Also, the commitment to continuously working towards expanding and improving the app gives BASF a competitive edge that the company takes special pride in.
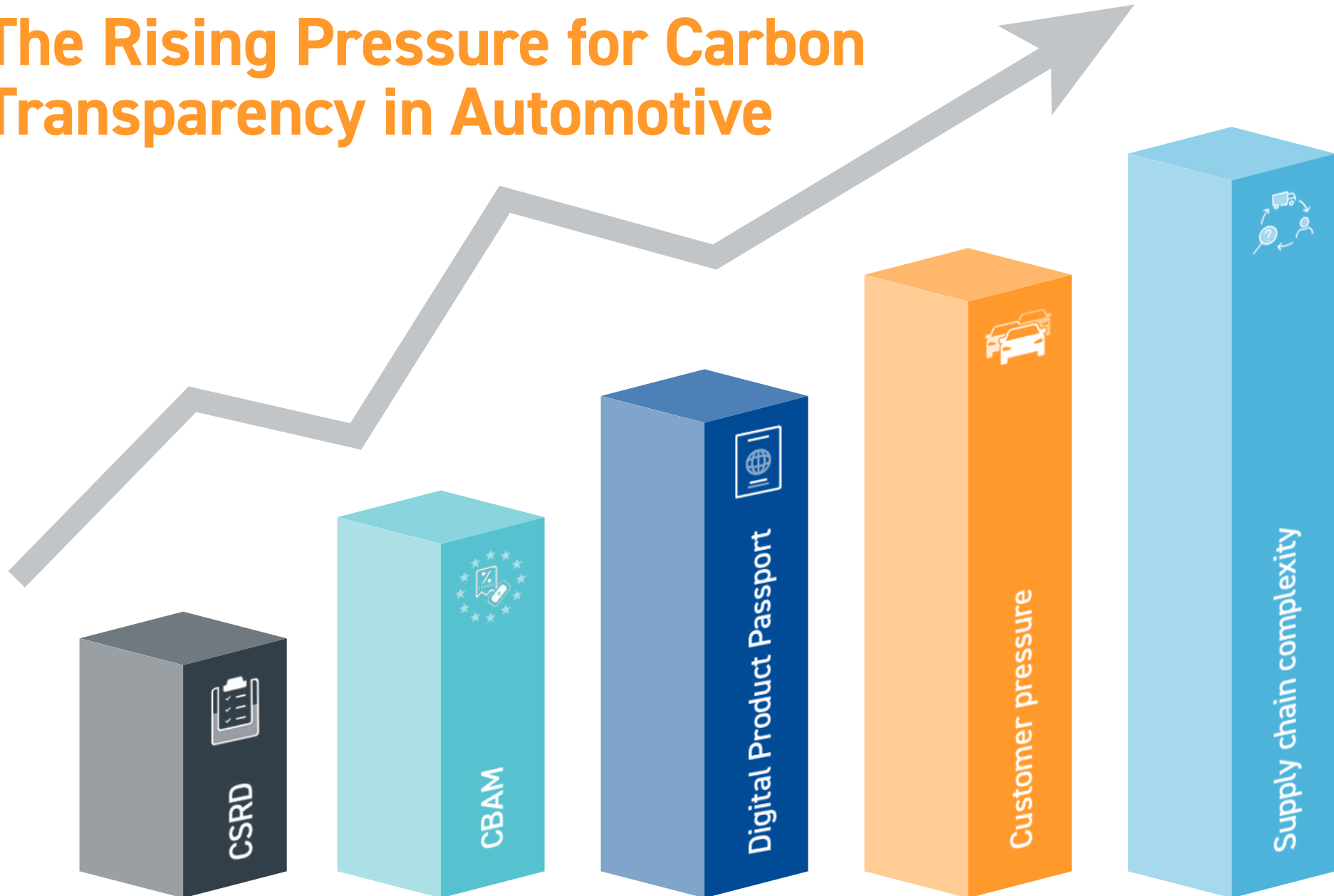
"As one of our customers has confirmed to us, we are far ahead of our competitors in sharing PCF values"

René Holschuh,
Product Owner PACIFIC app at BASF

The time savings and administrative efficiencies demonstrated in a use case reflect the tangible benefits for OEMs and suppliers. With increasingly complex and multi-tiered supply chains, such efficiency gains can scale significantly. The success of the tool also reflects a broader industry trend toward decentralised but standardised data systems.

PACIFIC App launched

2024

Embedded PCF calculator for SMEs

Mid 2025

Self-calculation tool for BASF customers

Late 2025

2026+

Continuous regulatory alignment
(CSRD, CBAM, DPP)

The Rising Pressure for Carbon Transparency in Automotive

CSRD

CBAM

Digital Product Passport

Customer pressure

Supply chain complexity
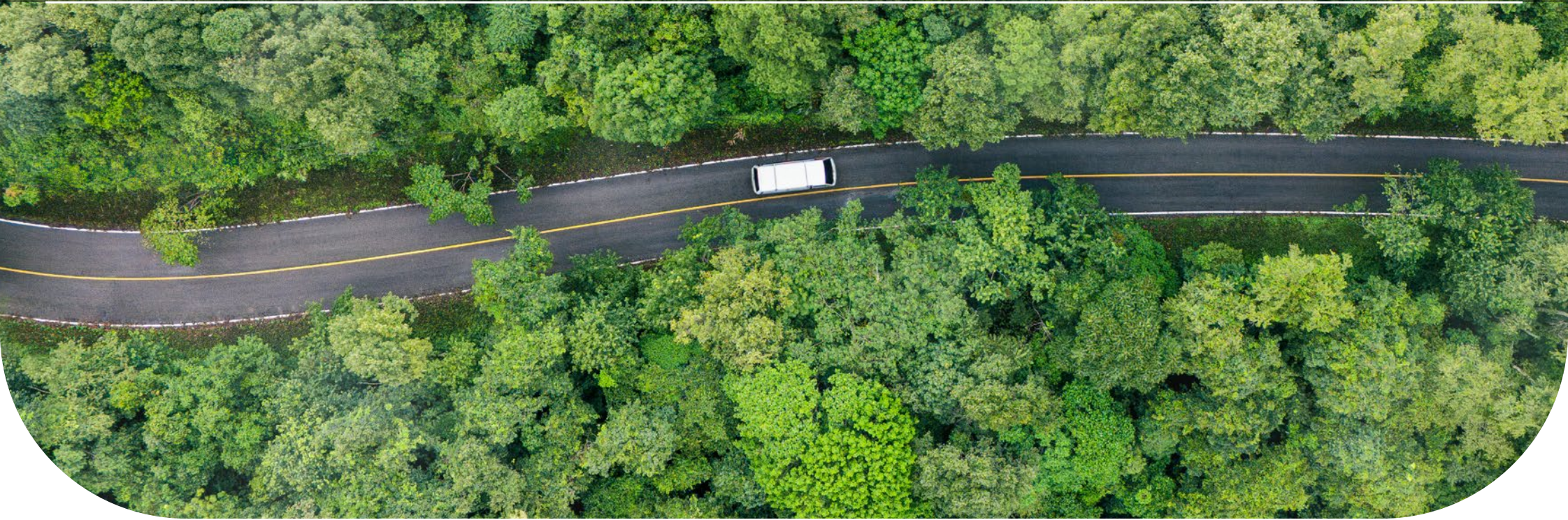
Automotive Industry Context:
The Need for PCF Transparency

The automotive industry is under mounting regulatory and customer pressures to disclose the embedded carbon in its products. With upcoming requirements from frameworks such as the EU Corporate Sustainability Reporting Directive (CSRD), Carbon Border Adjustment Mechanism (CBAM), and the Digital Product Passport initiative, the ability to access verifiable PCF data has become a strategic priority.

However, many suppliers, particularly small and medium-sized enterprises (SMEs), lack the tools and resources to generate or share this data efficiently. Furthermore, without a standardised method of exchanging and interpreting PCFs, OEMs and tier suppliers face difficulties in aggregating data and making informed decisions to reduce emissions across their value chains.

Origins and Objectives of the PACIFIC app

BASF identified inefficiencies in the way it was exchanging PCF data with customers. According to Thomas Kiciak, "we were sending all our PCF information as email attachments, which is far from ideal." Unfortunately, this remains to be the case with a very large proportion of automotive producers and tier suppliers. As an early member of Catena-X, BASF saw the opportunity to align with the ecosystem's standards and create a more structured and scalable solution. The result was PACIFIC, a tool designed to allow easy access to PCF data for BASF customers, particularly in the automotive sector.

Kiciak notes that a key motivation for the development of the PACIFIC app was the absence of standardisation in PCF calculation and exchange. "Within the Catena-X environment, we worked with many partners to develop the Catena-X PCF Rulebook. This framework sets out in detail how to calculate PCF values, what data is required, what qualifies as good secondary data, and how frequently PCF values must be updated."

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CircularTree, the project's development partner, provided the technological expertise needed to build a secure, scalable application. Gunther Walden states, "CircularTree, in this project, is the technology partner for the development and the deployment of the PACIFIC app. Our expertise in sustainability and supply chain management solutions was instrumental in developing this innovative tool."
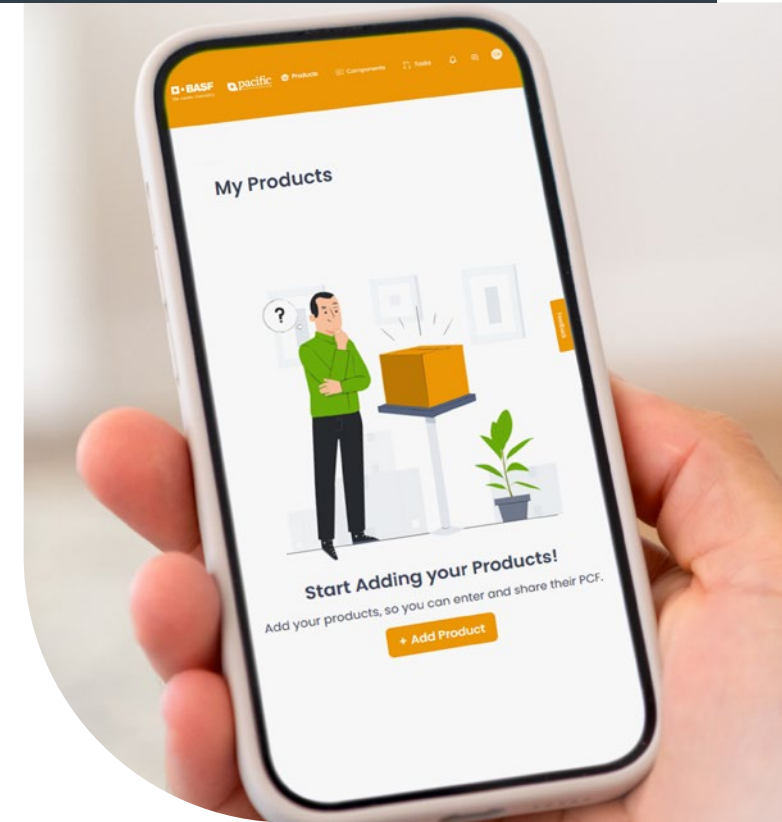
The companies identified a broader opportunity beyond solving immediate process inefficiencies. Through PACIFIC, BASF and CircularTree aimed to demonstrate how standardised PCF tools could benefit not only tier 1 suppliers and OEMs but also less digitally mature organisations as well as small and medium-sized enterprises (SMEs). The application was developed both as a service offering as well as a strategic infrastructure component for future-ready value chains.

Integration with Existing Systems and Interoperability

A defining feature of the PACIFIC app is its compatibility with systems already in use by OEMs and tier suppliers. Kiciak shared a real-world example: "We supplied the raw material to one of the tiers who used it to manufacture a door handle... for a large OEM, who in turn sent a PCF request to the tier via Catena-X... the tier uses an SAP-based solution, so the request went directly from SAP to our PACIFIC tool."

This direct exchange was made possible through the EDC standard and ensured the PCF data could be enriched by one of our Tiers before being passed on to the OEM. The seamless interaction between SAP, PACIFIC, and other Catena-X compliant tools demonstrates how interoperability supports efficient, multi-tier carbon accounting.

Moreover, the use of standard identifiers such as Catena-X's Business Partner Numbers (BPNs) ensures that each request is authenticated and contextually relevant. This level of data integrity enables traceability while maintaining sovereignty over proprietary information.

Before:

- Email attachments
- Paper files
- Manual entry
- Time delays

VS

After:

- PACIFIC dashboard
- Auto PDF/JSON output
- Real-time updates
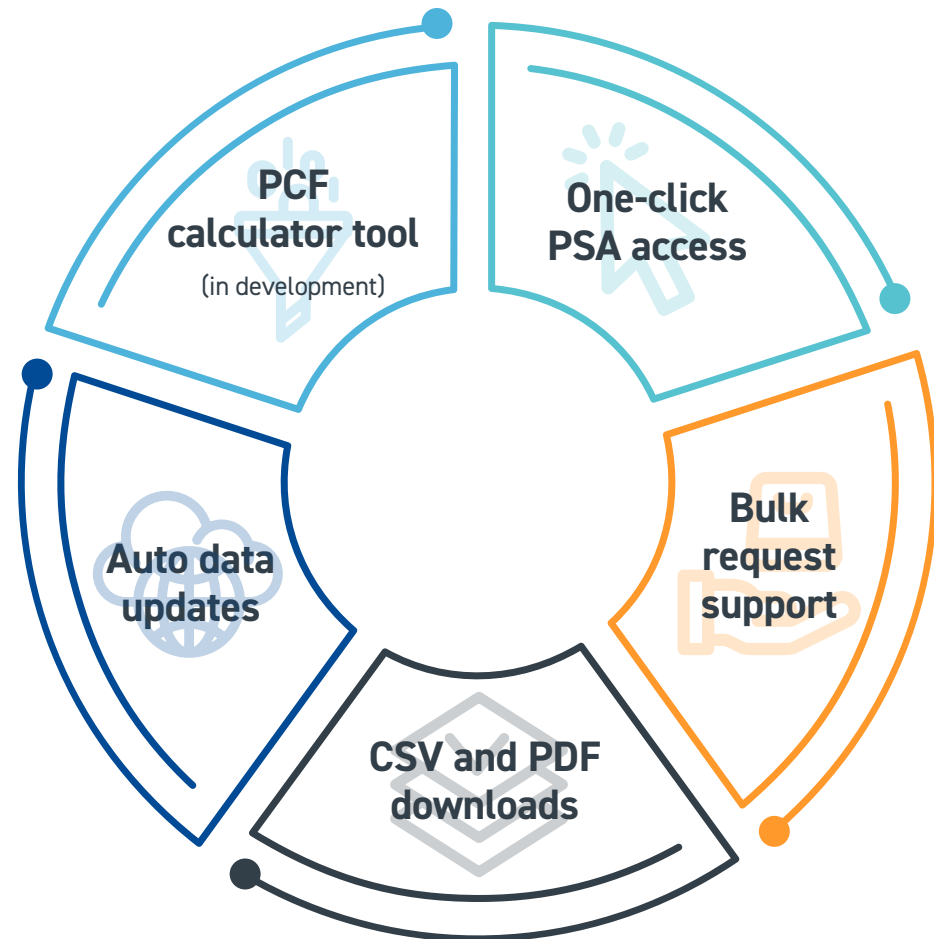- 50% admin reduction badge

How PACIFIC Empowers Small and Medium-Sized Suppliers

PACIFIC is also being extended with a PCF part calculation tool, allowing SMEs who do not currently calculate PCFs to generate them using pre-configured methodologies aligned with the Catena-X rulebook. Walden outlines the case, saying, "we are also in the process of developing a calculation tool which enables companies who do not yet have data around PCFs to easily calculate the PCF of their products and share it with their customers."

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PCF calculator tool (in development)

One-click PSA access

Bulk request support

CSV and PDF downloads

Auto data updates

Strategic Deployment via Cofinity-X

For BASF and CircularTree, launching the PACIFIC app via the Cofinity-X App Store was about simultaneously enhancing visibility and trust. Kiciak notes, "before an application can be uploaded to the Cofinity-X app store, it must be certified... this certification guarantees that the app complies with requisite transparency standards."

This certification helps assure users that any data exchanged via PACIFIC meets Catena-X requirements for frequency, format, and interoperability, thereby enabling confident decision-making across the network. The listing on Cofinity-X provides discoverability for customers seeking certified PCF solutions, helping to drive adoption across the global automotive ecosystem.

Future Development and Roadmap

Both BASF and CircularTree have a roadmap for evolving PACIFIC to meet emerging needs. Walden highlights, "we are actively developing a calculation tool which enables automotive suppliers who do not yet have PCFs to calculate the PCF of their products and share it with their customers."

Holschuh also points to upcoming capabilities. "This year, BASF plans to offer the capability for customers to directly calculate PCF values within the PACIFIC app for parts they produce using BASF materials."

In addition to expanded calculation functions, PACIFIC will be updated in line with evolving regulatory frameworks, particularly as the Catena-X rulebook is revised. By remaining active in Catena-X working groups, BASF and CircularTree ensure the PACIFIC app remains future-proofed against frameworks such as CBAM, CSRD, and digital product passports.

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Conclusion: A Model for Carbon Transparency in Automotive Industry

The PACIFIC app represents a collaborative, standards-based approach to carbon footprint management in the automotive industry. The solution demonstrates how digital tools, developed through partnerships like that between BASF and CircularTree, can deliver operational efficiency, regulatory readiness, and data integrity at scale.

Through integration with Catena-X and strategic deployment via Cofinity-X, the PACIFIC app enables end-to-end carbon transparency while preserving data sovereignty and interoperability. Its user-centric design, compatibility with existing enterprise resource planning (ERP) systems, and support for SMEs make it a practical and scalable solution.

The PACIFIC app points to an
automotive future
where PCF data is as readily accessible and actionable as any other business-critical metric.

As sustainability reporting becomes more rigorous and complex, the approach taken by BASF and CircularTree sets a useful precedent for automotive producers and tier-suppliers across the globe. The lessons of this collaboration suggest that combining material expertise with digital innovation is key to building more resilient and responsible value chains. The PACIFIC app points to an automotive future where PCF data is as readily accessible and actionable as any other business-critical metric.

Find out more here